



JNAN VIKAS MANDAL'S

Mohanlal Raichand Mehta College of Commerce

Diwali Maa Degree College of Science

Amritlal Raichand Mehta Degree College of Arts

Padmashree (Dr.) R.T. Doshi Degree College of Computer Science

Plot no.9, Sector -19, Airoli Navi Mumbai

➤ **Name of the activity – Certificate Course in Competitive Exam Preparation for SYBMS (Departmental course)**

➤ **Members involved –**

Dr. Leena Sarkar – Principal

Asst. Prof. Yogita Sawant – Coordinator- BMS Department

➤ **Organizing Committee :**

Asst.Prof.Navaj Mulani

Asst.Prof.Onkar Mone

Asst.Prof.Divya Gautam

Asst.Prof..Riyu Haldankar

Asst. Prof. Tejas Risbood





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Plot no 9, Sector -19, Airoli, Navi Mumbai.

Department of BMS

Notice

17th June, 2023

All the departmental members are hereby informed that the departmental meeting will be conducted on Monday, 19th June 2023 at 11:00 AM in the Principal's Office.

Agenda of the meeting will be as follows: -

1. Discussion regarding which certificate course to be conducted.
2. Discussion regarding Duration and Time of the Orientation of Certificate course.
3. Discussion regarding Objectives of the Orientation of course.
4. Discussion regarding the duration of the course.

Neena
Dr. Leena Sarkar

Principal

PRINCIPAL
JNAN VIKAS MANDAL'S
M.R. MEHTA COLLEGE OF COMMERCE
D.M. COLLEGE OF SCIENCE
A.R. MEHTA COLLEGE OF ARTS
Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE
Plot No.9, SEC.- 19, AIROLI,
NAVI MUMBAI-400 70A





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Minutes of The Meeting

The meeting of the Department of BMS was held with the Principal madam on Monday, 19th July, 2023 at 12:30 PM in the Principal's cabin for organizing a certificate course for SYBMS. The meeting was presided over by the Chairperson - Principal Dr. Leena Sarkar and attended by Vice - Principal Dr. B. R. Deshpande, Asst Prof. Yogita Sawant, Asst. Prof. Navaj Mulani, Asst. Prof. Onkar Mone, Asst. Prof. Divya Gautam, Asst. Prof. Riyu Haldankar and Asst. Prof. Tejas Risbood. In the meeting following points were discussed and decisions were taken in order to discuss about the organization of orientation of Certificate course

Below are the minutes of the meeting:

- Date of Course Initiation – 22nd June, 2023
- Duration of the Course 40 Hours.
- The Course Title for SYBMS was finalized as 'Certificate Course in Competitive Exam Preparation'.
- Course Design will be prepared for SYBMS which includes objective, syllabus, assessment method, Pedagogy etc.



Work distribution and planning

- Certificate designing – Asst. Prof. Tejas Risbood
- Questions to be prepared – Individual Faculty
- Quiz form creation – Asst. Prof. Onkar Mone
- WhatsApp group handling and query solving – Asst. Prof. Navaj Mulani
- Certificate allotment – Asst.Prof. Riyu Haldankar
- Report/Data handling – Asst. Prof. Divya Gautam
- Testing of registration & Quiz forms to check technicalities and flaws if any
- Asst.Prof. Yogita Sawant

Dr. Leena Sarkar - Principal

Neena

Asst. Prof. Yogita Sawant - Coordinator (BMS)

Yogita

Asst. Prof. Navaj Mulani

N.M.

Asst. Prof. Onkar Mone

Onkar

Asst. Prof. Divya Gautam

D.G.

Asst.Prof.Riyu Haldankar

Riyu

Asst. Prof. Tejas Risbood

Tejas






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Plot no 9, Sector -19, Airoli, Navi Mumbai.

Notice of Certificate Course

Date: 20th June, 2023

All the students of SYBMS are hereby informed that the Certificate Course in Competitive Exam Preparation, organized by the Department of BMS will be commencing from Thursday, 22nd June, 2023 at 7:00 AM . This course is Free of Cost and will be helpful for students to have a thorough understanding about various preparatory aspects of competitive exams and what areas of study are important to crack any competitive exam. So all the Students are requested to be present and take advantage of the same.


Asst. Prof. Yogita Sawant

Coordinator


Dr. Leena Sarkar

Principal



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JNAN VIKAS MANDAL'S
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Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE
Plot No.9, SEC.- 19, AIROLI,
NAVI MUMBAI-400 708

FEEDBACK FORM IMAGES

CERTIFICATE COURSE SYBMS TERM I 2023-2024

Questions Responses Settings Total points: 40

SYBMS CERTIFICATE COURSE FEEDBACK FORM

Description (optional)

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON YOGITA SAWANT ? *

	1	2	3	4	5	
POOR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	EXCELLENT

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON NAVAJ MULANI ? *

	1	2	3	4	5	
POOR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	EXCELLENT

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON ONKAR MONE ? *

	1	2	3	4	5	
POOR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	EXCELLENT

20°C Mistry chaitany

CERTIFICATE COURSE SYBMS TERM I 2023-2024

Questions Responses Settings Total points: 40

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON ONKAR MONE ? *

	1	2	3	4	5	
POOR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	EXCELLENT

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON DIVYA GALTAM ? *

	1	2	3	4	5	
POOR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	EXCELLENT

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON RIYA HALDANKAR ? *

	1	2	3	4	5	
POOR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	EXCELLENT

20°C Mistry chaitany



[Inbox \(26\) - jmbmvsy0pJ021E](#) x [QUESTION PAPER AND FEEDBACK](#) x [CERTIFICATE COURSE SYBMS TER](#) x [Course design SYBMS.docx - Go](#) x [REPORT of SYBMS Certificate Co](#) x

[dacs.google.com/forms/d/1V5AY8hw7mWR_uak1EEDwq_yo56rIqbyq2ZUqjL8VUw/d1](#)

CERTIFICATE COURSE SYBMS TERM I 2023-2024

Questions Responses Settings Total points: 40

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON TEJAS RISBOOD ? *

1 2 3 4 5

POOR EXCELLENT

HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON YOGITA SAWANT ? *

1 2 3 4 5

POOR EXCELLENT

HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON NAVAJ MULANI ? *

1 2 3 4 5

POOR EXCELLENT

28°C Mostly cloudy

Search

ENG IN 13-07-2023

[Inbox \(26\) - jmbmvsy0pJ021E](#) x [QUESTION PAPER AND FEEDBACK](#) x [CERTIFICATE COURSE SYBMS TER](#) x [Course design SYBMS.docx - Go](#) x [REPORT of SYBMS Certificate Co](#) x

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CERTIFICATE COURSE SYBMS TERM I 2023-2024

Questions Responses Settings Total points: 40

HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON ONKAR MONE ? *

1 2 3 4 5

POOR EXCELLENT

HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON DIVYA GAUTAM ? *

1 2 3 4 5

POOR EXCELLENT

HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON RIVU HALDANKAR ? *

1 2 3 4 5

POOR EXCELLENT

28°C Mostly cloudy

Search

ENG IN 13-07-2023



Inbox (26) - jnmmecep2021f x QUESTION PAPER AND FEEDBA... x CERTIFICATE COURSE SYBMS TER... x Course design SYBMS.docx - Go... x REPORT of SYBMS Certificate Co... x

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CERTIFICATE COURSE SYBMS TERM I 2023-2024 ☆

Questions Responses Settings Total points: 40

HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON TEJAS RIBBOOD? *

1 2 3 4 5

POOR EXCELLENT

DID THE COURSE MEET YOUR EXPECTATIONS? *

1 2 3 4 5

POOR EXCELLENT

HOW WELL THE COURSE WAS ORGANISED? *

1 2 3 4 5

POOR EXCELLENT

28°C Mulya Chaudy Search

Inbox (26) - jnmmecep2021f x QUESTION PAPER AND FEEDBA... x CERTIFICATE COURSE SYBMS TER... x Course design SYBMS.docx - Go... x REPORT of SYBMS Certificate Co... x

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CERTIFICATE COURSE SYBMS TERM I 2023-2024 ☆

Questions Responses Settings Total points: 40

HOW DID YOU FIND THE CONTENT OF THE COURSE? *

1 2 3 4 5

POOR EXCELLENT

WHAT ASPECTS OF THE COURSE WAS MOST USEFUL OR VALUABLE? *

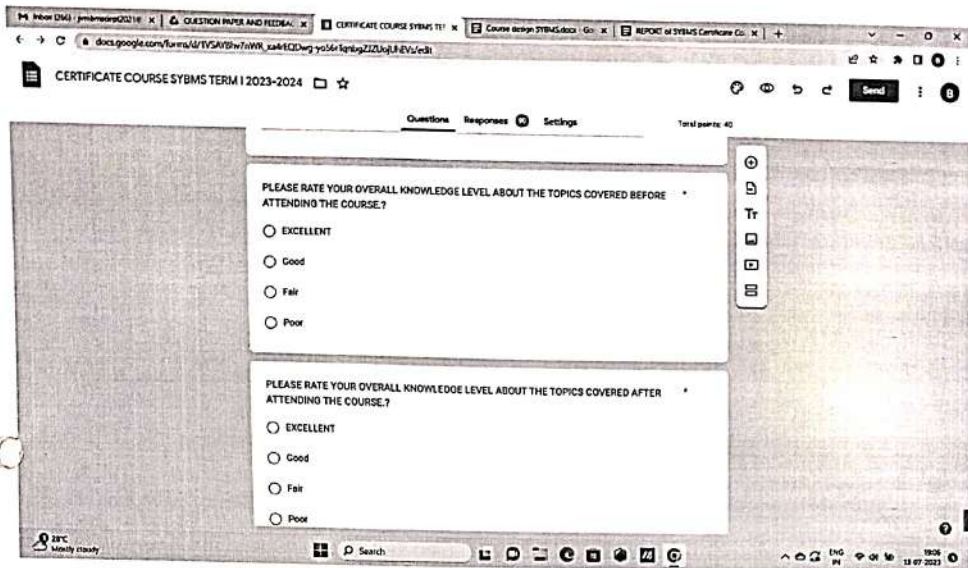
Long answer text

PLEASE RATE YOUR OVERALL KNOWLEDGE LEVEL ABOUT THE TOPICS COVERED BEFORE ATTENDING THE COURSE? *

EXCELLENT
 Good
 Fair
 Poor

28°C Mulya Chaudy Search





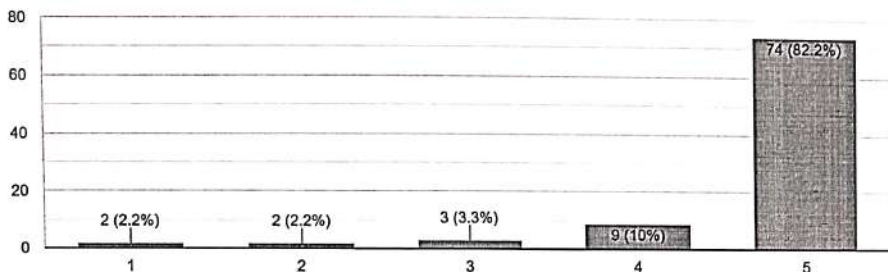
FEEDBACK FORM LINK:

<https://forms.gle/55EAMzuvfVtkwDTDA>

FEEDBACK FORM ANALYSIS

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON YOGITA SAWANT.?

90 responses



Neena

PRINCIPAL

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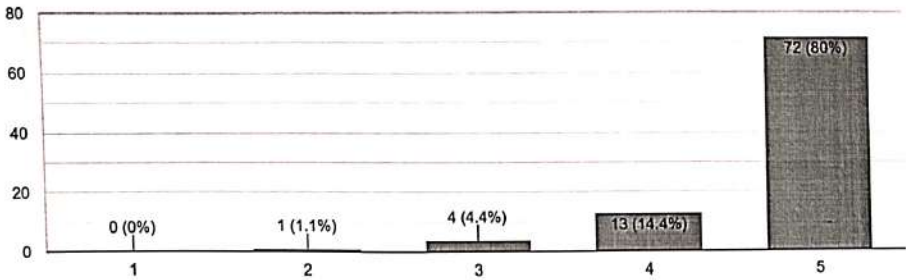
Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE

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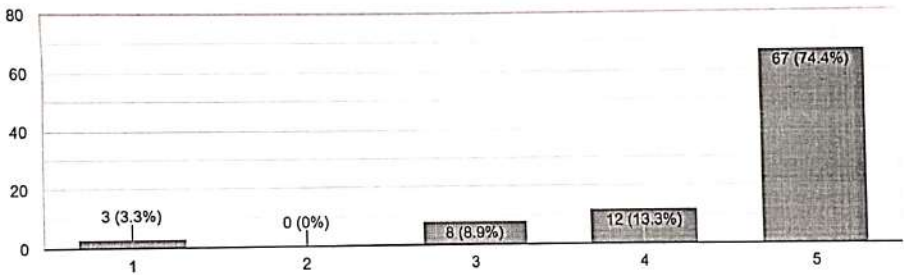
HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON NAVAJ MULANI.?

90 responses



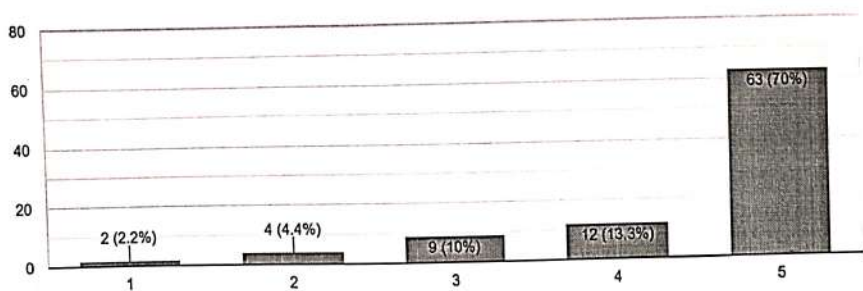
HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON ONKAR MONE.?

90 responses



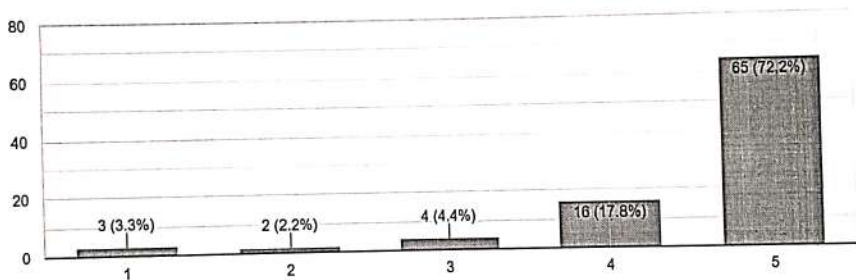
HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON DIVYA GAUTAM.?

90 responses



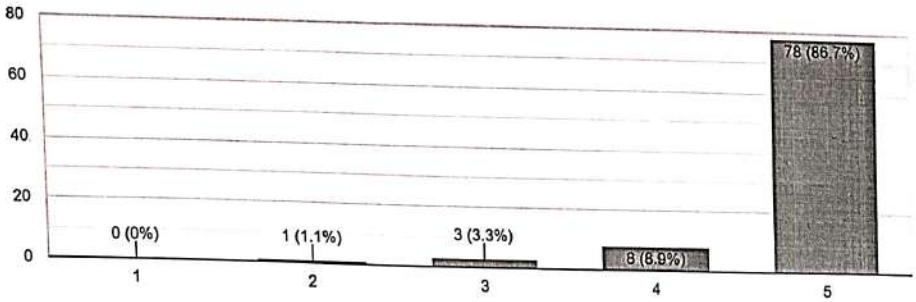
HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON RIYU HALDANKAR.?

90 responses



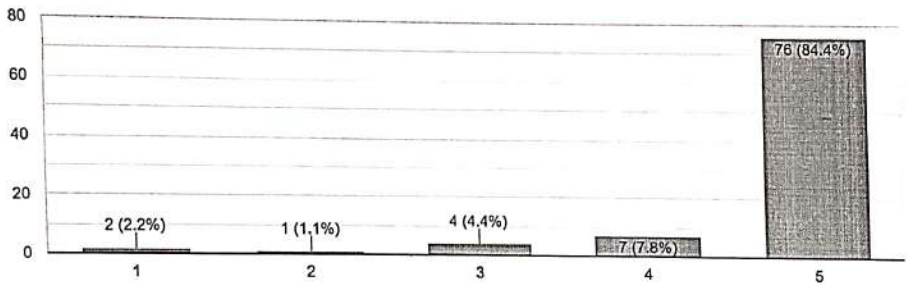
HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON TEJAS RISBOOD.?

90 responses



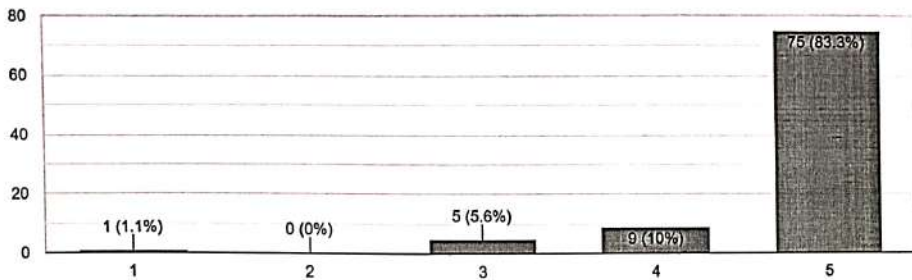
HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON YOGITA SAWANT.?

90 responses



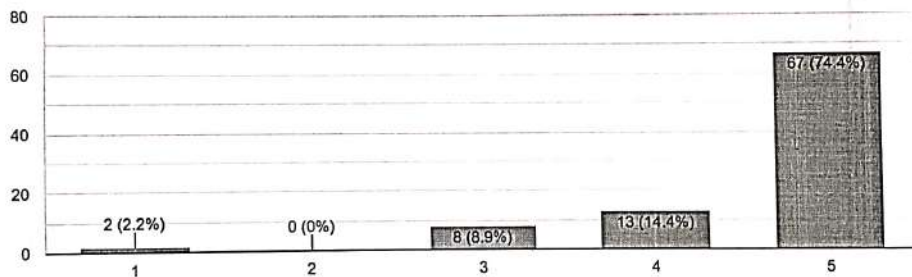
HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON NAVAJ MULANI.?

90 responses



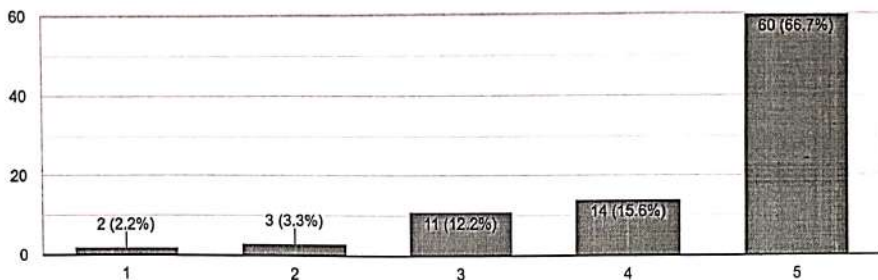
HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON ONKAR MONE.?

90 responses



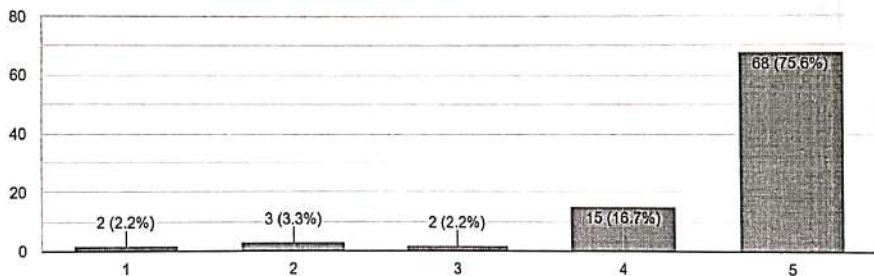
HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON DIVYA GAUTAM.?

90 responses



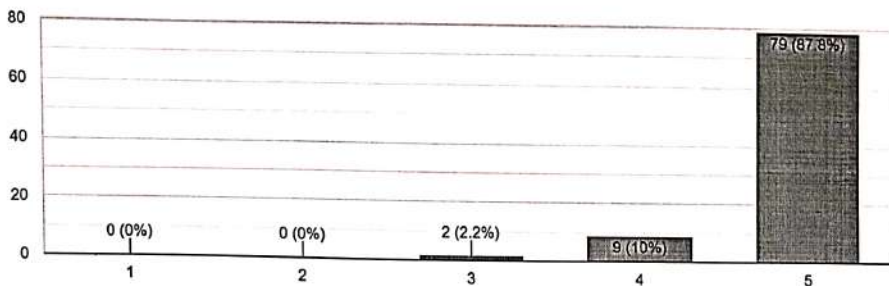
HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON RIYU HALDANKAR.?

90 responses



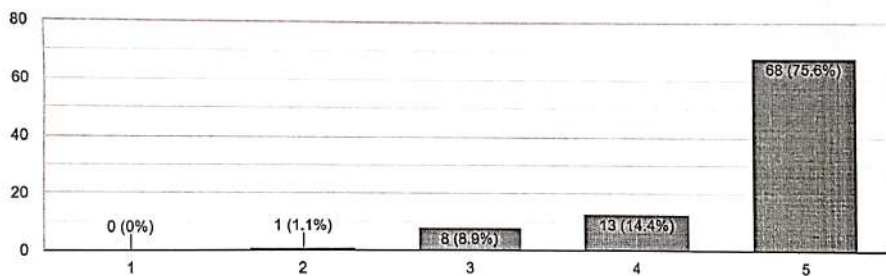
HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON TEJAS RISBOOD?

90 responses



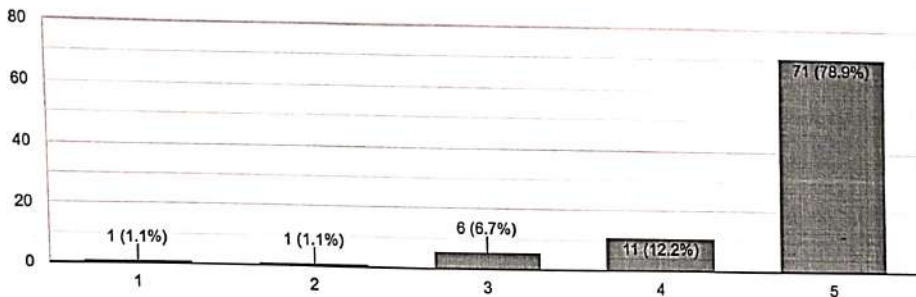
DID THE COURSE MEET YOUR EXPECTATIONS.?

90 responses



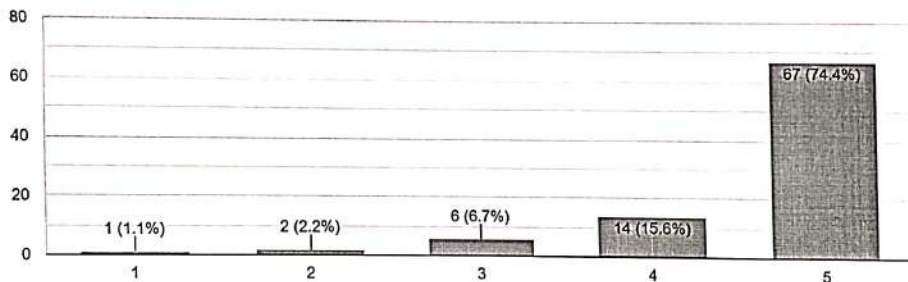
HOW WELL THE COURSE WAS ORGANISED.?

90 responses



HOW DID YOU FIND THE CONTENT OF THE COURSE.?

90 responses



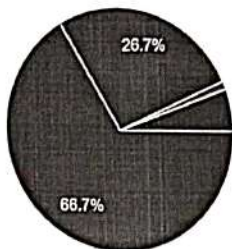
Keena

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NAVI MUMBAI-400 708



PLEASE RATE YOUR OVERALL KNOWLEDGE LEVEL ABOUT THE TOPICS COVERED BEFORE ATTENDING THE COURSE.?

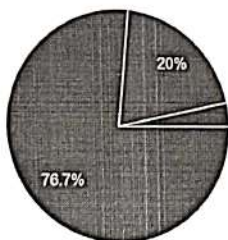
90 responses



- EXCELLENT
- Good
- Fair
- Poor

PLEASE RATE YOUR OVERALL KNOWLEDGE LEVEL ABOUT THE TOPICS COVERED AFTER ATTENDING THE COURSE.?

90 responses



- EXCELLENT
- Good
- Fair
- Poor

Neena

PRINCIPAL

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D.M. COLLEGE OF SCIENCE
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Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE
Plot No.8, SEC.- 19, AIROLI,
NAVI MUMBAI-400 708



LIST OF THE PARTICIPANTS

SVBMS Attendance Sheet - Certificate Course (22nd June 2023 - 30th June 2023)																																										
Roll No.	Name of Students	Thursday					Friday					Saturday					Monday					Tuesday					Wednesday					Thursday					Friday					Total
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5						
9001	Lavanya A.	P	P	P	P	P																															15					
9002	Akhlesh B.	P	P	P	P	P	P	P	P																												24					
9003	Iltish D.																																				04					
9004	Rushabh B.																																				19					
9005	Sakshi B.	P	P	P	P																															16						
9006	Vivek C.																																			60						
9007	Chaitali C.	P	P	P	P																															20						
9008	Aulitya C.																																			08						
9010	Aman C.	P	P	P																																10						
9011	Ahishbek C.																																			60						
9012	Anantika C.																																			04						
9013	Rohit C.																																			20						
9014	Tanuja C.	P	P	P	P	P																														20						
9015	Pranay C.																																			03						
9016	Radheshingh C.																																			64						
9017	Dhavana C.	P	P	P	P	P																														20						
9018	Nandini C.																																			00						
9019	Mohini D.	P	P	P	P																															16						
9020	Yash D.	P	P	P	P	P																														12						
9021	Suveer D.	P	P	P	P	P																														20						
9022	Akshay D.	P	P	P	P	P																														15						
9023	Kartik D.																																			16						
9024	Sarihak D.	P	P	P	P	P																														24						
9025	Pooja D.																																			11						
9026	Itanika D.	P	P	P	P																															08						
9027	Rutuja D.	P	P	P	P	P																														16						
9028	Tanishq D.																																			—						
9029	Aditya G.																																			—						
9030	Ayush G.	P	P	P	P																															15						
	Total	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30						
	Present	13	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15						
	Absent	17	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15					
	Lecturer	T	M	O	R	T	N	O	R	T	R	O	R	T	R	O	R	T	R	O	R	T	R	O	R	T	R	O	R	T	R	O	R	T	R	O	R					



SYBMS Attendance Sheet - Certificate Course (22nd June 2023 - 30th June 2023)

Roll No.	Name of Students	Thursday					Friday					Saturday					Monday					Tuesday					Wednesday					Thursday					Friday					Total
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
9031	Pawan G.	P	P	P	P		P	P	P	P					P	P	P		P	P	P	P																19				
9032	Yashvi G.	P	P	P	P		P	P	P	P					P	P	P		P	P	P	P															24					
9033	Pratik G.	P	P	P	P		P	P	P	P					P	P	P		P	P	P	P															24					
9034	Ashish G.	P	P	P	P		P	P	P	P					P	P	P		P	P	P	P															19					
9035	Gaurav G.	P	P	P	P		P	P	P	P					P	P	P		P	P	P	P															24					
9036	Kartik G.	P	P	P	P		P	P	P	P					P	P	P		P	P	P	P															22					
9037	Praveta G.	P	P	P			P	P	P	P					P	P	P		P	P	P	P															20					
9038	Sumit G.						P	P	P	P					P	P	P		P	P	P	P															12					
9039	Aditya J.						P	P	P	P					P	P	P		P	P	P	P															09					
9040	Anjali J.						P	P	P	P					P	P	P		P	P	P	P															09					
9041	Rohit J.						P	P	P	P					P	P	P		P	P	P	P															12					
9042	Akshay J.						P	P	P	P					P	P	P		P	P	P	P															12					
9043	Tirth J.	P	P	P	P										P	P	P		P	P	P	P															24					
9044	Anandash K.	P	P	P	P		P	P	P	P					P	P	P		P	P	P	P															08					
9045	Lokesh K.														P	P	P		P	P	P	P															20					
9046	Sakshi K.	P	P	P	P		P	P	P	P					P	P	P		P	P	P	P															24					
9047	Dhanashree K.	P	P	P	P		P	P	P	P					P	P	P		P	P	P	P															19					
9048	Anushka K.	P	P	P	P		P	P	P	P					P	P	P		P	P	P	P															09					
9049	Virek K.																																				04					
9050	Yash K.																																				14					
9051	Sonu K.																																				04					
9052	Yash K.																																				14					
9053	Aditya K.																																				16					
9054	Prachi K.	P	P	P	P		P	P	P	P					P	P	P		P	P	P	P															20					
9055	Nandini K.	P	P	P	P		P	P	P	P					P	P	P		P	P	P	P															09					
9056	Amit K.																																					09				
9057	Kushal K.																																					03				
9058	Vaishnavi K.																																					08				
9059	Aarsha K.																																					08				
9060	Talaha K.																																					08				

Total	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Present	4	4	4	5	16	22	22	22	22	22	13	13	13	13	13	16	16	16	16	16	12	12	12	12	12	12	12	12	12	12	12	13	13	13	13	13	13
Absent	16	16	16	15	14	14	14	14	14	14	17	17	17	17	17	14	14	14	14	14	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17
Lecturer	T	N	D	R	T	N	D	R	T	N	D	R	T	N	D	R	T	N	D	R	T	N	D	R	T	N	D	R	T	N	D	R	T	N	D	R	T



SYBMS Attendance Sheet - Certificate Course (22nd June 2023 - 30th June 2023)

Roll No.	Name of Students	Thursday				Friday				Saturday				Monday				Tuesday				Wednesday				Thursday				Friday				Total			
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2		3	4	5
9101	Pratik K.															PPP			PP																		96
9102	Valdebi K.															PPP																					97
9103	Ritika K.																																				97
9104	Ayushman K.																																				97
9105	Shrutil M.																																				97
9106	Soham M.																																				97
9107	Gaurav M.																																				97
9108	Komal M.																																				97
9109	Mohd. Ismail																																				97
9110	Aditya M.																																				97
9111	Bhagyeesha M.																																				97
9112	Adarsh M.																																				97
9113	Sejal M.																																				97
9114	Shlok N.																																				97
9115	Chaital N.																																				97
9116	Sagar N.																																				97
9117	Aditya N.																																				97
9118	Atharvi N.																																				97
9119	Jagunrayan P.																																				97
9120	Mahak P.																																				97
9121	Sunilkumar P.																																				97
9122	Atharva P.																																				97
9123	Akanisha P.																																				97
9124	Jeet P.																																				97
9125	Kaushal P.																																				97
9126	Plyuth P.																																				97
9127	Sarika P.																																				97
9128	Sushant P.																																				97
9129	Arnesh P.																																				97
9130	Aayush P.																																				97
Total		30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
Present		54	10	10	7	14	11	14	13	11	11	13	6	11	11	13	6	16	11	16	16	11	16	11	11	11	11	11	11	11	11	11	11	11	11	11	
Absent		22	20	20	23	16	16	16	17	19	16	16	19	19	16	16	19	14	14	14	14	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	
Lecturer		T	N	O	R	T	N	O	R	T	N	O	R	T	N	O	R	T	N	O	R	T	N	O	R	T	N	O	R	T	N	O	R	T	N	O	R



SYBMS Attendance Sheet - Certificate Course (22nd June 2023-30th June 2023)

Roll No.	Name of Students	Thursday				Friday				Saturday				Monday				Tuesday				Wednesday				Thursday				Friday				Total				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		1	2	3	4
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		1	2	3	4
9131	Pratham P.	P	P	P		P	P	P						P	P	P		P	P	P	P	P	P	P	P					P	P	P	P					15
9132	Samruddhi P.	P	P	P		P	P	P										P	P	P	P	P	P	P	P					P	P	P	P					64
9133	Manasa P.																	P	P	P	P	P	P	P	P													12
9134	Shimon R.	P	P	P														P	P	P	P	P	P	P	P					P	P	P	P					16
9135	Priyanka R.	P	P	P	P									P	P	P	P	P	P	P	P	P	P	P	P					P	P	P	P					61
9136	Jeevan R.																																					60
9137	Sangeeta R.																					P	P	P	P													56
9138	Neha R.					P	P	P						P	P	P	P	P	P	P	P	P	P	P	P					P	P	P	P					16
9139	Shweta S.																	P	P	P	P	P	P	P	P													12
9140	Jayvi S.					P	P	P	P									P	P	P	P	P	P	P	P													16
9141	Omkar S.	P	P	P	P									P	P	P	P	P	P	P	P	P	P	P	P													64
9142	Dev S.																																					60
9143	Vignesh S.																																					12
9144	Dipil S.	P	P	P	P									P	P	P	P	P	P	P	P	P	P	P	P													64
9145	Samir S.																					P	P	P	P													63
9146	Sami S.																					P	P	P	P													66
9147	Anjali S.	P	P	P	P									P	P	P	P	P	P	P	P	P	P	P	P													11
9148	Dipak S.	P	P	P	P									P	P	P	P	P	P	P	P	P	P	P	P													60
9149	Gaurav S.																	P	P	P	P	P	P	P	P													15
9150	Mehul S.	P	P	P	P									P	P	P	P	P	P	P	P	P	P	P	P													14
9151	Pranav S.	P	P	P	P													P	P	P	P	P	P	P	P													60
9153	Diksha S.					P	P	P	P									P	P	P	P	P	P	P	P													16
9154	Sakshi S.																	P	P	P	P	P	P	P	P													60
9155	Aditi S.	P	P	P	P													P	P	P	P	P	P	P	P													60
9157	Anurag S.																																					60
9158	Eshpalata S.					P	P	P	P																													63
9159	Abhishek S.	P	P	P	P									P	P	P	P	P	P	P	P	P	P	P	P													19
9160	Ankur S.	P	P	P	P													P	P	P	P	P	P	P	P													19
Total		30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
Present		12	14	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
Absent		2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Lecturer		T	N	D	R	T	N	D	R	T	N	D	R	T	N	D	R	T	N	D	R	T	N	D	R	T	N	D	R	T	N	D	R	T	N	D	R	



SYBMS Attendance Sheet - Certificate Course (22nd June 2023 - 30th June 2023)

Roll No.	Name of Students	Thursday					Friday					Saturday					Monday					Tuesday					Wednesday					Thursday					Friday					Total					
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5						
		9801	Om S.																																										68		
9802	Rajshree S.	P	P	P	P	P	P	P	P	P	P						P	P	P	P	P	P	P	P	P	P						P	P	P	P	P						24					
9803	Shravan S.	P	P	P																																						57					
9804	Namrata S.						P	P	P			H																														63					
9805	Swanand S.						P	P	P	P	P											P	P	P	P	P						P	P	P	P	P						16					
9806	Sneha S.	P	P	P	P	P	P	P	P	P	P						P	P	P	P	P	P	P	P	P	P						P	P	P	P	P						23					
9807	Shreyani S.						P	P	P			P										P	P	P	P	P																67					
9808	Anurag T.	P	P	P	P	P	P	P	P	P	P						P	P	P	P	P	P	P	P	P	P						P	P	P	P	P						24					
9809	Shradha T.		P	P	P		P	P	P			L					P	P	P	P	P	P	P	P	P	P						P	P	P	P	P						14					
9810	Mitali V.	P	P	P	P							L					P	P	P	P	P	P	P	P	P	P						P	P	P	P	P						19					
9811	Tanaya V.	P	P	P	P	P	P	P	P	P	P						P	P	P	P	P	P	P	P	P	P						P	P	P	P	P						24					
9812	Vikram V.						P	P	P	P	P						P	P	P	P	P	P	P	P	P	P						P	P	P	P	P						20					
9813	Aditya V.						P	P	P	P	P											P	P	P	P	P																68					
9814	Khushboo V.																																									60					
9815	Khushi V.	P	P	P	P	P	P	P	P													P	P	P	P	P						P	P	P	P	P						15					
9816	Ravi V.	P	P	P	P		P	P	P													P	P	P	P	P																64					
9817	Sakshi W.																					P	P	P	P	P																16					
9818	Shrud W.	P	P				P	P	P								P	P	P	P	P	P	P	P	P	P						P	P	P	P	P						64					
9819	Ashish Y.																					P	P	P	P	P																60					
9820	Chetana M.																																									62					
9821	Yedantiraj N.						P	P	P													P	P	P	P	P																68					
9822	Kundan M.	P	P	P													P	P	P			P	P	P	P	P																69					
9823	Parth M.																																									60					
9824	Chinmay D.	P	P	P	P	P	P	P	P	P	P																					P	P	P	P	P						12					
9825	Mohammad Arsal						P	P	P																																	63					
9826	Utkarsh S.																																									60					
9827	Sneha K.	P	P	P													P	P	P			P	P	P	P	P																64					
9828	Jeevi B.																																									60					
9829	Sweethi C.																																									60					
9830	Mohini K.																																									60					
Total		30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30						
Present		11	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13						
Absent		19	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17						
Lecturer		T	U	R			T	U	R			T	U	R			T	U	R			T	U	R			T	U	R			T	U	R			T	U	R								



CERTIFICATE



JNAN VIKAS MANDAL'S DEGREE COLLEGE, AIROLI

Plot no.9, Sector-19, Airoli, Navi Mumbai-400708
NAAC Re-Accredited Grade 'A' (CGPA 3.33) (2nd Cycle)
(Affiliated to University of Mumbai)

CERTIFICATE OF PARTICIPATION

This Certificate is Awarded to

<< NAME >>

for completing 40 hours of "Certificate Course in Competitive Exam Preparation" organised by Department of Bachelor of Management Studies (BMS) of Jnan Vikas Mandal's Degree College, Airoli, Navi Mumbai from 22nd June, 2023 – 30th June, 2023.

Asst. Prof. Yogita Sawant
BMS COORDINATOR

Dr. Mrs. Leena Sarkar
PRINCIPAL

PRINCIPAL
JNAN VIKAS MANDAL'S
M.R. MEHTA COLLEGE OF COMMERCE
D.M. COLLEGE OF SCIENCE
A.R. MEHTA COLLEGE OF ARTS
Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE
Plot No.9, SEC.- 19, AIROLI,
NAVI MUMBAI-400 708





JNAN VIKAS MANDAL'S
Mohanlal Raichand Mehta College of Commerce
Diwali Maa Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no 9, Sector -19, Airoli, Navi Mumbai.

BMS Department

Certificate Course in Personality Development (SYBMS 2023-2024)

Course Overview:

With the increase in importance of higher education and desire to take up challenging jobs, the number of students preparing for competitive examinations has drastically increased. Hence, it is important that students should have an overall idea about various preparatory aspects of competitive exams and what areas of study are important to crack any competitive exam such as English Language & Communication, Quantitative aptitude, General awareness & Current Affairs, Reasoning Aptitude etc. This will help the students to decide which field of competitive exam they wish to prepare for and what is expected from them to ensure that they will pass the competitive exam with flying colours.

Objectives of the Course:

- The course is about gaining knowledge of various subjects of competitive exams that students need to focus on if they wish to prepare for the same.
- The course will help students to improve their command of the English language and develop communication skills necessary to survive in the competitive world.
- The course will also ensure that students are aware about the various events happening all around the world and they are also motivated to keep themselves updated with current affairs everyday.
- The course will also focus on other aspects of competitive exams such as Reasoning Ability, Quantitative aptitude and Banking & financial awareness.



Course Outcome:

The course is strategically designed to cover all aspects about the basics of competitive exams. Students should be motivated to take up competitive exams in a positive spirit without any fear of studies or passing the exam. The result of the course will be calculated on the basis of a test (MCQ type) taken by the faculties at the end of the course. Students scoring more than 40% in the test will be awarded with the certificate.

Course Duration:

32 + 08 = 40 lectures of one hour each.

Pedagogy:

The subject is based on the classroom teaching and assignments. Active participation by the student is important as they are going to be involved in practical learning as case study, team projects and quizzes are main pedagogy instruments.

Assessment:

- Exam: The most important part of assessment is the exam which will be conducted at the end of the certificate course through which students can check their IQ related to the subject.
- Attendance: This will help students to maintain flow in their learning concepts.
- Active Participation: This will improve students communication and alertness and will learn the practical things related to the topic.

Earn a Certificate:

When you finish every course and complete the hands-on project, you'll earn a Certificate that you can share with prospective employers and your professional network.



CORE SYLLABUS

Duration: 08 Hours

Allocation of total hours for each topic

YOGITA SAWANT (08 Lectures)

SR. NO.	TOPICS	THEORY HOURS
1	Reading comprehension, cloze test, double fillers, error spotting	02
2	Sentence correction, Para jumbles, paragraph completion	03
3	Para summary, sentence connector, and vocabulary.	03

Duration: 08 Hours

Allocation of total hours for each topic

NAVAJ MULANI (08 Lectures)

SR. NO.	TOPICS	DURATION
1	Simplification & approximation, data interpretation, data sufficiency, number series, ratio & proportion, quadratic equations	02
2	Averages, boats & streams, simple interest & compound interest, percentage, profit & loss, mixtures & alligation	02
3	Permutation & combination	02
4	Probability	02



Duration: 08 Hours

Allocation of total hours for each topic

ONKAR MONE (08 Lectures)

SR. NO.	TOPICS	THEORY HOURS
1	Presentation skills	3
2	Public speaking	3

Duration: 08 Hours

Allocation of total hours for each topic

RIYU HALDANKAR (08 Lectures)

SR. NO.	TOPICS	DURATION
1	Sitting arrangements, tabulation, logical reasoning, syllogism, input-output, coding-decoding, alphanumeric series,	04
2	Blood relations, ranking, data sufficiency, distance & direction, coded inequalities, and verbal reasoning.	04

Duration: 08 Hours

Allocation of total hours for each topic

TEJAS RISBOOD (08 Lectures)

SR. NO.	TOPICS	DURATION
1	This topic consists of financial news, Banking Abbreviations, the Banking Regulation Act 1949, About & Functions of RBI Policy Rates	04
2	Types of Accounts, Negotiable instruments act 1881, Money market instruments, priority sector lending, financial inclusion, Money market instruments, Banking Ombudsman scheme 2006 & more	04





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Padmashree (Dr.) R.T. Doshi Degree College of Computer Science

Plot no 9, Sector -19, Airoli, Navi Mumbai.

DEPARTMENT OF BMS					
SYBMS CERTIFICATE COURSE TERM I TIME TABLE 2023-2024					
DATE & DAY	TIME & SUBJECT				
	7:00 to 7:50	7:50 to 8:40	8:40 to 9:30	9:50 to 10:40	10:40 to 11:30
22/6/2023 Thursday	Asst. Prof. Tejas Risbood	Asst. Prof. Onkar Mone	Asst. Prof. Navaj Mulani	Asst. Prof. Riyu Haldankar	Asst. Prof. Onkar Mone
23/6/2023 Friday	Asst. Prof. Riyu Haldankar	Asst. Prof. Navaj Mulani	Asst. Prof. Riyu Haldankar	Asst. Prof. Tejas Risbood	Asst. Prof. Onkar Mone
24/6/2023 Saturday	Asst. Prof. Navaj Mulani	Asst. Prof. Navaj Mulani	Asst. Prof. Yogita Sawant	Asst. Prof. Onkar Mone	Asst. Prof. Tejas Risbood
26/6/2023 Monday	Asst. Prof. Yogita Sawant	Asst. Prof. Tejas Risbood	Asst. Prof. Yogita Sawant	Asst. Prof. Riyu Haldankar	Asst. Prof. Tejas Risbood
27/6/2023 Tuesday	Asst. Prof. Yogita Sawant	Asst. Prof. Navaj Mulani	Asst. Prof. Riyu Haldankar	Asst. Prof. Onkar Mone	Asst. Prof. Tejas Risbood
28/6/2023 Wednesday	Asst. Prof. Tejas Risbood	Asst. Prof. Riyu Haldankar	Asst. Prof. Yogita Sawant	Asst. Prof. Tejas Risbood	Asst. Prof. Riyu Haldankar
29/6/2023 Thursday	Asst. Prof. Yogita Sawant	Asst. Prof. Navaj Mulani	Asst. Prof. Yogita Sawant	Asst. Prof. Onkar Mone	Asst. Prof. Onkar Mone
30/6/2023 Friday	Asst. Prof. Navaj Mulani	Asst. Prof. Yogita Sawant	Asst. Prof. Navaj Mulani	Asst. Prof. Riyu Haldankar	Asst. Prof. Onkar Mone

Yogita
Asst. Prof. Yogita Sawant

Coordinator



Leena
Dr. Leena Sarkar

PRINCIPAL
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Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no 9, Sector -19, Airoli, Navi Mumbai.

Report on Certificate Course in Competitive Exam Preparation (SYBMS)

Date:- 6th July, 2023

BMS department had organized a Certificate Course in Competitive Exam Preparation - 40 hours, for SYBMS students from 22nd June 2023 to 30th June 2023. The course was crafted to help students gain knowledge of various subjects of competitive exams that students need to focus on such as English Language & Communication, Quantitative aptitude, General awareness & Current Affairs, Reasoning Aptitude etc. The course will also ensure that students are aware about the various events happening all around the world and they are also motivated to keep themselves updated with current affairs everyday. Students should be motivated to take up competitive exams in a positive spirit without any fear of studies or passing the exam. All this will ultimately help the students to decide which field of competitive exam they wish to prepare for and what is expected from them to ensure that they will pass the competitive exam with flying colors. The result of the course was calculated on the basis of a test (MCQ type) taken by the faculties at the end of the course. Students scoring more than 40% in the test were awarded with the certificate.

Report prepared by - Asst. Prof. Divya Gautam

Report verified by - Asst. Prof. Yogita Sawant (BMS Coordinator)

Report approved by - Dr. Leena Sarkar – Principal



PRINCIPAL
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Plot No.9, SEC.- 19, AIROLI,
NAVI MUMBAI-400 70A



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Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli Navi Mumbai

➤ **Name of the activity** – Certificate Course in TERM I Competitive Exam Preparation for TYBMS(Departmental course)

➤ **Members involved** –

Dr. Leena Sarkar – Principal

Asst. Prof. Yogita Sawant – Coordinator- BMS Department

➤ **Organizing Committee** :

Asst.Prof.Navaj Mulani

Asst.Prof.Onkar Mone

Asst.Prof.Divya Gautam

Asst.Prof..Riyu Haldankar

Asst. Prof. Tejas Risbood





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Plot no 9, Sector -19, Airoli, Navi Mumbai.

Department of BMS

Notice

17th June, 2023

All the departmental members are hereby informed that the departmental meeting will be conducted with the Principal on Monday, 19th June, 2023 at 11:00 AM in the Principal's Office.

Agenda of the meeting will be as follows: -

1. Discussion regarding which certificate course to be conducted.
2. Discussion regarding Duration and Time of the Orientation of Certificate course.
3. Discussion regarding Objectives of the Orientation of course.
4. Discussion regarding the duration of the course.



Neena
Dr. Leena Sarkar

Principal

PRINCIPAL
JNAN VIKAS MANDAL'S
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Plot no 9, Sector -19, Airoli, Navi Mumbai.

Minutes of The Meeting

The meeting of the Department of BMS was held with the Principal madam on Monday, 19th June, 2023 at 12:30 PM in the Principal's cabin for organizing a certificate course for TYBMS. The meeting was presided over by the Chairperson - Principal Dr. Leena Sarkar and attended by Asst Prof. Yogita Sawant (Coordinator - BMS), Asst. Prof. Navaj Mulani, Asst. Prof. Onkar Mone, Asst. Prof. Divya Gautam and Asst. Prof. Riyu Haldankar and Asst. Prof. Tejas Risbood. In the meeting following points were discussed and decisions were taken in order to discuss about the organization of orientation of Certificate course.

Below are the minutes of the meeting:

- Date of Course Initiation – 22nd June, 2023
- Duration of the Course 40 Hours.
- The Course Title for TYBMS was finalized as 'Certificate Course in Competitive Exam Preparation'.
- Course Design will be prepared for TYBMS which includes objective, syllabus, assessment method, Pedagogy etc.



Work distribution and planning

- Certificate designing – Asst. Prof. Tejas Risbood
- Questions to be prepared – Individual Faculty
- Quiz form creation – Asst. Prof. Onkar Mone
- Coordination with participants on whatsapp group – Asst. Prof. Divya Gautam
- WhatsApp group handling and query solving – Asst. Prof. Onkar Mone
- Certificate allotment – Asst.Prof. Riyu Haldankar
- Report/Data handling – Asst. Prof. Divya Gautam
- Testing of registration cum Quiz forms to check technicalities and flaws if any
-Asst.Prof. Yogita Sawant

Dr.Leena Sarkar- Principal

Leena

Asst. Prof. Yogita Sawant - Coordinator (BMS)

Yogita

Asst. Prof. Navaj Mulani

Navaj

Asst. Prof. Onkar Mone

Onkar

Asst. Prof. Divya Gautam

Divya

Asst.Prof.Riyu Haldankar

Riyu

Asst. Prof. Tejas Risbood

Tejas



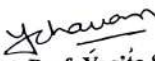



JNAN VIKAS MANDAL'S
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Diwali Maa Degree College of Science
Amrithal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no 9, Sector -19, Airoli, Navi Mumbai.

Notice of Certificate Course

Date: 20th June, 2023

All the students of TYBMS are hereby informed that the online certificate Course Organized by the department of BMS will be commencing from Tuesday, 22nd June, 2023 at 7:00 AM . This course is Free of Cost and will be helpful for students to develop and sharpen their knowledge and skills that are essential to stand apart from the others with some add-ons. So all the Students are requested to be present and take advantage of the same.


Asst. Prof. Yogita Sawant
Coordinator


Dr. Leena Sarkar
Principal



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D.M. COLLEGE OF SCIENCE
A.R. MEHTA COLLEGE OF ARTS
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Plot No.9, SEC.- 19, AIROLI,
NAVI MUMBAI-400 708

FEEDBACK FORM IMAGES

CERTIFICATE COURSE TYBMS TERM I 2023-2024

Questions Responses Settings Total points: 40

After section 1 Continue to next section

Section 2 of 2

TYBMS CERTIFICATE COURSE FEEDBACK FORM

Description (optional)

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON YOGITA SAWANT.? *

POOR 1 2 3 4 5 EXCELLENT

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON NAVAJ MULANI.? *

CERTIFICATE COURSE TYBMS TERM I 2023-2024

Questions Responses Settings Total points: 40

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON NAVAJ MULANI.? *

POOR 1 2 3 4 5 EXCELLENT

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON ONKAR MONE.? *

POOR 1 2 3 4 5 EXCELLENT

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON DIVYA GAUTAM.? *



how to use p... X | Inbo (7,260) X | Inbo (269) X | 2023-2024... X | CERTIFICATE X | REPORT of S... X | Report of Cer... X | TYBMS & SY... X | +

https://docs.google.com/forms/d/1N7-c3f5j7ymfVq27p55poX5uvOycYEHgnvO1cc2k/edit

CERTIFICATE COURSE TYBMS TERM I 2023-2024 ☆

Questions Responses Settings Total points 40

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON RIYU HALDANKAR.? *

1 2 3 4 5

POOR EXCELLENT

HOW WOULD YOU LIKE TO RATE THE COURSE RESOURCE PERSON TEJAS RISBOOD.? *

1 2 3 4 5

POOR EXCELLENT

HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON YOGITA SAWANT.? *

1 2 3 4 5

427 Heavy rain Search ENG IN 11:24 18-07-2023

how to use p... X | Inbo (7,260) X | Inbo (269) X | 2023-2024... X | CERTIFICATE X | REPORT of S... X | Report of Cer... X | TYBMS & SY... X | +

https://docs.google.com/forms/d/1N7-c3f5j7ymfVq27p55poX5uvOycYEHgnvO1cc2k/edit

CERTIFICATE COURSE TYBMS TERM I 2023-2024 ☆

Questions Responses Settings Total points 40

HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON YOGITA SAWANT.? *

1 2 3 4 5

POOR EXCELLENT

HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON NAVAJ MULANI.? *

1 2 3 4 5

POOR EXCELLENT

HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON ONKAR MONE.? *

1 2 3 4 5

427 Heavy rain Search ENG IN 11:24 18-07-2023



CERTIFICATE COURSE TYBMS TERM I 2023-2024

Questions Responses Settings Total points 40

HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON RIYU HALDANKAR?

	1	2	3	4	5	
POOR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	EXCELLENT

HOW WERE THE CONTENTS COVERED IN THE COURSE RESOURCE PERSON TEJAS RISBOOD?

	1	2	3	4	5	
POOR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	EXCELLENT

DID THE COURSE MEET YOUR EXPECTATIONS.?

11:27 18-07-2023

CERTIFICATE COURSE TYBMS TERM I 2023-2024

Questions Responses Settings Total points 40

DID THE COURSE MEET YOUR EXPECTATIONS.?

	1	2	3	4	5	
POOR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	EXCELLENT

HOW WELL THE COURSE WAS ORGANISED.?

	1	2	3	4	5	
POOR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	EXCELLENT

HOW DID YOU FIND THE CONTENT OF THE COURSE.?

	1	2	3	4	5	
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

11:27 18-07-2023



CERTIFICATE COURSE TYBMS TERM I 2023-2024

Questions Responses Settings Total points: 40

WHAT ASPECTS OF THE COURSE WAS MOST USEFUL OR VALUABLE? *

Long-answer text

PLEASE RATE YOUR OVERALL KNOWLEDGE LEVEL ABOUT THE TOPICS COVERED BEFORE ATTENDING THE COURSE.?

EXCELLENT
 GOOD
 FAIR
 Poor

PLEASE RATE YOUR OVERALL KNOWLEDGE LEVEL ABOUT THE TOPICS COVERED AFTER ATTENDING THE COURSE.?

CERTIFICATE COURSE TYBMS TERM I 2023-2024

Questions Responses Settings Total points: 40

FAIR
 Poor

PLEASE RATE YOUR OVERALL KNOWLEDGE LEVEL ABOUT THE TOPICS COVERED AFTER ATTENDING THE COURSE.?

EXCELLENT
 Good
 Fair
 Poor

Seena

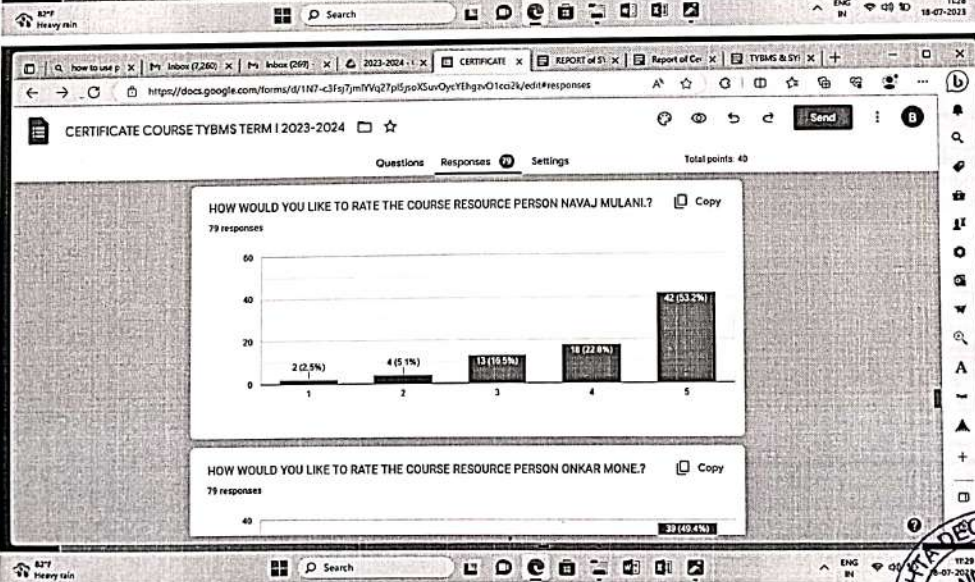
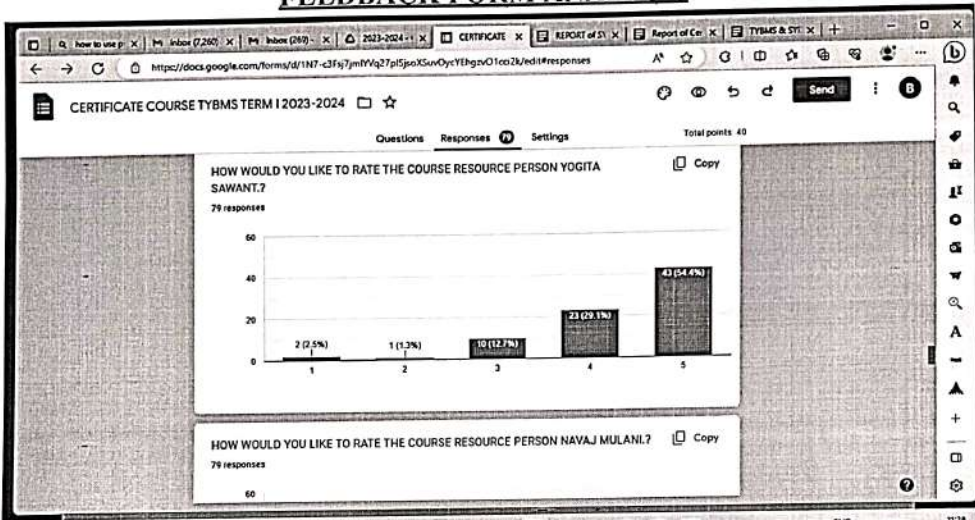
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 Plot No.9, SEC. - 19, AIROLI,
 NAVI MUMBAI-400 704

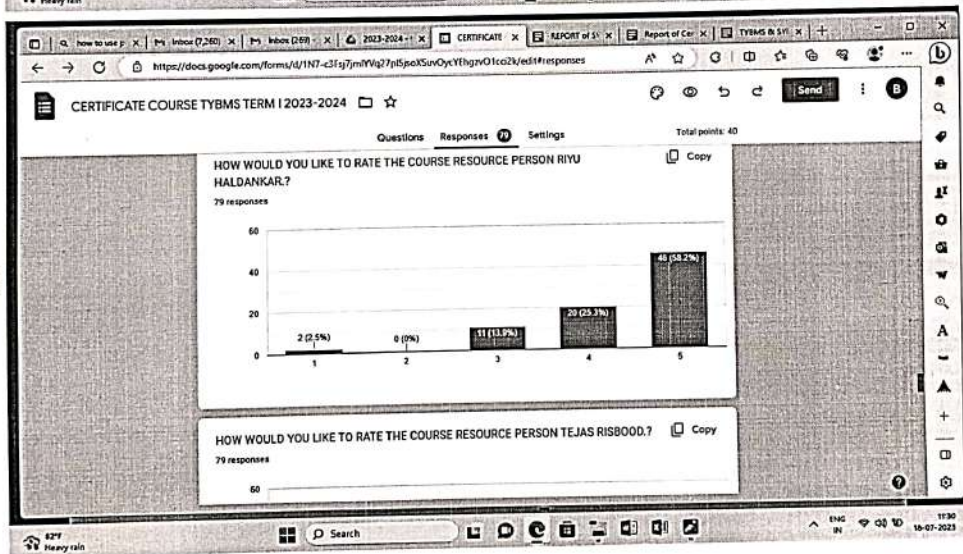
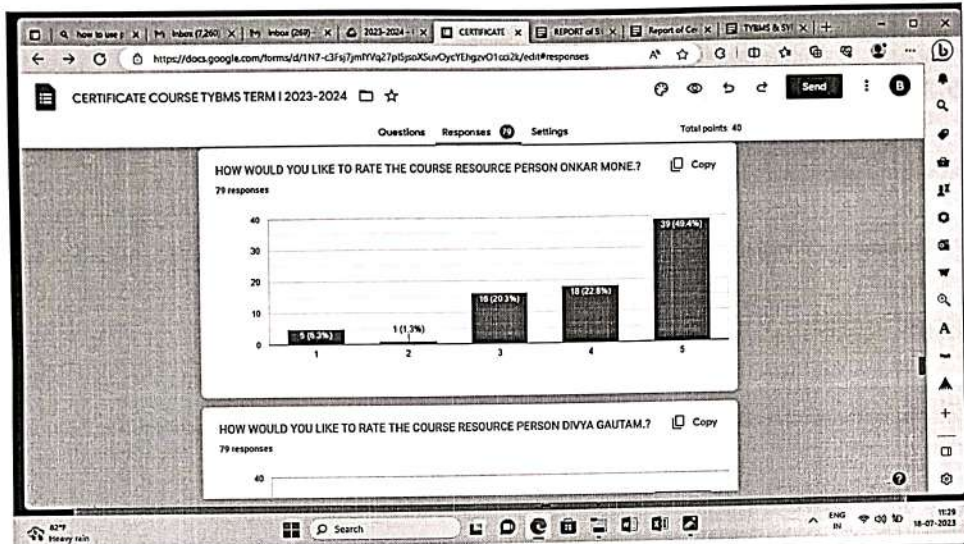


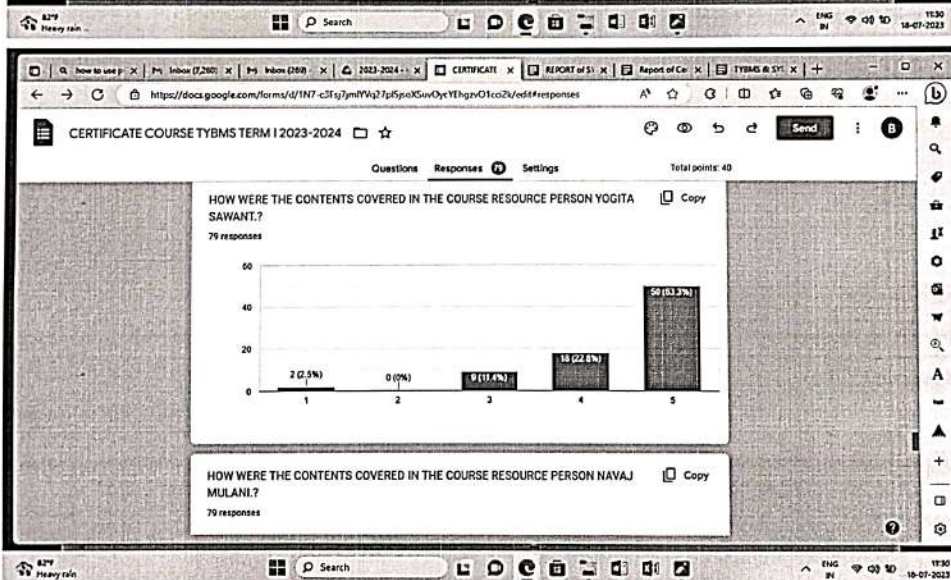
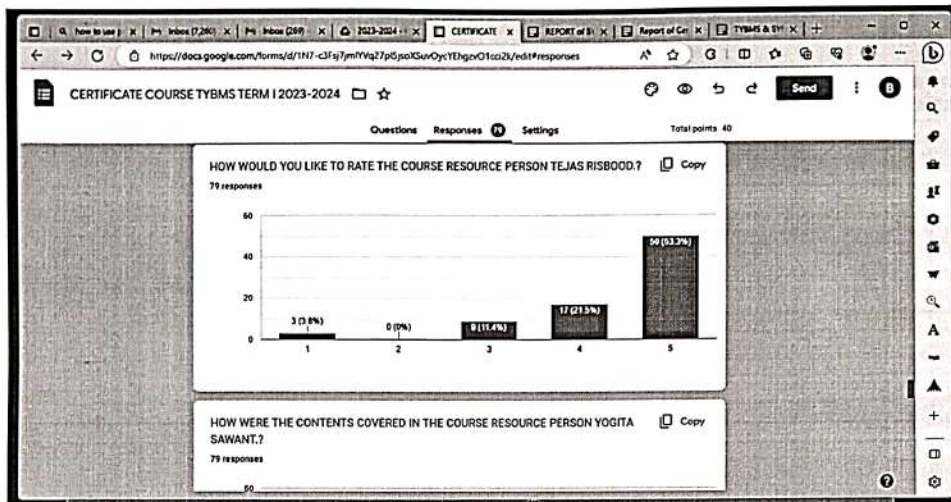
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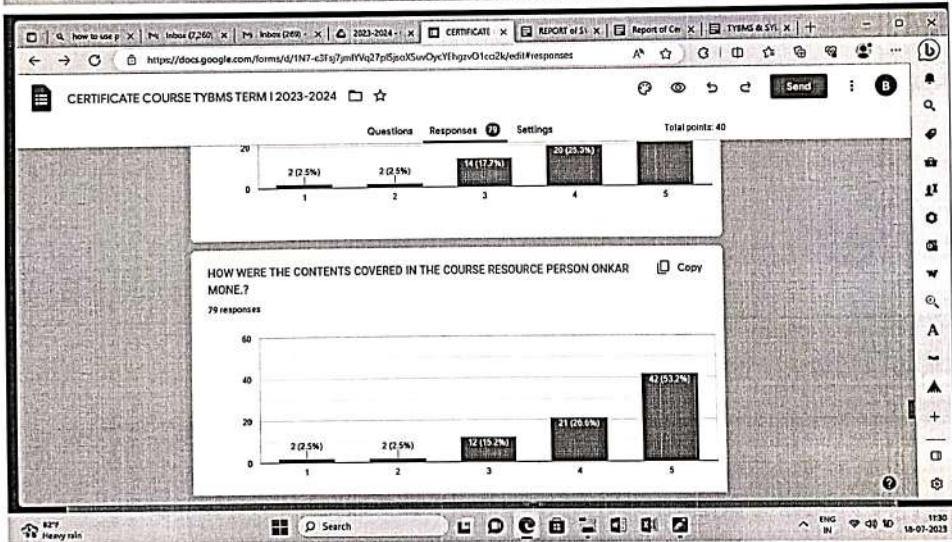
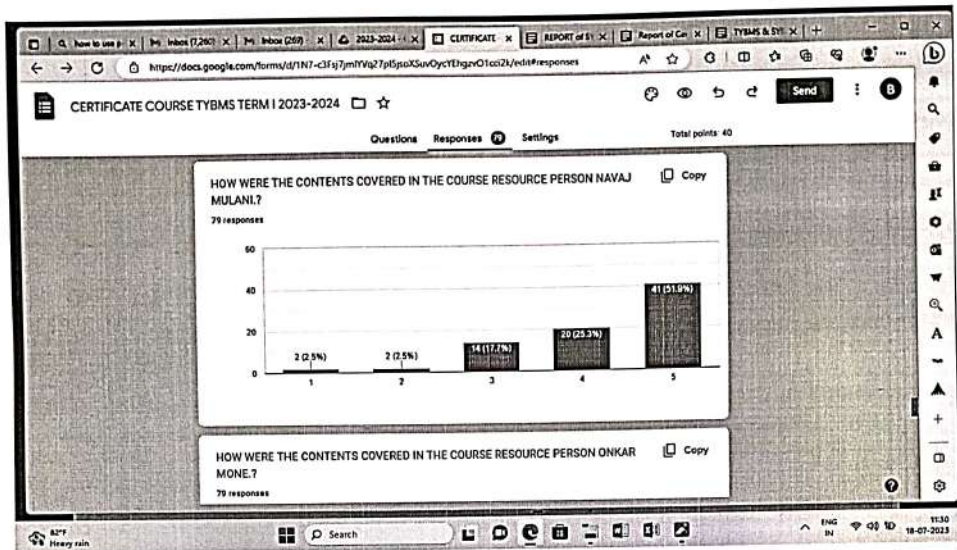
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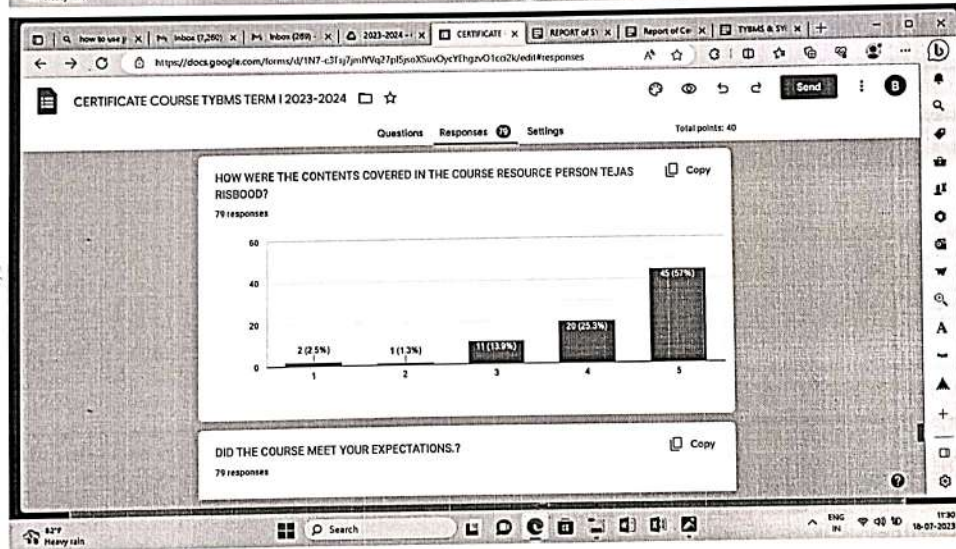
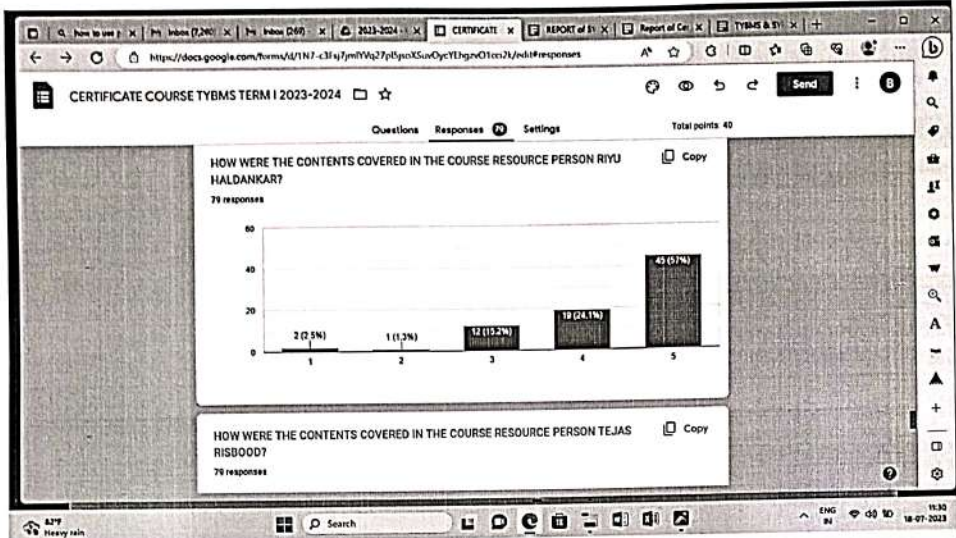
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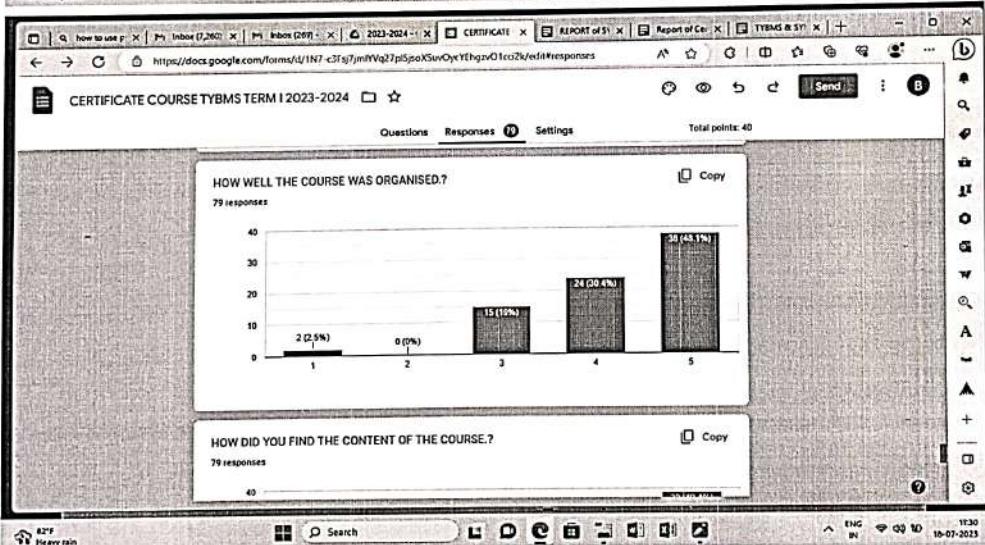
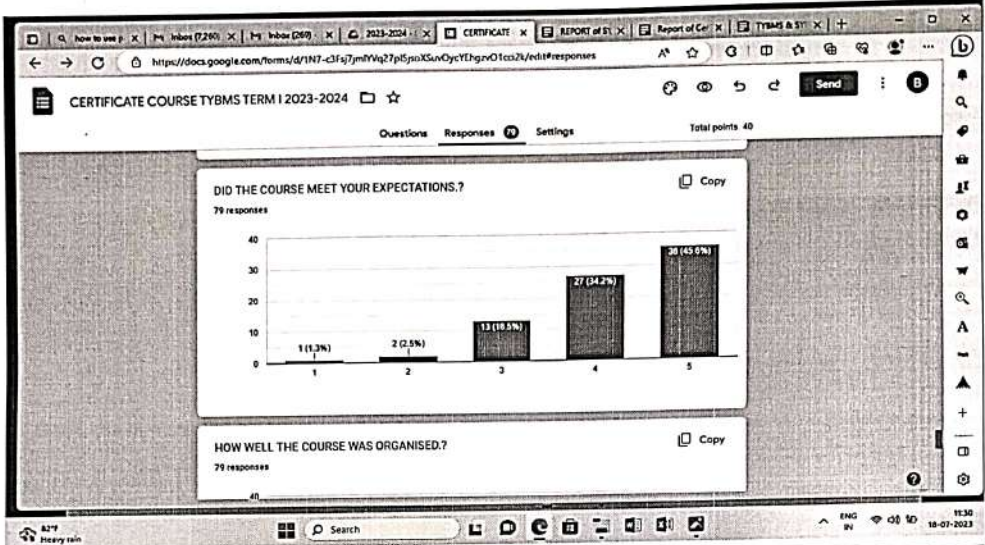


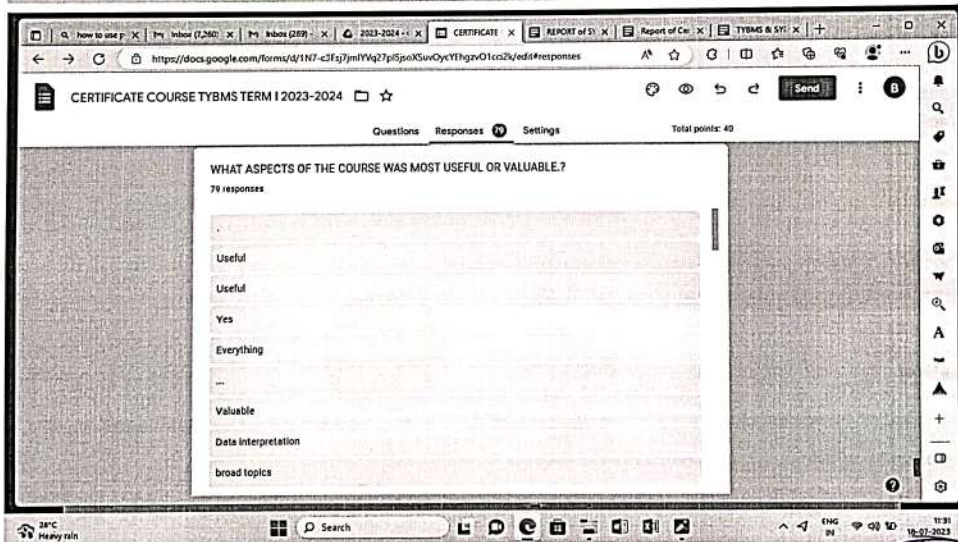
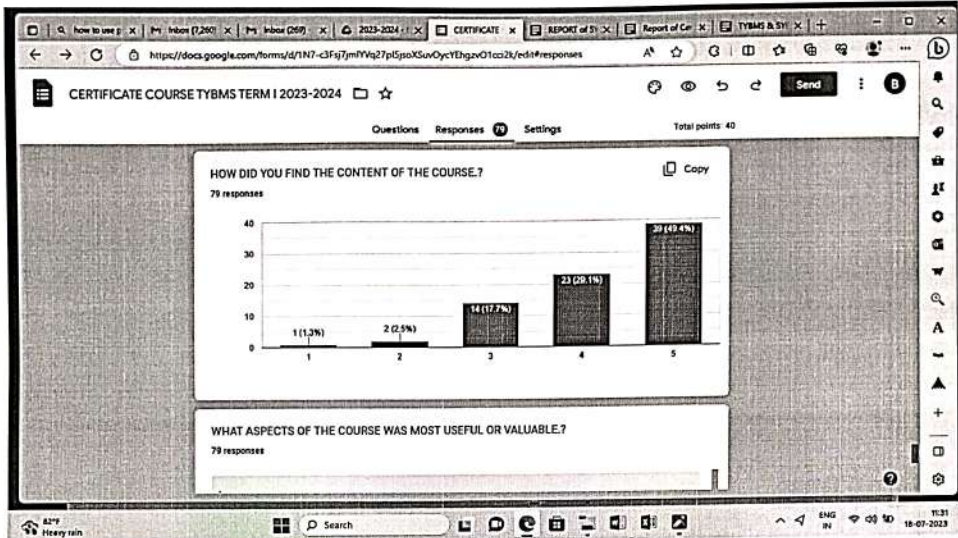








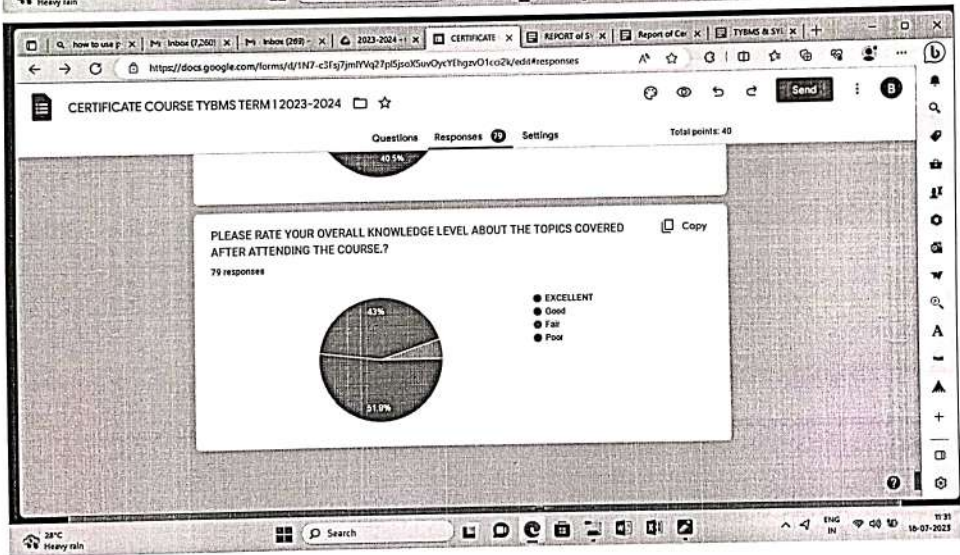
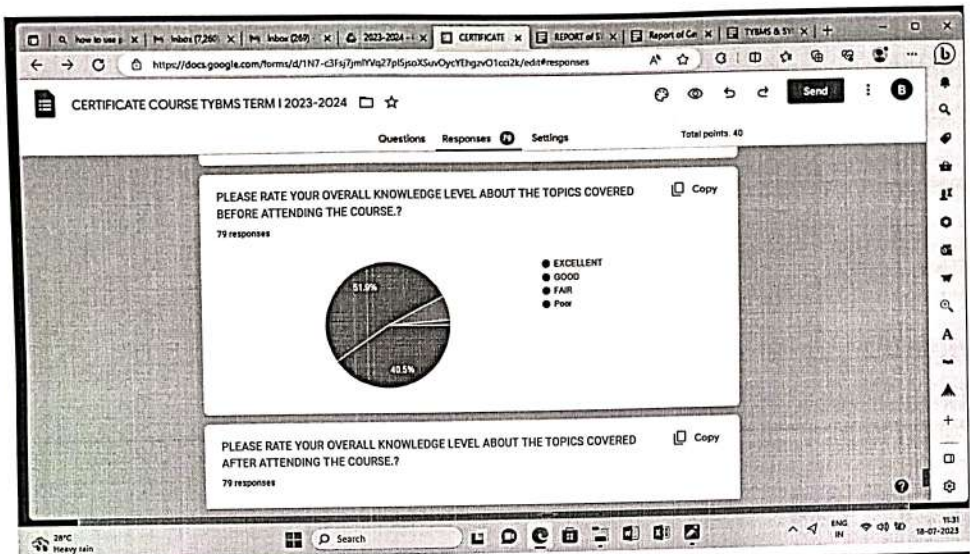




Keena

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 MUMBAI





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 Plot No.9, SEC.- 19, AIROLI,
 NAVI MUMBAI-400 708



TYBMS Attendance Sheet - FIN (Certificate Course - 22nd June 2023 to 30th June 2023)

Roll No.	Name of Students	Thursday					Friday					Saturday					Monday					Tuesday					Wednesday					Thursday					Friday					Total
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
9301	Sakshi K.	P	P	P	P	P	P	P	P	P																												15				
9302	Janvi A.																																					1				
9303	Rohit B.	P	P	P			P	P																													17					
9304	Ashish B.																																				06					
9305	Pratik B.																																									
9306	Khushboo	P	P	P	P	P	P	P	P	P																										23						
9307	Dhruv D.	P	P	P	P																															08						
9308	Ria D.																																				09					
9309	Sanjana G.	P	P	P	P	P	P	P	P	P																										18						
9310	Ansh G.																																				02					
9311	Deepak G.																																				08					
9312	Nikhil J.	P	P	P	P																															17						
9313	Poonam K.																																				03					
9314	Krutika K.																																									
9315	Aryan K.																																				08					
9316	Ajay K.																																				07					
9317	Umer K.	P	P	P	P																																05					
9318	Shubham K.	P	P	P	P																																14					
9319	Pranay K.	P	P	P	P	P	P	P	P	P																											15					
9320	Dhruv K.																																				11					
9321	Preksha L.	P	P	P	P																																09					
9322	Anjali M.	P	P	P	P	P	P	P	P																												14					
9323	Bhagyashri																																				11					
9324	Rabi M.																																				11					
9325	Vishakha N.	P	P	P	P	P	P	P	P	P																											15					
9326	Nohan N.																																				11					
9327	Viresh N.	P	P	P	P	P	P	P	P	P																											20					
9328	Aarti P.	P	P	P	P	P	P	P	P	P																											20					
9329	Sanika P.	P	P	P	P																																03					
9330	Vishal P.	P	P	P	P	P	P	P	P	P																											23					
9331	Rahul P.	P	P	P	P	P	P	P	P	P																											17					
9332	Nanish P.																																				02					
9333	Riya S.	P	P	P	P	P	P	P	P	P																											19					
9334	Sonliya S.																																					11				
9335	Harsh S.	P	P	P	P	P	P	P	P	P																											18					
9336	Muskan S.	P	P	P	P	P	P	P	P	P																											09					
9337	Anuman S.																																				12					
9338	Arafat S.																																				07					
9339	Kaveri S.	P	P	P	P	P	P	P	P	P																											15					
9340	Fuisti S.	P	P	P	P	P	P	P	P	P																											15					
9341	Chinmay S.	P	P	P	P																																12					
9342	Karishma T.	P	P	P	P	P	P	P	P	P																											18					
9343	Kamlesh T.	P	P	P	P	P	P	P	P	P																											09					
9344	Tanmay T.																																					08				
9345	Manas V.																																					04				
9346	Luv W.	P	P	P	P	P	P	P	P	P																											15					
FIN	Total	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46						
	Present	23	26	26	26	23	22	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23						
	Absent	23	20	20	20	23	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23						
	Lecturer	T	P	T		T	R	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T						



TYBMS Attendance Sheet - MKT (Certificate Course - 22nd June 2023 to 30th June 2023)

No.	Name of Students	Thursday					Friday					Saturday					Monday					Tuesday					Wednesday					Thursday					Friday					Total
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
9401	Shubham A.																																									18
9402	Aaditya G.																																									18
9403	Yash G.																																									18
9404	Sachin G.																																									16
9405	Ridhen K.																																									16
9406	Akshat M.																																									16
9407	Dishant N.																																									16
9408	Dhakil P.																																									16
9409	Monsi P.																																									16
9410	Romali P.																																									16
9411	Tanmay P.																																									16
9412	Suyog R.																																									16
9413	Adhiraaj B.																																									16
9414	Maiss S.																																									16
9415	Sujal S.																																									16
9416	Hritender S.																																									16
9417	Bhushan S.																																									16
9418	Suyash T.																																									16
9419	Yukta W.																																									16
9420	Krushna Y.																																									16
9421	Ashutosh Y.																																									16
9422	Tejas J.																																									16
9423	Harshad S.																																									16
9424	Anklt S.																																									16
9425	Deepak V.																																									16
MKT	Total	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	1000
	Present	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	455
	Absent	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	545
	Lecturer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



CERTIFICATE



JNAN VIKAS MANDAL'S DEGREE COLLEGE, AIROLI

Plot no.9, Sector-19, Airoli, Navi Mumbai-400708
NAAC Re-Accredited Grade 'A' (CGPA 3.33) (2nd Cycle)
(Affiliated to University of Mumbai)

CERTIFICATE OF PARTICIPATION

This Certificate is Awarded to

<< NAME >>

for completing 40 hours of "Certificate Course in Competitive Exam Preparation" organised by Department of Bachelor of Management Studies (BMS) of Jnan Vikas Mandal's Degree College, Airoli, Navi Mumbai from 22nd June, 2023 - 30th June, 2023.

Asst. Prof. Yogita Sawant
BMS COORDINATOR

Dr. Mrs. Leena Sarkar
PRINCIPAL

Neena

PRINCIPAL
JNAN VIKAS MANDAL'S
M.R. MEHTA COLLEGE OF COMMERCE
D.M. COLLEGE OF SCIENCE
COLLEGE OF ARTS
OF COMPUTER SCIENCE
C.- 19, AIROLI,
NAI-400 708





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Diwali Maa Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no 9, Sector -19, Airoli, Navi Mumbai.

BMS Department

Certificate Course in Competitive Exam Preparation (TYBMS 2023-2024)

Course Overview:

With the increase in importance of higher education and desire to take up challenging jobs, the number of students preparing for competitive examinations has drastically increased. Hence, it is important that students should have an overall idea about various preparatory aspects of competitive exams and what areas of study are important to crack any competitive exam such as English Language & Communication, Quantitative aptitude, General awareness & Current Affairs, Reasoning Aptitude etc. This will help the students to decide which field of competitive exam they wish to prepare for and what is expected from them to ensure that they will pass the competitive exam with flying colours.

Objectives of the Course:

- The course is about gaining knowledge of various subjects of competitive exams that students need to focus on if they wish to prepare for the same.
- The course will help students to improve their command of the English language and develop communication skills necessary to survive in the competitive world.
- The course will also ensure that students are aware about the various events happening all around the world and they are also motivated to keep themselves updated with current affairs every day.
- The course will also focus on other aspects of competitive exams such as Reasoning Ability, Quantitative aptitude and Banking & financial awareness.



Course Outcome:

The course is strategically designed to cover all aspects about the basics of competitive exams. Students should be motivated to take up competitive exams in a positive spirit without any fear of studies or passing the exam. The result of the course will be calculated on the basis of a test (MCQ type) taken by the faculties at the end of the course. Students scoring more than 40% in the test will be awarded with the certificate.

Course Duration:

32 + 08 = 40 lectures of one hour each.

Pedagogy:

The subject is based on the classroom teaching and assignments. Active participation by the student is important as they are going to be involved in practical learning as case study, team projects and quiz are main pedagogy instruments.

Assessment:

- > Exam: The most important part of assessment is the exam which will be conducted at the end of the certificate course through which students can check their IQ related to the subject.
- > Attendance: This will help students to maintain flow in their learning concepts.
- > Active Participation: This will improve students' communication and alertness and will learn the practical things related to the topic.

Earn a Certificate:

When you finish every course and complete the hands-on project, you'll earn a Certificate that you can share with prospective employers and your professional network



CORE SYLLABUS

Duration: 08 Hours

Allocation of total hours for each topic

YOGITA SAWANT (8 Lectures)

SR. NO.	TOPICS	THEORY HOURS
1	Communication: Meaning, types and characteristics	02
2	Effective communication: Verbal and Non-verbal, Inter-Cultural and group communications,	03
3	Communication Classroom communication. Barriers to effective communication. Mass-Media and Society.	03

Duration: 08 Hours

Allocation of total hours for each topic

NAVAJ MULANI (8 Lectures)

SR. NO.	TOPICS	DURATION
1	Types of reasoning. Number series, Letter series, Codes and Relationships	02
2	Mathematical Aptitude, Fraction, Time & Distance, Ratio, Proportion and Percentage,	03
3	Profit and Loss, Interest and Discounting, Averages etc. Logical Reasoning	03



Duration: 08 Hours

Allocation of total hours for each topic

ONKAR MONE (8 Lectures)

SR. NO.	TOPICS	THEORY HOURS
1	Development and environment: Millennium development and Sustainable development goals. Human and environment interaction: Anthropogenic activities and their impacts on the environment.	04
2	Environmental issues, Climate change and its Socio-Economic and Political dimensions.	04

Duration: 08 Hours

Allocation of total hours for each topic

RIYU HALDANKAR (8 Lectures)

SR. NO.	TOPICS	DURATION
1	Research: Meaning, Types, and Characteristics, Positivism and Post positivism approach to research. Methods of Research: Experimental, Descriptive, Historical, Qualitative and Quantitative methods	04
2	Steps of Research. Application of ICT in research. Research ethics	04



Duration: 08 Hours

Allocation of total hours for each topic

TEJAS RISBOOD (8 Lectures)

SR. NO.	TOPICS	DURATION
1	Sources, acquisition and classification of Data. Quantitative and Qualitative Data	04
2	Graphical representation (Bar-chart, Histograms, Pie-chart, Table-chart and Line-chart) Data Interpretation.	04





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Plot no 9, Sector -19, Airoli, Navi Mumbai.

TYBMS CERTIFICATE COURSE TERM I TIME TABLE 2023-2024

DATE	TIME & SUBJECT				
DAY	7:00 to 7:50	7:50 to 8:40	8:40 to 9:30	9:50 to 10:40	10:40 to 11:30
22/6/2023 Thursday	Onkar Sir	Yogita mam	Riyu Mam	Navaj Sir	Tejas Sir
23/6/2023 Friday	Navaj Sir	Tejas Sir	Onkar Sir	Yogita mam	Riyu Mam
24/6/2023 Saturday	Riyu Mam	Yogita mam	Navaj Sir	Tejas Sir	Onkar Sir
26/6/2023 Monday	Tejas Sir	Navaj Sir	Riyu Mam	Onkar Sir	Yogita mam
27/6/2023 Tuesday	Navaj Sir	Onkar Sir	Yogita mam	Tejas Sir	Riyu Mam
28/6/2023 Wednesday	Yogita mam	Onkar Sir	Navaj Sir	Riyu Mam	Tejas Sir
29/6/2023 Thursday	Tejas Sir	Onkar Sir	Riyu Mam	Yogita mam	Navaj Sir
30/6/2023 Friday	Navaj Sir	Onkar Sir	Riyu Mam	Yogita mam	Tejas Sir

Jehanan
 Asst. Prof. Yogita Sawant
 Coordinator



Neena
 Dr. Leena Sarkar

Principal
PRINCIPAL
 JNAN VIKAS MANDAL'S
 M.R. MEHTA COLLEGE OF COMMERCE
 D.M. COLLEGE OF SCIENCE
 A.R. MEHTA COLLEGE OF ARTS
 Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE



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Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no 9, Sector -19, Airoli, Navi Mumbai.

Report on Certificate Course in Competitive Exam Preparation (TYBMS)

Date:- 6th July, 2023

BMS department had organized a Certificate Course in Competitive Exam Preparation - 40 hours, for TYBMS students from 22nd June 2023 to 30th June 2023. The course was crafted to help students gain knowledge of various subjects of competitive exams that students need to focus on such as English Language & Communication, Quantitative aptitude, General awareness & Current Affairs, Reasoning Aptitude etc. The course will also ensure that students are aware about the various events happening all around the world and they are also motivated to keep themselves updated with current affairs everyday. Students should be motivated to take up competitive exams in a positive spirit without any fear of studies or passing the exam. All this will ultimately help the students to decide which field of competitive exam they wish to prepare for and what is expected from them to ensure that they will pass the competitive exam with flying colors. The result of the course was calculated on the basis of a test (MCQ type) taken by the faculties at the end of the course. Students scoring more than 40% in the test were awarded with the certificate.

Report prepared by - Asst. Prof. Divya Gautam

Report verified by - Asst. Prof. Yogita Sawant (BMS Coordinator)

Report approved by - Dr. Leena Sarkar – Principal





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Notice of the Meeting

Date: 17th April, 2023

All the teachers of commerce department are hereby informed that the meeting will be conducted on 18th April 2023 at 11:00 AM

Agenda of the meeting will be as follows: -

- Finalizing Course
- Syllabus of the course
- Duration
- Distribution of Work


Mrs. Ujwala Pawar
HOD Commerce


Dr. B.R. Deshpande
Vice Principal


Dr. (Mrs.) Leena Sarkar
Principal

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Minutes of the Meeting

20th April, 2023

For planning the certificate course for S.Y.B.Com & T.Y.B.Com students a meeting was held with Principal Madam on 18th April, 2023 in the Conference Room at 11:00 AM. The meeting was presided by Principal Dr. Leena Sarkar. In the meeting following points were discussed and decisions were taken:.

Title of the course : The title was finalised as “ knowledge enhancement Competitive examination”. And It was decided to have two different levels. Level 1 Introductory to the S.Y.B.COM class and advanced level 2 for T.Y.B.COM class.

Duration: It was decided that the duration of the certificate course will be for 30 hrs each.

b: the syllabus is divided in three parts Numerical ability, communicative English and general awareness.

Distribution of Work: The distribution of work was done amongst the teachers.

As there was no matter to discuss further, meeting ended with vote of thanks by the chair person.

1. Dr. Leena Sarkar [Principal] *Leena*
2. Dr. B.R Deshpande [Vice Principal] *B.R.*
3. Ujwala Pawar *Ujwala*
4. Kavita Manoj *Kavita*
5. Prema Bardhan *Prema*
6. N.K Patil *N.K.*
7. Dr. Surekha Verma *Surekha*
8. Dr. Kanika Pahwa *Kanika*
9. Swati Choudhari *Swati*
10. Manohar Dhotre. *Manohar*







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Syllabus for certificate course


Knowledge Enhancement for Competitive Examination

Name of Faculty	Level 1[S.Y.B.COM]	Level 2 [T.Y.B.COM]
Mr. N.K. Patil Topic: Numerical Ability	1] Coding: - [Alphabetical & Numerical]. 2] Directions: - [Distance] 3] Analogy: - Simple Problems. 4] Logical Reasoning: - [Series]. 5] Problems on Time & Distance. 6] Current Affairs	1] Coding: -[Alpha - Numerical]. 2] Directions: - [Distance & Directions] 3] Nonverbal Analogy [Complex Problems]. 4] Logical Reasoning: - [Complex Series] 5] Problems on Time, Distance, Age & Calendar 6] Current Affairs
Mrs. Shubhangi Deotale Topic: Numerical Ability	1) Number series, Linear Equation, Quadratic Equation, Simplification 2) Decimal Fractions 3) Ratio and proportion 4) Average 5) Simple Interest 6) Permutation	1) Number series, Linear Equation, Quadratic Equation, Simplification and approximation 2) Square roots 3) Ratio, Proportion, Percentage and Partnership 4) Profit and Loss 5) Simple Interest and Compound Interest 6) Permutation and Combination
Dr. Surekha Verma Topic: communicative English	Beyond Communication Purpose of communication- Personal & Professional Biodata Interview etiquette- preparation, on-the spot interview, online interview Personal energy enhancement & update for s positive, effective communication	Know Your Client Types of client Steps to convince your client- RAPP analysis & NICE analysis 5 most popular reasons for your sales/ deal to not close off 

Dr. Kanika Pahwa Topic: General Awareness	<ol style="list-style-type: none"> 1. Majestic Animals 2. Interesting Shortcuts in Computers 3. Vaccine Technology 4. Wildlife Conservation 	<ol style="list-style-type: none"> 1. Animal World 2. Science behind COVID-19 3. Tips & Tricks to use Computers 4. Environmental Concerns
Ujwala Pawar & Kavita Manoj	Motivational Theories <ul style="list-style-type: none"> • Need Hierarchy theory • Pink theory • Expectancy theory EQ and SQ	Leadership Styles <ul style="list-style-type: none"> • Autocratic style • Consultative style • Participative style • Situational style Evolution of management
Dr. B.R.Deshpande Swati Chaudhari & Manohar Dhotre	Financial Management <ul style="list-style-type: none"> • Cash management • Credit management • Working capital management 	Corporate Finance <ul style="list-style-type: none"> • Ratio analysis • Capital Budgeting
Bhagyshree	Fundamentals of Computer system	Introduction to Microsoft office
Prema Bardhan	Micro Finance	Macro Finance


Mrs. Ujwala Pawar
HOD Commerce


Dr. B.R. Deshpande
Vice Principal


Dr. (Mrs.) Leena Sarkar
Principal

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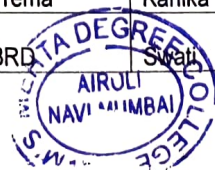


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 Plot no.9, Sector -19, Airoli, Navi Mumbai**

**Certificate Course
 Knowledge Enhancement for Competitive Examination
 20th June to 26th June 2023
 Time Table**

DAY	TIME	T.Y.B.COM [A]	T.Y.B.COM [B]	S.Y.B.COM [A]	S.Y.B.COM [B]	S.Y.B.COM [C]
Monday	7a.m. to 7.50 a.m.	Swati	Ujwala	kavita	Manohar	Prema
	7.50 a.m. to 8.40 a.m.	BRD	Swati	Prema	Ujwala	Manohar
	8.40 a.m. to 9.30 a.m.	NKP	Bhagyashree	Surekha	Kanika	Shubhangi
	9.30 a.m. to 9.50 a.m.					
	9.50 a.m. to 10.40 a.m.	Bhagyashree	Shubhangi	Kanika	Surekha	Manohar
	10.40 a.m to 11.30 a.m.	Prema	Ujwala	Manohar	NKP	Bhagyashree
Tuesday	7a.m. to 7.50 a.m.	Swati	Ujwala	Prema	Manohar	Kavita
	7.50 a.m. to 8.40 a.m.	BRD	Swati	Manohar	Kavita	Ujwala
	8.40 a.m. to 9.30 a.m.	Bhagyashree	NKP	Shubhangi	Kanika	Surekha
	9.30 a.m. to 9.50 a.m.					
	9.50 a.m. to 10.40 a.m.	Shubhangi	Kanika	Surekha	Manohar	Bhagyashree
	10.40 a.m to 11.30 a.m.	Manohar	Kavita	Ujwala	Bhagyashree	NKP
Wednesday	7a.m. to 7.50 a.m.	Kavita	Prema	Ujwala	Swati	Manohar
	7.50 a.m. to 8.40 a.m.	Prema	BRD	Swati	Manohar	Kavita
	8.40 a.m. to 9.30 a.m.	Kanika	Shubhangi	NKP	Bhagyashree	Surekha
	9.30 a.m. to 9.50 a.m.					
	9.50 a.m. to 10.40 a.m.	Shubhangi	Surekha	Prema	Kanika	Bhagyashree
	10.40 a.m to 11.30 a.m.	NKP	Prema	BRD	Swati	Kanika



Thursday	7 a.m. to 7.50 a.m.	Kavita	Prema	Swati	Manohar	Ujwala
	7.50 a.m. to 8.40 a.m.	Prema	BRD	Manohar	Kavita	Swati
	8.40 a.m. to 9.30 a.m.	Surekha	Kanika	Shubhangi	NKP	Bhagyashree
	9.30 a.m. to 9.50 a.m.					
	9.50 a.m. to 10.40 a.m.	Prema	Surekha	Kanika	Bhagyashree	Shubhangi
	10.40 a.m. to 11.30 a.m.	Shubhangi	NKP	Bhagyashree	Surekha	Kanika
Friday	7 a.m. to 7.50 a.m.	Ujwala	Kavita	Manohar	Swati	Prema
	7.50 a.m. to 8.40 a.m.	Kavita(E)	BRD	Ujwala	Prema	Swati
	8.40 a.m. to 9.30 a.m.	Shubhangi	Surekha	Bhagyashree	Kanika	NKP
	9.30 a.m. to 9.50 a.m.					
	9.50 a.m. to 10.40 a.m.	Bhagyashree	Swati	Kanika	Shubhangi	Surekha
	10.40 a.m. to 11.30 a.m.	Ujwala	Prema	Swati	Bhagyashree	Swati
Saturday	7 a.m. to 7.50 a.m.	Ujwala	Kavita	Manohar	Prema	Swati
	7.50 a.m. to 8.40 a.m.	BRD	Prema	Kavita	Ujwala	Manohar
	8.40 a.m. to 9.30 a.m.	Prema	Surekha	NKP	Shubhangi	Kanika
	9.30 a.m. to 9.50 a.m.					
	9.50 a.m. to 10.40 a.m.	Bhagyashree	Ujwala	Kanika	Surekha	Shubhangi
	10.40 a.m. to 11.30 a.m.	NKP	Shubhangi	Kanika	Prema	Surekha


Mrs. Ujwala Pawar
HOD Commerce


Dr. B/R Deshpande
Vice Principal


Dr. (Mrs.) Leena Sarkar
Principal

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Certificate Design:



JNAN VIKAS MANDAL'S DEGREE COLLEGE

NAAC RE-ACCREDITED 'A' GRADE (CGPA 3.33)

Plot No. 9, Sector-19, Airoli Navi Mumbai

Certificate

This certificate is awarded to
<<NAME>>


of <<Class>> who has Successfully Completed 30 hours Online Certificate Course in

'Knowledge Enhancement for competitive examination-I'

organised by Department of Commerce.


Mrs. Ujwala Pawar
HOD Commerce


DR. B.R. Deshpande
Vice Principal


DR.(Mrs.) Leena Sarkar
Principal





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Certificate Course

Knowledge Enhancement for Competitive Examination

Participant's List: [Level 1 S.Y.B.COM]

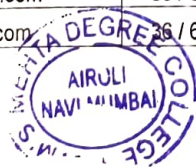
Sr. No.	Email Address	Score	Name	ROLL NO	CONTACT NO.(WHATSAPP NO)
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2	muskanansari1004@gmail.com	60 / 60	Muskan Gulsherali Ansari	4003	9769675594
3	nandinibabar39@gmail.com	28 / 60	Nandini shivaji babar	4005	8169857642
4	omkarbasutkar670@gmail.com	20 / 60	Omkar basutkar	4009	9967069160
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96	p.srushti111@gmail.com	60 / 60	Srushti Ajit Patil	4250	8591085242
97	vijayapatil1517@gmail.com	24 / 60	Vijaya patil	4252	8928058221
98	asthatpatwa68@gmail.com	28 / 60	Astha	4253	7208243370
99	sanikapawar266@gmail.com	46 / 60	Sanika pawar	4254	8850102221
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102	sufiyanraeen1719@email.com	58 / 60	Md sufiyan raeen	4257	8433731917
103	omkarrai5151@gmail.com	30 / 60	Omkar Rai	4258	7900185990
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105	shivkumarrajbar73@gmail.com	28 / 60	Sakshi shivkumar Rajbhar	4260	9321889474
106	rajbharsuman634@gmail.com	20 / 60	Suman ramji rajbhar	4262	7045021719
107	ranesiddhesh872@gmail.com	58 / 60	Siddhesh rane	4263	8779289828
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109	mansirawool2164@gmail.com	40 / 60	Mansi Rawool	4265	9819538873
110	laleshshani@gamil.com	22 / 60	Lalesh sahani	4266	7021997495
111	viveksakpal20@gmail.com	34 / 60	VIVEK SAKPAL	4267	9137036114
112	vanshikasavla003@gmail.com	38 / 60	Vanshika savla	4271	8291535047
113	sawantbaliram529@gmail.com	58 / 60	Aditi Baliram Sawant	4272	8422004446
114	siddhisawant4848@gmail.com	60 / 60	Siddhi Chandrakant Sawant	4274	9004183139
115	sayestashaikh12@gmail.com	36 / 60	Sayesta Faizur Shaikh	4276	7770063535



116	manishasharma612003@gmail.com	18 / 60	Manisha Sharma	4277	9321509575
117	swapnalishelar69@gmail.com	44 / 60	SWAPNALI SUNIL SHELAR	4280	8655203866
118	patilapurva357@gmail.com	30 / 60	Apurva	4282	7304402422
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121	shruti05vs@gmail.com	60 / 60	Shruti	4284	9152739073
122	shinde.snehal222004@gmail.com	60 / 60	Snehal Rajesh shinde	4285	8483986024
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125	solankinikhil2480@gmail.com	60 / 60	Nikhil solanki	4290	720811226
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130	rohinisurve16@gmail.com	60 / 60	Rohini surve	4296	8097013036
131	adarshitiwari0528225@gmail.com	60 / 60	Adarsh Tiwari	4302	7317566551
132	sakshitiwari3088@gmail.com	34 / 60	Sakshi Tiwari	4303	8879767817
133	jaishitlamata2003@gmail.com	60 / 60	Shivansh tiwari	4304	7900183411
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136	khushboovarman78@gmail.com	12 / 60	Khushboo varma	4309	8795164174
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Ujwala
Mrs. Ujwala Pawar
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B.R. Deshpande
Dr. B.R. Deshpande
Vice Principal

Leena
Dr. (Mrs.) Leena Sarkar
Principal

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Plot no.9, Sector -19, Airoli, Navi Mumbai

Certificate Course

Knowledge Enhancement for Competitive Examination

Participant's List: [Level 2 T.Y.B.COM]

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Mrs. Ujwala Pawar
HOD Commerce


Dr. B.R. Deshpande
Vice Principal


Dr. (Mrs.) Leena Sarkar
Principal



JNAN VIKAS MANDAL'S
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Plot no.9, Sector -19, Airoli, Navi-Mumbai.


Date: 19th June, 2023

Notice

All the members of BBI & BAF Department are hereby informed that there will be a meeting with Principal Madam Dr. (Mrs.) Leena Sarkar on **20th June, 2023 at 12.00 p.m.** at principal's office, regarding conducting the **Certificate Course for BBI & BAF students.**

Agenda:

- ✓ Deciding the date of Certificate Course for BBI & BAF students.
- ✓ Duty Allocation to staff for conducting the certificate course.
- ✓ Any other points with the permission of the chair.


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)


Dr. B.R. Deshpande
Vice Principal


Dr. (Mrs.) Leena Sarkar
Principal

PRINCIPAL
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Minutes of Meeting:


Date: 20th June, 2023


Dr. (Mrs.) Leena Sarkar - Chairperson for the Meeting.

Dr. B.R. Deshpande - Vice-Principal

Asst. Prof. Kishor Chauhan - Co-ordinator of BBI & BAF 

Asst. Prof. Seema Chaudhary - Member 

Asst. Prof. Manoj Kumar Gupta - Member 

Asst. Prof. Sanjay Gupta - Member 

Asst. Prof. Ashutosh Sharma - Member

Asst. Prof. Aparna Surve - Member

BBI & BAF Department Meeting was held 20th June, 2023 at 12.00 p.m. the meeting was presided over by the Principal Dr. (Mrs.) Leena Sarkar.

1. Reading the minutes of the previous meeting by Mr. Kishor Chauhan.
2. To discuss the conduct of the Certificate course: to enhance the student's knowledge of the subjects, the department should conduct the certificate course of 30 hours. It was decided to conduct the certificate course from **22nd June 2023 to 28th June 2023**.
3. To send the notice to the BBI and BAF students about the **Certificate Course on Banking, Finance and Insurance**.
4. Mr. Sanjay Gupta will be responsible for handling the registration process for this programme.
5. Time Table Preparation will be done by Asst. Prof. Ashutosh Sharma.
6. Report Preparation will be done by Asst. Prof. Ashutosh Sharma.
7. Other matters were discussed with permission of the chair and the meeting ended at 12.30 p.m.
8. E- Certificate will be done by Asst. Prof. Manojkumar Gupta.





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Plot no.9, Sector -19, Airoli, Navi-Mumbai.

Date - 21-06-2023

Notice

All Students are hereby informed that the Department of BBI & BAF is organizing a certificate course from 22nd June 2023 to 28th June 2023. All the interested students of BBI & BAF are requested to take part in the above certificate course.

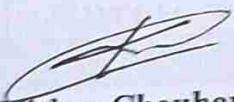
Certificate Courses:


SYBAF- Certificate Course on Use of Business Application in Finance

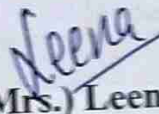
SYBBI- Certificate Course on Use of Business Application in Banking

TYBAF- Certificate Course on Cyber Security System

TYBBI- Certificate Course on Cyber Security System


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)


Dr. B.R. Deshpande
Vice Principal


Dr. (Mrs.) Leena Sarkar
Principal



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DEPARTMENT OF BBI & BAF					
Certificate COURSE for SY & TY TIME TABLE (22/06/ 2023 TO 29/06/2023)					
DATE	TIME	SYBAF	TYBAF	SYBBI	TYBBI
THURSDAY					
22/06/2023	7.00 AM TO 7.50 AM	Sanjay Sir	Seema Mam	Sanjay Sir	Aparna Mam
	7.50 AM TO 8.40 AM	Sanjay Sir	Seema Mam	Sanjay Sir	Aparna Mam
	8.40 AM TO 9.30 AM	Aparna Mam	Sanjay Sir	Ashutosh Sir	Manoj Sir
	9.50 AM TO 10.40 AM	Manoj Sir	Sanjay Sir	Seema Mam	Ashutosh Sir
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
FRIDAY					
23/06/2023	7.00 AM TO 7.50 AM	Manoj Sir	Aparna Mam	Manoj Sir	Seema Mam
	7.50 AM TO 8.40 AM	Manoj Sir	Aparna Mam	Manoj Sir	Seema Mam
	8.40 AM TO 9.30 AM	Ashutosh Sir	Manoj Sir	Ashutosh Sir	Sanjay Sir
	9.50 AM TO 10.40 AM	Sanjay Sir	Aparna Mam	Seema Mam	Ashutosh Sir
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
SATURDAY					
24/06/2023	7.00 AM TO 7.50 AM	Ashutosh Sir	Seema Mam	Ashutosh Sir	Aparna Mam
	7.50 AM TO 8.40 AM	Ashutosh Sir	Seema Mam	Ashutosh Sir	Aparna Mam
	8.40 AM TO 9.30 AM	Manoj Sir	Aparna Mam	Manoj Sir	Seema Mam
	9.50 AM TO 10.40 AM	Sanjay Sir	Manoj Sir	Sanjay Sir	Ashutosh Sir
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
MONDAY					
26/06/2023	7.00 AM TO 7.50 AM	Sanjay Sir	Kishor Sir	Sanjay Sir	Seema Mam
	7.50 AM TO 8.40 AM	Manoj Sir	Kishor Sir	Manoj Sir	Aparna Mam
	8.40 AM TO 9.30 AM	Sanjay Sir	Seema Mam	Ashutosh Sir	Manoj Sir
	9.50 AM TO 10.40 AM	Ashutosh Sir	Manoj Sir	Sanjay Sir	Aparna Mam
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
TUESDAY					
27/06/2023	7.00 AM TO 7.50 AM	Group-Persentation	Group-Persentation	Group-Persentation	Group-Persentation
	7.50 AM TO 8.40 AM	Group-Persentation	Group-Persentation	Group-Persentation	Group-Persentation
	8.40 AM TO 9.30 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	9.50 AM TO 10.40 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation




THURSDAY

29/06/2023	7.00 AM TO 7.50 AM	Group -Persentation	Group -Persentation	Group -Persentation	Group -Persentation
	7.50 AM TO 8.40 AM	Group -Persentation	Group -Persentation	Group -Persentation	Group -Persentation
	8.40 AM TO 9.30 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	9.50 AM TO 10.40 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation

Note: KC - Mr. Kishor Chauhan, MG - Mr. Manoj Kumar Gupta, SC- Miss Seema Chaudhary, SG- Mr. Sanjay K Gupta, AS- Mr. Ashutosh Sharma, AV- Mrs. Aprna Surve.


Dr. Kishor Chauhan
 Co-ordinator (BBI & BAF)




Dr. (Mrs.) Leena Sarkar
 Principal
PRINCIPAL

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Amritlal Raichand Mehta Degree College of Arts
Padma Shree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli, Navi-Mumbai.

Certificate Course Report: Use of Business Applications in the Finance Sector

Date: 28th June 2023

No. Students Participated - 89

Objective:

The objective of the certificate course on "Use of Business Applications in the Finance Sector" conducted for SYBAF (Bachelor of Accounting and Finance) students of JVM's Mehta Degree College from 22nd June to 28th June 2023 was to provide students with theoretical knowledge and presentation skills related to the application of business tools and technologies in the finance industry. The course aimed to enhance the students' understanding of how modern business applications are utilized to streamline financial processes, improve decision-making, and enhance overall efficiency within organizations.

Needs:

The certificate course was designed to address the following needs:

- **Bridging the gap between theoretical knowledge and practical application:** Many students possess theoretical knowledge of finance but lack exposure to real-world financial applications. This course aimed to provide hands-on experience and practical insights into the use of business applications in the finance sector.
- **Enhancing employability:** In today's competitive job market, employers seek candidates who possess both financial expertise and technological proficiency. This course aimed to equip students with the necessary skills and knowledge to increase their employability in the finance industry.
- **Promoting teamwork and presentation skills:** Through group presentations and individual presentations, the course aimed to improve students' ability to collaborate effectively in teams and present their ideas confidently to an audience.



Course Content:

The certificate course spanned seven days and covered the following topics:

Day 1: Introduction to Business Applications in Finance

- Overview of business applications in the finance sector
- Importance of technology in finance
- Case studies showcasing successful implementations

Day 2: Theoretical Knowledge and Fundamentals

- Introduction to financial software and tools
- Financial modeling and forecasting
- Risk management applications

Day 3: Risk Management and Compliance Applications

- Introduction to risk management tools and software
- Compliance management systems and their role in finance
- Ethical considerations in using business applications in finance

Day 4: Individual Presentation: Financial Decision Support Systems

- Students prepared individual presentations on the role of decision support systems in finance
- Topics included data visualization, artificial intelligence, and machine learning applications in finance

Day 5: Group Presentation: Financial Data Analysis & Conclusion

- Students were divided into groups and assigned financial datasets
- Each group analyzed the data using relevant business applications
- Groups presented their findings, insights, and recommendations
- Recap of key concepts and takeaways from the course
- Q&A session to address students' queries

Outcome:

The certificate course on "Use of Business Applications in the Finance Sector" yielded the following outcomes:

Enhanced understanding of business applications: Students gained a comprehensive understanding of the various business applications used in the finance sector, including financial software, decision support systems, automation tools, and risk management applications.

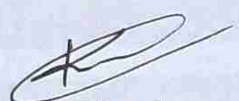


Practical skills development: Through hands-on exercises and group presentations, students developed practical skills in financial data analysis, modeling, and decision-making using business applications. They also improved their teamwork and presentation abilities.

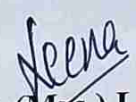
Increased employability: The course equipped students with in-demand skills and knowledge, enhancing their employability in the finance industry. They are now better prepared to leverage technology for financial analysis, reporting, and decision support.

Networking opportunities: The course provided a platform for students to interact with industry experts and peers, fostering valuable networking connections for future career prospects.

Overall, the certificate course successfully achieved its objective of providing theoretical knowledge, promoting teamwork, and enhancing the practical application of business applications in the finance sector. The participants left the course with a deeper understanding of the role of technology in finance and the ability to leverage business applications for financial analysis and decision-making.

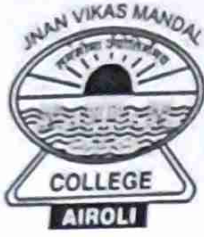


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)



Dr. (Mrs.) Leena Sarkar
Principal

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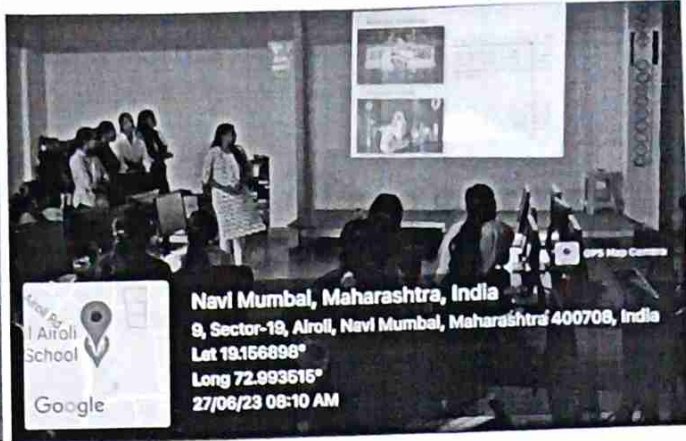
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Photos:

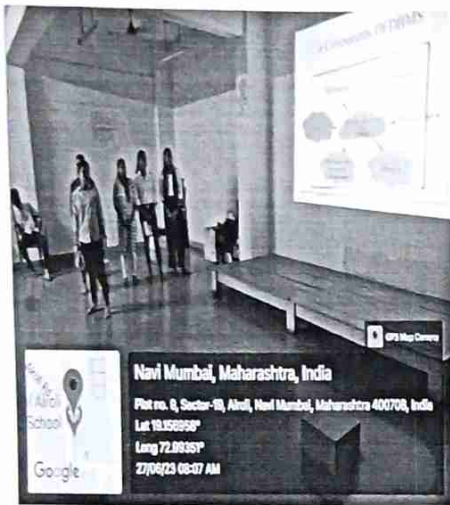




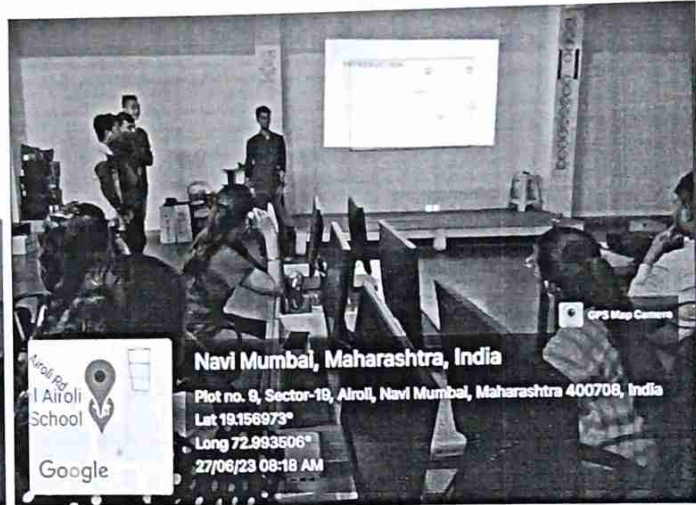
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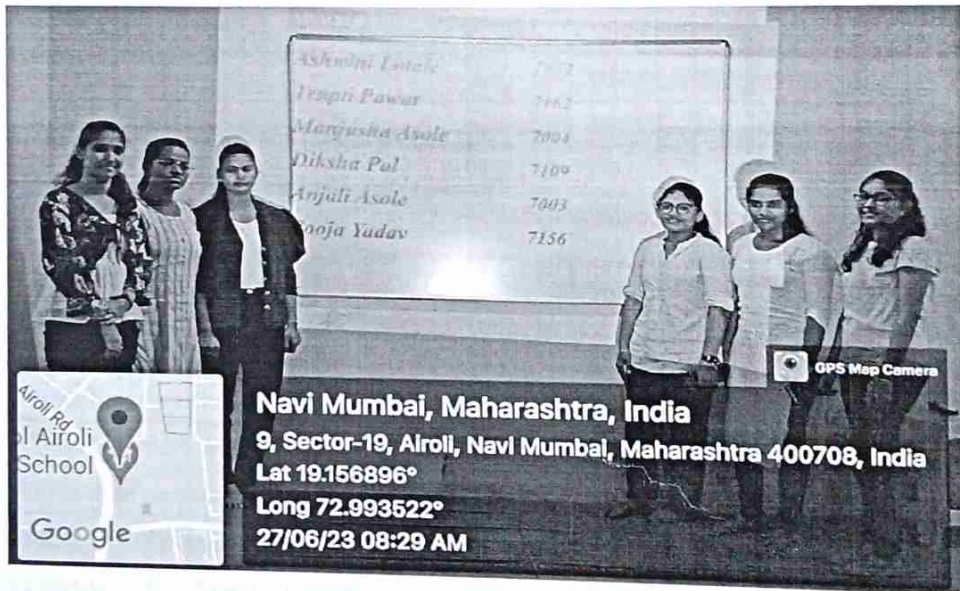
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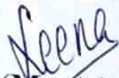
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Dr. Kishor Chauhan
 Co-ordinator (BBI & BAF)




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 Plot no.9, Sector -19, Airoli, Navi-Mumbai.

Attendance Sheet - SYBAF

Sr. No.	Student Name	Class	Contact No:	Gender	22	23	24	25	26	27
1	Meet jain	SYBAF	9867256648	Male	P	P	P	P	P	P
2	Seema Anil Dhuriya	SYBAF	8369453401	Female	P	P	A	P	P	P
3	Gaurang Suresh Patil	SYBAF	8928287476	Male	P	P	P	P	A	P
4	Ranjanakumari prasad	SYBAF	9987808292	Female	A	A	P	P	P	P
5	Monika Balappa Mongalana	SYBAF	8850706420	Female	P	P	P	P	P	P
6	Rohan More	SYBAF	8454829898	Male	P	P	P	P	P	P
7	Vaishnavi Vijay Durgawale	SYBAF	9082374035	Female	P	P	A	A	P	P
8	Vaishnavi Kotian	SYBAF	7506520995	Female	P	A	P	P	A	P
9	Akanksha videvan yelnure	SYBAF	8108766530	Female	P	P	P	P	P	P
10	Rachana Thingalaya	SYBAF	8169030784	Female	P	A	A	A	P	P
11	Anisha yashwant more	SYBAF	9619014345	Female	P	P	A	P	A	P
12	Yashashri jadhav	SYBAF	8169892297	Female	P	P	P	P	P	P
13	Suraksha shetty	SYBAF	9137090206	Female	P	A	A	A	P	P
14	Riya Matal	SYBAF	976943195	Female	A	P	P	P	A	P
15	Dhanshree pravin Desai	SYBAF	7039908806	Female	P	P	P	P	P	P
16	Krishika Bediskar	SYBAF	9082983820	Female	A	A	P	A	P	P
17	Vaishali ankush mandavkar	SYBAF	8591512293	Female	P	P	P	P	P	P
18	Dipali Rajesh Yadav	SYBAF	9076069006	Female	A	P	P	P	P	A
19	Rudra Shivdatt Sharma	SYBAF	7045608792	Male	P	P	P	P	P	P
20	Chaitali Sanjaykumar Shende	SYBAF	8097754898	Female	P	P	P	P	P	P
21	Purva Sandeep Kadav	SYBAF	9987903777	Female	P	A	P	P	P	P
22	Sakshi Nandkumar pisal	SYBAF	8928456086	Female	P	P	P	P	P	P
23	VISHAL DATTATRAY DISLE	SYBAF	8693894224	Male	P	P	P	P	P	P
24	JITEHS RISHIKANT PAL	SYBAF	9619471346	Male	P	P	P	P	P	P
25	Nirjala Dnyaneshwar patil	SYBAF	8779177768	Female	P	A	P	P	P	P
26	Tejashri Ananda Mane	SYBAF	9833349218	Female	P	P	P	P	P	P
27	Ankur Pawan Prajapati	SYBAF	7208746592	Male	P	P	P	P	P	P
28	Priyanka Ramesh Jadhav	SYBAF	8452821989	Female	P	P	P	P	P	P




29	Arjun gupta	SYBAF	7208372447	Male	P	P	P	P	A	P
30	Mansi chandraprakash gupta	SYBAF	9082721196	Female	P	A	A	P	A	P
31	Isha Amar Lokhande	SYBAF	8080434665	Female	P	P	P	P	A	P
32	Snehal kesarwani	SYBAF	8604619539	Female	P	P	P	P	A	P
33	Om Subhash Pingle	SYBAF	7208313911	Male	P	P	P	P	P	P
34	Komal Ramdas Mandhare	SYBAF	8591044272	Female	A	A	A	A	P	P
35	Chaitanya Vaibhav Gandhe	SYBAF	9834578504	Male	P	P	P	P	P	P
36	Sahil gujar	SYBAF	9321457361	Male	A	P	P	P	P	P
37	Vaishnavi Vijay Chorge	SYBAF	7822997789	Female	P	P	P	P	P	P
38	Sumit mallabad	SYBAF	7900012968	Male	P	P	P	P	P	P
39	SHIVAM GUPTA	SYBAF	9321637743	Male	P	P	P	P	P	P
40	Tanvi shivaji malusare	SYBAF	9653319887	Female	P	P	P	P	P	P
41	Sakshi Ramdas Panchal	SYBAF	9321860639	Female	P	P	P	P	P	P
42	VAIBHAVI UMESH KADAM	SYBAF	7021320685	Female	P	P	P	P	P	P
43	Prachi Vitthal Pisal	SYBAF	7039224242	Female	P	P	P	P	P	P
44	Pratigya kushwaha	SYBAF	8879570871	Female	P	P	P	P	P	P
45	Mahesh dattatray shivnekar	SYBAF	9321509291	Male	A	A	A	P	P	P
46	Ragini Singh	SYBAF	8591125138	Female	A	A	A	P	A	A
47	LAVTE KHUSHI APPARAO	SYBAF	9867099950	Female	P	P	P	P	P	P
48	Diksha Sanjay Bhagwat	SYBAF	8010365438	Female	P	P	P	P	P	P
49	Ranjane Vaishnavi Satish	SYBAF	8788164299	Female	P	P	P	P	P	P
50	Purva Digambar Mali	SYBAF	7798976707	Female	P	A	P	P	A	P
51	Diksha pal	SYBAF	7039117719	Female	A	P	P	P	P	P
52	aishwarya	SYBAF	8591057110	Female	P	P	P	A	A	P
53	Shruti Sharad Sakore	SYBAF	9167098142	Female	P	P	A	P	P	A
54	Ashwini Ashok Lotale	SYBAF	7208273877	Female	P	P	P	P	P	P
55	Anjali sahebro asole	SYBAF	9137993378	Female	P	P	P	P	P	P
56	Shraddha Deshmukh	SYBAF	8451913749	Female	P	P	P	P	P	P
57	Aastha Awadhesh Vishwakarma	SYBAF	9372373277	Female	P	P	P	P	P	P
58	Harshad Sadashiv Rane	SYBAF	9869674811	Male	P	P	A	A	P	P
59	Lahari keshav das	SYBAF	8169204135	Female	P	A	P	P	P	P
60	Aditya	SYBAF	8779548556	Male	P	P	P	P	P	A
61	Mangeeta vishal Rajbhar	SYBAF	8927998635	Female	P	P	P	P	P	P
62	Akshata G. Kale	SYBAF	9594599154	Female	P	P	P	P	P	P
63	Dwivedi sachchidanand Umesh	SYBAF	9702173972	Male	P	A	A	A	A	P
64	Pooja Yadav	SYBAF	7021945591	Female	P	P	P	P	P	P
65	Prerna patil	SYBAF	9321389995	Female	P	P	P	P	P	P
66	Sanvita ananda sapkal	SYBAF	8530328573	Female	P	A	A	A	A	A
67	Palak Tiwari	SYBAF	8356842671	Female	A	A	A	P	A	P




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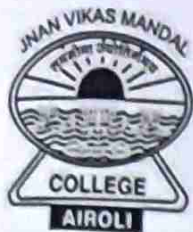
68	Siddhesh Prashant Vishwasrao	SYBAF	8433892479	Male	P	P	P	P	P	P
69	Abhishek Gupta	SYBAF	8108492430	Male	P	P	P	P	P	A
70	Manjusha sahebrao asole	SYBAF	8097011052	Female	P	P	P	P	P	P
71	Sujay Anant Chavan	SYBAF	7738241851	Male	P	P	P	P	P	P
72	Trupti Pawar	SYBAF	7069166994	Female	A	P	P	P	P	A
73	Mitali vinod yadav	SYBAF	8419972700	Female	A	P	A	P	P	P
74	Rahul Sharma	SYBAF	9867559974	Male	P	P	P	P	P	P
75	Amisha Rajendra vaity	SYBAF	9321796967	Female	P	P	P	A	A	P
76	Nargis javed khan	SYBAF	9619171740	Female	A	A	A	P	A	A
77	Sakshi Subhash Dalvi	SYBAF	9082250771	Female	P	A	P	P	P	P
78	Anirban	SYBAF	9324141622	Male	P	P	P	P	P	P
79	om pawar	SYBAF	8591191675	Male	A	P	P	A	P	A
80	GUPTA VINAYAK SANTOSH	SYBAF	9702915263	Male	P	P	P	P	P	P
81	Tanisha kisan sadaphule	SYBAF	7021695531	Female	P	P	P	P	P	A
82	Payal kushwaha	SYBAF	8879570871	Female	P	P	P	P	A	A
83	TOSHAL SNEHA ANASURAJ	SYBAF	9594566836	Female	P	P	P	A	P	A
84	Rutuja Tatkare	SYBAF	8591919653	Female	P	A	P	P	A	A
85	Omkar	SYBAF	7738633342	Male	P	P	P	P	P	P
86	Sujal Santosh Paradkar	SYBAF	9321778330	Male	P	P	P	P	P	P
87	Akshata Rajendra Yashwantrao	SYBAF	8591085270	Female	P	P	P	P	P	P
88	MALI MITHIL MAHADEV	SYBAF	9324441148	Male	P	P	P	P	P	P
89	Kunal Satyawan Amberkar	SYBAF	7208740624	Male	P	P	P	P	P	P


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No. of Students Participated

Sr. No.	Student Name	Class	Contact No:	Email Address	Gender	Score
1	Meet jain	SYBAF	9867256648	meetj8277@gmail.com	Male	18 / 35
2	Seema Anil Dhuriya	SYBAF	8369453401	seemaanildhuriya10@gmail.com	Female	19 / 35
3	Gaurang Suresh Patil	SYBAF	8928287476	ppratham947@gmail.com	Male	26 / 35
4	Ranjanakumari prasad	SYBAF	9987808292	prasadranjanakumari392@gmail.com	Female	14 / 35
5	Monika Balappa Mongalana	SYBAF	8850706420	monikamogalana@gmail.com	Female	15 / 35
6	Rohan More	SYBAF	8454829898	morerohan2321@gmail.com	Male	20 / 35
7	Vaishnavi Vijay Durgawale	SYBAF	9082374035	vaishnavidurgawale2002@gmail.com	Female	19 / 35
8	Vaishnavi Kotian	SYBAF	7506520995	kvaishnavi908@gmail.com	Female	27 / 35
9	Akanksha videvan yelnure	SYBAF	8108766530	akankshayelnure@gmail.com	Female	17 / 35
10	Rachana Thingalaya	SYBAF	8169030784	rachanathingalaya2304@gmail.com	Female	29 / 35
11	Anisha yashwant more	SYBAF	9619014345	anishamore15@gmail.com	Female	25 / 35
12	Yashashri jadhav	SYBAF	8169892297	yashsj04@gmail.com	Female	20 / 35
13	Suraksha shetty	SYBAF	9137090206	shettysuraksha75@gmail.com	Female	25 / 35
14	Riya Matal	SYBAF	976943195	riyamatal09@gmail.com	Female	24 / 35
15	Dhanshree pravin Desai	SYBAF	7039908806	dhanshreedesai22@gmail.com	Female	24 / 35
16	Krishika Bediskar	SYBAF	9082983820	bediskarkrishika@gmail.com	Female	15 / 35
17	Vaishali ankush mandavkar	SYBAF	8591512293	mandavkarvaishali04@gmail.com	Female	25 / 35
18	Dipali Rajesh Yadav	SYBAF	9076069006	dipaliyadav191@gmail.com	Female	27 / 35
19	Rudra Shivdatt Sharma	SYBAF	7045608792	rudra1212005@gmail.com	Male	27 / 35
20	Chaitali Sanjaykumar Shende	SYBAF	8097754898	shendechaitali217@gmail.com	Female	20 / 35
21	Purva Sandeep Kadav	SYBAF	9987903777	purvakadav7@gmail.com	Female	20 / 35
22	Sakshi Nandkumar pisal	SYBAF	8928456086	sakshipisal2020@gmail.com	Female	22 / 35
23	VISHAL DATTATRAY DISLE	SYBAF	8693894224	disalevishal4845@gmail.com	Male	22 / 35
24	JITEHS RISHIKANT PAL	SYBAF	9619471346	rishikantpal1@gmail.com	Male	22 / 35
25	Nirjala Dnyaneshwar patil	SYBAF	8779177768	nirjala09032005@gmail.com	Female	22 / 35
26	Tejashri Ananda Mane	SYBAF	9833349218	manebhagyashri718@gmail.com	Female	27 / 35
27	Ankur Pawan Prajapati	SYBAF	7208746592	prajapatiankurpawan84@gmail.com	Male	26 / 35
28	Priyanka Ramesh Jadhav	SYBAF	8452821989	priyankapri2004@gmail.com	Female	27 / 35




29	Arjun gupta					
30	Mansi chandraprakash gupta	SYBAF	7208372447	agarjungupta142@gmail.com	Male	19 / 35
31	Isha Amar Lokhande	SYBAF	9082721196	mansigupta908272@gmail.com	Female	27 / 35
32	Snehal kesarwani	SYBAF	8080434665	ishalokhande31@gmail.com	Female	26 / 35
33	Om Subhash Pingle	SYBAF	8604619539	snehalkesarwani5@gmail.com	Female	27 / 35
34	Komal Ramdas Mandhare	SYBAF	7208313911	ompingle250@gmail.com	Male	28 / 35
35	Chaitanya Vaibhav Gandhe	SYBAF	8591044272	komalmandhare1314@gmail.com	Female	31 / 35
36	Sahil gujar	SYBAF	9834578504	chaitugandhe10@gmail.com	Male	27 / 35
37	Vaishnavi Vijay Chorge	SYBAF	9321457361	sahilgujar250@gmail.com	Male	28 / 35
38	Sumit mallabad	SYBAF	7822997789	vaishuchorge278@gmail.com	Female	27 / 35
39	SHIVAM GUPTA	SYBAF	7900012968	sumitmallabad32@gmail.com	Male	25 / 35
40	Tanvi shivaji malusare	SYBAF	9321637743	shivamgupta75522@gmail.com	Male	26 / 35
41	Sakshi Ramdas Panchal	SYBAF	9653319887	tanvimalusare1521@gmail.com	Female	27 / 35
42	VAIBHAVI UMESH KADAM	SYBAF	9321860639	panchalsakshi829@gmail.com	Female	26 / 35
43	Prachi Vitthal Pisal	SYBAF	7021320685	vaibhavik1204@gmail.com	Female	26 / 35
44	Pratigya kushwaha	SYBAF	7039224242	prachipisal5753@gmail.com	Female	27 / 35
45	Mahesh dattatray shivnekar	SYBAF	8879570871	kushwahaankit271@gmail.com	Female	16 / 35
46	Ragini Singh	SYBAF	9321509291	maheshshivnekar7111@gmail.com	Male	29 / 35
47	LAVTE KHUSHI APPARAO	SYBAF	8591125138	raginis12354@gmail.com	Female	14 / 35
48	Diksha Sanjay Bhagwat	SYBAF	9867099950	khushilavte@gmail.com	Female	26 / 35
49	Ranjane Vaishnavi Satish	SYBAF	8010365438	diksha.bhagwat2003@gmail.com	Female	26 / 35
50	Purva Digambar Mali	SYBAF	8788164299	ranjanevaishnavi12@gmail.com	Female	26 / 35
51	Diksha pal	SYBAF	7798976707	purvamali961@gmail.com	Female	27 / 35
52	aishwarya	SYBAF	7039117719	pala94745@gmail.com	Female	22 / 35
53	Shruti Sharad Sakore	SYBAF	8591057110	aishwaryadav2003@gmail.com	Female	24 / 35
54	Ashwini Ashok Lotale	SYBAF	9167098142	shrutisakore109@gmail.com	Female	29 / 35
55	Anjali sahebro asole	SYBAF	7208273877	ashwinilotale20@gmail.com	Female	28 / 35
56	Shraddha Deshmukh	SYBAF	9137993378	anjaliasole26@gmail.com	Female	26 / 35
57	Aastha Awadhesh Vishwakarma	SYBAF	8451913749	deshmukhshraddha2004@gmail.com	Female	26 / 35
58	Harshad Sadashiv Rane	SYBAF	8451913749	deshmukhshraddha2004@gmail.com	Female	26 / 35
59	Lahari keshav das	SYBAF	9372373277	aasthavishwakarma2201@gmail.com	Female	26 / 35
60	Aditya	SYBAF	9869674811	harshadrane2004@gmail.com	Male	16 / 35
61	Mangeeta vishal Rajbhar	SYBAF	8169204135	laharidas44@gmail.com	Female	22 / 35
62	Akshata G. Kale	SYBAF	8779548556	adityadeshmukh3016@gmail.com	Male	27 / 35
63	Dwivedi sachchidanand Umesh	SYBAF	8927998635	mangeetarajbhar04@gmail.com	Female	12 / 35
64	Pooja Yadav	SYBAF	9594599154	kaleakshata52@gmail.com	Female	20 / 35
65	Prerna patil	SYBAF	9702173972	dwivedisachchidanand3@gmail.com	Male	20 / 35
		SYBAF	7021945591	poojayadav37771@gmail.com	Female	15 / 35
		SYBAF	9321389995	prernapatila21@gmail.com	Female	19 / 35



66	Sanvita ananda sapkal	SYBAF	8530328573	sanvitasapkal09@gmail.com	Female	27 / 35
67	Palak Tiwari	SYBAF	8356842671	tpalak346@gmail.com	Female	18 / 35
68	Siddhesh Prashant Vishwasrao	SYBAF	8433892479	sidvishwasrao10@gmail.com	Male	26 / 35
69	Abhishek Gupta	SYBAF	8108492430	abhi8108492430@gmail.com	Male	21 / 35
70	Manjusha sahebrao asole	SYBAF	8097011052	manjushaasole2005@gmail.com	Female	29 / 35
71	Sujay Anant Chavan	SYBAF	7738241851	sujaychavan062004@gmail.com	Male	26 / 35
72	Trupti Pawar	SYBAF	7069166994	truptipawar793@gmail.com	Female	28 / 35
73	Mitali vinod yadav	SYBAF	8419972700	mitaliyadav2467@gmail.com	Female	25 / 35
74	Rahul Sharma	SYBAF	9867559974	srahul6658@gmail.com	Male	28 / 35
75	Amisha Rajendra vaity	SYBAF	9321796967	amisharajendravaity@gmail.com	Female	28 / 35
76	Nargis javed khan	SYBAF	9619171740	khannisar4340@gmail.com	Female	16 / 35
77	Sakshi Subhash Dalvi	SYBAF	9082250771	sakshidalvi1104@gmail.com	Female	25 / 35
78	Anirban	SYBAF	9324141622	khanraanirban999@gmail.com	Male	24 / 35
79	om pawar	SYBAF	8591191675	l1c.com.297ompawar@gmail.com	Male	17 / 35
80	GUPTA VINAYAK SANTOSH	SYBAF	9702915263	vinayakgupta2409@gmail.com	Male	26 / 35
81	Tanisha kisan sadaphule	SYBAF	7021695531	sadaphuletanisha@gmail.com	Female	22 / 35
82	Payal kushwaha	SYBAF	8879570871	kushwahapriyanshu15582@gmail.com	Female	19 / 35
83	TOSHAL SNEHA ANASURAJ	SYBAF	9594566836	toshalsneha@gmail.com	Female	24 / 35
84	Rutuja Tatkare	SYBAF	8591919653	rtatkare2@gmail.com	Male	28 / 35
85	Omkar	SYBAF	7738633342	omnaik4002@gmail.com	Male	24 / 35
86	Sujal Santosh Paradkar	SYBAF	9321778330	sujalparadkar4@gmail.com	Male	24 / 35
87	Akshata Rajendra Yashwantrao	SYBAF	8591085270	akshatayashwantrao@gmail.com	Female	22 / 35
88	MALI MITHIL MAHADEV	SYBAF	9324441148	vg240904@gmail.com	Male	26 / 35
89	Kunal Satyawan Amberkar	SYBAF	7208740624	kunalamberkar001@gmail.com	Male	27 / 35


Dr. Kishor Chauhan
 Co-ordinator (BBI & BAF)



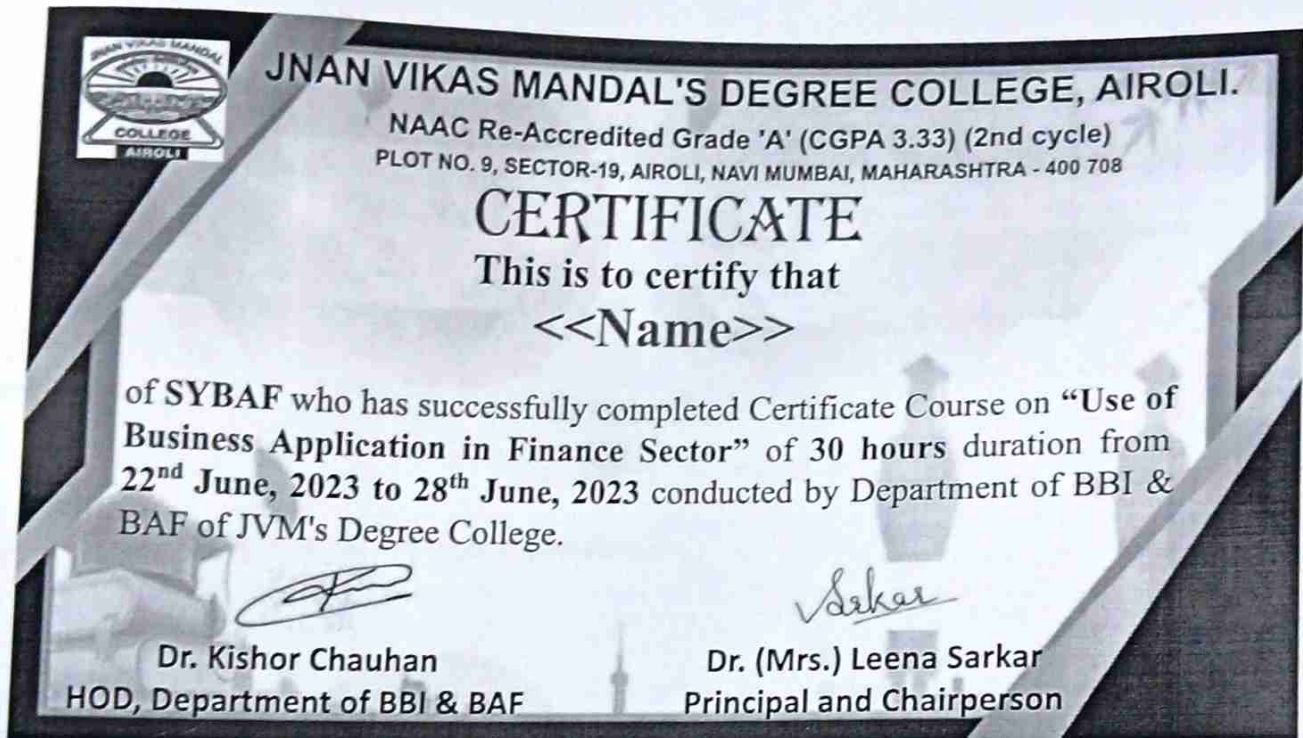

Dr. (Mrs.) Leena Sarkar
 Principal

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Certificate



[Signature]
Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)



[Signature]
Dr. (Mrs.) Leena Sarkar
Principal

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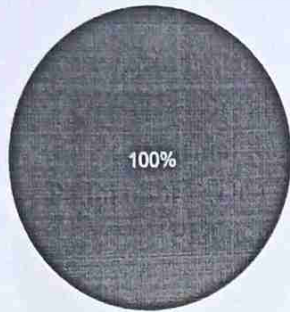
65



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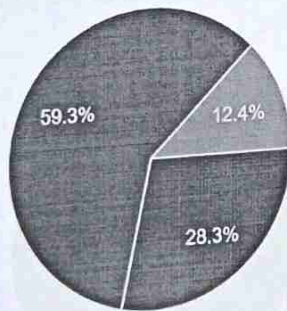
Feedback Analysis :- SYBBI & SYBAF

Were objective of the course clears to you?
113 responses



- Yes
- No

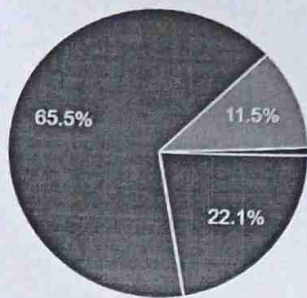
The course contents met with your expectation
113 responses



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

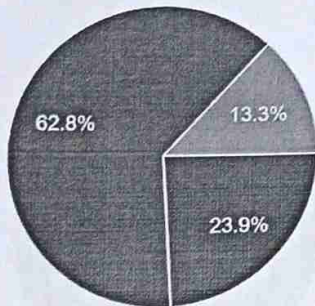


The lecture Sequence was well planned
113 responses



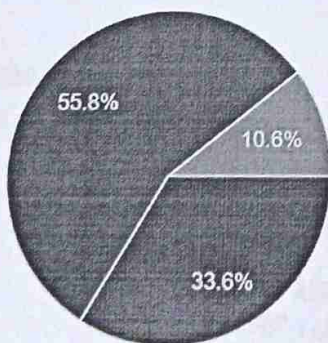
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

The course contents compared with your expectations
113 responses



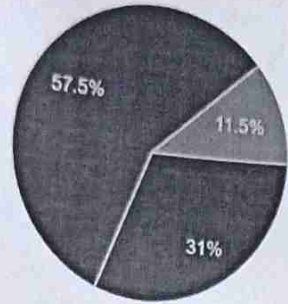
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

The course exposed you to new knowledge and practices
113 responses



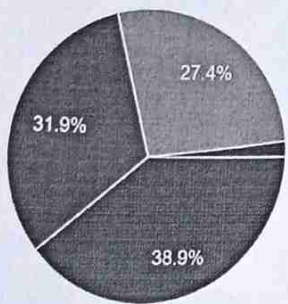
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

The lecture were clear and easy to understand
113 responses



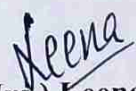
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Please give overall rating of the course
113 responses



- Excellent
- Very good
- Good
- Fair
- Poor


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)


Dr. (Mrs.) Leena Sarkar
Principal



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Plot no.9, Sector -19, Airoli, Navi-Mumbai.


Date: 19th June, 2023

Notice

All the members of BBI & BAF Department are hereby informed that there will be a meeting with Principal Madam Dr. (Mrs.) Leena Sarkar on **20th June, 2023** at **12.00 p.m.** at principal's office, regarding conducting the **Certificate Course for BBI & BAF students.**

Agenda:

- ✓ Deciding the date of **Certificate Course for BBI & BAF students.**
- ✓ Duty Allocation to staff for conducting the certificate course.
- ✓ Any other points with the permission of the chair.


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)


Dr. B.R. Deshpande
Vice Principal


Dr. (Mrs.) Leena Sarkar
Principal

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Minutes of Meeting:


Date: 20th June, 2023


Dr. (Mrs.) Leena Sarkar - Chairperson for the Meeting.

Dr. B.R Deshpande - Vice- Principal

Asst. Prof. Kishor Chauhan - Co-ordinator of BBI & BAF 

Asst. Prof. Seema Chaudhary – Member 

Asst. Prof. Manoj Kumar Gupta - Member 

Asst. Prof. Sanjay Gupta - Member 

Asst. Prof. Ashutosh Sharma – Member 

Asst. Prof. Aparna Surve - Member

BBI & BAF Department Meeting was held 20th June, 2023 at 12.00 p.m. the meeting was presided over by the Principal Dr. (Mrs.) Leena Sarkar.

1. Reading the minutes of the previous meeting by Mr. Kishor Chauhan.
2. To discuss the conduct of the Certificate course: to enhance the student's knowledge of the subjects, the department should conduct the certificate course of 30 hours. It was decided to conduct the certificate course from **22nd June 2023 to 28th June 2023.**
3. To send the notice to the BBI and BAF students about the **Certificate Course on Banking, Finance and Insurance.**
4. Mr. Sanjay Gupta will be responsible for handling the registration process for this programme.
5. Time Table Preparation will be done by Asst. Prof. Ashutosh Sharma.
6. Report Preparation will be done by Asst. Prof. Ashutosh Sharma.
7. Other matters were discussed with permission of the chair and the meeting ended at 12.30 p.m.
8. E- Certificate will be done by Asst. Prof. Manojkumar Gupta.





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Date - 21-06-2023

Notice

All Students are hereby informed that the Department of BBI & BAF is organizing a certificate course from **22nd June 2023 to 28th June 2023**. All the interested students of BBI & BAF are requested to take part in the above certificate course.

Certificate Courses:

SYBAF- Certificate Course on Use of Business Application in Finance

SYBBI- Certificate Course on Use of Business Application in Banking

TYBAF- Certificate Course on Cyber Security System

TYBBI- Certificate Course on Cyber Security System

Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)

Dr. B.R. Deshpande
Vice Principal

Dr. (Mrs.) Leena Sarkar
Principal



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DEPARTMENT OF BBI & BAF

Certificate COURSE for SY & TY TIME TABLE (22/06/ 2023 TO 29/06/2023)


DATE	TIME	SYBAF	TYBAF	SYBBI	TYBBI
THURSDAY					
22/06/2023	7.00 AM TO 7.50 AM	Sanjay Sir	Seema Mam	Sanjay Sir	Aparna Mam
	7.50 AM TO 8.40 AM	Sanjay Sir	Seema Mam	Sanjay Sir	Aparna Mam
	8.40 AM TO 9.30 AM	Aparna Mam	Sanjay Sir	Ashutosh Sir	Manoj Sir
	9.50 AM TO 10.40 AM	Manoj Sir	Sanjay Sir	Seema Mam	Ashutosh Sir
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
FRIDAY					
23/06/2023	7.00 AM TO 7.50 AM	Manoj Sir	Aparna Mam	Manoj Sir	Seema Mam
	7.50 AM TO 8.40 AM	Manoj Sir	Aparna Mam	Manoj Sir	Seema Mam
	8.40 AM TO 9.30 AM	Ashutosh Sir	Manoj Sir	Ashutosh Sir	Sanjay Sir
	9.50 AM TO 10.40 AM	Sanjay Sir	Aparna Mam	Seema Mam	Ashutosh Sir
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
SATURDAY					
24/06/2023	7.00 AM TO 7.50 AM	Ashutosh Sir	Seema Mam	Ashutosh Sir	Aparna Mam
	7.50 AM TO 8.40 AM	Ashutosh Sir	Seema Mam	Ashutosh Sir	Aparna Mam
	8.40 AM TO 9.30 AM	Manoj Sir	Aparna Mam	Manoj Sir	Seema Mam
	9.50 AM TO 10.40 AM	Sanjay Sir	Manoj Sir	Sanjay Sir	Ashutosh Sir
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
MONDAY					
26/06/2023	7.00 AM TO 7.50 AM	Sanjay Sir	Kishor Sir	Sanjay Sir	Seema Mam
	7.50 AM TO 8.40 AM	Manoj Sir	Kishor Sir	Manoj Sir	Aparna Mam
	8.40 AM TO 9.30 AM	Sanjay Sir	Seema Mam	Ashutosh Sir	Manoj Sir
	9.50 AM TO 10.40 AM	Ashutosh Sir	Manoj Sir	Sanjay Sir	Aparna Mam
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
TUESDAY					
27/06/2023	7.00 AM TO 7.50 AM	Group-Persentation	Group-Persentation	Group-Persentation	Group-Persentation
	7.50 AM TO 8.40 AM	Group-Persentation	Group-Persentation	Group-Persentation	Group-Persentation
	8.40 AM TO 9.30 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	9.50 AM TO 10.40 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation



THURSDAY					
29/06/2023	7.00 AM TO 7.50 AM	Group -Persentation	Group -Persentation	Group -Persentation	Group -Persentation
	7.50 AM TO 8.40 AM	Group -Persentation	Group -Persentation	Group -Persentation	Group -Persentation
	8.40 AM TO 9.30 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	9.50 AM TO 10.40 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
<u>Note: KC - Mr. Kishor Chauhan, MG - Mr. Manoj Kumar Gupta, SC- Miss Seema Chaudhary, SG- Mr. Sanjay K Gupta, AS- Mr. Ashutosh Sharma, AV- Mrs. Aprna Surve.</u>					


Dr. Kishor Chauhan
 Co-ordinator (BBI & BAF)




Dr. (Mrs.) Leena Sarkar
 Principal

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Certificate Course Report: Use of Business Applications in the Finance Sector

Date: 28th June 2023

No. Students Participated - 24

Objective:

The objective of the certificate course on "Use of Business Applications in the Finance Sector" conducted for SYBBI (Bachelor of Banking and Insurance) students of JVM's Mehta Degree College from 22nd June to 28th June 2023 was to provide students with theoretical knowledge and presentation skills related to the application of business tools and technologies in the finance industry. The course aimed to enhance the students' understanding of how modern business applications are utilized to streamline financial processes, improve decision-making, and enhance overall efficiency within organizations.

Needs:

The certificate course was designed to address the following needs:

- **Bridging the gap between theoretical knowledge and practical application:** Many students possess theoretical knowledge of finance but lack exposure to real-world financial applications. This course aimed to provide hands-on experience and practical insights into the use of business applications in the finance sector.
- **Enhancing employability:** In today's competitive job market, employers seek candidates who possess both financial expertise and technological proficiency. This course aimed to equip students with the necessary skills and knowledge to increase their employability in the finance industry.



- **Promoting teamwork and presentation skills:** Through group presentations and individual presentations, the course aimed to improve students' ability to collaborate effectively in teams and present their ideas confidently to an audience.

Course Content:

The certificate course spanned seven days and covered the following topics:

Day 1: Introduction to Business Applications in Banking

- Overview of business applications in the Banking sector
- Importance of technology in finance
- Case studies showcasing successful implementations

Day 2: Theoretical Knowledge and Fundamentals

- Introduction to financial software and tools
- Financial modeling and forecasting
- Risk management applications

Day 3: Risk Management and Compliance Applications

- Introduction to risk management tools and software
- Compliance management systems and their role in finance
- Ethical considerations in using business applications in finance

Day 4: Individual Presentation: Financial Decision Support Systems

- Students prepared individual presentations on the role of decision support systems in finance
- Topics included data visualization, artificial intelligence, and machine learning applications in finance

Day 5: Group Presentation: Financial Data Analysis & Conclusion

- Students were divided into groups and assigned financial datasets
- Each group analyzed the data using relevant business applications
- Groups presented their findings, insights, and recommendations
- Recap of key concepts and takeaways from the course
- Q&A session to address students' queries



Outcome:

The certificate course on "Use of Business Applications in the Finance Sector" yielded the following outcomes:

Enhanced understanding of business applications: Students gained a comprehensive understanding of the various business applications used in the finance sector, including financial software, decision support systems, automation tools, and risk management applications.

Practical skills development: Through hands-on exercises and group presentations, students developed practical skills in financial data analysis, modeling, and decision-making using business applications. They also improved their teamwork and presentation abilities.

Increased employability: The course equipped students with in-demand skills and knowledge, enhancing their employability in the finance industry. They are now better prepared to leverage technology for financial analysis, reporting, and decision support.

Networking opportunities: The course provided a platform for students to interact with industry experts and peers, fostering valuable networking connections for future career prospects.

Overall, the certificate course successfully achieved its objective of providing theoretical knowledge, promoting teamwork, and enhancing the practical application of business applications in the finance sector. The participants left the course with a deeper understanding of the role of technology in finance and the ability to leverage business applications for financial analysis and decision-making.



Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)



Dr. (Mrs.) Leena Sarkar
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Photos:




Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)




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Attendance Sheet - SYBBI

Sr. No.	Student Name	Class	Contact No:	Gender	22	23	24	25	26	27
1	Ekta tiwari	SYBBI	9301864230	Female	P	P	P	P	P	P
2	Abhishek Ramchandra kudtarkar	SYBBI	9372319572	Male	P	P	P	P	P	P
3	Sandhya suresh burle	SYBBI	8928745088	Female	A	P	A	A	A	A
4	Sanika sanjay pawar	SYBBI	7887601948	Female	P	P	P	P	A	P
5	Anju Sanjay gupta	SYBBI	9867461885	Female	A	A	A	A	A	P
6	Kashish Ganesh Bhoir	SYBBI	9892541105	Female	P	P	P	P	P	P
7	Chaitanya manohar vetam	SYBBI	7738414082	Male	P	P	P	P	P	P
8	Giri Swati Ramashankar	SYBBI	9082156657	Female	P	P	P	P	P	P
9	Sapna subhash rathod	SYBBI	7977540837	Female	P	P	P	P	P	P
10	Sarayu Prajapati	SYBBI	9326161049	Female	P	P	P	P	P	P
11	Ashwini Gupta	SYBBI	981947085	Female	P	P	P	P	P	P
12	Sneha Ramesh thathera	SYBBI	8355943026	Female	P	P	P	P	P	P
13	Kajal Subhash Soni	SYBBI	9167636273	Female	P	P	P	P	P	P
14	Sakshi Nathuram chorage	SYBBI	9321021409	Female	P	P	P	P	A	P
15	Harshad sabale	SYBBI	9820241195	Male	P	P	P	P	P	P
16	Jituraj Sabne	SYBBI	7738488980	Male	P	P	P	P	P	P
17	Soham temkar	SYBBI	9833489450	Male	P	P	P	P	P	P
18	Satyam Dubey	SYBBI	9819776405	Male	A	P	P	P	A	P
19	RISHI. GORI	SYBBI	9137391188	Male	A	A	A	A	A	P
20	Singh tanushri Anil	SYBBI	9372215683	Female	P	P	A	P	P	P
21	Dipali Khandagale	SYBBI	9321799456	Female	P	P	P	P	P	P
22	Sapna pramod sahu	SYBBI	9619547890	Female	P	P	P	P	P	P
23	Aanchal yadav	SYBBI	9967547806	Female	P	P	P	P	P	A
24	Tawar Anjukawar Mansingh	SYBBI	8104161654	Female	A	P	P	P	P	A


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No. of Students Participated

Sr. No.	Student Name	Class	Contact No:	Email Address	Gender	Score
1	Ekta tiwari	SYBBI	9301864230	ekta85337@gmail.com	Female	25 / 35
2	Abhishek Ramchandra kudtarkar	SYBBI	9372319572	kudtarkarabhishek730@gmail.com	Male	16 / 35
3	Sandhya suresh burle	SYBBI	8928745088	burlesuresh5@gmail.com	Female	23 / 35
4	Sanika sanjay pawar	SYBBI	7887601948	pawarsanika002@gmail.com	Female	27 / 35
5	Anju Sanjay gupta	SYBBI	9867461885	anjugupta94559@gmail.com	Female	27 / 35
6	Kashish Ganesh Bhoir	SYBBI	9892541105	kashishbhoir554@gmail.com	Female	31 / 35
7	Chaitanya manohar vetam	SYBBI	7738414082	vetamchaitanya@gmail.com	Male	17 / 35
8	Giri Swati Ramashankar	SYBBI	9082156657	swatigiri1210@gmail.com	Female	26 / 35
9	Sapna subhash rathod	SYBBI	7977540837	rathodsapna209@gmail.com	Female	26 / 35
10	Sarayu Prajapati	SYBBI	9326161049	sharayuprajapati700@gmail.com	Female	28 / 35
11	Ashwini Gupta	SYBBI	981947085	ag3242490@gmail.com	Female	28 / 35
12	Sneha Ramesh thathera	SYBBI	8355943026	snehathathera@gmail.com	Female	28 / 35
13	Kajal Subhash Soni	SYBBI	9167636273	kajalsonikkv2021@gmail.com	Female	11 / 35
14	Sakshi Nathuram chorage	SYBBI	9321021409	sakshichorge71@gmail.com	Female	26 / 35
15	Harshad sabale	SYBBI	9820241195	harshadsabale751@gmail.com	Male	25 / 35
16	Jituraj Sabne	SYBBI	7738488980	jiturajsabne8980@gmail.com	Male	27 / 35
17	Soham temkar	SYBBI	9833489450	sohamtemkar12@gmail.com	Male	27 / 35
18	Satyam Dubey	SYBBI	9819776405	satyamdubey1802@gmail.com	Male	30 / 35
19	RISHI. GORI	SYBBI	9137391188	rishigori22@gmail.com	Male	30 / 35
20	Singh tanushri Anil	SYBBI	9372215683	tanushri10905@gmail.com	Female	28 / 35
21	Dipali Khandagale	SYBBI	9321799456	khandagaledipali027@gmail.com	Female	16 / 35
22	Sapna pramod sahu	SYBBI	9619547890	sapnasahu7780@gmail.com	Female	16 / 35
23	Aanchal yadav	SYBBI	9967547806	ay1459508@gmail.com	Female	21 / 35
24	Tawar Anjukawar Mansingh	SYBBI	8104161654	anjutanwar0023@gmail.com	Female	29 / 35


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)




Dr. (Mrs.) Leena Sarkar
Principal

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Certificate




Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)



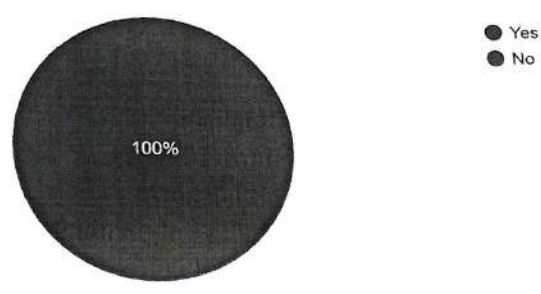

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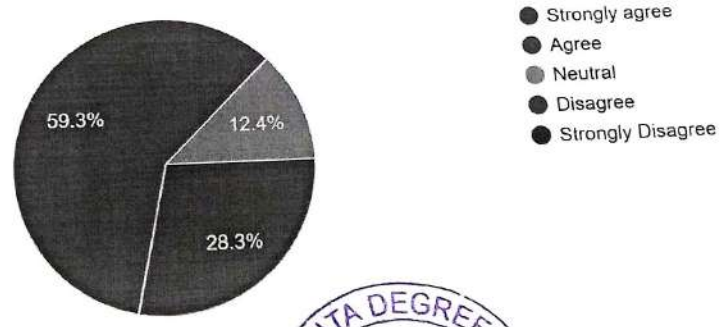
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Feedback Analysis :- SYBBI & SYBAF

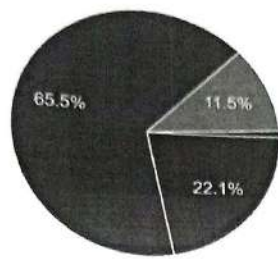
Were objective of the course clears to you?
 113 responses



The course contents met with your expectation
 113 responses

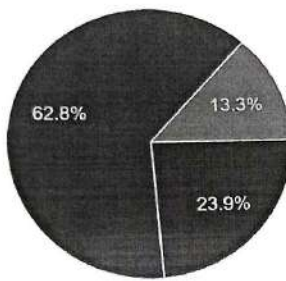


The lecture Sequence was well planned
113 responses



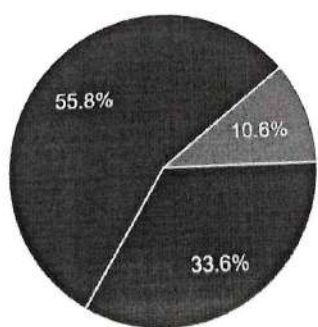
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

The course contents compared with your expectations
113 responses



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

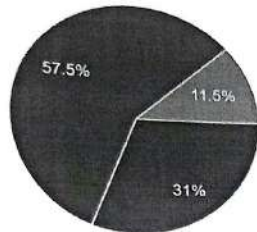
The course exposed you to new knowledge and practices
113 responses



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

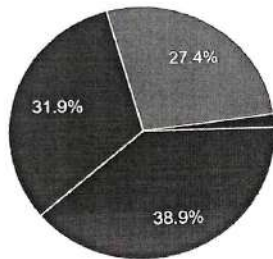


The lecture were clear and easy to understand
113 responses



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Please give overall rating of the course
113 responses



- Excellent
- Very good
- Good
- Fair
- Poor

Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)

Dr. (Mrs.) Leena Sarkar
Principal



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Plot no.9, Sector -19, Airoli, Navi-Mumbai.

Date: 19th June, 2023

Notice

All the members of BBI & BAF Department are hereby informed that there will be a meeting with Principal Madam Dr. (Mrs.) Leena Sarkar on **20th June, 2023 at 12.00 p.m.** at principal's office, regarding conducting the **Certificate Course for BBI & BAF students.**

Agenda:

- ✓ Deciding the date of **Certificate Course for BBI & BAF students.**
- ✓ Duty Allocation to staff for conducting the certificate course.
- ✓ Any other points with the permission of the chair.


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)


Dr. B.R. Deshpande
Vice Principal


Dr. (Mrs.) Leena Sarkar
Principal
PRINCIPAL

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Minutes of Meeting:

Date: 20th June, 2023

Dr. (Mrs.) Leena Sarkar - Chairperson for the Meeting. *Leena*

Dr. B.R. Deshpande - Vice-Principal *B.R.*

Asst. Prof. Kishor Chauhan - Co-ordinator of BBI & BAF

Asst. Prof. Seema Chaudhary - Member *Seema*

Asst. Prof. Manoj Kumar Gupta - Member *Manoj*

Asst. Prof. Sanjay Gupta - Member *Sanjay*

Asst. Prof. Ashutosh Sharma - Member *Ashutosh*

Asst. Prof. Aparna Surve - Member

BBI & BAF Department Meeting was held 20th June, 2023 at 12.00 p.m. the meeting was presided over by the Principal Dr. (Mrs.) Leena Sarkar.

1. Reading the minutes of the previous meeting by Mr. Kishor Chauhan.
2. To discuss the conduct of the Certificate course: to enhance the student's knowledge of the subjects, the department should conduct the certificate course of 30 hours. It was decided to conduct the certificate course from **22nd June 2023 to 28th June 2023.**
3. To send the notice to the BBI and BAF students about the **Certificate Course on Banking, Finance and Insurance.**
4. Mr. Sanjay Gupta will be responsible for handling the registration process for this programme.
5. Time Table Preparation will be done by Asst. Prof. Ashutosh Sharma.
6. Report Preparation will be done by Asst. Prof. Ashutosh Sharma.
7. Other matters were discussed with permission of the chair and the meeting ended at 12.30 p.m.
8. E- Certificate will be done by Asst. Prof. Manojkumar Gupta.





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Date - 21-06-2023

Notice

All Students are hereby informed that the Department of BBI & BAF is organizing a certificate course from **22nd June 2023 to 28th June 2023**. All the interested students of BBI & BAF are requested to take part in the above certificate course.

Certificate Courses:


SYBAF- Certificate Course on Use of Business Application in Finance


SYBBI- Certificate Course on Use of Business Application in Banking

TYBAF- Certificate Course on Cyber Security System

TYBBI- Certificate Course on Cyber Security System


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)


Dr. B.R. Deshpande
Vice Principal


Dr. (Mrs.) Leena Sarkar
Principal
PRINCIPAL

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DEPARTMENT OF BBI & BAF					
Certificate COURSE for SY & TY TIME TABLE (22/06/ 2023 TO 29/06/2023)					
DATE	TIME	SYBAF	TYBAF	SYBBI	TYBBI
THURSDAY					
22/06/2023	7.00 AM TO 7.50 AM	Sanjay Sir	Seema Mam	Sanjay Sir	Aparna Mam
	7.50 AM TO 8.40 AM	Sanjay Sir	Seema Mam	Sanjay Sir	Aparna Mam
	8.40 AM TO 9.30 AM	Aparna Mam	Sanjay Sir	Ashutosh Sir	Manoj Sir
	9.50 AM TO 10.40 AM	Manoj Sir	Sanjay Sir	Seema Mam	Ashutosh Sir
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
FRIDAY					
23/06/2023	7.00 AM TO 7.50 AM	Manoj Sir	Aparna Mam	Manoj Sir	Seema Mam
	7.50 AM TO 8.40 AM	Manoj Sir	Aparna Mam	Manoj Sir	Seema Mam
	8.40 AM TO 9.30 AM	Ashutosh Sir	Manoj Sir	Ashutosh Sir	Sanjay Sir
	9.50 AM TO 10.40 AM	Sanjay Sir	Aparna Mam	Seema Mam	Ashutosh Sir
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
SATURDAY					
24/06/2023	7.00 AM TO 7.50 AM	Ashutosh Sir	Seema Mam	Ashutosh Sir	Aparna Mam
	7.50 AM TO 8.40 AM	Ashutosh Sir	Seema Mam	Ashutosh Sir	Aparna Mam
	8.40 AM TO 9.30 AM	Manoj Sir	Aparna Mam	Manoj Sir	Seema Mam
	9.50 AM TO 10.40 AM	Sanjay Sir	Manoj Sir	Sanjay Sir	Ashutosh Sir
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
MONDAY					
26/06/2023	7.00 AM TO 7.50 AM	Sanjay Sir	Kishor Sir	Sanjay Sir	Seema Mam
	7.50 AM TO 8.40 AM	Manoj Sir	Kishor Sir	Manoj Sir	Aparna Mam
	8.40 AM TO 9.30 AM	Sanjay Sir	Seema Mam	Ashutosh Sir	Manoj Sir
	9.50 AM TO 10.40 AM	Ashutosh Sir	Manoj Sir	Sanjay Sir	Aparna Mam
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
TUESDAY					
27/06/2023	7.00 AM TO 7.50 AM	Group-Presentation	Group-Presentation	Group-Presentation	Group-Presentation
	7.50 AM TO 8.40 AM	Group-Presentation	Group-Presentation	Group-Presentation	Group-Presentation



	8.40 AM TO 9.30 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	9.50 AM TO 10.40 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
THURSDAY					
29/06/2023	7.00 AM TO 7.50 AM	Group -Persentation	Group -Persentation	Group -Persentation	Group -Persentation
	7.50 AM TO 8.40 AM	Group -Persentation	Group -Persentation	Group -Persentation	Group -Persentation
	8.40 AM TO 9.30 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	9.50 AM TO 10.40 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation

Note: KC - Mr. Kishor Chauhan, MG - Mr. Manoj Kumar Gupta, SC- Miss Seema Chaudhary, SG- Mr. Sanjay K Gupta, AS- Mr. Ashutosh Sharma, AV- Mrs. Aprna Surve.



Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)



Dr. (Mrs.) Leena Sarkar
Principal
PRINCIPAL
J.M.S. MEHTA DEGREE COLLEGE
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Padma Shree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli, Navi-Mumbai.

Report on Certificate Course on Cyber Security System

No. Students Participated - 49

Objective:

The objective of this report is to provide a detailed overview of the certificate course on Cyber Security System conducted for TYBAF students of JVM's Mehta Degree College. The course aimed to equip the students with theoretical knowledge, case studies, individual and group presentations, and a certificate course exam. The report will cover the need for the course, its structure and content, and the outcomes achieved.

Introduction:

The certificate course on Cyber Security System was organized from 22nd to 28th June 2023 for the TYBAF students of JVM's Mehta Degree College. The course aimed to address the increasing importance of cybersecurity in the digital age and provide students with essential knowledge and skills in this field.

Need for the Course:

With the rapid growth of technology and increasing reliance on digital platforms, the need for cybersecurity has become crucial. Recognizing the significance of protecting sensitive information and preventing cyber threats, JVM's Mehta Degree College initiated this certificate course to empower TYBAF students with comprehensive knowledge and practical skills related to cybersecurity systems.

Course Structure and Content:

The certificate course on Cyber Security System spanned over seven days and encompassed various components to ensure a holistic learning experience for the students. The following is a breakdown of the course content and activities conducted on each day:

Day 1: Introduction to Cybersecurity & IT Act 2000

- Introduction to Cybersecurity and its importance



- 17
- Fundamentals of Cyber Threats and Attacks
 - Overview of Cybersecurity Frameworks and Standards

Day 2: Case Studies

- Analysis of real-life cybersecurity incidents
- Understanding the impact of cyber attacks on organizations
- Examining effective cybersecurity measures and incident response strategies

Day 3: Individual Presentations

- Students prepared presentations on assigned cybersecurity topics
- Each student showcased their understanding of the subject matter and shared insights

Day 4: Group Presentations

- Students were divided into groups and assigned specific cybersecurity challenges
- Each group presented their findings, proposed solutions, and engaged in constructive discussions

Day 5: Certificate Course Exam

- A comprehensive exam covering the entire course content
- Students were evaluated on their knowledge of cybersecurity concepts, case studies, and practical applications

Outcome:

The certificate course on Cyber Security System yielded several positive outcomes for the participating TYBAF students. These include:

a. Enhanced Theoretical Knowledge: The students gained a solid foundation in cybersecurity concepts, including threat landscapes, risk assessment, security controls, and incident response. The theoretical knowledge provided a framework for their understanding of cybersecurity systems.

b. Practical Application through Case Studies: By analyzing real-life case studies, the students developed practical insights into the challenges faced by organizations and the strategies employed to mitigate cyber threats. The case studies facilitated critical thinking and problem-solving skills.



c. Improved Presentation Skills: Through individual and group presentations, students honed their communication and presentation abilities. They learned how to articulate complex ideas, present their findings effectively, and engage in meaningful discussions.

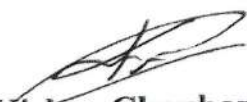
d. Comprehensive Assessment: The certificate course exam evaluated the students' understanding of the course content and their ability to apply the acquired knowledge. The exam tested their theoretical knowledge, analytical skills, and practical understanding of cybersecurity systems.

e. Certificates of Completion: Upon successful completion of the course and passing the certificate exam, all participating students were awarded certificates, recognizing their commitment to enhancing their cybersecurity knowledge and skills.

Conclusion:

The certificate course on Cyber Security System conducted for TYBAF students of JVM's Mehta Degree College proved to be a valuable educational experience. The course provided students with theoretical knowledge, case studies, individual and group presentations, and a comprehensive certificate exam. The students benefited from the course by gaining a solid understanding of cybersecurity concepts, practical application through case studies, and improved presentation skills. The successful completion of the course and the awarding of certificates demonstrated the students' commitment to cybersecurity education.

Overall, the certificate course on Cyber Security System played a vital role in equipping the TYBAF students with essential knowledge and skills required in today's digital landscape. It is recommended to continue organizing such courses in the future to empower students with the necessary tools to address cybersecurity challenges effectively.


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)

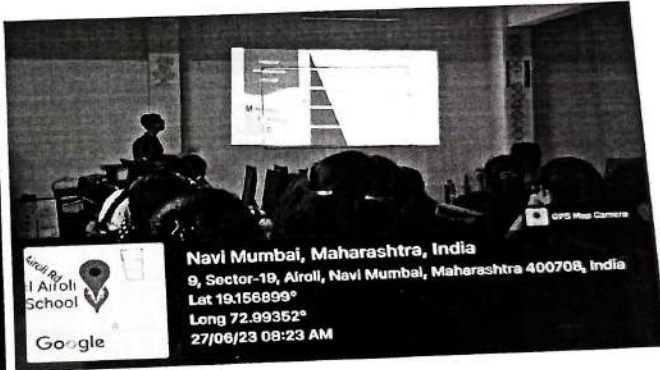
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Photos:



[Signature]
Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)



Leena
Dr. (Mrs.) Leena Sarkar
Principal **PRINCIPAL**
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Plot no.9, Sector -19, Airoli, Navi-Mumbai


Attendance Sheet - SYBAF

Sr. No.	Student Name	Class	Contact No:	22	23	24	26	27	29
1	Ronit padmakar shingot	TYBAF	9324758028	A	A	A	P	A	A
2	Harsh Raghunath Padave	TYBAF	9137886014	P	P	P	P	P	P
3	Shreyas Khanderao Sonar	TYBAF	9892702885	A	A	A	A	A	P
4	GOSWAMI KAILASHPURI SHIVPURI	TYBAF	8898989586	P	P	P	P	P	P
5	Samruddhi mangesh Chavan	TYBAF	9326605623	P	P	A	A	A	A
6	Dhruvesh Ravindra Patil	TYBAF	7777092629	P	P	P	P	P	P
7	Sakshi bhosale	TYBAF	8928951104	P	P	P	A	A	P
8	Chetan poojary	TYBAF	9372631233	A	P	P	A	P	P
9	sarthakshinde9395@gmail.com	TYBAF	9082888868	A	A	P	P	P	A
10	Prachi Sunil jagtap	TYBAF	8452802747	P	P	P	P	P	P
11	Tanish gadge	TYBAF	8433617429	P	A	A	P	A	A
12	Pratham Tanpure	TYBAF	7400331764	P	P	A	A	P	P
13	Tanvi Deepak Shinde	TYBAF	9321615251	P	P	P	A	P	P
14	Sanika ambaji jadhav	TYBAF	9324743462	P	P	P	P	P	P
15	Amisha Rawal	TYBAF	9967964501	P	P	P	A	A	A
16	Vaishnavi	TYBAF	8779644906	A	P	A	A	P	P
17	VIRAJ PATIL	TYBAF	9892777680	A	A	A	P	P	P
18	Jotiba Santosh Patade	TYBAF	8928356903	P	P	P	P	A	P
19	Ankush Madan Singh	TYBAF	8452863642	A	P	P	P	A	P
20	Arpit Manoj Dubey	TYBAF	7045263169	P	P	P	P	P	P
21	Apurva Deepak Ranjane	TYBAF	9930188918	P	P	P	P	A	A
22	Shubham Umesh Rane	TYBAF	7900191580	P	P	P	P	P	P
23	Om Nilesh Tawade	TYBAF	9029905291	P	P	P	P	P	P
24	Khushi sunil kadam	TYBAF	9833637830	P	A	P	A	P	P
25	Nisha kumbhar	TYBAF	9920021941	P	P	P	P	P	P




10

26	Tanmay Sawant									
27	Jitesh Natekar	TYBAF	9324393056	P	P	P	A	P	P	
28	Arun Ambikaprasad Yadav	TYBAF	8424049681	P	P	P	P	P	P	A
29	PRIYA NAIKAR	TYBAF	9821313015	A	P	A	A	A	A	
30	Vinayak panjabrao Shewale	TYBAF	8850039354	P	P	P	P	P	P	
31	Pratibha Dinesh Upadhyay	TYBAF	7498606724	P	P	P	P	P	P	
32	Varsha kamble	TYBAF	7021775719	P	P	P	P	P	P	
33	Prashant sonaji Salunkhe	TYBAF	7021444065	P	P	P	P	P	P	A
34	Shekhar Kisan Makamle	TYBAF	9768350555	P	P	P	P	A	P	
35	Rutuja rajaram jadhav	TYBAF	9082328870	A	P	P	P	P	P	
36	Aditi Arun Chavan	TYBAF	7385073072	P	A	A	A	A	A	
37	Gaurav Rambhau lande	TYBAF	9167025886	A	P	P	A	P	P	
38	Aishwarya sanjay suryawanshi	TYBAF	8097754890	P	P	A	P	P	A	
39	Nikita Yuvraj Kadam	TYBAF	9372605340	P	P	P	P	A	P	
40	Mandar Vikas Sawant	TYBAF	9075469546	P	P	A	P	A	P	
41	Harsh purshottam Palod	TYBAF	8104807575	P	P	P	A	A	P	
42	Aarti satyaram rajbhar	TYBAF	9322255022	P	P	P	A	A	P	
43	siddhesh subhash patil	TYBAF	9324011610	A	A	A	P	P	P	
44	Atharva vilas patil	TYBAF	8779041927	P	P	P	P	P	P	
45	VAIBHAV YOGESH PARTHE	TYBAF	9321189571	P	P	P	A	A	P	
46	Sarika Dattatraya Kumbhar	TYBAF	7666685737	P	P	P	A	P	P	
47	Samiksha Uddhav Suryawanshi	TYBAF	9136500517	P	P	P	A	A	P	
48	Renuka Dipak savlekar	TYBAF	8928839132	P	P	A	A	A	A	
49	Deepak Ashok Verma	TYBAF	8779044679	A	A	P	P	P	P	
		TYBAF	7738641660	A	A	A	A	A	A	


Dr. Kishor Chauhan
 Co-ordinator (BBI & BAF)




Dr. (Mrs.) Leena Sarkar
 Principal
 JNAN VIKAS MANDAL'S
 M.R. MEHTA COLLEGE OF COMMERCE
 D.M. COLLEGE OF SCIENCE
 A.R. MEHTA COLLEGE OF ARTS
 Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE
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 NAVI MUMBAI-400 708.



JNAN VIKAS MANDAL'S
Mohanlal Raichand Mehta College of Commerce
Diwali Maa Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padma Shree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli, Navi-Mumbai.

No. of Students Participated

Sr. No.	Student Name	Gender	Class	Contact No:	Email Address	Score
1	Ronit padmakar shingot	Male	TYBAF	9324758028	ronitshingote08@gmail.com	15 / 20
2	Harsh Raghunath Padave	Male	TYBAF	9137886014	padaveharsh01@gmail.com	19 / 20
3	Shreyas Khanderao Sonar	Male	TYBAF	9892702885	soshreyas06@gmail.com	8 / 20
4	GOSWAMI KAILASHPURI SHIVPURI	Male	TYBAF	8898989586	yusufsayyed145@gmail.com	13 / 20
5	Samruddhi mangesh Chavan	Female	TYBAF	9326605623	samruddhi.chavan2903@gmail.com	14 / 20
6	Dhruvesh Ravindra Patil	Male	TYBAF	7777092629	patildhruvesh06@gmail.com	14 / 20
7	Sakshi bhosale	Female	TYBAF	8928951104	sakshivb31@gmail.com	18 / 20
8	Chetan poojary	Male	TYBAF	9372631233	chetanpoojary46@gmail.com	18 / 20
9	sarthakshinde9395@gmail.com	Male	TYBAF	9082888868	sarthakshinde9395@gmail.com	16 / 20
10	Prachi Sunil jagtap	Female	TYBAF	8452802747	prachisunil777@gmail.com	17 / 20
11	Tanish gadge	Male	TYBAF	8433617429	tanishgadge21@gmail.com	17 / 20
12	Pratham Tanpure	Male	TYBAF	7400331764	prathamtanpure1601@gmail.com	6 / 20
13	Tanvi Deepak Shinde	Female	TYBAF	9321615251	shinde.tanvi272@gmail.com	16 / 20
14	Sanika ambaji jadhav	Female	TYBAF	9324743462	jsanika71@gmail.com	10 / 20
15	Amisha Rawal	Female	TYBAF	9967964501	amisharawal010503@gmail.com	14 / 20
16	Vaishnavi	Female	TYBAF	8779644906	patilvaishnavi2814@gmail.com	11 / 20
17	VIRAJ PATIL	Male	TYBAF	9892777680	virupatil0505@gmail.com	9 / 20
18	Jotiba Santosh Patade	Male	TYBAF	8928356903	bhaveshtpatade185@gmail.com	12 / 20
19	Ankush Madan Singh	Male	TYBAF	8452863642	ss4600521@gmail.com	13 / 20
20	Arpit Manoj Dubey	Male	TYBAF	7045263169	dubeyarpit2572002@gmail.com	14 / 20
21	Apurva Deepak Ranjane	Female	TYBAF	9930188918	apurvaranjane@gmail.com	12 / 20
22	Shubham Umesh Rane	Male	TYBAF	7900191580	shubhamrane176@gmail.com	20 / 20



23	Om Nilesh Tawade	Male	TYBAF	9029905291	omtawde2003@gmail.com	20 / 20
24	Khushi sunil kadam	Female	TYBAF	9833637830	khushikadam1711@gmail.com	10 / 20
25	Nisha kumbhar	Female	TYBAF	9920021941	nishakumbhar799@gmail.com	12 / 20
26	Tanmay Sawant	Male	TYBAF	9324393056	sawanttanmay57@gmail.com	16 / 20
27	Jitesh Natekar	Male	TYBAF	8424049681	jiteshnatekar2515@gmail.com	18 / 20
28	Arun Ambikaprasad Yadav	Male	TYBAF	9821313015	arunyadav26ap@gmail.com	13 / 20
29	PRIYA NAIKAR	Female	TYBAF	8850039354	naikarr642@gmail.com	10 / 20
30	Vinayak panjabrao Shewale	Male	TYBAF	7498606724	vshewale323@gmail.com	12 / 20
31	Pratibha Dinesh Upadhyay	Female	TYBAF	7021775719	upratibha036@gmail.com	17 / 20
32	Varsha kamble	Female	TYBAF	7021444065	varshaukamble15@gmail.com	13 / 20
33	Prashant sonaji Salunkhe	Male	TYBAF	9768350555	salunkhep142@gmail.com	11 / 20
34	Shekhar Kisan Makamle	Male	TYBAF	9082328870	makamleshekhar@gmail.com	14 / 20
35	Rutuja rajaram jadhav	Female	TYBAF	7385073072	jadhavrutuja0503@gmail.com	4 / 20
36	Aditi Arun Chavan	Female	TYBAF	9167025886	chavanaditi220@gmail.com	19 / 20
37	Gaurav Rambhau lande	Male	TYBAF	8097754890	gauravlande094@gmail.com	18 / 20
38	Aishwarya sanjay suryawanshi	Female	TYBAF	9372605340	aishwaryasuryawanshi1615@gmail.com	17 / 20
39	Nikita Yuvraj Kadam	Female	TYBAF	9075469546	niki141517@gmail.com	18 / 20
40	Mandar Vikas Sawant	Male	TYBAF	8104807575	mandarsawant18@gmail.com	11 / 20
41	Harsh purshottam Palod	Male	TYBAF	9322255022	harshpalod7@gmail.com	10 / 20
42	Aarti satyaram rajbhar	Female	TYBAF	9324011610	aartirajbhar22@gmail.com	10 / 20
43	siddhesh subhash patil	Male	TYBAF	8779041927	siddheshpatil093@gmail.com	11 / 20
44	Atharva vilas patil	Male	TYBAF	9321189571	patilatharva509@gmail.com	12 / 20
45	VAIBHAV YOGESH PARTHE	Male	TYBAF	7666685737	parthevaibhav36@gmail.com	12 / 20
46	Sarika Dattatraya Kumbhar	Female	TYBAF	9136500517	sarikakumbhar48@gmail.com	13 / 20
47	Samiksha Uddhav Suryawanshi	Female	TYBAF	8928839132	mayaudhav7488@gmail.com	19 / 20
48	Renuka Dipak savlekar	Female	TYBAF	8779044679	renukasavlekar@gmail.com	3 / 20
49	Deepak Ashok Verma	Male	TYBAF	7738641660	depakverma797@gmail.com	11 / 20


Dr. Kishor Chauhan
 Co-ordinator (BBI & BAF)





Dr. (Mrs.) Leena Sarkar
 Principal
 J.M.S. MEHTA DEGREE COLLEGE
 M.R. MEHTA COLLEGE OF COMMERCE
 D.M. COLLEGE OF SCIENCE
 A.R. MEHTA COLLEGE OF ARTS
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Plot no.9, Sector -19, Airoli, Navi-Mumbai.

Certificate





JNAN VIKAS MANDAL'S DEGREE COLLEGE, AIROLI.
NAAC Re-Accredited Grade 'A' (CGPA 3.33) (2nd cycle)
PLOT NO. 9, SECTOR-19, AIROLI, NAVI MUMBAI, MAHARASHTRA - 400 708


CERTIFICATE

This is to certify that
<<Name>>


of TYBAF who has successfully completed Certificate Course on "Cyber Security System" of 30 hours duration from 22nd June, 2023 to 28th June, 2023 conducted by Department of BBI & BAF of JVM's Degree College.


Dr. Kishor Chauhan
HOD, Department of BBI & BAF


Dr. (Mrs.) Leena Sarkar
Principal and Chairperson


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)



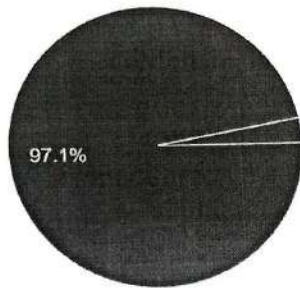

Dr. (Mrs.) Leena Sarkar
Principal
PRINCIPAL
JNAN VIKAS MANDAL'S
M.R. MEHTA COLLEGE OF COMMERCE
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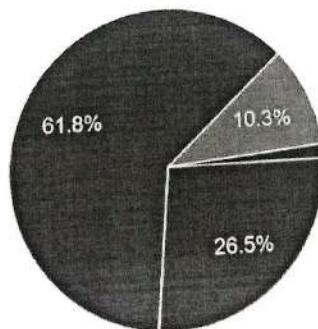
Feedback Analysis :- TYBBI & TYBAF

Were objective of the course clears to you?
68 responses



- Yes
- No

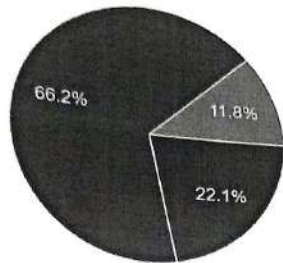
The course contents met with your expectation
68 responses



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

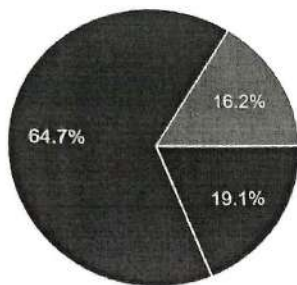


The lecture Sequence was well planned
68 responses



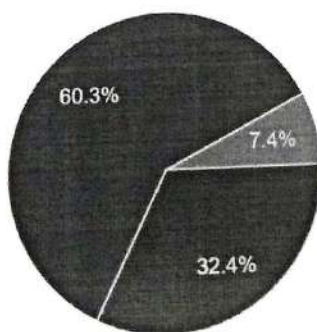
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

The course contents compared with your expectations
68 responses



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

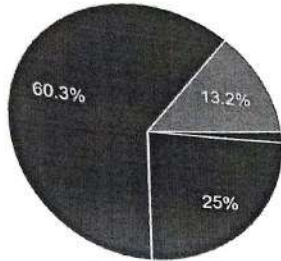
The course exposed you to new knowledge and practices
68 responses



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

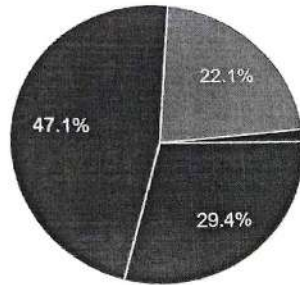


The lecture were clear and easy to understand
68 responses



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Please give overall rating of the course
68 responses



- Excellent
- Very good
- Good
- Fair
- Poor

Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)



Leena
Dr. (Mrs.) Leena Sarkar
Principal

PRINCIPAL
JNAN VIKAS MANDAL'S
M.R. MEHTA COLLEGE OF COMMERCE
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A.R. MEHTA COLLEGE OF ARTS
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JNAN VIKAS MANDAL'S
Mohanlal Raichand Mehta College of Commerce
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Amritlal Raichand Mehta Degree College of Arts
Padma Shree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli, Navi-Mumbai.


Date: 19th June, 2023

Notice

All the members of BBI & BAF Department are hereby informed that there will be a meeting with Principal Madam Dr. (Mrs.) Leena Sarkar on 20th June, 2023 at 12.00 p.m. at principal's office, regarding conducting the **Certificate Course for BBI & BAF students.**

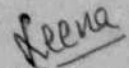
Agenda:

- ✓ Deciding the date of **Certificate Course for BBI & BAF students.**
- ✓ Duty Allocation to staff for conducting the certificate course.
- ✓ Any other points with the permission of the chair.


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)

Dr. B.R. Deshpande
Vice-Principal




Dr. (Mrs.) Leena Sarkar
Principal

PRINCIPAL
JNAN VIKAS MANDAL'S
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2


JNAN VIKAS MANDAL'S
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Amritlal Raichand Mehta Degree College of Arts
Padma Shree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli, Navi-Mumbai.


Minutes of Meeting:

Date: 20th June, 2023

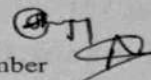
Dr. (Mrs.) Leena Sarkar - Chairperson for the Meeting.


Dr. B.R. Deshpande - Vice- Principal

Asst. Prof. Kishor Chauhan - Co-ordinator of BBI & BAF 

Asst. Prof. Seema Chaudhary - Member 

Asst. Prof. Manoj Kumar Gupta - Member

Asst. Prof. Sanjay Gupta - Member 

Asst. Prof. Ashutosh Sharma - Member 

Asst. Prof. Aparna Surve - Member

BBI & BAF Department Meeting was held 20th June, 2023 at 12.00 p.m. the meeting was presided over by the Principal Dr. (Mrs.) Leena Sarkar.

1. Reading the minutes of the previous meeting by Mr. Kishor Chauhan.
2. To discuss the conduct of the Certificate course: to enhance the student's knowledge of the subjects, the department should conduct the certificate course of 30 hours. It was decided to conduct the certificate course from **22nd June 2023 to 28th June 2023**.
3. To send the notice to the BBI and BAF students about the **Certificate Course on Banking, Finance and Insurance**.
4. Mr. Sanjay Gupta will be responsible for handling the registration process for this programme.
5. Time Table Preparation will be done by Asst. Prof. Ashutosh Sharma.
6. Report Preparation will be done by Asst. Prof. Ashutosh Sharma.
7. Other matters were discussed with permission of the chair and the meeting ended at 12.30 p.m.
8. E- Certificate will be done by Asst. Prof. Manojkumar Gupta.





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Plot no.9, Sector -19, Airoli, Navi-Mumbai.

Date - 21-06-2023

Notice

All Students are hereby informed that the Department of BBI & BAF is organizing a certificate course from **22nd June 2023 to 28th June 2023**. All the interested students of BBI & BAF are requested to take part in the above certificate course.

Certificate Courses:

- SYBAF-** Certificate Course on Use of Business Application in Finance
- SYBBI-** Certificate Course on Use of Business Application in Banking
- TYBAF-** Certificate Course on Cyber Security System
- TYBBI-** Certificate Course on Cyber Security System

Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)

Dr. B.R. Deshpande
Vice Principal

Dr. (Mrs.) Leena Sarkar
Principal

PRINCIPAL
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DEPARTMENT OF BBI & BAF

Certificate COURSE for SY & TY TIME TABLE (22/06/ 2023 TO 29/06/2023)

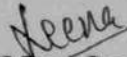
DATE	TIME	SYBAF	TYBAF	SYBBI	TYBBI
THURSDAY					
22/06/2023	7.00 AM TO 7.50 AM	Sanjay Sir	Seema Mam	Sanjay Sir	Aparna Mam
	7.50 AM TO 8.40 AM	Sanjay Sir	Seema Mam	Sanjay Sir	Aparna Mam
	8.40 AM TO 9.30 AM	Aparna Mam	Sanjay Sir	Ashutosh Sir	Manoj Sir
	9.50 AM TO 10.40 AM	Manoj Sir	Sanjay Sir	Seema Mam	Ashutosh Sir
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
FRIDAY					
23/06/2023	7.00 AM TO 7.50 AM	Manoj Sir	Aparna Mam	Manoj Sir	Seema Mam
	7.50 AM TO 8.40 AM	Manoj Sir	Aparna Mam	Manoj Sir	Seema Mam
	8.40 AM TO 9.30 AM	Ashutosh Sir	Manoj Sir	Ashutosh Sir	Sanjay Sir
	9.50 AM TO 10.40 AM	Sanjay Sir	Aparna Mam	Seema Mam	Ashutosh Sir
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
SATURDAY					
24/06/2023	7.00 AM TO 7.50 AM	Ashutosh Sir	Seema Mam	Ashutosh Sir	Aparna Mam
	7.50 AM TO 8.40 AM	Ashutosh Sir	Seema Mam	Ashutosh Sir	Aparna Mam
	8.40 AM TO 9.30 AM	Manoj Sir	Aparna Mam	Manoj Sir	Seema Mam
	9.50 AM TO 10.40 AM	Sanjay Sir	Manoj Sir	Sanjay Sir	Ashutosh Sir
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
MONDAY					
26/06/2023	7.00 AM TO 7.50 AM	Sanjay Sir	Kishor Sir	Sanjay Sir	Seema Mam
	7.50 AM TO 8.40 AM	Manoj Sir	Kishor Sir	Manoj Sir	Aparna Mam
	8.40 AM TO 9.30 AM	Sanjay Sir	Seema Mam	Ashutosh Sir	Manoj Sir
	9.50 AM TO 10.40 AM	Ashutosh Sir	Manoj Sir	Sanjay Sir	Aparna Mam
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
TUESDAY					
27/06/2023	7.00 AM TO 7.50 AM	Group-Presentation	Group-Presentation	Group-Presentation	Group-Presentation
	7.50 AM TO 8.40 AM	Group-Presentation	Group-Presentation	Group-Presentation	Group-Presentation



	8.40 AM TO 9.30 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	9.50 AM TO 10.40 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
THURSDAY					
29/06/2023	7.00 AM TO 7.50 AM	Group -Persentation	Group -Persentation	Group -Persentation	Group -Persentation
	7.50 AM TO 8.40 AM	Group -Persentation	Group -Persentation	Group -Persentation	Group -Persentation
	8.40 AM TO 9.30 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	9.50 AM TO 10.40 AM	Evaluation Session	Evaluation Session	Evaluation Session	Evaluation Session
	10.40 AM TO 11.30 PM	Preparation	Preparation	Preparation	Preparation
<u>Note: KC - Mr. Kishor Chauhan, MG - Mr. Manoj Kumar Gupta, SC - Miss Seema Chaudhary, SG - Mr. Sanjay K Gupta, AS - Mr. Ashutosh Sharma, AV - Mrs. Aprna Surve.</u>					


Dr. Kishor Chauhan
 Co-ordinator (BBI & BAF)




Dr. (Mrs.) Leena Sarkar
 Principal

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Plot no.9, Sector -19, Airoli, Navi-Mumbai.

Report on Certificate Course on Cyber Security System

No. Students Participated -19

Objective:

The objective of this report is to provide a detailed overview of the certificate course on Cyber Security System conducted for TYBBI students of JVM's Mehta Degree College. The course aimed to equip the students with theoretical knowledge, case studies, individual and group presentations, and a certificate course exam. The report will cover the need for the course, its structure and content, and the outcomes achieved.

Introduction:

The certificate course on Cyber Security System was organized from 22nd to 28th June 2023 for the TYBBI students of JVM's Mehta Degree College. The course aimed to address the increasing importance of cybersecurity in the digital age and provide students with essential knowledge and skills in this field.

Need for the Course:

With the rapid growth of technology and increasing reliance on digital platforms, the need for cybersecurity has become crucial. Recognizing the significance of protecting sensitive information and preventing cyber threats, JVM's Mehta Degree College initiated this certificate course to empower TYBBI students with comprehensive knowledge and practical skills related to cybersecurity systems.

Course Structure and Content:

The certificate course on Cyber Security System spanned over seven days and encompassed various components to ensure a holistic learning experience for the students. The following is a breakdown of the course content and activities conducted on each day:



7

Day 1: Introduction to Cybersecurity & IT Act 2000

- Introduction to Cybersecurity and its importance
- Fundamentals of Cyber Threats and Attacks
- Overview of Cybersecurity Frameworks and Standards

Day 2: Case Studies

- Analysis of real-life cybersecurity incidents
- Understanding the impact of cyber attacks on organizations
- Examining effective cybersecurity measures and incident response strategies

Day 3: Individual Presentations

- Students prepared presentations on assigned cybersecurity topics
- Each student showcased their understanding of the subject matter and shared insights

Day 4: Group Presentations

- Students were divided into groups and assigned specific cybersecurity challenges
- Each group presented their findings, proposed solutions, and engaged in constructive discussions

Day 5: Certificate Course Exam

- A comprehensive exam covering the entire course content
- Students were evaluated on their knowledge of cybersecurity concepts, case studies, and practical applications

Outcome:

The certificate course on Cyber Security System yielded several positive outcomes for the participating TYBBI students. These include:

a. Enhanced Theoretical Knowledge: The students gained a solid foundation in cybersecurity concepts, including threat landscapes, risk assessment, security controls, and incident response. The theoretical knowledge provided a framework for their understanding of cybersecurity systems.

b. Practical Application through Case Studies: By analyzing real-life case studies, the students developed practical insights into the challenges faced by organizations and the strategies employed to mitigate cyber threats. The case studies facilitated critical thinking and problem-solving skills.



c. Improved Presentation Skills: Through individual and group presentations, students honed their communication and presentation abilities. They learned how to articulate complex ideas, present their findings effectively, and engage in meaningful discussions.

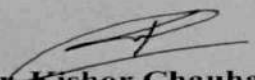
d. Comprehensive Assessment: The certificate course exam evaluated the students' understanding of the course content and their ability to apply the acquired knowledge. The exam tested their theoretical knowledge, analytical skills, and practical understanding of cybersecurity systems.

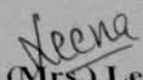
e. Certificates of Completion: Upon successful completion of the course and passing the certificate exam, all participating students were awarded certificates, recognizing their commitment to enhancing their cybersecurity knowledge and skills.

Conclusion:

The certificate course on Cyber Security System conducted for TYBBI students of JVM's Mehta Degree College proved to be a valuable educational experience. The course provided students with theoretical knowledge, case studies, individual and group presentations, and a comprehensive certificate exam. The students benefited from the course by gaining a solid understanding of cybersecurity concepts, practical application through case studies, and improved presentation skills. The successful completion of the course and the awarding of certificates demonstrated the students' commitment to cybersecurity education.

Overall, the certificate course on Cyber Security System played a vital role in equipping the TYBBI students with essential knowledge and skills required in today's digital landscape. It is recommended to continue organizing such courses in the future to empower students with the necessary tools to address cybersecurity challenges effectively.


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)


Dr. (Mrs.) Leena Sarkar
Principal



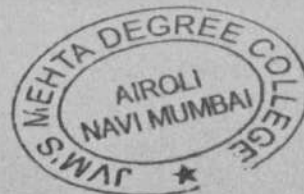
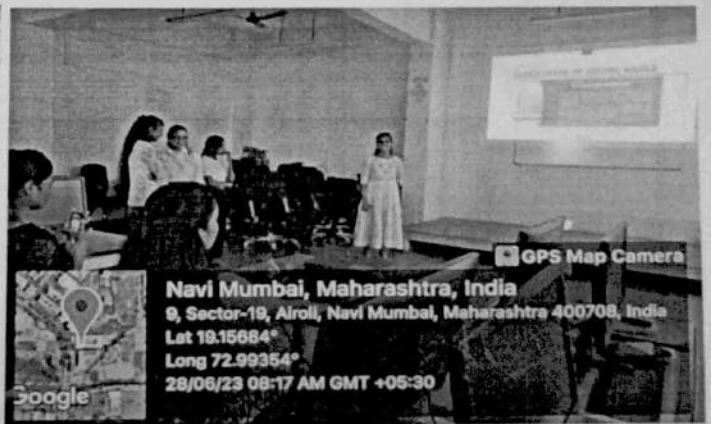
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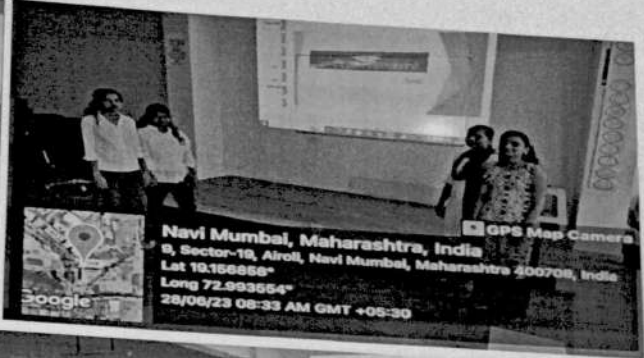
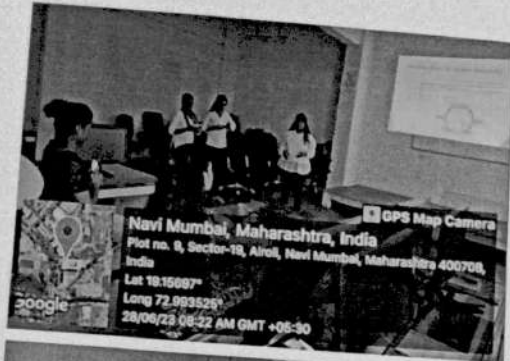
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JNAN VIKAS MANDAL'S
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Amritlal Raichand Mehta Degree College of Arts
Padma Shree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli, Navi-Mumbai.

Photos:





[Signature]
Dr. Kishor Chauhan
 Co-ordinator (BBI & BAF)



[Signature]
Dr. (Mrs.) Leena Sarkar
 Principal

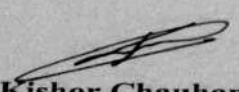
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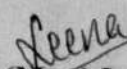
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Attendance Sheet - SYBAF

Sr. No.	Student Name	Class	Contact No:	22	23	24	26	27	29
1	Chaitali Suresh Dhumak	TYBBI	9321432393	P	P	P	P	P	P
2	Dipesh poojary	TYBBI	7304227383	P	P	P	P	A	A
3	Araf Israr Ahmad khan	TYBBI	9619436723	P	P	P	P	P	A
4	Chaurasiya soni ramsajivan	TYBBI	9324808706	P	P	P	P	P	P
5	Ranjeet vishwakarma	TYBBI	9987847032	A	P	A	A	A	A
6	Shreya Pandey	TYBBI	9137517230	P	P	P	P	P	P
7	Aman Ramesh Gupta	TYBBI	8779566643	A	A	A	A	P	P
8	Ruchita Mahendra Jaiswar	TYBBI	9372792356	P	P	P	P	P	P
9	Swasti Chetan Parkar	TYBBI	9152592709	P	P	P	A	A	A
10	DEEPALI BANDU GAIKWAD	TYBBI	7039171361	P	P	A	P	P	A
11	Singh Ansuya Brijmohan	TYBBI	7208171030	P	P	P	P	P	P
12	Ekta manojkumar sharma	TYBBI	7738312503	P	P	P	P	P	P
13	Siddhi balkrishna madhavi	TYBBI	7039605657	A	A	A	A	P	P
14	rutuja shinde	TYBBI	8888268756	A	A	A	P	P	A
15	Saish Mahesh Tirlotkar	TYBBI	9619483771	P	P	P	P	P	P
16	Neha Mulchand Gupta	TYBBI	9321531157	P	P	P	P	P	P
17	Rajbhar Sangeeta Vishal	TYBBI	8927998635	P	P	P	P	P	P
18	Dhruv Gawade	TYBBI	8451814871	P	P	P	P	P	P
19	Aarti Radheshyam Mourya	TYBBI	8591060120	P	P	P	P	A	P


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)




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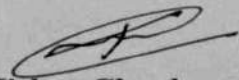


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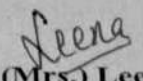
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Padma Shree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli, Navi-Mumbai.

No. of Students Participated

Sr. No.	Student Name	Gender	Class	Contact No:	Email Address	Score
1	Chaitali Suresh Dhumak	Female	TYBBI	9321432393	dhumakchaitali@gmail.com	13 / 20
2	Dipesh poojary	Male	TYBBI	7304227383	poojarydipesh0@gmail.com	11 / 20
3	Araf Israr Ahmad khan	Male	TYBBI	9619436723	araf7190@gmail.com	15 / 20
4	Chaurasiya soni ramsajivan	Female	TYBBI	9324808706	sonichaurasiya896@gmail.com	13 / 20
5	Ranjeet vishwakarma	Male	TYBBI	9987847032	ranjeetvishwakrama230@gmail.com	6 / 20
6	Shreya Pandey	Female	TYBBI	9137517230	shreyapandey1151@gmail.com	10 / 20
7	Aman Ramesh Gupta	Male	TYBBI	8779566643	amangta711@gmail.com	18 / 20
8	Ruchita Mahendra Jaiswar	Female	TYBBI	9372792356	ruchitajaiswar@gmail.com	11 / 20
9	Swasti Chetan Parkar	Female	TYBBI	9152592709	swastiparkar@gmail.com	9 / 20
10	DEEPALI BANDU GAIKWAD	Female	TYBBI	7039171361	deepali1234g@gmail.com	17 / 20
11	Singh Ansuya Brijmohan	Female	TYBBI	7208171030	ansuyasingh79@gmail.com	15 / 20
12	Ekta manojkumar sharma	Female	TYBBI	7738312503	ektamsharma3@gmail.com	19 / 20
13	Siddhi balkrishna madhavi	Female	TYBBI	7039605657	siddhimadhavi23@gmail.com	11 / 20
14	rutuja shinde	Female	TYBBI	8888268756	rutujashinde82003@gmail.com	3 / 20
15	Saish Mahesh Tirlotkar	Male	TYBBI	9619483771	tirlotkarsaish@gmail.com	14 / 20
16	Neha Mulchand Gupta	Female	TYBBI	9321531157	nehaguptaprinces1002@gmail.com	16 / 20
17	Rajbhar Sangeeta Vishal	Female	TYBBI	8927998635	mangeetarajbhar04@gmail.com	14 / 20
18	Dhruv Gawade	Male	TYBBI	8451814871	dhruvgawade37@gmail.com	10 / 20
19	Aarti Radheshyam Mourya	Female	TYBBI	8591060120	mauryaaarti341@gmail.com	16 / 20


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)




Dr. (Mrs.) Leena Sarkar
Principal

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Certificate

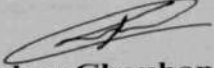
 **JNAN VIKAS MANDAL'S DEGREE COLLEGE, AIROLI.**
NAAC Re-Accredited Grade 'A' (CGPA 3.33) (2nd cycle)
PLOT NO. 9, SECTOR-19, AIROLI, NAVI MUMBAI, MAHARASHTRA - 400 708

CERTIFICATE
This is to certify that
<<Name>>

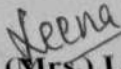
of **TYBBI** who has successfully completed Certificate Course on "Cyber Security System" of 30 hours duration from **22nd June, 2023 to 28th June, 2023** conducted by Department of BBI & BAF of JVM's Degree College.


Dr. Kishor Chauhan
HOD, Department of BBI & BAF


Dr. (Mrs.) Leena Sarkar
Principal and Chairperson


Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)



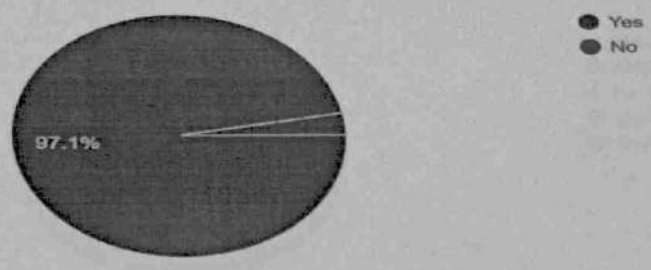

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Feedback Analysis :- TYBBI & TYBAF

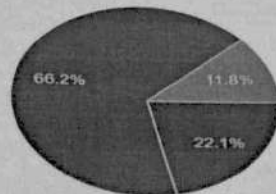
Were objective of the course clears to you?
68 responses



The course contents met with your expectation
68 responses

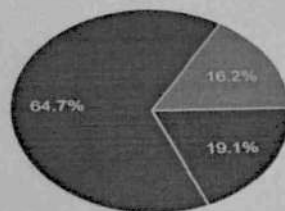


The lecture Sequence was well planned
68 responses



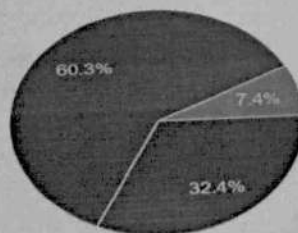
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

The course contents compared with your expectations
68 responses



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

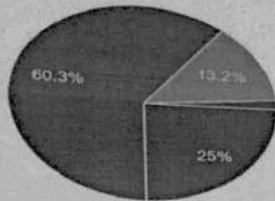
The course exposed you to new knowledge and practices
68 responses



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

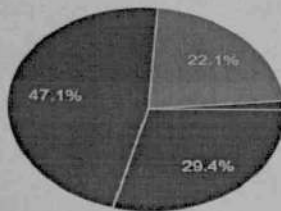


The lecture were clear and easy to understand
68 responses



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Please give overall rating of the course
68 responses



- Excellent
- Very good
- Good
- Fair
- Poor

Dr. Kishor Chauhan
Co-ordinator (BBI & BAF)

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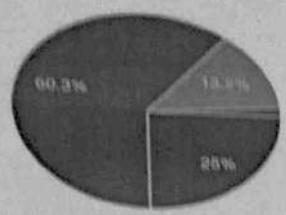
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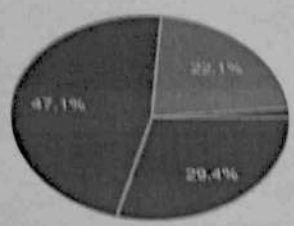
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The lecture were clear and easy to understand
68 responses




- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Please give overall rating of the course
68 responses



- Excellent
- Very good
- Good
- Fair
- Poor


Dr. Kishor Chauhan
 Co-ordinator (BBI & BAF)

Leena
Dr. (Mrs.) Leena Sarkar
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JNAN VIKAS MANDAL'S (Linguistic Minority)
Mohanlal Raichand Mehta College of Commerce
DiwaliMaa College of Science
Amritlal Raichand Mehta College of Arts
Dr. R.T. Doshi College of Computer Science
Plot no.9, Sector -19, Airoli Navi Mumbai

Program	BAMMC
Year	2023-24
Class	TYBAMMC
Course	Basic Grammar level-III
Total Marks	100
Number of Lectures	40

Objectives of the Course

1. To understand the basic craft of language.
2. To know the proper sentence framing in each language.
3. To understand the importance of the use of correct language in media as well as in day-to-day life.

COURSE OUTCOME

1. Students will be able to write correctly.
2. Students will develop language proficiency.

Syllabus

Module	Topic	Lectures
1	(हिन्दी व्याकरण) Hindi Grammar Level-II	20
1.1	काल – वर्तमान काल, भूतकाल, भविष्य काल और उनके भेद	04
1.2	वाक्य रचना, रचना की दृष्टि से वाक्य के भेद	04
1.3	समास	03
1.4	रस- परिभाषा और प्रकार	03
1.5	अनेकार्थक शब्द	03
1.6	पर्यायवाची शब्द	03
2	ENGLISH GRAMMAR LEVEL-II	20
2.1	Writing practice -revision Articles, sentence practice, quantifiers- Practice and uses	04
2.2	Subject verb agreement- advanced sentences Practice	04
2.3	Tenses and its usage in written as well as spoken English- combination of tenses	08
2.4	Phrasal verbs, gerunds	04
Total Lectures		40





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 Amrtilal Raichand Mehta College of Arts Dr.
 R. T. Doshi College of Computer Science Plot
 no.9, Sector -19, Airoli Navi Mumbai

Program	BAMMC
Year	2023-24
Class	SYBAMMC
Course	Basic Grammar level-II
Total Marks	100
Number of Lectures	40

Objectives of the Course

1. To understand the basic craft of language.
2. To know the proper sentence framing in both languages.
3. To understand the importance of the use of correct language in media as well as in day-to-day life.

Course Outcome

1. Students get to know how to write an error free copy.
2. Students realize the importance of the writing skills in media.
3. Students understand the basics of language and beauty of language.

Syllabus

Module	Topic	Lectures
1	(हिन्दी व्याकरण - प्रथम स्तर) HINDI GRAMMAR	20
	LEVEL-I	
1.1	हिन्दी वर्णमाला 1. वर्णमाला के भेद - अ- स्वर, ब- व्यंजन 2. वर्णों का उच्चारण और वर्गीकरण (कठ्य, तालव्य, मूध्न्य, दन्त्य, ओष्ठ्य, अनुनासिक)	02
1.2	व्यंजन के वर्ग: क- वर्ग, च- वर्ग, ट- वर्ग, त- वर्ग, प- वर्ग। बाह्य प्रत्यय के अनुसार व्यंजन के भेद- १. अल्पप्राण २. महाप्राण	02
1.3	संज्ञा और संज्ञा के भेद,	02
1.4	सर्वनाम और सर्वनाम के भेद	02
1.5	विशेषण और विशेषण के भेद	02
1.6	वाक्य रचना और वाक्य के भेद	02
1.7	साधारण, मिश्र और संयुक्त वाक्य के उदाहरण और प्रयोग।	04
1.8	अभ्यास / पुनरावृत्ति।	04
2	ENGLISH GRAMMAR LEVEL-I	20
2.1	Word Games, creation of vocabulary from single words, learning new vocabulary- anagrams, palindrome, pangram/holoalphabetic sentence, modulated words- difference in meaning	06
2.2	Parts of Speech- Writing practice -revision Articles, sentence practice- Practice and uses	03
2.3	Use of punctuation and placing of a word differently in different places to alter the meaning- Practice of more complicated sentences	02
2.4	Types of sentences, Subject verb agreement- advanced sentences for Practice	03
2.5	Tenses and its usage in written as well as spoken English- combination of tenses	04
2.6	Use of Quantifiers	02
Total Lectures		40



BAMMC Certificate Course Time Table 2023-24

40 hrs

Date	Timing	SYBAMMC	TYBAMMC
21/06/23	9.00 - 10.00 a.m.	Sindhu. R	Savitri. D
22/06/23	9.00 - 10.00 a.m.	Savitri D	Sindhu R
23/06/23	7.00 - 8.30 a.m.	Savitri D	Sindhu R
	8.30 - 10.00 a.m.	Sindhu R	Savitri D
	10.15- 11.15 a.m.	Savitri. D	Sindhu R
24/06/23	7.00 - 8.30 a.m.	Sindhu R	Savitri D
	8.30 - 10.00 a.m.	Sindhu R	Savitri D
	10.15- 11.15 a.m.	Savitri.D	Sindhu.R
26/06/23	7.00 - 8.30 a.m.	Sindhu R	Savitri D
	8.30 - 10.00 a.m.	Savitri D	Sindhu. R
	10.15- 11.15 a.m.	Savitri.D	Sindhu R
27/06/23	7.00 - 8.30 a.m.	Savitri D	Sindhu R
	8.30 - 9.30 a.m.	Sindhu R	Savitri D
	10.15- 11.15 a.m.	Savitri.D	Sindhu R
28/06/23	7.00 - 8.30 a.m.	Savitri D	Sindhu R
	8.30 - 10:00 a.m.	Sindhu R	Savitri D
	10.15- 11.15 a.m.	Savitri. D	Sindhu R
30/06/23	7.00 - 8.30 a.m.	Savitri D	Sindhu R
	8.30 - 10:00 a.m.	Sindhu R	Savitri D
	10.15- 11.15 a.m.	Savitri. D	Sindhu R
01/07/23	7.00 - 8.30 a.m.	Savitri D	Sindhu R
	8.30 - 10: 00 a.m.	Sindhu R	Savitri D
	10.15- 11.15 a.m.	Savitri. D	Sindhu R
02/07/23	7.00 - 8.30 a.m.	Savitri D	Sindhu R

Bridge course
 cert. course
 Attendance



	8.30 - 10.00 a.m.	Sindhu R	Savitri D
	10.15- 11.15 a.m.	Savitri. D	Sindhu R
03/07/23	7.00-8.00 a.m	Savitri. D	Sindhu. R
	8.00-9.00 a. m	Sindhu. R	Savitri D

Savitri
 Dr. Savitri Dholey
 Coordinator, BAMMC

Keena
 Dr. Keena Parkar
 Principal

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NOTICE

All departmental members are hereby informed that the department meeting is arranged on 4th December, 2023 at 11:30 a.m. in the Computer Science Laboratory.

Agenda

1. Conduction of Certification course of FYIT students

Asst. Prof. Archana Sanap
Incharge- IT DEPT



Asst. Prof. Janhavi Kshirsagar
Coordinator CS-IT DEPT



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Plot No.9, Sector -19, Airoli, Navi Mumbai
NAAC Re-Accredited CGPA-3.33 'A'-Grade

Minutes of Meeting

The departmental meeting was held on 4th December, 2023 at 11:30 a.m. in the Computer Science Laboratory.

Following matters were discussed and finalized as per agenda.

❖ Conduction of Certification course of FYIT students

It was decided that the certification course should be conducted from 6th December, 2023 to 12th December, 2023. For FYIT Artificial Intelligence subject is decided. And it was decided that it should be 30 hrs.

❖ Subject Distribution

It was decided that Module-1 will be taken by Mrs. Bhagyashree Kulkarni, Module-2 will be taken by Mrs. Rajshree Pisal, Module-3 will be taken by Mrs. Sharayu Kadam and Module-4 will be taken by Mrs. Archana Sanap. All the teachers were asked to design the syllabus for 06 hours each share by 5th December, 2023.

❖ Work Distribution

Subjects are distributed among following teachers

Asst.Prof.Bhagyashree Kulkarni - Module-1

Asst.Prof.Rajshree Pisal- Module-2

Mrs. Sharayu Kadam- Module-3

Mrs. Archana Sanap - Module-4

Adjournment

Meeting was adjourned at 1:00 pm.



Following members were present:

Signature

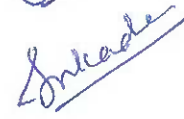
Asst. Prof. Janhavi Kshirsagar



Dr. Sunitha Joshi



Asst. Prof. Archana Sanap



Asst. Prof Sharayu Kadam.



Asst. Prof Rajshree Pisal.



Asst. Prof Bhagyashree Kulkarni



Syllabus of Certificate Course in “Artificial Intelligence ”
for (F.Y.B.Sc.IT)- Term-2

Duration: - 30 hours

OBJECTIVES: -

- Learner will understand the basics of algorithms
- Learner will be able to understand the asymptotic analysis of algorithms
- Learner will be able to understand algorithm in various aspects

OUTCOME: -

- Learners will apply algorithms in various aspects.
- Learner will implement the running time of algorithms using asymptotic analysis
- Learners will associate the need and importance of algorithms in different areas.

CORE SYLLABUS

Duration: 06 Hours

Asst. Prof. Bhagyashree Kulkarni - Module 2-(6 lectures)

SR. NO.	TOPICS	THEORY HOURS
1.	Problem Solving by searching: Problem-Solving Agents, Example Problems	2 hrs
2.	Searching for Solutions, Uninformed Search Strategies, Informed (Heuristic) Search Strategies, Heuristic Functions.	2 hrs
3.	Learning from Examples: Forms of Learning, Supervised Learning, Learning, Decision Trees, Evaluating and Choosing the Best Hypothesis	2 hrs

Duration: 05 Hours

Asst.Prof. Sharayu Kadam - Module 4-(6 Lectures)

SR. NO.	TOPICS	DURATION
1	Learning probabilistic models: Statistical Learning, Learning with Complete Data.	2hrs
2	Learning with Hidden Variables: The EM Algorithm. Reinforcement learning: Passive Reinforcement Learning, Active Reinforcement Learning.	2 hrs



3	Generalization in Reinforcement Learning, Policy Search, Applications of Reinforcement Learning.	2hrs
---	--	------

Duration: 05 Hours

Asst.Prof.Archana Sanap- Module 1- (06 Lectures)

SR. NO.	TOPICS	DURATION
1	What Is AI: Foundations, History and State of the Art of AI.	3 hrs
2	Intelligent Agents: Agents and Environments, Nature of Environments.	3 hrs

Duration: 05 Hours

Asst.Prof.Rajshree Pisal- Module 2- (06 Lectures)

SR. NO.	TOPICS	DURATION
1	Theory of Learning, Regression and Classification with Linear Models,	2 hrs
2	Artificial Neural Networks, Nonparametric Models, Support Vector Machines,	2 hrs
3	Ensemble Learning, Practical Machine Learning	2 hrs

Archana Sanap

Asst. Prof. Archana Sanap
Incharge- IT DEPT



Janhavi Kshirsagar

Asst. Prof. Janhavi Kshirsagar
Coordinator CS-IT DEPT



JNAN VIKAS MANDAL'S

Mohanlal Raichand Mehta College of Commerce

Diwali Maa College of Science

Amritlal Raichand Mehta College of Arts

Dr. R.T. Doshi College of Computer Science

NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle)

Class :F.Y.B.Sc. (I.T)

Certificate Course Timetable (Term-2)

Academic year: 2023-2024

Date	6/12/2023	7/12/2023	8/12/2023	9/12/2023	11/12/2023	12/12/2023
07.50-08.40	Module 3	Module 2	Module 4	Module 3	Module 1	Module 4
08.40-09.30	Module 2	Module 4	Module 3	Module 1	Module 4	Module 3
9.30-9.50	B	R	E	A	K	
09.50-10.40	Module 4	Module 1	Module 1	Module 2	Module 2	Module 2
10.40-11.30	Module 1	Module 3	Module 2	Module 4	Module 3	Module 1
Module-1	Mrs. Bhagyashree Kulkarni					
Module-2	Mrs. Rajshree Pisal					
Module-3	Mrs. Sharayu Kadam					
Module-4	Mrs. Archana Sanap					

Asst. Prof. Archana Sanap

Incharge- IT DEPT

Asst. Prof. Janhavi Kshirsagar

Coordinator CS-IT DEPT



Exam paper

Section 1 of 3

FYIT Certificate course Exam - 2023 (T-2)

Artificial Intelligence

Full name *

Short answer text

4 digit roll number *

Short answer text

Total points: 40

10-04-2024 16:45

Section 1 of 3

SYIT Certificate course Exam - 2023 (T-2)

Artificial Intelligence

MCQ

Description (optional)

Creating more logical IT resources, within one physical system is called _____ *

(a) Load balancing

(b) Hypervisor

(c) Virtualization

(d) None of these

What is most commonly used for managing the resources for every virtual system? *

(a) Load balancer

Total points: 40

10-04-2024 12:56



docs.google.com/forms/d/1dor7cT5wo46bv33zFm1C6OG32O2kdXLVn0moYHp34I/edit

SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 59 Settings Total points: 40

(a) Load balancer
(b) Hypervisor
(c) Router
(d) Cloud

Which is not a benefit of virtualization?

(a) Flexible and efficient allocation of resources
(b) Lowers the cost of IT infrastructure
(c) Remote access and rapid scalability
(d) Run on single operating system

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docs.google.com/forms/d/1dor7cT5wo46bv33zFm1C6OG32O2kdXLVn0moYHp34I/edit

SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 53 Settings Total points: 40

It helps a user to have remote access to an application from a server.

(a) Application virtualization
(b) Network virtualization
(c) Desktop virtualization
(d) Storage virtualization

It is an array of servers that are managed by a virtual storage system.

(a) Application virtualization
(b) Network virtualization

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SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 33 Settings Total points: 40

(b) Network virtualization

(c) Desktop virtualization

(d) Storage virtualization

Network bottlenecks occur when ____ data sets must be transferred *

large

small

big

all of the mentioned

Amazon AWS Consists of following services *

Type here to search 36°C Haze 12:57 10-04-2024

SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 33 Settings Total points: 40

IaaS

PaaS

SaaS

all of above

RDS is a ____ type of database *

SQL

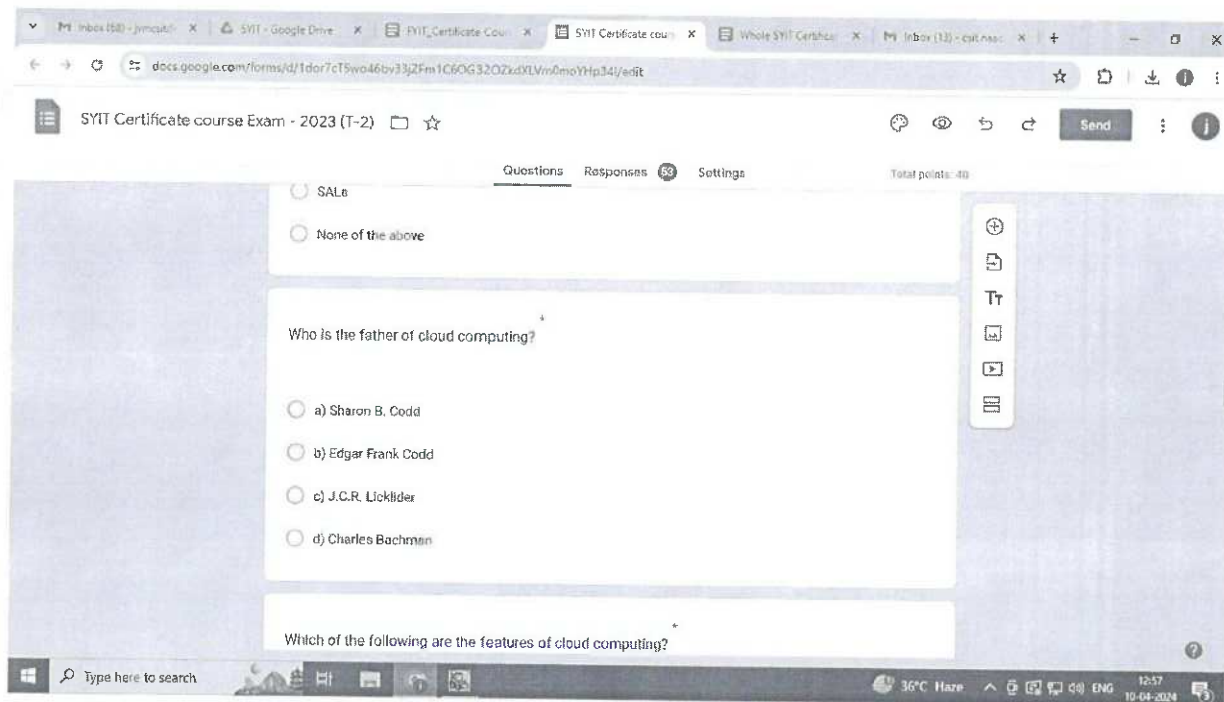
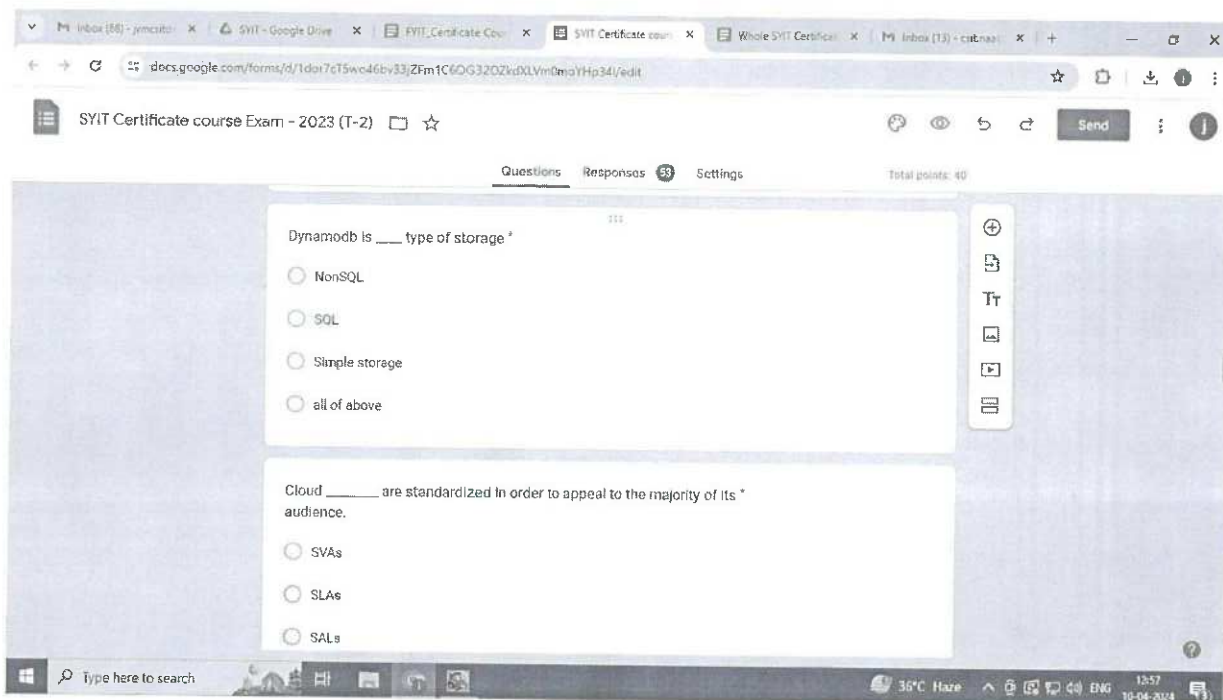
NonSQL

Simple storage

all of above

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Address bar: docs.google.com/forms/d/1dor7cT5wo46bv33jZfM1C6OG32OZkdXLVn0moYHp34I/edit

Form Title: SYIT Certificate course Exam - 2023 (T-2)

Navigation: Questions, Responses (53), Settings, Total points: 40

Question 1:

b) Availability

c) Large Network Access

d) All of the mentioned

Question 2:

Which of the following is a type of cloud computing service?

a) Service-as-a-Software (SaaS)

b) Software-and-a-Server (SaaS)

c) Software-as-a-Service (SaaS)

d) Software-as-a-Server (SaaS)

System tray: Type here to search, 36°C Haze, 12:58, 10-04-2024

Browser tabs: Inbox (58) - jymcst, SYIT - Google Drive, SYIT_Certificate Cou, SYIT Certificate cou, Whole SYIT Certifica, Inbox (13) - cut.naa

Address bar: docs.google.com/forms/d/1dor7cT5wo46bv33jZfM1C6OG32OZkdXLVn0moYHp34I/edit

Form Title: SYIT Certificate course Exam - 2023 (T-2)

Navigation: Questions, Responses (53), Settings, Total points: 40

Question 3:

Applications and services that run on a distributed network using virtualized resources is known as _____

a) Parallel computing

b) Soft computing

c) Distributed computing

d) Cloud computing

Question 4:

Which of the following is the correct statement about cloud computing?

a) Cloud computing abstracts systems by pooling and sharing resources

System tray: Type here to search, 36°C Haze, 12:58, 10-04-2024



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Address bar: docs.google.com/forms/d/1dor7cT5wo46bv33jzFm1C6OG32OZkdXLVn0moYHp34j/edit

Page title: SYIT Certificate course Exam - 2023 (T-2)

Navigation: Questions Responses (55) Settings Total points: 40

Question 1:

b) Cloud computing is nothing more than the Internet

c) The use of the word "cloud" makes reference to the two essential concepts

d) All of the mentioned

Question 2:

A "glue" between client and server parts of application

a) Middleware

b) Firmware

c) Package

d) Software System

Taskbar: Type here to search, 36°C Haze, 12:58 10-04-2024

Browser tabs: Inbox (8) - jymcafe, SYIT - Google Drive, SYIT_Certificate Cour..., SYIT Certificate cour..., Whole SYIT Certifica..., Inbox (13) - catnaa

Address bar: docs.google.com/forms/d/1dor7cT5wo46bv33jzFm1C6OG32OZkdXLVn0moYHp34j/edit

Page title: SYIT Certificate course Exam - 2023 (T-2)

Navigation: Questions Responses (83) Settings Total points: 40

Question 3:

Distributed pervasive system is also known as *

a) user interface design

b) graphical user interface

c) ubiquitous computing

d) peer to peer system

Question 4:

Type of cluster computing is *

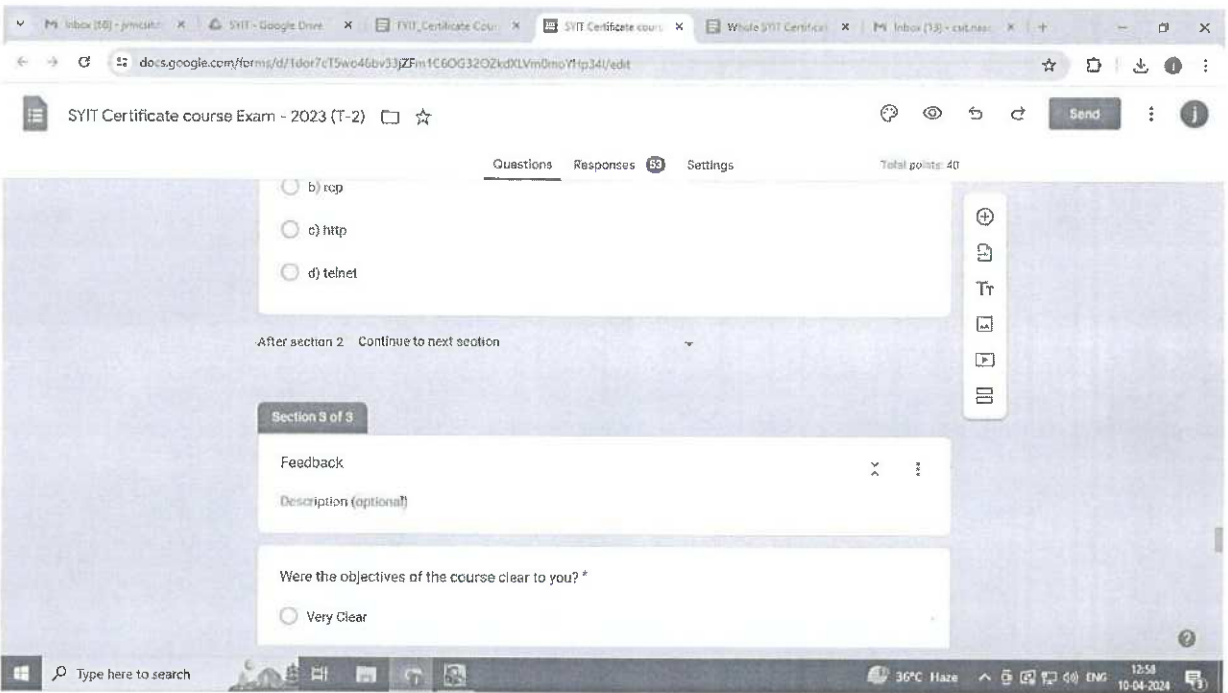
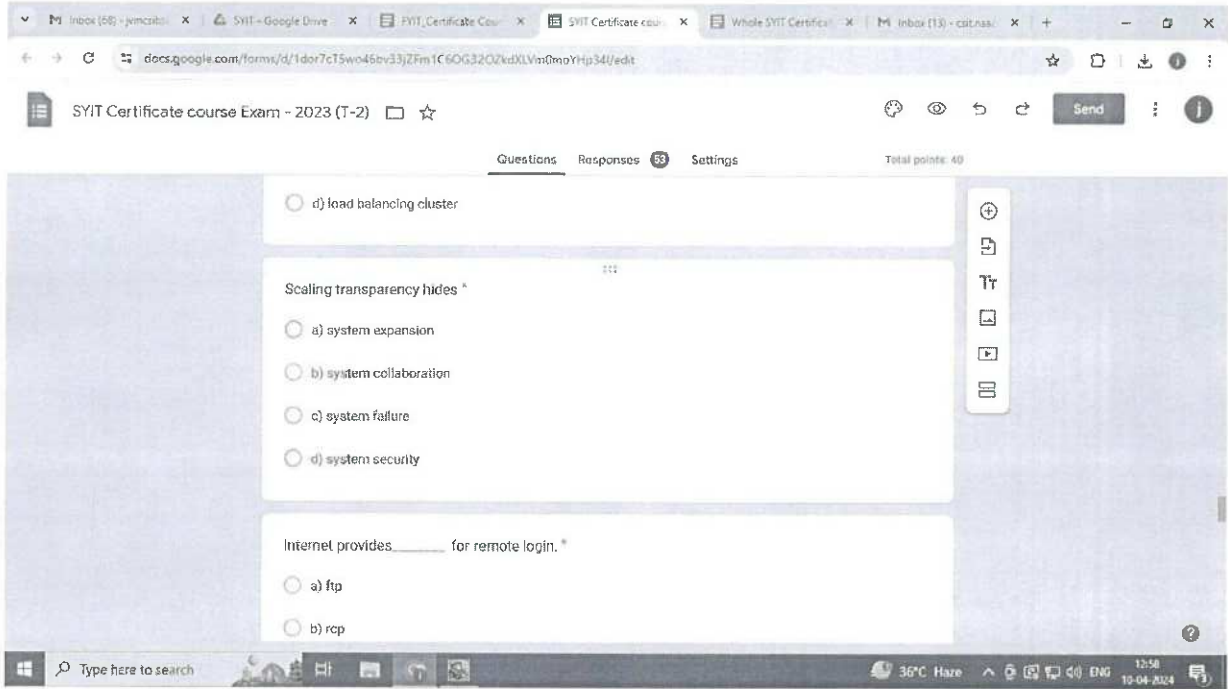
a) load sharing cluster

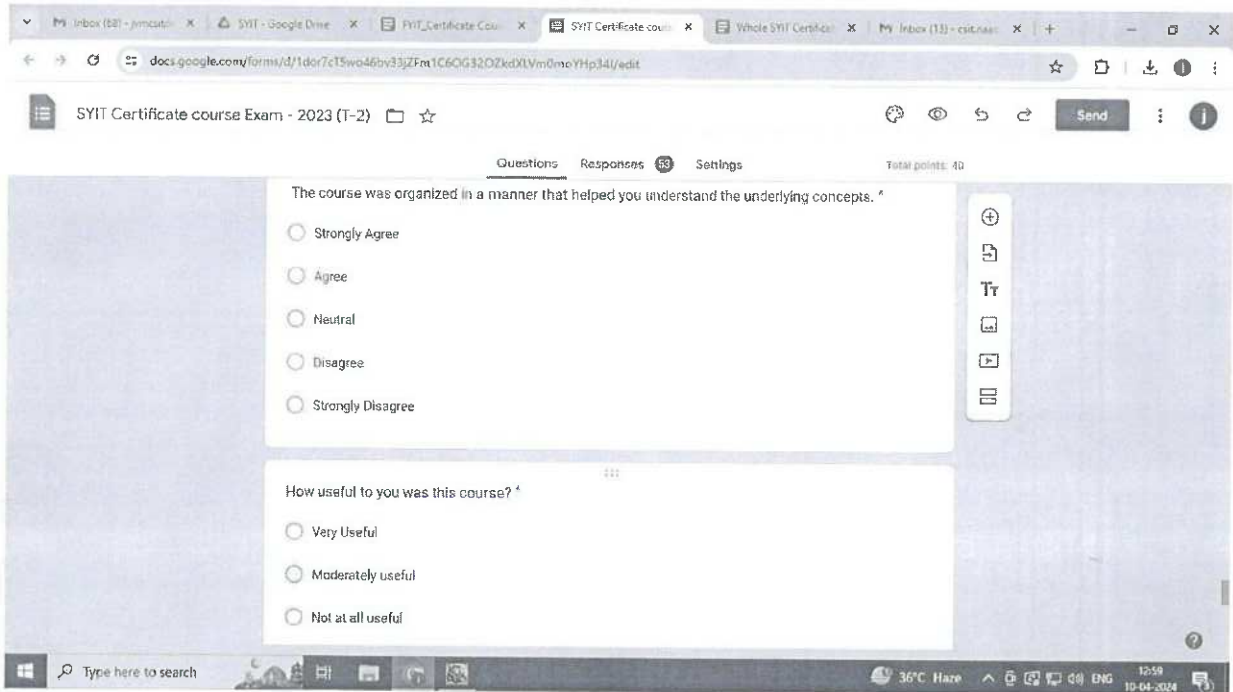
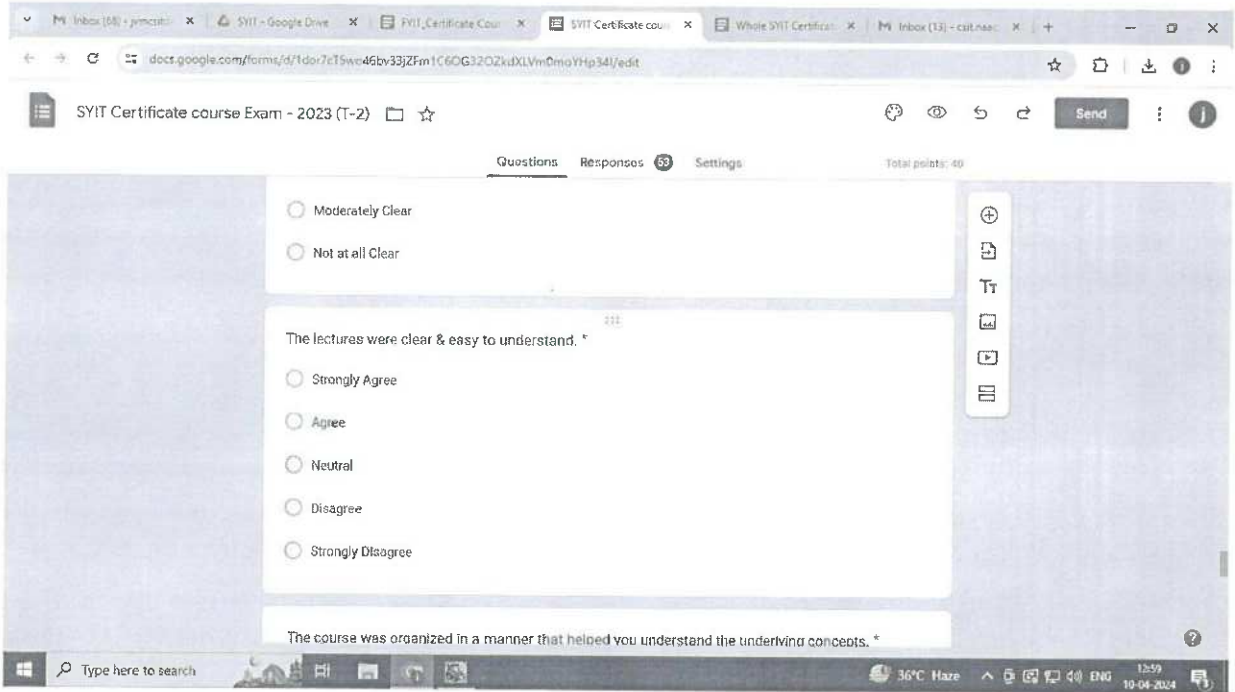
b) load holding cluster

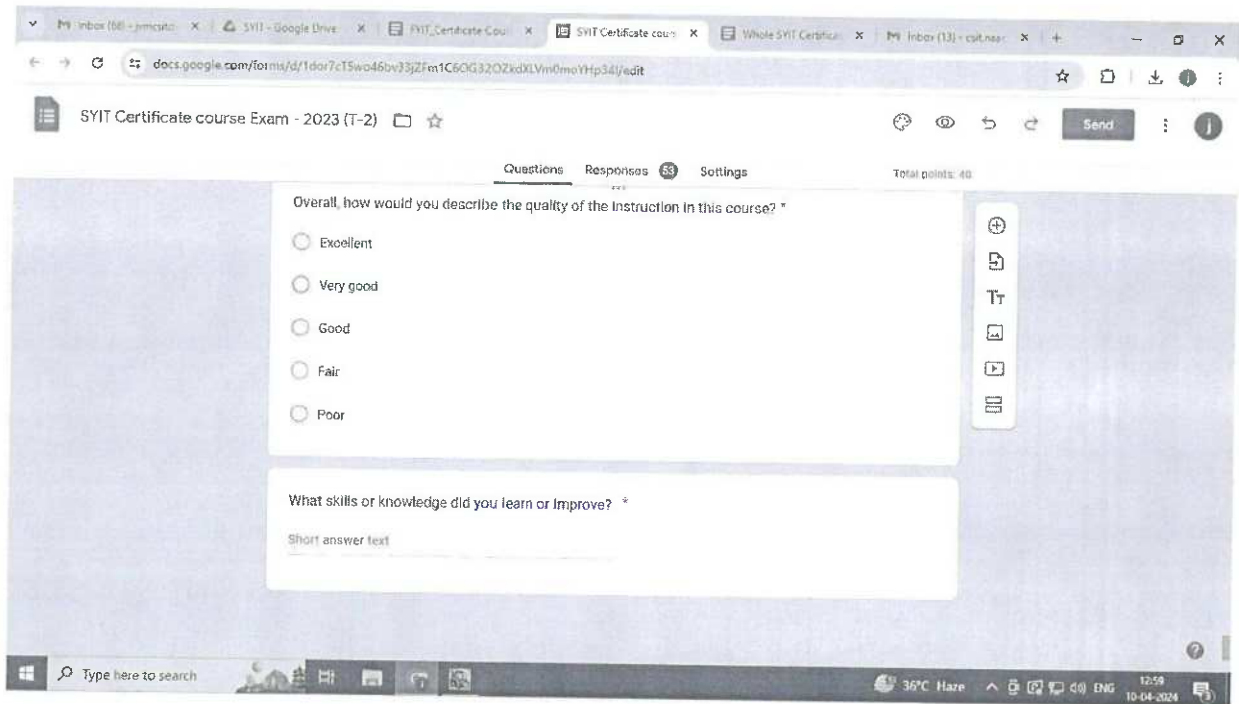
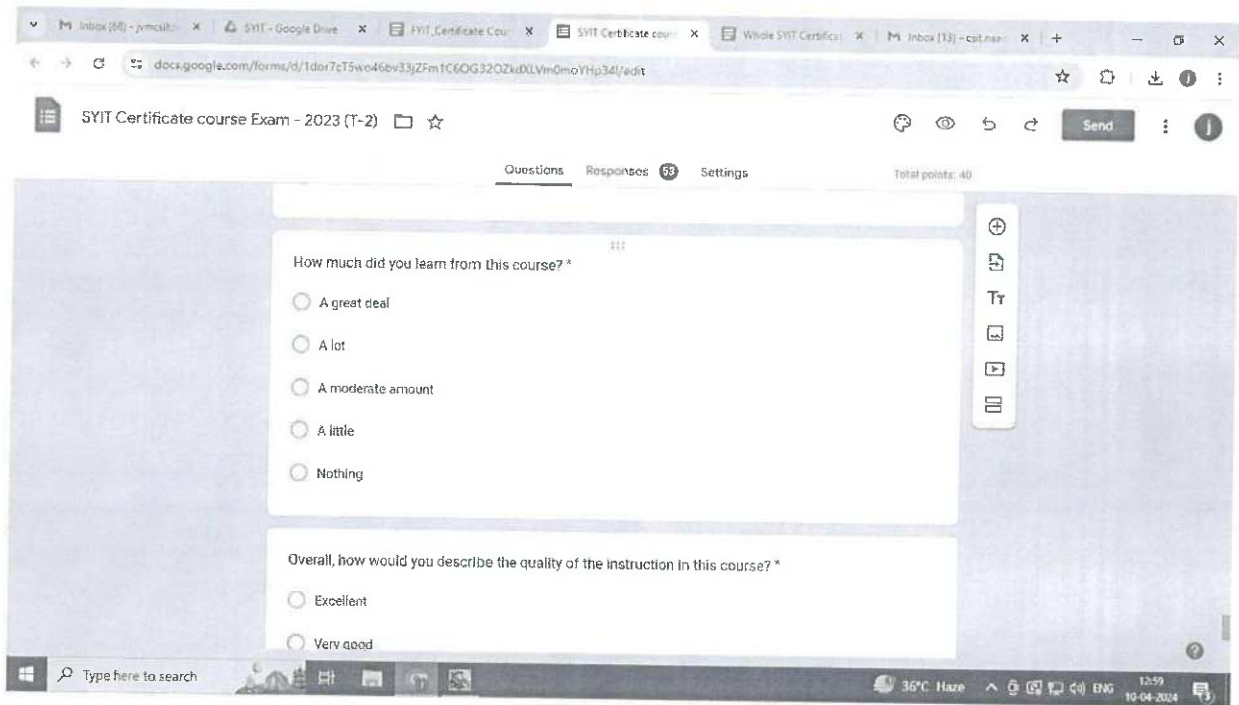
c) load replication cluster

Taskbar: Type here to search, 36°C Haze, 12:58 10-04-2024









Participant list

Sr. No.	Name of the Student
1	Aryapratap Nayak
2	Atul kumar nityaprakash upadhyay
3	Rajkumar Vishwakarma
4	Sandesh Shankar Shinde
5	Rajeshwari Vedprakash Chauhan
6	Sarvesh kishor Gangurde
7	Vinay Omprakash Wagh
8	Aashutosh tiwari
9	Milan Manoj upadhyay
10	Radhika Krishnakumar Gupta
11	Tanishq Chandrakant Gantelu
12	Sakshi Narayan Sawant
13	Utsav jaiswar
14	Ayush chandrakant bhoir
15	Aaditi Maruti Sawant
16	Rushika Swami Dhamale
17	Sahili Rajesh more
18	OMKAR Balaji Waghmare
19	Prachi Vinod Tayade
20	Anvi Kashinath sawant
21	Siddhesh Sandip Vichale
22	Jyoti shyambahadur mourya
23	Disha Devasi



24	Priti Arun Gawade
25	Pal Supriya Chandrabhan
26	Jairaj Rajesh Maru
27	Arjun Chotu Yadav
28	Kabya varma
29	Sanika pushpraj bodake
30	Makrand
31	Tanvi Prakash Gujar
32	Sanika Hanmant Pawar
33	Vaishnavi Rajesh Katalkar
34	Purva Yogesh Gosavi
35	SHEDGE GAYATRI VIJAY
36	Rohit Rajbali Jaiswal
37	Payal Borude
38	Nanda prakash khandekar
39	Shivani ramnarayan yadav
40	Suraj Sahoo
41	Shaikh Aasifa Noor Mohammad Tahir
42	Rohan Rajesh thombare
43	Shubham Bhausheeb Sawant
44	Somil sunil shinde
45	Yadav vikash Rakesh
46	Vishwakarma Vijay Baburam
47	Sneha Ramesh Kumar mourya
48	Aayush Sameer Patil
49	Bhargavi Eknath Ambre
50	Harshal Sachin Jagtap
51	Soyam sudas kadam



52	Aaditya Maruti Patil
53	Mayank Deepak Harad
54	OMKAR JADHAV
55	Saee Prakash kadam
56	Nikhil anil singh
57	Abhay Santosh Singh
58	Vijay chauhan

Marksheet

Sr. No.	Name of the Student	Marks
1	Aryapratap Nayak	38 / 40
2	Atul kumar nityaprakash upadhyay	40 / 40
3	Rajkumar Vishwakarma	38 / 40
4	Sandesh Shankar Shinde	38 / 40
5	Rajeshwari Vedprakash Chauhan	40 / 40
6	Sarvesh kishor Gangurde	40 / 40
7	Vinay Omprakash Wagh	40 / 40
8	Aashutosh tiwari	40 / 40
9	Milan Manoj upadhyay	40 / 40
10	Radhika Krishnakumar Gupta	40 / 40
11	Tanishq Chandrakant Gantelu	40 / 40
12	Sakshi Narayan Sawant	40 / 40
13	Utsav jaiswar	40 / 40
14	Ayush chandrakant bhoir	28 / 40
15	Aaditi Maruti Sawant	40 / 40
16	Rushika Swami Dhamale	38 / 40
17	Sahili Rajesh more	40 / 40
18	OMKAR Balaji	38 / 40



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3	Rajkumar Vishwakarma	38 / 40
4	Sandesh Shankar Shinde	38 / 40
5	Rajeshwari Vedprakash Chauhan	40 / 40
6	Sarvesh kishor Gangurde	40 / 40
	Waghmare	
19	Prachi Vinod Tayade	40 / 40
20	Anvi Kashinath sawant	38 / 40
21	Siddhesh Sandip Vichale	40 / 40
22	Jyoti shyambahadur mourya	38 / 40
23	Disha Devasi	38 / 40
24	Priti Arun Gawade	40 / 40
25	Pal Supriya Chandrabhan	38 / 40
26	Jairaj Rajesh Maru	38 / 40
27	Arjun Chotu Yadav	40 / 40
28	Kabya varma	34 / 40
29	Sanika pushpraj bodake	38 / 40
30	Makrand	32 / 40
31	Tanvi Prakash Gujar	38 / 40
32	Sanika Hanmant Pawar	38 / 40
33	Vaishnavi Rajesh Katalkar	36 / 40
34	Purva Yogesh Gosavi	40 / 40
35	SHEDGE GAYATRI VIJAY	38 / 40
36	Rohit Rajbali Jaiswal	40 / 40
37	Payal Borude	40 / 40
38	Nanda prakash khandekar	34 / 40



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4	Sandesh Shankar Shinde	38 / 40
5	Rajeshwari Vedprakash Chauhan	40 / 40
6	Sarvesh kishor Gangurde	40 / 40
39	Shivani ramnarayan yadav	36 / 40
40	Suraj Sahoo	40 / 40
41	Shaikh Aasifa Noor Mohammad Tahir	28 / 40
42	Rohan Rajesh thombare	28 / 40
43	Shubham Bhausahab Sawant	28 / 40
44	Somil sunil shinde	38 / 40
45	Yadav vikash Rakesh	40 / 40
46	Vishwakarma Vijay Baburam	40 / 40
47	Sneha Ramesh Kumar mourya	38 / 40
48	Aayush Sameer Patil	32 / 40
49	Bhargavi Eknath Ambre	32 / 40
50	Harshal Sachin Jagtap	38 / 40
51	Soyam sudas kadam	38 / 40
52	Aaditya Maruti Patil	40 / 40
53	Mayank Deepak Harad	16 / 40
54	OMKAR JADHAV	36 / 40
55	Saee Prakash kadam	38 / 40
56	Nikhil anil singh	34 / 40
57	Abhay Santosh Singh	34 / 40
58	Vijay chauhan	26 / 40

Flyer





**JNAN VIKAS MANDAL'S MEHTA
DEGREE COLLEGE PLOT NO.9,
SECTOR 19, AIROLI, NAVI
MUMBAI, -400708**

Artificial Intelligence

ORGANISED BY IT DEPARTMENT

From: 6-12-2023 to 12-12-2023

Duration: 30 hour's Class: FYIT

ORGANISERS:

**Asst.Prof.SHARAYU KADAM
Asst.Prof.BHAGYASHREE KULKARNI
Asst.Prof.RAJSHREE PISAL**

**Asst.Prof.Archana Sanap
IT INCHARGE**

**Asst.Prof.Janhavi Kshirsagar
CS-IT COORDINATOR**

**Dr.B.R.Deshpande
I/C.Principal**

Certificate





JNAN VIKAS MANDAL'S
MOHANLAL RAICHAND MEHTA DEGREE COLLEGE OF
COMMERCE DIWALI MAA DEGREE COLLEGE OF SCIENCE
AMRITLAL RAICHAND MEHTA DEGREE COLLEGE OF ARTS
PADMASHREE (Dr.) R.T.DOSHI DEGREE COLLEGE OF
COMPUTER SCIENCE PERMANENTLY AFFILIATED TO
UNIVERSITY OF MUMBAI
NAAC Re-accredited Grade A+(CGPA-3.31) 3rd CYCLE
Plot No-9, Sector-19, Airoli Node, Navi Mumbai - 400 708

CERTIFICATE

This certificate is proudly awarded to

for their participation in Artificial intelligence course
held in academic year 2023-24

Asst. Prof. Archana Sanap
Incharge-IT DEPT

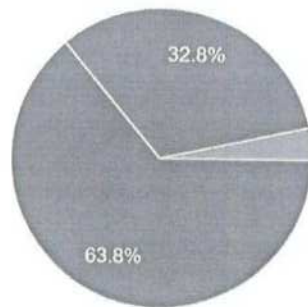
Assit.Prof. Janhavi Kshirsagar
Cordinator CS-IT DEPT

Dr. B. R. Deshpande
I/c Principal

Feedback Analysis

Were the objectives of the course clear to you?

58 responses

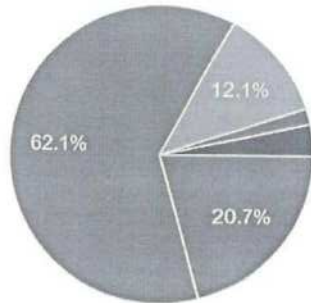


- Very Clear
- Moderately Clear
- Not at all Clear



The lectures were clear & easy to understand.

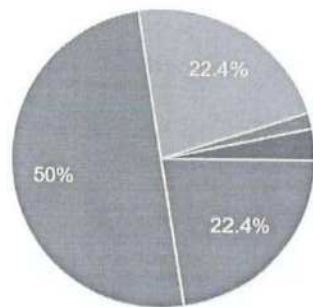
58 responses



- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

The course was organized in a manner that helped you understand the underlying concepts.

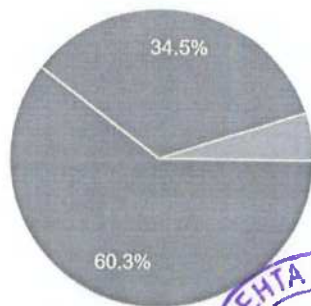
58 responses



- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

How useful to you was this course?

58 responses

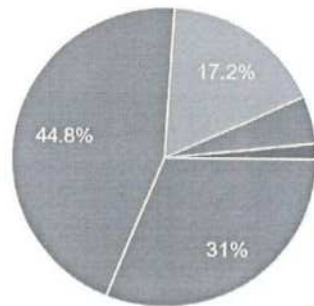


- Very Useful
- Moderately useful
- Not at all useful



How much did you learn from this course?

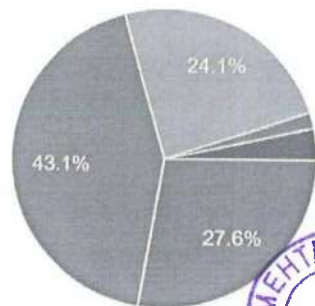
58 responses



- A great deal
- A lot
- A moderate amount
- A little
- Nothing

Overall, how would you describe the quality of the instruction in this course?

58 responses



- Excellent
- Very good
- Good
- Fair
- Poor





JNAN VIKAS MANDAL'S

Mohanlal Raichand Mehta College of Commerce

Diwali Maa College of Science

Amritlal Raichand Mehta College of Arts

Dr. R. T. Doshi College of Computer Science

NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle)

FIRST YEAR CERTIFICATE COURSE REPORT TERM-II 2023-24

The certificate course in "Artificial Intelligence" was conducted for first year students of information technology. The certificate course was conducted with an aim of introducing the fundamentals of automatic systems and AI tools in the field of information technology which helped the students to gain an insight into the various solutions and aspects of automatic systems and AI tools in the field of information technology.

The subjects of the course were Classified in 4 different modules.

The course commenced from 6th December, 2023. The course ended on 12th December, 2023.

The total duration of course was 30 hours.

Following faculties conducted the lectures

Sr No	Teacher Name	Subject Name
1	Mrs. Bhagyashree Kulkarni	Module-1
2	Mrs. Rajshree Pisal	Module-2
3	Mrs. Sharayu Kadam	Module-3
4	Mrs. Archana Sanap	Module-4

Course exam was conducted on 14th December, 2023 from 12pm to 1pm. Total 50 marks exam was conducted by Mrs. Bhagyashree Kulkarni.

Total 58 students attempted the examination.

Results of the certificate course were released via email to the students who attempted the exam.

Asst. Prof. Archana Sanap

Incharge- IT DEPT

Asst. Prof. Janhavi Kshirsagar

Coordinator CS-IT DEPT

Dr. B. R. Deshpande

I/c Principal

I/c. PRINCIPAL

JNAN VIKAS MANDAL'S

M.R. MEHTA COLLEGE OF COMMERCE

D.M. MEHTA COLLEGE OF SCIENCE

A.R. MEHTA COLLEGE OF ARTS

Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE

Plot No.9, SEC.-19, AIROLI,

NAVI MUMBAI-400 708.





JNAN VIKAS MANDAL'S

Mohanlal Raichand Mehta College of Commerce
Diwali Maa Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot No.9, Sector -19, Airoli, Navi Mumbai
NAAC Re-Accredited CGPA-3.33 'A'-Grade

Minutes of Meeting

The departmental meeting was held on April 29, 2023 at 11:30 a.m. in the Computer Science Laboratory.

Following matters were discussed and finalized as per agenda.

❖ Conduction of Certification course of SYIT students

It was decided that the certification course should be conducted from 13th June, 2023 to 20rd June, 2023. For SYIT Fundamentals of Algorithm subject is decided. And it was decided that it should be 40 hrs.

❖ Subject Distribution

It was decided that ML subject will be taken by Dr. Sunitha Joshi and Mrs. Sharayu Kadam. Disk scheduling subject will be taken by Mrs. Sarojini Biradar, Data structure and algorithm subject will be taken by Rajshree Pisal and Mr. Ashish Chavan and Recursive Algorithm will be taken by Mrs. Bhagyashree Kulkarni. All the teachers were asked to design the syllabus for 10 hours each share by 12th June 2023.

❖ Work Distribution

Subjects are distributed among following teachers

Dr. Sunitha Joshi - Classification algorithms in ML
Asst. Prof. Sharayu Kadam - Classification algorithms in ML
Asst. Prof. Sarojini Biradar - Disk Scheduling algorithms
Asst. Prof. Ashish Chavan - Data structure and algorithm
Asst. Prof. Rajshree Pisal - Data structure and algorithm
Asst. Prof. Bhagyashree Kulkarni - Recursive algorithms

Adjournment

Meeting was adjourned at 1:00 pm.



Following members were present:

Dr.(Mrs.) Leena Sarkar (Principal)

Signature



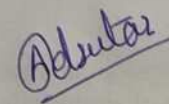
Dr. B.R.Deshpande (Vice Principal)



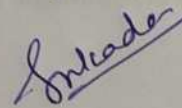
Asst. Prof. Janhavi Kshirsagar



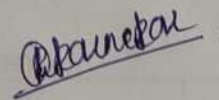
Asst. Prof. Archana Sanap



Asst. Prof Sharayu Kadam.



Asst. Prof Rajshree Pisal.



Asst. Prof Bhagyashree Kulkarni



Asst. Prof. Sunitha Joshi



Ass.Prof. Ashish Chavan.

Ass.Prof. Sarojini Biradar



**Syllabus of Certificate Course in "Fundamentals of Algorithm" for
(S.Y.B.Sc.IT)**

Duration: - 40 hours

OBJECTIVES: -

- Learner will understand the basics of algorithms
- Learner will be able to understand the asymptotic analysis of algorithms
- Learner will be able to understand algorithm in various aspects

OUTCOME: -

- Learners will apply algorithms in various aspects.
- Learner will implement the running time of algorithms using asymptotic analysis
- Learners will associate the need and importance of algorithms in different areas.

CORE SYLLABUS

Duration: 05 Hours

Dr.Sunitha Joshi-Classification algorithms in ML (5 Lectures)

SR. NO.	TOPICS	DURATION
1	What is Classification? How does it work? Types of Classification algorithms	1 hrs
2	Binary classification, Multiclass, Multilabel classification, Imbalance classification	2 hrs
3	Steps to build classification model, Popular Classification Algorithms(Logistic, Naive Bayes,K nearest neighbors,Decision Tree)	2 hrs

Duration: 05 Hours

Asst.Prof. Ashish Chavan- Disk Scheduling (05 Lectures)

SR. NO.	TOPICS	THEORY HOURS
1.	Asymptotic Analysis: Asymptotic Notations Greedy Algorithms: Counting coins	2 hrs
2	Divide and Conquer: Divide/Break, Conquer/Solve, Merge/Combine Dynamic Programming: Comparison with divide and conquer	3 hrs



Duration: 05 Hours

Asst.Prof. Sharayu Kadam - Classification algorithms in ML (5 Lectures)

SR. NO.	TOPICS	DURATION
1	Nearest Neighbor : k Nearest Neighbors , Analysis	1hrs
2	Neural Networks : Feedforward Neural Networks, Learning Neural Networks, The Expressive Power of Neural Networks.	2 hrs
3	The Sample Complexity of Neural Networks, The Runtime of Learning Neural Networks, SGD and Backpropagation	2hrs

Duration: 05 Hours

Asst.Prof.Sarojini Biradar- CPU Scheduling algorithms (10 Lectures)

SR. NO.	TOPICS	DURATION
2.	Introduction to disk scheduling algorithms, Important terms in disk scheduling	2 hrs
2	Disk scheduling algorithms: FCFS, SSTF,SCAN,CSCAN,LOOK,CLOOK	2 hrs
3	Examples on disk scheduling algorithms	2 hrs
4	Introduction to CPU scheduling algorithms: First-Come First-Served (FCFS) Scheduling, Shortest-Job-Next (SJN) Scheduling,	2 hrs
5	Priority Scheduling, Shortest Remaining Time, Round Robin(RR) Scheduling, Multiple-Level Queues Scheduling	2 hrs

Duration: 10 Hours

Asst.Prof.Rajshree Pisal- Data structure and algorithm (5 Lectures)

SR. NO.	TOPICS	DURATION
1	Why to learn Data Structure? Application of Data Structure.	1 hrs
2	Data Structures & Algorithms – Overview: Characteristics of Data Structure, Need of Data Structure,	2 hrs
3	Algorithms Basics: Characteristics of an algorithm, How to write an algorithm, Algorithm complexity	2 hrs



Duration: 10 Hours

Asst.Prof.Bhagyashree Kulkarni - Recursive algorithms (10 Lectures)

SR. NO.	TOPICS	DURATION
1.	Introduction to algorithm: Definition of algorithm, characteristics, advantages and disadvantages of algorithm.	2 hrs
2.	Analysis of algorithm: Overview, Priori Analysis, Posterior Analysis. Algorithm Complexity: Space complexity, Time complexity.	2 hrs
3.	Some common problems that are solved using recursive algorithms: 1. Factorial of a Number. 2. Fibonacci Series.	2 hrs
4.	3. Tower of Hanoi. 4. Tree traversal.	2 hrs
5.	5. DFS for Graph. Application of DFS.	2 hrs





JNAN VIKAS MANDAL'S
AmratlalRaichand Mehta Degree College of Arts
DiwaliMaa Degree College of Science
MohanlalRaichand Mehta College of Commerce
Padmashree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, AiroliNavi Mumbai

Class :S.Y.B.Sc. (I.T)

Certificate Course Timetable (Term-1)

Academic year: 2023-2024

Time	Tuesday 13/06/23	Wednesday 14/06/2023	Thursday 15/06/23	Friday 16/06/23	Saturday 17/06/23	Monday 19/06/23	Tuesday 20/06/23
8:40- 9:30	ML (Sunitha J)	ML (Sharayu K)	Disk S (Sarojini B)	ML (Sharayu K)	DS (Rajshree P)	ML (Sharayu K)	DS (Ashish C)
9:30- 10:20	RA (Bhagyashree K)	Disk S (Sarojini B)	DS (Rajshree P)	DS (Ashish C)	Disk S (Sarojini B)	DS (Ashish C)	Disk S (Sarojini B)
10:20- 11:10	Disk S (Sarojini B)	DS (Rajshree P)	RA (Bhagyashree K)	Disk S (Sarojini B)	ML (Sharayu K)	Disk S (Sarojini B)	RA (Bhagyashree K)
11:10- 12:00	DS (Rajshree P)	RA (Bhagyashree K)	ML (Sunitha J)	RA (Bhagyashree K)	ML (Sunitha J)	RA (Bhagyashree K)	DS (Rajshree P)
12:00- 12:50					RA (Bhagyashree K)		ML (Sunitha J)

Classification algorithm in ML: Dr.Sunitha Joshi + Mrs.Sharayu Kadam.

Disk Scheduling: Mrs. Sarojini Biradar.

Recursive Algorithm:Mrs. Bhagyashree Kulkarni

Data Structure and Algorithm: Mrs. Rajshree Pisal+ Mr. Ashish Chavan

Archana

Asst. Prof. Archana Sanap

Incharge- IT DEPT

Janhavi

Asst. Prof. Janhavi Kshirsagar

Coordinator CS-IT DEPT

B.R. Deshpande

Dr.B.R.Deshpande

Vice Principal

Leena

Dr.(Mrs)Leena Sarkar

Principal



Exam paper

Examination Of S.Y.Bsc.(IT) Certification Course (Term 1)
2021-22
shreyasrakesh@gmail.com English, English

* Indicates required question

Email *
Your answer

Roll Number *
Your answer

Name *
Your answer

Mobile number *
Your answer

Next Clear form

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Google Forms



Examination Of S.Y.Bsc.(IT) Certification Course (Term 1)

blngyashreek9990@gmail.com [Switch account](#)

* indicates required question

Multiple Choice Question

Each instance is represented with a set of _____ attributes * 2 points

- Alphabetical
- Numerical
- Both A and B
- Neither A Nor B

What is the name of node which take binary values TRUE (T) and FALSE (F)? * 2 points (F)?

- Dual Node
- Binary Node
- Two way Node
- Or Node

Type here to search

0:07 PM 15-04-2023



... is a time difference between completion time and arrival time. * 2 points

- Turn Around Time
- Waiting Time
- Burst Time
- Completion Time

Algorithm is a step-by-step procedure, which defines a set of instructions to be executed in a certain order to get the desired output. * 2 points

- Procedure
- Algorithm
- Instruction
- Method

Following is not characteristic of algorithm * 2 points

- Clear and Unambiguous
- Language Dependent
- Feasible
- Finiteness

... is a time required by a process for CPU execution. * 2 points

- Turn Around Time
- Waiting Time
- Burst Time
- Completion Time

In _____ a problem is solved by breaking it into sub problems and calling own self again and again until the problem is solved. * 2 points

- Machine Learning
- Operating system
- Data structure
- Recursion

_____ refers that memory usage of a data structure operation should be as little as possible * 2 points

- Time complexity
- Flow control
- Error control
- Space complexity



Navigation bar: RAMAN Jyoti DCC, Certification Course Sem 1, Link Of SMT Certification, Whole SMT Certification Course, Jyoti DCC - Maharashtra, Examination Of SMT

1. In _____ disk scheduling algorithm, each input/output request is served in the order in which the requests arrive? * 2 points

- FCFS
- SCAN
- LOOK
- SSTF

2. Does Machine learning replace human intuitions? * 1 points

- May be
- Yes
- No
- Not sure

3. Postorder traversal is used to _____ * 2 points

- Delete the tree
- Create new tree
- Update the tree
- All the above

4. _____ is an algorithm in which the process having the smallest execution time is chosen for the next execution. * 2 points

- First Come First Serve (FCFS)
- Shortest Job First (SJF)
- Priority Scheduling
- Round Robin (RR)

5. In which of the following disk scheduling algorithm, each request is served on the basis of seek time? * 2 points

- FCFS
- SCAN
- LOOK
- SSTF

6. A function fun is called _____ recursive if it calls another function say fun_new and fun_new calls fun directly or indirectly. * 2 points

- Direct
- Indirect
- Both
- None

Navigation bar: Type here to search, Certification Course Te-4, Link Of SMT Certification, Whole SMT Certification Course, Jyoti DCC - Maharashtra, Examination Of SMT

System tray: 12:03 PM, 12-04-2021



Web browser window showing a quiz interface with three questions and their respective multiple-choice options.

Question 1: Data Structures are the programmatic way of storing data so that data can be used efficiently. (1 point)

- Databases
- Data Structures
- Algorithms
- Computer languages

Question 2: _____ time is the time required by the process for execution of the process by CPU. (1 point)

- Arrival
- Completion
- Turn Around
- Burst

Question 3: _____ is a single elementary unit of information representing an attribute of an entity. (2 points)

- Record
- File
- Field
- Data

Question 4: Machine learning needs knowledge of which two branches? (2 points)

- Statistics and Mathematics
- Statistics and physics
- Statistics and CS
- mathematics and cs

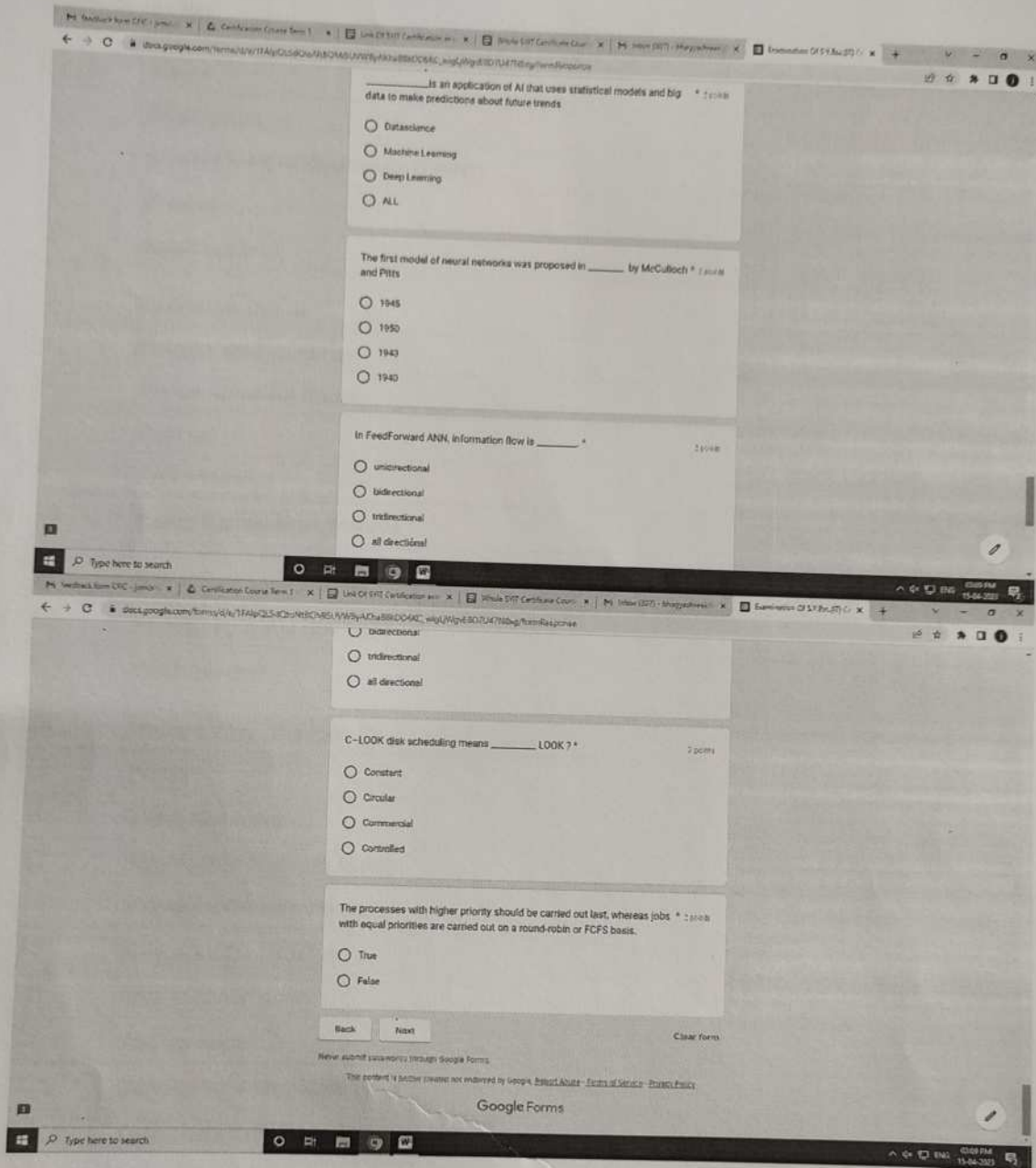
Question 5: Which of the following is not an Machine Learning strategies in ANNs? (2 points)

- Unsupervised Learning
- Reinforcement Learning
- Supreme Learning
- Supervised Learning

Question 6: _____ is the scenario depicting the least possible execution time of an operation of a data structure. (2 points)

- Best case
- Good case
- Worst case
- Average case





Participant list

Sr No	Name
1	Aman gupta
2	SUNNY VIRENDRAPRASAD BIND
3	Prajwal
4	Saish kulkarni
5	Chaitanya jadhav
6	Rayyan sabit rumaney
7	Prince Abraham Nadar
8	Raju pal
9	Rahul Medtiya
10	Kavita Ramlakshan Maurya
11	Samir Sunil Dhanawade
12	ANAND MOHAN SHENOY
13	Pratik Lahane
14	Nishant Vijay Ghadge
15	Prachi
16	Dhiraj Narvankar
17	Sajankumar Narayan Mahto
18	Videshika Gautam Nikalje
19	Kalpita kishor gaonkar
20	Arya subhash dhuri
21	Yash prajapati
22	Gandharva Vitthal Naik
23	Yash chandrashekhar Hande
24	Sheetal Tiwari
25	Shubham mulchand gupta
26	SOHAM SUNIL SALUNKE
27	Sai Sunil Biramane
28	Shraddha Ramji yadav
29	Sakshi Jetinga Vanjare



30	disha shyam dhanawade
31	Sumi Dhara
32	Nirmal Sunila Bhikhu
33	Anushka Pathak
34	Prachi Premal Chaudhary
35	Anuj sheshnath pal
36	Siddhi Vinod Kadam
37	Towhid Khan
38	Ritesh
39	Abhijeet Ganesh Bhavanashi
40	Amishay Amiel Gadkar
41	Madhavi Prashant Joshi
42	Neha
43	Ashlesha Prakash Gaude
44	Ayush
45	Rishi R Jha
46	Prakash kevat

Marksheet

Score	Name
32 / 50	Aman gupta
32 / 50	SUNNY VIRENDRAPRASAD BIND
40 / 50	Prajwal
38 / 50	Saish kulkarni
40 / 50	Chaitanya jadhav
40 / 50	Rayyan sabit rumaney
34 / 50	Prince Abraham Nadar
34 / 50	Raju pal



42 / 50	Rahul Medtiya
36 / 50	Kavita Ramlakshan Maurya
40 / 50	Samir Sunil Dhanawade
44 / 50	ANAND MOHAN SHENOY
40 / 50	Pratik Lahane
38 / 50	Nishant Vijay Ghadge
34 / 50	Prachi
36 / 50	Dhiraj Narvankar
38 / 50	Sajankumar Narayan Mahto
42 / 50	Videshika Gautam Nikalje
34 / 50	Kalpita kishor gaonkar
34 / 50	Arya subhash dhuri
32 / 50	Yash prajapati
34 / 50	Gandharva Vitthal Naik
40 / 50	Yash chandrashekhar Hande
38 / 50	Sheetal Tiwari
34 / 50	Shubham mulchand gupta
38 / 50	SOHAM SUNIL SALUNKE
34 / 50	Sai Sunil Biramane
32 / 50	Shraddha Ramji yadav
40 / 50	Sakshi Jetinga Vanjare
42 / 50	disha shyam dhanawade
46 / 50	Sumi Dhara
38 / 50	Nirmal Sunila Bhikhu
44 / 50	Anushka Pathak
40 / 50	Prachi Premlal Chaudhary
38 / 50	Anuj sheshnath pal
38 / 50	Siddhi Vinod Kadam
46 / 50	Towhid Khan



34 / 50	Ritesh
46 / 50	Abhijeet Ganesh Bhavanashi
38 / 50	Amishay Amiel Gadkar
34 / 50	Madhavi Prashant Joshi
28 / 50	Neha
44 / 50	Ashlesha Prakash Gaude
38 / 50	Ayush
34 / 50	Rishi R Jha
38 / 50	Prakash kevat

Flyer

JNAN VIKAS MANDAL'S DEGREE COLLEGE
 NAAC RE-CREDITED 'A' GRADE (CGPA 3.33)
 PLOT NO.9, SECTOR-19, AIROLI, NAVI MUMBAI

DEPARTMENT OF INFORMATION TECHNOLOGY
 ORGANIZES
CERTIFICATE COURSE
 ON
FUNDAMENTALS OF ALGORITHMS

Dr.Sunitha Joshi
Mrs.Sharayu Kadam
Mr.Ashish Chevan
Mrs. Sarojini Biradar
Mrs.Rajshree Pisal
Mrs. Bhagyashree Kulkarni

Date-15th June to 20th June 2023
Duration-30 Hours
Mrs.Archana Sanap
 IT-Incharge
Mrs. Jhanvi Kshirsagar
 CS-IT Coordinator
Dr.(Mrs.) Leena Sarkar
 Principal

Certificate

JNAN VIKAS MANDAL'S DEGREE COLLEGE
 NAAC RE-ACCREDITED 'A' GRADE (CGPA-3.33)
 Plot No. 9, Sector - 19, Airoli, Navi Mumbai, Maharashtra - 400 708

CERTIFICATE

This certificate is awarded to
 <<NAME>>
who has successfully completed Certificate Course "Fundamentals of Algorithms"
organized by Department of Information Technology of JNAN VIKAS MANDAL'S DEGREE COLLEGE

Archana Sanap
 Mrs. Archana Sanap
 In-Charge IT

Jhanvi Kshirsagar
 Mrs. Jhanvi Kshirsagar
 Coordinator CS-IT

Leena Sarkar
 Dr. Leena Sarkar
 Principal





JNAN VIKAS MANDAL'S

Mohanlal Raichand Mehta College of Commerce
Diwali Maa Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot No.9, Sector -19, Airoli, Navi Mumbai
NAAC Re-Accredited CGPA-3.33 'A'-Grade

Report

SECOND YEAR CERTIFICATE COURSE REPORT 2023-24

The certificate course in "Fundamentals of Algorithm" was conducted for second year students of information technology. The certificate course was conducted with an aim of introducing the fundamentals of security in the field of information technology which helped the students to gain an insight into the various solutions and aspects of the security in the field of information technology.

The subjects of the course were Classification algorithms in ML, Disk Scheduling, Data structure and algorithm, Recursive algorithms.

The course commenced from 13th June 2023. The course ended on 20th June, 2023. The total duration of course was 30 hours.

Following faculties conducted the lectures

Sr No	Teacher Name	Subject Name
1	Dr.Sunitha Joshi and Mrs. Sharayu Kadam	Classification algorithms in ML
2	Mrs. Sarojini Biradar	Disk Scheduling
3	Mrs.Rajshree Pisal and Mr. Ashish Chavan	Data structure and algorithm
4	Mrs. Bhagyashree Kulkarni	Recursive algorithms

Course exam was conducted on 20th June, 2023 from 12pm to 1pm. Total 50 marks exam was conducted by Mrs.Bhagyashree Kulkarni. Total 46 students attempted the examination.

Results of the certificate course were released via email to the students who attempted the exam.

Archana Sanap

Asst. Prof. Archana Sanap
Incharge- IT DEPT

Asst. Prof. Janhavi Kshirsagar
Coordinator CS-IT DEPT

B.R. Deshpande

Dr.B.R. Deshpande
Vice Principal

Leena Sarkar

Dr.(Mrs) Leena Sarkar
Principal





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Diwali Maa Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot No.9, Sector -19, Airoli, Navi Mumbai
NAAC Re-Accredited CGPA-3.33 'A'-Grade**

NOTICE

All departmental members are hereby informed that the department meeting is arranged on 29th April, 2023 at 11:30 a.m. in the Computer Science Laboratory.

Agenda

1. Conduction of Certification course of TYIT students

Asst. Prof. Archana Sanap
Incharge- IT DEPT

Asst. Prof. Janhavi Kshirsagar
Coordinator CS-IT DEPT

Dr. B.R. Deshpande
Vice Principal

Dr. (Mrs) Leena Sarkar
Principal





JNAN VIKAS MANDAL'S

Mohanlal Raichand Mehta College of Commerce

Diwali Maa College of Science

Amritlal Raichand Mehta College of Arts

Dr. R.T. Doshi College of Computer Science

NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle)

NOTICE

All departmental members are hereby informed that the department meeting is arranged on 4th December, 2023 at 11:30 a.m. in the Computer Science Laboratory.

Agenda

1. Conduction of Certification course of SYIT students

Asst. Prof. Archana Sanap

Incharge- IT DEPT

Asst. Prof. Janhavi Kshirsagar

Coordinator CS-IT DEPT





JNAN VIKAS MANDAL'S

Mohanlal Raichand Mehta College of Commerce

Diwali Maa College of Science

Amritlal Raichand Mehta College of Arts

Dr. R.T. Doshi College of Computer Science

NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle)

Minutes of Meeting

The departmental meeting was held on 4th December, 2023 at 11:30 a.m. in the Computer Science Laboratory.

Following matters were discussed and finalized as per agenda.

❖ Conduction of Certification course of SYIT students

It was decided that the certification course should be conducted from 6th December, 2023 to 12th December, 2023. For SYIT Cloud computing subject is decided. And it was decided that it should be 30 hrs.

❖ Subject Distribution

It was decided that Module-1 will be taken by Mrs. Bhagyashree Kulkarni, Module-2 will be taken by Mrs. Rajshree Pisal, Module-3 will be taken by Mrs. Sharayu Kadam and Module-4 will be taken by Mrs. Archana Sanap. All the teachers were asked to design the syllabus for 06 hours each share by 5th December, 2023.

❖ Work Distribution

Subjects are distributed among following teachers

Asst.Prof.Bhagyashree Kulkarni - Module-1

Asst.Prof.Rajshree Pisal- Module-2

Mrs. Sharayu Kadam- Module-3

Mrs. Archana Sanap - Module-4

Adjournment

Meeting was adjourned at 1:00 pm.



Following members were present:

Signature

Asst. Prof. Janhavi Kshirsagar

JK

Dr. Sunitha Joshi

BSJ

Asst. Prof. Archana Sanap

Archana

Asst. Prof Sharayu Kadam.

Sharayu

Asst. Prof Rajshree Pisal.

Rajshree

Asst. Prof Bhagyashree Kulkarni

Bhagyashree



Syllabus of Certificate Course in “Cloud Computing ” for (S.Y.B.Sc.IT)- Term-2

Duration: - 30 hours

OBJECTIVES: -

- Learner will understand the basics of algorithms
- Learner will be able to understand the asymptotic analysis of algorithms
- Learner will be able to understand algorithm in various aspects

OUTCOME: -

- Learners will apply algorithms in various aspects.
- Learner will implement the running time of algorithms using asymptotic analysis
- Learners will associate the need and importance of algorithms in different areas.

CORE SYLLABUS

Duration: 06 Hours

Asst.Prof. Bhagyashree Kulkarni- (6 Lectures)

SR. NO.	TOPICS	THEORY HOURS
1.	Introduction to Cloud Computing, Characteristics and benefits of Cloud Computing	2 hrs
2	Basic concepts of Distributed Systems, Web 2.0, Service-Oriented Computing, Utility-Oriented Computing.	2 hrs
3.	Elements of Parallel Computing. Elements of Distributed Computing. Technologies for Distributed Computing.	2 hrs

Duration: 06 Hours

Asst.Prof. Sharayu Kadam - (6 Lectures)

SR. NO.	TOPICS	DURATION
1	Cloud Computing Architecture. The cloud reference model. Infrastructure as a service. Platform as a service. Software as a service.	2hrs
2	Types of clouds.Characteristics of Virtualized Environments. Taxonomy of Virtualization Techniques.	2 hrs
3	Virtualization and Cloud Computing. Pros and Cons of Virtualization. Virtualization using KVM, Creating virtual machines.	2hrs



Duration: 06 Hours
Asst.Prof.Archana Sanap- (06 Lectures)

SR. NO.	TOPICS	DURATION
1	oVirt- management tool for virtualization environment. Open challenges of Cloud Computing	2 hrs
2	Introduction to OpenStack, OpenStack test-drive, Basic OpenStack operations	2 hrs
3	OpenStack CLI and APIs, Tenant model operations, Quotas, Private cloud building blocks	2 hrs

Duration: 06 Hours
Asst.Prof.Rajshree Pisal- (06 Lectures)

SR. NO.	TOPICS	DURATION
1	Controller deployment, Networking deployment, Block Storage deployment	2 hrs
2	Compute deployment, deploying and utilizing OpenStack in production environments	2 hrs
3	Building a production environment, Application orchestration using OpenStack Heat	2 hrs

Asst. Prof. Archana Sanap

Asst. Prof. Archana Sanap
Incharge- IT DEPT

Asst. Prof. Janhavi Kshirsagar

Asst. Prof. Janhavi Kshirsagar
Coordinator CS-IT DEPT





JNAN VIKAS MANDAL'S

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Diwali Maa College of Science

Amritlal Raichand Mehta College of Arts

Dr. R.T. Doshi College of Computer Science

NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle)

Class :S.Y.B.Sc. (I.T)

Certificate Course Timetable (Term-2)

Academic year: 2023-2024

Date	6/12/2023	7/12/2023	8/12/2023	9/12/2023	11/12/2023	12/12/2023
07.50-08.40	Module 3	Module 2	Module 4	Module 3	Module 1	Module 4
08.40-09.30	Module 2	Module 4	Module 3	Module 1	Module 4	Module 3
9.30-9.50	B	R	E	A	K	
09.50-10.40	Module 4	Module 1	Module 1	Module 2	Module 2	Module 2
10.40-11.30	Module 1	Module 3	Module 2	Module 4	Module 3	Module 1
Module-1	Mrs. Bhagyashree Kulkarni					
Module-2	Mrs. Rajshree Pisal					
Module-3	Mrs. Sharayu Kadam					
Module-4	Mrs. Archana Sanap					

Asst. Prof. Archana Sanap

Incharge- IT DEPT

Asst. Prof. Janhavi Kshirsagar

Coordinator CS-IT DEPT



Exam paper

Section 1 of 3

SYIT Certificate course Exam - 2023 (T-2)

B I U

Cloud computing

Full Name *

Short answer text

4 digit Roll number *

Short answer text

Questions Responses Settings Total points: 40

Type here to search 36°C Haze 12:56 10-04-2024

MCQ

Description (optional)

Creating more logical IT resources, within one physical system is called _____ *

(a) Load balancing

(b) Hypervisor

(c) Virtualization

(d) None of these

What is most commonly used for managing the resources for every virtual system? *

(a) Load balancer

Questions Responses Settings Total points: 40

Type here to search 36°C Haze 12:56 10-04-2024



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SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 51 Settings Total points: 40

(a) Load balancer

(b) Hypervisor

(c) Router

(d) Cloud

Which is not a benefit of virtualization?

(a) Flexible and efficient allocation of resources

(b) Lowers the cost of IT infrastructure

(c) Remote access and rapid scalability

(d) Run on single operating system

Type here to search 36°C Haze 12:58 19-04-2024

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SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 53 Settings Total points: 40

It helps a user to have remote access to an application from a server.

(a) Application virtualization

(b) Network virtualization

(c) Desktop virtualization

(d) Storage virtualization

It is an array of servers that are managed by a virtual storage system.

(a) Application virtualization

(b) Network virtualization

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SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 31 Settings Total points: 40

(b) Network virtualization

(c) Desktop virtualization

(d) Storage virtualization

Network bottlenecks occur when ____ data sets must be transferred *

large

small

big

all of the mentioned

Amazon AWS Consists of following services *

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SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 31 Settings Total points: 40

IaaS

PaaS

SaaS

all of above

RDS is a ____ type of database *

SQL

NonSQL

Simple storage

all of above

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SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 31 Settings Total points: 40

Dynamodb is ___ type of storage *

- NonSQL
- SQL
- Simple storage
- all of above

Cloud _____ are standardized in order to appeal to the majority of its " audience.

- SVAs
- SLAs
- SALs

Type here to search | 36°C Haze | 12:57 10-04-2024

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SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 33 Settings Total points: 40

- SALs
- None of the above

Who is the father of cloud computing?

- a) Sharon B. Codd
- b) Edgar Frank Codd
- c) J.C.R. Licklider
- d) Charles Bachman

Which of the following are the features of cloud computing?

Type here to search | 36°C Haze | 12:57 10-04-2024



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Form Title: SYIT Certificate course Exam - 2023 (T-2)

Navigation: Questions Responses (11) Settings Total points: 40

Question 1:

Which of the following is a type of cloud computing service?

- a) Service-as-a-Software (SaaS)
- b) Software-and-a-Server (SaaS)
- c) Software-as-a-Service (SaaS)
- d) Software-as-a-Server (SaaS)

Taskbar: Type here to search 36°C Haze 12:58 19-04-2024

Browser tabs: Inbox (65) - jsmcst... SYIT - Google Drive FYIT_Certificate Cou... SYIT Certificate cou... Whole SYIT Certif... Inbox (13) - cstrnas

Address bar: docs.google.com/forms/d/1dor7c75wo46bv33jZFrn1CEOG32OZkdXlVn0moYHp34/edit

Form Title: SYIT Certificate course Exam - 2023 (T-2)

Navigation: Questions Responses (12) Settings Total points: 40

Question 2:

Applications and services that run on a distributed network using virtualized resources is known as _____

- a) Parallel computing
- b) Soft computing
- c) Distributed computing
- d) Cloud computing

Question 3:

Which of the following is the correct statement about cloud computing?

- a) Cloud computing abstracts systems by pooling and sharing resources

Taskbar: Type here to search 36°C Haze 12:53 19-04-2024



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SYIT Certificate course Exam - 2023 (T-2) ☆

Questions Responses Settings Total points: 40

b) Cloud computing is nothing more than the Internet

c) The use of the word "cloud" makes reference to the two essential concepts

d) All of the mentioned

...

A "glue" between client and server parts of application

a) Middleware

b) Firmware

c) Package

d) Software System

Type here to search 36°C Haze 12:58 18-04-2024

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SYIT Certificate course Exam - 2023 (T-2) ☆

Questions Responses Settings Total points: 40

Distributed pervasive system is also known as *

a) user interface design

b) graphical user interface

c) ubiquitous computing

d) peer to peer system

...

Type of cluster computing is *

a) load sharing cluster

b) load holding cluster

c) load replication cluster

Type here to search 36°C Haze 12:53 18-04-2024



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SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 33 Settings Total points: 40

d) load balancing cluster

Scaling transparency hides™

a) system expansion

b) system collaboration

c) system failure

d) system security

Internet provides _____ for remote login.*

a) ftp

b) rcp

Taskbar: Type here to search, 36°C Haze, 12:58 10-04-2024

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SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 33 Settings Total points: 40

b) rcp

c) http

d) telnet

After section 2 Continue to next section

Section 3 of 3

Feedback

Description (optional)

Were the objectives of the course clear to you?*

Very Clear

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SYIT Certificate course Exam - 2023 (T-2)

Questions Responses Settings Total points: 40

Moderately Clear

Not at all Clear

The lectures were clear & easy to understand. *

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

The course was organized in a manner that helped you understand the underlying concepts. *

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Browser tabs: Inbox (55) - jvmcbit, SYIT - Google Drive, SYIT_Certificate Cour, SYIT Certificate cour, Whole SYIT Certif, Inbox (13) - csl.nae

URL: docs.google.com/forms/d/1dor7cT5wo46bv33zFm1CEOG32OZkdXlVm0moYHp34I/edit

SYIT Certificate course Exam - 2023 (T-2)

Questions Responses Settings Total points: 40

The course was organized in a manner that helped you understand the underlying concepts. *

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

How useful to you was this course? *

Very Useful

Moderately useful

Not at all useful

Type here to search 36°C Haze 12:59 19-04-2024



Browser tabs: Inbox (68) - jymcaib... SYIT - Google Drive FYIT_Certificate Cou... SYIT Certificate cour... Whole SYIT Certif... Inbox (13) - csit.naa

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SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 13 Settings Total points: 40

How much did you learn from this course? *

- A great deal
- A lot
- A moderate amount
- A little
- Nothing

Overall, how would you describe the quality of the instruction in this course? *

- Excellent
- Very good

Type here to search 36°C Haze 12:59 10-04-2024

Browser tabs: Inbox (68) - jymcaib... SYIT - Google Drive FYIT_Certificate Cou... SYIT Certificate cour... Whole SYIT Certif... Inbox (13) - csit.naa

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SYIT Certificate course Exam - 2023 (T-2)

Questions Responses 13 Settings Total points: 40

Overall, how would you describe the quality of the instruction in this course? *

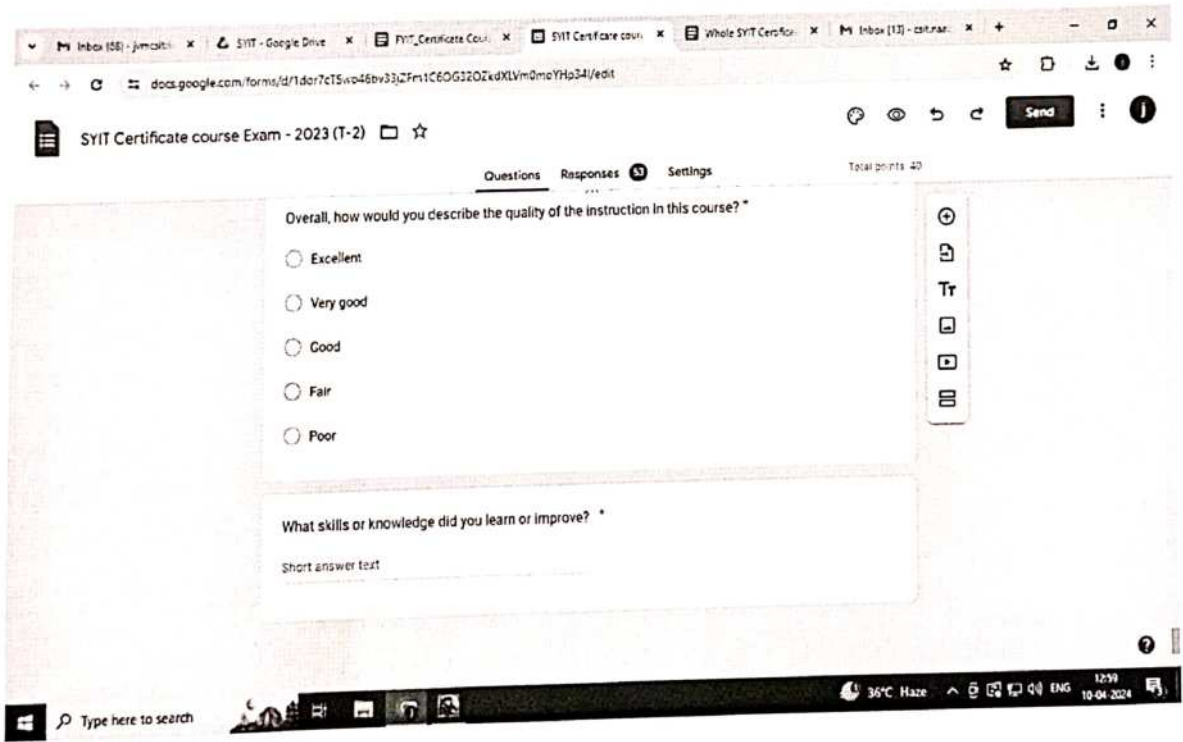
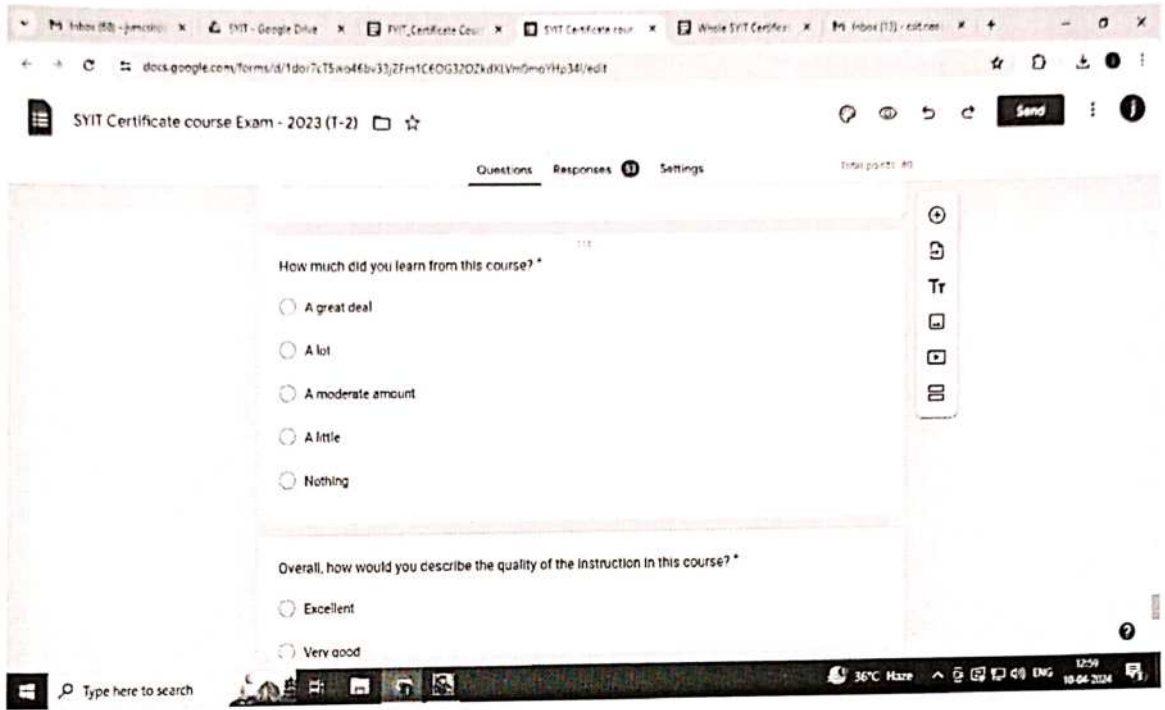
- Excellent
- Very good
- Good
- Fair
- Poor

What skills or knowledge did you learn or improve? *

Short answer text

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Participant list

Sr. No.	Full Name
1	Raju Murat pal
2	SOHAM SUNIL SALUNKE
3	Arya dhuri
4	Sheetal Tiwari
5	Gandharva Vitthal Naik
6	Kalpita kishor gaonkar
7	Madhavi prashant joshi
8	Sunny Bind
9	Shraddha Ramji yadav
10	SAJANKUMAR NARAYAN MAHTO
11	Videshika Gautam Nikalje
12	Neha santosh lokhande
13	Prachi ajay mule
14	Sai Sunil Biramane
15	Ayush jaiswal
16	Satyansh Sunil ghode
17	Aman kailash jaiswal
18	Chaitanya jadhav
19	Anushka Pathak
20	Mohd azim munawwar choudhary
21	Ankita Rankhambe
22	Shubham mulchand gupta
23	Nishant Vijay Ghadge
24	Rahul Medtiya
25	Ritesh Mangesh kadav
26	Yash Chandrashekhar Hande
27	Disha S. dhanawade



28	Aman Upadhyay
29	Anuj sheshnath pal
30	Prem Birappa Bakkanor
31	Pawan Kumar Gupta
32	Sumet Anandrao Jadhav
33	ANAND MOHAN SHENOY
34	Saish amit kulkarni
35	Amishay Amiel Gadkar
36	Prince Abraham Nadar
37	Prajwal Walunj
38	Pratik kishor lahane
39	Prakash Ramkishan kewat
40	Yash prajapati
41	Pratiksha suresh kadam
42	Ashlesha Gaude
43	Prachi premlal Chaudhary
44	Abhijeet Ganesh Bhavanashi
45	Kavita Ramlakshan Mourya
46	Dhiraj Narvankar
47	Rayyan Sabit Rumaney
48	Khushal Jagdish Pardeshi
49	Towhid Ahmed Rafiqullah Khan
50	Sumi Dhara
51	Sakshi Jetinga Vanjare
52	Samir Sunil Dhanawade
53	Aman umashankar gupta

Marksheet

Sr. No.	Full Name	Marks
1	Raju Murat pal	8 / 40
2	SOHAM SUNIL SALUNKE	38 / 40
3	Arya dhuri	38 / 40
4	Sheetal Tiwari	38 / 40
5	Gandharva Vitthal Naik	38 / 40
6	Kalpita kishor gaonkar	34 / 40
7	Madhavi prashant joshi	34 / 40
8	Sunny Bind	38 / 40
9	Shraddha Ramji yadav	38 / 40
10	SAJANKUMAR NARAYAN MAHTO	38 / 40
11	Videshika Gautam Nikalje	38 / 40
12	Neha santosh lokhande	38 / 40
13	Prachi ajay mule	34 / 40
14	Sai Sunil Biramane	36 / 40
15	Ayush jaiswal	36 / 40
16	Satyansh Sunil ghode	34 / 40
17	Aman kailash jaiswal	38 / 40
18	Chaitanya jadhav	38 / 40
19	Anushka Pathak	38 / 40
20	Mohd azim munawwar choudhary	36 / 40
21	Ankita Rankhambe	36 / 40
22	Shubham mulchand gupta	38 / 40
23	Nishant Vijay Ghadge	38 / 40
24	Rahul Medtiya	38 / 40
25	Ritesh Mangesh kadav	38 / 40
26	Yash Chandrashekhar Hande	36 / 40
27	Disha S. dhanawade	36 / 40
28	Aman Upadhyay	38 / 40
29	Anuj sheshnath pal	36 / 40



30	Prem Birappa Bakkanor	36 / 40
31	Pawan Kumar Gupta	34 / 40
32	Sumet Anandrao Jadhav	38 / 40
33	ANAND MOHAN SHENOY	38 / 40
34	Saish amit kulkarni	38 / 40
35	Amishay Amiel Gadkar	36 / 40
36	Prince Abraham Nadar	38 / 40
37	Prajwal Walunj	36 / 40
38	Pratik kishor lahane	38 / 40
39	Prakash Ramkishan kewat	36 / 40
40	Yash prajapati	34 / 40
41	Pratiksha suresh kadam	34 / 40
42	Ashlesha Gaude	40 / 40
43	Prachi premlal Chaudhary	38 / 40
44	Abhijeet Ganesh Bhavanashi	36 / 40
45	Kavita Ramlakshan Mourya	36 / 40
46	Dhiraj Narvankar	38 / 40
47	Rayyan Sabit Rumaney	34 / 40
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49	Towhid Ahmed Rafiqullah Khan	34 / 40
50	Sumi Dhara	34 / 40
51	Sakshi Jetinga Vanjare	34 / 40
52	Samir Sunil Dhanawade	38 / 40
53	Aman umashankar gupta	30 / 40





**JNAN VIKAS MANDAL'S MEHTA
DEGREE COLLEGE PLOT NO.9,
SECTOR 19, AIROLI, NAVI
MUMBAI, -400708**

CLOUD COMPUTING

ORGANISED BY IT DEPARTMENT

From: 6-12-2023 to 12-12-2023

Duration: 30 hour's

Class: SYIT

ORGANISERS:

Asst.Prof.SHARAYU KADAM

Asst.Prof.BHAGYASHREE KULKARNI


Asst.Prof.RAJSHREE PISAL

**Asst.Prof.Archana Sanap
IT INCHARGE**

**Asst.Prof.Janhavi Kshirsagar
CS-IT COORDINATOR**

**Dr.B.R.Deshpande
I/C.Principal**

Certificate



JNAN VIKAS MANDAL
COLLEGE
AIROLI

JNAN VIKAS MANDAL'S
MOHANLAL RAICHAND MEHTA DEGREE COLLEGE OF
COMMERCE DIWALI MAA DEGREE COLLEGE OF SCIENCE
AMRITLAL RAICHAND MEHTA DEGREE COLLEGE OF ARTS
PADMASHREE (Dr.) R.T.DOSHI DEGREE COLLEGE OF
COMPUTER SCIENCE PERMANENTLY AFFILIATED TO
UNIVERSITY OF MUMBAI
NAAC Re-accredited Grade A+(CGPA-3.31) 3rd CYCLE
Plot No-9, Sector-19, Airoli Node, Navi Mumbai - 400 708

CERTIFICATE

This certificate is proudly awarded to

for their participation in cloud computing
in academic year 2023-24

Asst. Prof. Archana Sanap
Incharge-IT DEPT

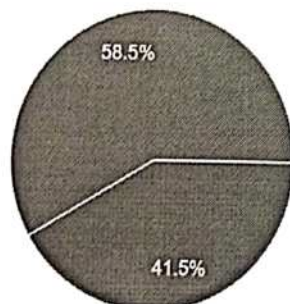
Assit.Prof. Janhavi Kshirsagar
Cordinator CS-IT DEPT

Dr. B. R. Deshpande
I/c Principal

Feedback Analysis

Were the objectives of the course clear to you?

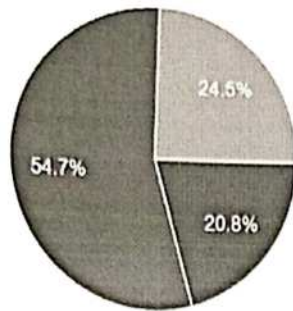
53 responses



- Very Clear
- Moderately Clear
- Not at all Clear

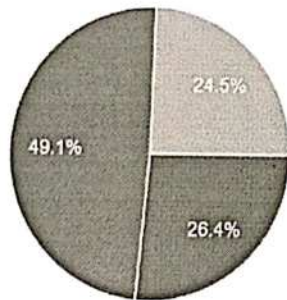


The lectures were clear & easy to understand.
53 responses



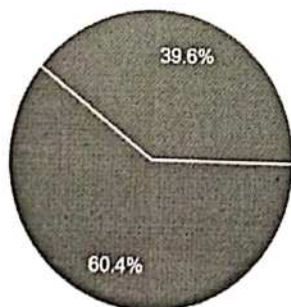
- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

The course was organized in a manner that helped you understand the underlying concepts.
53 responses



- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

How useful to you was this course?
53 responses

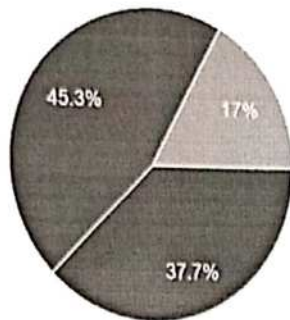


- Very Useful
- Moderately useful
- Not at all useful



How much did you learn from this course?

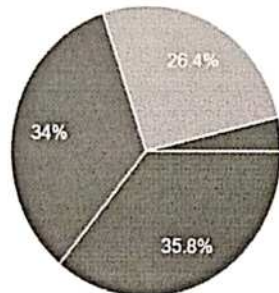
53 responses



- A great deal
- A lot
- A moderate amount
- A little
- Nothing

Overall, how would you describe the quality of the instruction in this course?

53 responses



- Excellent
- Very good
- Good
- Fair
- Poor





JNAN VIKAS MANDAL'S

Mohanlal Raichand Mehta College of Commerce
Diwali Maa College of Science
Amritlal Raichand Mehta College of Arts
Dr. R.T. Doshi College of Computer Science
NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle)

SECOND YEAR CERTIFICATE COURSE REPORT TERM-II 2023-24

The certificate course in "Cloud Computing" was conducted for second year students of information technology. The certificate course was conducted with an aim of introducing the fundamentals of distributed systems and virtualization in the field of information technology which helped the students to gain an insight into the various solutions and aspects of distributed systems and virtualization in the field of information technology.

The subjects of the course were Classified in 4 different modules.

The course commenced from 6th December, 2023. The course ended on 12th December, 2023. The total duration of course was 30 hours.

Following faculties conducted the lectures

Sr No	Teacher Name	Subject Name
1	Mrs. Bhagyashree Kulkarni	Module-1
2	Mrs. Rajshree Pisal	Module-2
3	Mrs. Sharayu Kadam	Module-3
4	Mrs. Archana Sanap	Module-4

Course exam was conducted on 14th December, 2023 from 12pm to 1pm. Total 50 marks exam was conducted by Mrs. Bhagyashree Kulkarni.

Total 53 students attempted the examination.

Results of the certificate course were released via email to the students who attempted the exam.

Asst. Prof. Archana Sanap
Incharge- IT DEPT

Asst. Prof. Janhavi Kshirsagar
Coordinator CS-IT DEPT

Dr. B. R. Deshpande
I/c Principal





JNAN VIKAS MANDAL'S

Mohaulal Raichand Mehra College of Commerce
Diwali Ma Degree College of Science
Amritlal Raichand Mehra Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot No.9, Sector -19, Airoli, Navi Mumbai
NAAC Re-Accredited CGPA-3.33 'A'-Grade

NOTICE

All departmental members are hereby informed that the department meeting is arranged on 29th April, 2023 at 11:30 a.m. in the Computer Science Laboratory.

Agenda

1. Conduction of Certification course of TYIT students

Asst. Prof. Archana Sanap
Incharge- II DEPT

Asst. Prof. Janhavi Kshirsagar
Coordinator CS-IT DEPT

Dr. B.R. Deshpande
Vice Principal

Dr. (Mrs) Leena Sarkar
Principal





JNAN VIKAS MANDAL'S

Mohanlal Raichand Mehta College of Commerce
Diwali Ma Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot No.9, Sector -19, Airoli, Navi Mumbai
NAAC Re-Accredited CGPA-3.33 'A'-Grade

Minutes of Meeting

The departmental meeting was held on 29th April, 2023 at 11:30 a.m. in the Computer Science Laboratory.

❖ Following matters were discussed and finalized as per agenda.

❖ Conduction of Certification course of TYIT students

It was decided that the certification course should be conducted from 13th June, 2023 to 20th June, 2023. For TYIT Fundamentals of Security in Information Technology subject is decided. And it was decided that it should be 40 hrs.

❖ Subject Distribution

It was decided that Mobile Security is taken by Mrs. Archana Sanap, Cyber Security is taken by Mrs. Sunitha Joshi, Computer Security is taken by Mr. Ashish Chavan, Network Security is taken by Mrs. Sharayu Kadam and Database Security is taken by Mrs. Rajashree Pisal. All the teachers were asked to design the syllabus for 10 hours each share by 12th June 2023.

❖ Work Distribution

Subjects are distributed among following teachers

Teacher Name	Subject Name
Mrs. Archana Sanap	Mobile Security
Mrs. Sunitha Joshi	Cyber Security
Mr. Ashish Chavan	Computer Security
Mrs. Sharayu Kadam	Network Security
Mrs. Rajashree Pisal	Database Security

Adjournment

Meeting was adjourned at 1:00 pm.



Following members were present:
Dr.(Mrs.) Leena Sarkar (Principal)

Dr. B.R.Deshpande (Vice Principal)

Asst. Prof. Janhavi Kshirsagar

Asst. Prof. Archana Sanap

Asst. Prof.Sharayu Kadam.

Asst. Prof.Rajshree Pisal.

Asst. Prof. Sunitha Joshi

Ass.Prof. Ashish Chavan.

Signature
Leena

MS

Janhavi

Archana
1881

fs
1881



Syllabus of Certificate Course in "Fundamentals of Security in Information Technology"

Duration: - 40 hours

Course Overview:

Technological advancements are making our life easy but also making us vulnerable to different kinds of Attacks. Therefore, Security is becoming more critical lately due to the dependence of individuals on the internet and networking. This results in the hiring of Security Professionals by IT Industries.

IT security courses are specialized programs pursued by aspirants who want to further their career in the different aspects of security such as computer security, database security, mobile security, network and cyber security.

To be eligible for the IT Security course, students must have knowledge in one of the fields such as Physics, Chemistry, Computer Science and Mathematics. They must be well versed with these subjects especially Computer Science and Mathematics as it hugely deals with the internet and requires immense IT knowledge.

Course Objective:

- Learners will gain knowledge about securing clean and corrupted systems.
- Learners will understand how to protect data, secure personal data and secure computer networks.
- Learners will understand the role of cryptographic systems.

Course Outcome:

- Learner will analyze and resolve security issues in different networks
- Design, develop, test and evaluate secure software.
- Interpret and forensically investigate security incidents.

Course Duration:

06*5 = 30 lectures of one hour each

Pedagogy:

The subject is based on online teaching and assignments.

Assessment:

- > Attendance: This will help students to maintain flow in their learning concepts.
- > Active Participation: This will improve students' communication and alertness and will provide ease in learning the practical things related to the topic

Certificate:

The result of the course will be calculated on the basis of assignment/case study and test (MCQ type) taken by the faculties at the end of the course. Students scoring more than 40% in the test will be awarded with the certificate.



CORE SYLLABUS

Duration: 06 Hours

Allocation of total hours for each topic

Asst.Prof.Archana Sanap.-Mobile Security (6 Lectures)

SR. NO.	TOPICS	THEORY HOURS
1	Introduction to Mobile Security	02
2	Security of GSM Networks & Security of UMTS Networks	02
3	WiFi and Bluetooth Security	01
4	Emerging Trends in Mobile Security	01

Duration: 06 Hours

Allocation of total hours for each topic

Dr.Sunitha Joshi-
(6 Lectures)

SR. NO.	TOPICS	DURATION
1	Cyber security introduction -Basics	02
2	Security vulnerabilities, threats and Attacks	02
3	Cyber Threats-Cyber-Warfare	01
4	Cyberspace and the Law & Cyber Forensics	01

Duration: 06 Hours

Allocation of total hours for each topic

Asst.Prof. Ashish Chavan- Computer Security (6 Lectures)

SR. NO.	TOPICS	HOURS
1	Computer Security Overview	02
2	Computer Security Elements	02
3	Computer Security Terminologies	01



4	Computer Security Strategies	01
---	------------------------------	----

Duration: 06 Hours

Allocation of total hours for each topic

Asst.Prof. Sharayu Kadam - Network Security (06 Lectures)

SR. NO.	TOPICS	DURATION
1	Computer Security: Introduction, Need for security, Principles of Security, Types of Attacks Cryptography: Plain text and Cipher Text.	2
2	Substitution techniques, Caesar Cipher, Mono-alphabetic Cipher, Polygram, Polyalphabetic Substitution.	2
3	Playfair, Hill Cipher Transposition techniques, Encryption and Decryption.	1
4	Symmetric and Asymmetric Key Cryptography, Steganography, Key Range and Key Size, Possible Types of Attacks.	1

Duration: 06 Hours

Allocation of total hours for each topic

Asst.Prof.Rajshree Pisal- Database Security (6 Lectures)

SR. NO.	TOPICS	DURATION
1	What is database security? Why is it important?	2
2	Common threats and challenges, Best practices	2
3	Controls and policies, Data protection tools and platforms	1
4	Top 10 database security tools	1





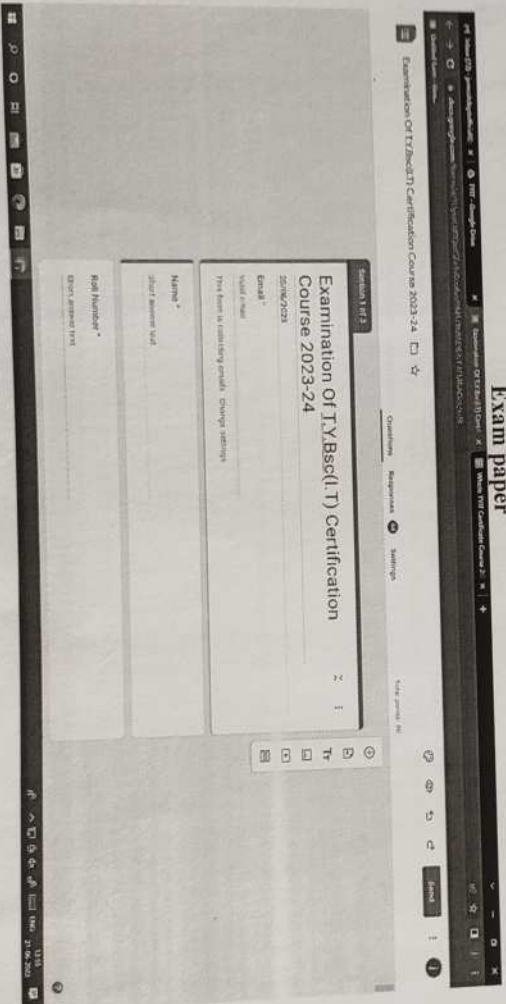
JNAN VIKAS MANDAL'S
 AmratlalRatchand Mehta Degree College of Arts
 DivaitiMaa Degree College of Science
 MohanlalRatchand Mehta College of Commerce
 Padmashree(Dr.) R.T. Doshi Degree College of Computer Science
 Plot no. 9, Sector -19, Airoli/NAVI Mumbai

Class : T.Y.B.Sc. (I.T) Certificate Course Timetable (Term-1)
 Academic year: 2023-2024

Time	Tuesday 13/06/23	Wednesday 14/06/2023	Thursday 15/06/23	Friday 16/06/23	Saturday 17/06/23	Monday 19/06/23	Tuesday 20/06/23
8-40-9-30	NS (Sharayu K)	MS (Archana S)	CS (Sunitha J)	MS (Archana S)	NS (Sharayu K)	MS (Archana S)	CS (Sunitha J)
9-30-10-20	DS (Rajashree P)	Comp.Sec (Ashish C)	NS (Sharayu K)	NS (Sharayu K)	DS (Rajashree P)	NS (Sharayu K)	Comp.Sec (Ashish C)
10-20-11-10	Comp.Sec (Ashish C)	CS (Sunitha J)	MS (Archana S)	DS (Rajashree P)	Comp.Sec (Ashish C)	Comp.Sec (Ashish C)	DS (Rajashree P)
11-10-12:00	CS (Sunitha J)	DS (Rajashree P)	Comp.Sec (Ashish C)	CS (Sunitha J)	MS (Archana S)	DS (Rajashree P)	MS (Archana S)
12:00-12:50					CS (Sunitha J)		NS (Sharayu K)

Mobile Security: Mrs. Archana Sanap Cyber Security: Mrs. Sunitha Joshi Computer Security: Mr. Ashish Chavan
 Network Security: Mrs. Sharayu kadam Database Security: Mrs. Rajashree Pisal

Exam paper



Match Network *
Select correct text

After network is ... continue to send traffic

Multiple Choice Questions
(Description: Network)

- Network Security provides authentication and access control for resources *
- Yes
 - No
 - May be
 - Not sure

Questions Responses Settings

100 points, 20

The process of verifying the identity of a user *

- Identification
- Authentication
- Verification
- Validation

The information that gets transformed in encryption is _____ *

- Encrypted Text
- Decrypted Text
- Plain Text
- Pseudo Text

Which is not a principle of network security? *

Questions Responses Settings

100 points, 10

Which is not a principle of network security? *

- Identification
- Authentication
- Access control
- Lock

A process of making the encrypted text readable again *

- Decryption
- Encryption
- Network Security
- Information Hiding

In which of the following, a session is consistently followed/observed by another user or group *



Webcam: On/Off (1/1) | Video: Off (1/1) | Microphone: On (1/1) | Exam: On (1/1) | Question: 1/10 | Progress: 10% | Time: 00:00:00

Examination Of IT (Bachel) Certification Course 2023-24

Questions: 1/10 | Progress: 10% | Time: 00:00:00

In regard of the following a system is considered compromised by an attacker if any of the following is true?

- Malware
- Denial of Service
- Spoofing
- Identity Theft

Which one of the following can be considered as the cause of computer crash?

- Low Storage
- Powering
- Malware
- None of the above

Which of the following refers to the violation of the principle of a computer is no more accessible?

Questions: 1/10 | Progress: 10% | Time: 00:00:00

Which of the following refers to the violation of the principle of a computer is no more accessible?

- Confidentiality
- Availability
- Integrity
- All of the above

Which of the following refers to exposing the information, critical behaviors related to the device management and digital media partitions?

- Open law
- Openness
- Open security
- Openness

Examination Of IT (Bachel) Certification Course 2023-24

Questions: 1/10 | Progress: 10% | Time: 00:00:00

In system based hacking, which of the following is the most crucial activity?

- Information gathering
- Creating backdoor
- Exploiting weakness
- Creating persistence

Mobile security is also known as?

- OS Security
- App Security
- Wireless Security
- Database security



Question Responses Save

Makeup gets privileged through networks and superpowers like ?

- DM
- Bluetooth
- Wireless
- All of the above

In the central node of BGP, it provides responses. ?

- WPA
- Access Point
- WAP
- Access Point

Question Responses Save

Which of the following of every system, printer, scanner, and other portable tech devices, & the exception to avoid they get into your system & logs.

- QR Scanning
- Radiation security
- Cloud security
- Mobile security

Activate _____ when you're equipped it to use otherwise turn it off for security purposes

- Flash Light
- App lock
- Bluetooth
- Location

Question Responses Save

Which of the following is not a security measure to be taken in a cloud storage device of primary data ?

- Two factor
- Data backup
- Buffer overflow
- Malware

Which of the following is not a security measure to be taken in a cloud storage device of primary data ?

- Malware
- Application security
- Secure
- Firewall



Examination Of ITJ (Sem-3) Certification Course 2023-24

Questions Responses Settings View results for

_____ means a set of interrelated operations are performed upon the database either sequentially or randomly.

Database view
 Characteristic view
 Auxiliary view
 Storage view

_____ may refer to any endpoint device connecting to the database's network.

Database
 Physical
 Logical
 Database

Examination Of ITJ (Sem-3) Certification Course 2023-24

Questions Responses Settings View results for

_____ prevents data from being transferred to such a way that it can be accessed by unauthorized agents.

Password control
 Data control
 Access control
 Flow control

In digital mode, data is the biggest weakness point of security.

Software
 Hardware
 Network
 Human

Examination Of ITJ (Sem-3) Certification Course 2023-24

Questions Responses Settings View results for

Which of the following master file fields information is not made available to unauthorised users?

Data integrity
 Data confidentiality
 Privacy
 System integrity

_____ enables data systems users privacy and services not denied to authorized users.

Data integrity
 Data Confidentiality
 Privacy
 Availability



Examination Of TV Bachelors Certification Course 2023-24

Questions: 1/10

1. Which of the following is not a type of digital communication? A. Radio B. TV C. Internet D. Satellite

Examination Of TV Bachelors Certification Course 2023-24

Questions: 2/10

2. Which of the following is not a type of digital communication? A. Radio B. TV C. Internet D. Satellite

Examination Of TV Bachelors Certification Course 2023-24

Questions: 3/10

3. Which of the following is not a type of digital communication? A. Radio B. TV C. Internet D. Satellite

Examination Of TV Bachelors Certification Course 2023-24

Questions: 4/10

4. Which of the following is not a type of digital communication? A. Radio B. TV C. Internet D. Satellite

Examination Of TV Bachelors Certification Course 2023-24

Questions: 5/10

5. Which of the following is not a type of digital communication? A. Radio B. TV C. Internet D. Satellite

Examination Of TV Bachelors Certification Course 2023-24

Questions: 6/10

6. Which of the following is not a type of digital communication? A. Radio B. TV C. Internet D. Satellite



Arora



Sr No	Name
1	Satyam Kumar Maurya
2	Shiva singh
3	Kaif Faruk shaikh
4	Rupal Rakesh Saroj
5	Archana Arvind Gupta
6	Krity Sharma
7	Sakshi Anand Tambe
8	Aman maurya
9	Yadav Ankit Omprakash
10	Sonu Kumar
11	Laxman Yadav
12	Aditya Ashok Sanas
13	Sanika Gawade
14	Suruchi Shirke
15	Om borhade
16	Karan Mishra
17	Parth bhoir
18	SHRADDHA YADAV
19	Priya Prasad
20	Prathamesh Uday Desai
21	RONIT RAWAL
22	Petiwala Asim Umar
23	Namita karavade
24	Prema Rajendra Yadav
25	Tapasvi Narayan Mohite
26	Tejaswini Santosh Kakade
27	Abhinay Gupta
28	Riddhi mochemadkar

Participant list

29	Seema Gangaram Shende
30	Yash Singh
31	Pankaj yadav
32	Dinesh Patil
33	Prajwal Pawar
34	Sainath more
35	sohail shaikh
36	Sujal Shinde
37	Mitali
38	Vaishnavi charate
39	Aniket Mahesh Mourya
40	Sandeep Vishwakarma
41	Divya pal
42	Sanskruiti bhosale
43	diwakar janardan sharma
44	Sadiqua Maqsood Ahmed Samani

Marksheet

Score	Name
42 / 50	Satyam Kumar Maurya
42 / 50	Shiva singh
42 / 50	Kaif Faruk shaikh
18 / 50	Rupal Rakesh Saroi
22 / 50	Archana Arvind Gupta
40 / 50	Krity Sharma
40 / 50	Sakshi Anand Tambe
42 / 50	Aman maurya
44 / 50	Yadav Ankit Omprakash



40 / 50	Sonu Kumar
42 / 50	Laxman Yadav
34 / 50	Aditya Ashok Sanas
38 / 50	Sanika Gawade
40 / 50	Suruchi Shirke
40 / 50	Om borhade
42 / 50	Karan Mishra
42 / 50	Parth bhoir
44 / 50	SHRADDHA YADAV
36 / 50	Priya Prasad
32 / 50	Prathamesh Uday Desai
42 / 50	RONIT RAWAL
42 / 50	Petiwala Asim Umar
40 / 50	Namita karavade
36 / 50	Prerna Rajendra Yadav
44 / 50	Tapasvi Narayan Mohite
36 / 50	Tejaswini Santosh Kakade
36 / 50	Abhinay Gupta
42 / 50	Riddhi mochemadkar
44 / 50	Seema Gangaram Shende
36 / 50	Yash Singh
36 / 50	Pankaj yadav
44 / 50	Dinesh Patil
44 / 50	Prajiwal Pawar
40 / 50	Sainath more
46 / 50	sohail shalkh
44 / 50	Sujal Shinde
36 / 50	Mitali



44 / 50	Vaishnavi charate
40 / 50	Aniket Mahesh Mourya
38 / 50	Sandeep Vishwakamma
42 / 50	Diya pal
44 / 50	Sanskriti bhosale
44 / 50	diwaker janardan sharma
40 / 50	Sadiqua Maqsood Ahmed Samani

Flyer

JNAN VIKAS MANDAL'S DEGREE COLLEGE
 NAAC RE-ACCREDITED 'A' GRADE (CGPA-3.33)
 Plot No. 9, Sector - 19, Airoli, Navi Mumbai, Maharashtra

Department of Information Technology
 Organizes Certificate Course on
Fundamentals of Security in Information Technology

Mrs. Sunitha Joshi
 Mr. Ashish Chavan
 Mrs. Sharayu Kadam
 Mrs. Rajshree Pisai

Date: 13th June to 20th June 2023
 Duration: 30 Hours

Mrs. Archana Sanap
 IT- Incharge

Mrs. Janhavi Kashirsagar
 CS- IT Coordinator

Dr. (Mrs.) Leena Sarkar
 Principal

Certificate

JNAN VIKAS MANDAL'S DEGREE COLLEGE
 NAAC RE-ACCREDITED 'A' GRADE (CGPA-3.33)
 Plot No. 9, Sector - 19, Airoli, Navi Mumbai, Maharashtra - 400 708

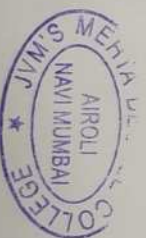
CERTIFICATE

<<NAME>>
 This certificate is awarded to
<<NAME>>
 who has successfully completed Certificate Course "Fundamentals of Security in Information Technology" organized by Department of Information Technology of JNM's Degree College

Mrs. Archana Sanap
 In-Charge IT

Mrs. Janhavi Kashirsagar
 Coordinator CS-IT

Dr. Leena Sarkar
 Principal





JNAN VIKAS MANDAL'S

Mohaulal Raichand Mehta College of Commerce
Diwali Maan Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot No.9, Sector -19, Airoli, Navi Mumbai
NAAC Re-Accredited CGPA-3.33 'A'-Grade

Report
THIRD YEAR CERTIFICATE COURSE REPORT 2023

The certificate course in "Fundamentals of Security in Information Technology" was conducted for third year students of information technology. The certificate course was conducted with an aim of introducing the fundamentals of security in the field of information technology which helped the students to gain an insight into the various solutions and aspects of the security in the field of information technology.

The subjects of the course were Mobile Security, Cyber Security, Computer Security, Network Security and Database Security.

The course commenced from 13th June 2023. The course ended on 20th June, 2023. The total duration of course was 30 hours.

Following faculties conducted the lectures

Sr. No	Teacher Name	Subject Name
1	Mrs. Archana Sanap	Mobile Security
2	Mrs. Sunitha Joshi	Cyber Security
3	Mr. Ashish Chavan	Computer Security
4	Mrs. Sharayu Kadann	Network Security
5	Mrs. Rajshree Pisal	Database Security

Course exam was conducted on 20th June, 2023 from 2pm to 3pm. Total 50 marks exam was conducted by Mrs. Bhagyashree Kulkarni. Total 44 students attempted the examination..

Results of the certificate course were released via email to the students who attempted the exam.

Asst. Prof. Archana Sanap
Incharge- IT DEPT

Asst. Prof. Janhavi Kshirsagar
Coordinator CS-IT DEPT

Dr. B. R. Deshpande
Vice Principal

Dr. (Mrs) Leena Sarkar
Principal



UNIVERSITY OF MUMBAI

No. UG/76 of 2018-19

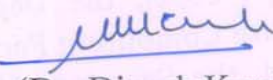
CIRCULAR:-

Attention of the Principals of the affiliated Colleges and Directors of the recognized Institutions in Science & Technology Faculty is invited to this office Circular Nos. UG/66 of 2012-13, dated 12th September, 2012 relating to syllabus of the Bachelor of Science (B.Sc.) programme in the course of Information Technology.

They are hereby informed that the recommendations made by the Ad-hoc Board of Studies in Information Technology at its meeting held on 8th June, 2018 have been accepted by the Academic Council at its meeting held on 14th June, 2018 vide item No. 4.49 and that in accordance therewith, the revised syllabus as per the (CBCS) for the T.Y.B.Sc. in Information Technology (Sem – V & VI), has been brought into force with effect from the academic year 2018-19, accordingly. (The same is available on the University's website www.mu.ac.in).

MUMBAI – 400 032

To ^{6th June, 2018}
^{July}


(Dr. Dinesh Kamble)
I/c REGISTRAR

The Principals of the affiliated Colleges & Directors of the recognized Institutions in Science & Technology Faculty. (Circular No. UG/334 of 2017-18 dated 9th January, 2018.)

A.C./4.49/14/06/2018

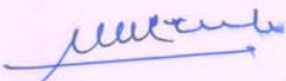
No. UG/ 76 -A of 2018

MUMBAI-400 032

^{6th June, 2018}
^{July}

Copy forwarded with Compliments for information to:-

- 1) The I/c Dean, Faculty of Science & Technology,
- 2) The Chairman, Ad-hoc Board of Studies in Information Technology,
- 3) The Director, Board of Examinations and Evaluation,
- 4) The Director, Board of Students Development,
- 5) The Co-Ordinator, University Computerization Centre,


(Dr. Dinesh Kamble)
I/c REGISTRAR

Academic Council 14/06/2018

Item No:4.49

UNIVERSITY OF MUMBAI



Syllabus for T.Y.B.Sc.

Programme: B.Sc.

Subject: Information Technology

(Choice Based Credit System)

(with effect from the academic year 2018 – 2019)

Semester – 5			
Course Code	Course Type	Course Title	Credits
USIT501	Skill Enhancement Course	Software Project Management	2
USIT502	Skill Enhancement Course	Internet of Things	2
USIT503	Skill Enhancement Course	Advanced Web Programming	2
USIT504	Discipline Specific Elective (Any One)	Artificial Intelligence	2
USIT505		Linux System Administration	
USIT506	Discipline Specific Elective (Any One)	Enterprise Java	2
USIT507		Next Generation Technologies	
USIT5P1	Skill Enhancement Course Practical	Project Dissertation	2
USIT5P2	Skill Enhancement Course Practical	Internet of Things Practical	2
USIT5P3	Skill Enhancement Course Practical	Advanced Web Programming Practical	2
USIT5P4	Discipline Specific Elective Practical (Any One)*	Artificial Intelligence Practical	2
USIT5P5		Linux Administration Practical	
USIT5P6	Discipline Specific Elective Practical (Any One)*	Enterprise Java Practical	2
USIT5P7		Next Generation Technologies Practical	
Total Credits			20

(All the practical mentioned in the syllabi are compulsory as per the courses chosen)

Semester – 6			
Course Code	Course Type	Course Title	Credits
USIT601	Skill Enhancement Course	Software Quality Assurance	2
USIT602	Skill Enhancement Course	Security in Computing	2
USIT603	Skill Enhancement Course	Business Intelligence	2
USIT604	Discipline Specific Elective (Any One)	Principles of Geographic Information Systems	2
USIT605		Enterprise Networking	
USIT606	Discipline Specific Elective (Any One)	IT Service Management	2
USIT607		Cyber Laws	
USIT6P1	Skill Enhancement Course Practical	Project Implementation	2
USIT6P2	Skill Enhancement Course Practical	Security in Computing Practical	2
USIT6P3	Skill Enhancement Course Practical	Business Intelligence Practical	2
USIT6P4	Discipline Specific Elective Practical (Any One)*	Principles of Geographic Information Systems Practical	2
USIT6P5		Enterprise Networking Practical	
USIT6P6	Skill Enhancement Course Practical	Advanced Mobile Programming	2
Total Credits			20

***The choice of Practical course is based on the theory Course. For Semester V, USIT504, USIT505, USIT506 and USIT507, the practical courses are USIT5P4, USIT5P5, USIT5P6, USIT5P7. For Semester VI, USIT604, USIT605 the practical courses are USIT6P4, USIT6P5 respectively. Practical Course USIT6P6 is compulsory.**

SEMESTER V

B. Sc. (Information Technology)		Semester – V	
Course Name: Software Project Management		Course Code: USIT501	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	<p>Introduction to Software Project Management: Introduction, Why is Software Project Management Important? What is a Project? Software Projects versus Other Types of Project, Contract Management and Technical Project Management, Activities Covered by Software Project Management, Plans, Methods and Methodologies, Some Ways of Categorizing Software Projects, Project Charter, Stakeholders, Setting Objectives, The Business Case, Project Success and Failure, What is Management? Management Control, Project Management Life Cycle, Traditional versus Modern Project Management Practices.</p> <p>Project Evaluation and Programme Management: Introduction, Business Case, Project Portfolio Management, Evaluation of Individual Projects, Cost–benefit Evaluation Techniques, Risk Evaluation, Programme Management, Managing the Allocation of Resources within Programmes, Strategic Programme Management, Creating a Programme, Aids to Programme Management, Some Reservations about Programme Management, Benefits Management.</p> <p>An Overview of Project Planning: Introduction to Step Wise Project Planning, Step 0: Select Project, Step 1: Identify Project Scope and Objectives, Step 2: Identify Project Infrastructure, Step 3: Analyse Project Characteristics, Step 4: Identify Project Products and Activities, Step 5: Estimate Effort for Each Activity, Step 6: Identify Activity Risks, Step 7: Allocate Resources, Step 8: Review/Publicize Plan, Steps 9 and 10: Execute Plan/Lower Levels of Planning</p>	12
II	<p>Selection of an Appropriate Project Approach: Introduction, Build or Buy? Choosing Methodologies and Technologies, Software Processes and Process Models, Choice of Process Models, Structure versus Speed of Delivery, The Waterfall Model, The Spiral Model, Software Prototyping, Other Ways of Categorizing Prototypes, Incremental Delivery, Atern/Dynamic Systems Development Method, Rapid Application Development, Agile Methods, Extreme Programming (XP), Scrum, Lean Software Development, Managing Iterative Processes, Selecting the Most Appropriate Process Model.</p> <p>Software Effort Estimation: Introduction, Where are the Estimates Done? Problems with Over- and Under-Estimates, The Basis for Software Estimating, Software Effort Estimation Techniques, Bottom-up Estimating, The Top-down Approach and Parametric Models, Expert Judgement, Estimating by Analogy, Albrecht Function Point</p>	12

	Analysis, Function Points Mark II, COSMIC Full Function Points, COCOMO II: A Parametric Productivity Model, Cost Estimation, Staffing Pattern, Effect of Schedule Compression, Capers Jones Estimating Rules of Thumb.	
III	<p>Activity Planning: Introduction, Objectives of Activity Planning, When to Plan, Project Schedules, Projects and Activities, Sequencing and Scheduling Activities, Network Planning Models, Formulating a Network Model, Adding the Time Dimension, The Forward Pass, Backward Pass, Identifying the Critical Path, Activity Float, Shortening the Project Duration, Identifying Critical Activities, Activity-on-Arrow Networks.</p> <p>Risk Management: Introduction, Risk, Categories of Risk, Risk Management Approaches, A Framework for Dealing with Risk, Risk Identification, Risk Assessment, Risk Planning, Risk Management, Evaluating Risks to the Schedule, Boehm’s Top 10 Risks and Counter Measures, Applying the PERT Technique, Monte Carlo Simulation, Critical Chain Concepts.</p> <p>Resource Allocation: Introduction, Nature of Resources, Identifying Resource Requirements, Scheduling Resources, Creating Critical Paths, Counting the Cost, Being Specific, Publishing the Resource Schedule, Cost Schedules, Scheduling Sequence.</p>	12
IV	<p>Monitoring and Control: Introduction, Creating the Framework, Collecting the Data, Review, Visualizing Progress, Cost Monitoring, Earned Value Analysis, Prioritizing Monitoring, Getting the Project Back to Target, Change Control, Software Configuration Management (SCM).</p> <p>Managing Contracts: Introduction, Types of Contract, Stages in Contract Placement, Typical Terms of a Contract, Contract Management, Acceptance.</p> <p>Managing People in Software Environments: Introduction, Understanding Behaviour, Organizational Behaviour: A Background, Selecting the Right Person for the Job, Instruction in the Best Methods, Motivation, The Oldham–Hackman Job Characteristics Model, Stress, Stress Management, Health and Safety, Some Ethical and Professional Concerns.</p>	12
V	<p>Working in Teams: Introduction, becoming a Team, Decision Making, Organization and Team Structures, Coordination Dependencies, Dispersed and Virtual Teams, Communication Genres, Communication Plans, Leadership.</p> <p>Software Quality: Introduction, The Place of Software Quality in Project Planning, Importance of Software Quality, Defining Software Quality, Software Quality Models, ISO 9126, Product and Process Metrics, Product versus Process Quality Management, Quality Management Systems, Process Capability Models, Techniques to Help Enhance Software Quality, Testing, Software Reliability, Quality Plans.</p> <p>Project Closeout: Introduction, Reasons for Project Closure, Project</p>	12

	Closure Process, Performing a Financial Closure, Project Closeout Report.	
--	---	--

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Software Project Management	Bob Hughes, Mike Cotterell, Rajib Mall	TMH	6 th	2018
2.	Project Management and Tools & Technologies – An overview	Shailesh Mehta	SPD	1st	2017
3.	Software Project Management	Walker Royce	Pearson		2005

Course Name: Internet of Things		Course Code: USIT502	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	<p>The Internet of Things: An Overview: The Flavour of the Internet of Things, The “Internet” of “Things”, The Technology of the Internet of Things, Enchanted Objects, Who is Making the Internet of Things?</p> <p>Design Principles for Connected Devices: Calm and Ambient Technology, Magic as Metaphor, Privacy, Keeping Secrets, Whose Data Is It Anyway? Web Thinking for Connected Devices, Small Pieces, Loosely Joined, First-Class Citizens on The Internet, Graceful Degradation, Affordances.</p> <p>Internet Principles: Internet Communications: An Overview, IP, TCP, The IP Protocol Suite (TCP/IP), UDP, IP Addresses, DNS, Static IP Address Assignment, Dynamic IP Address Assignment, IPv6, MAC Addresses, TCP and UDP Ports, An Example: HTTP Ports, Other Common Ports, Application Layer Protocols, HTTP, HTTPS: Encrypted HTTP, Other Application Layer Protocols.</p>	12
II	<p>Thinking About Prototyping: Sketching, Familiarity, Costs versus Ease of Prototyping, Prototypes and Production, Changing Embedded Platform, Physical Prototypes and Mass Personalisation, climbing into the Cloud, Open Source versus Closed Source, Why Closed? Why Open? Mixing Open and Closed Source, Closed Source for Mass Market Projects, Tapping into the Community.</p> <p>Prototyping Embedded Devices: Electronics, Sensors, Actuators, Scaling Up the Electronics, Embedded Computing Basics, Microcontrollers, System-on-Chips, Choosing Your Platform, Arduino, developing on the Arduino, Some Notes on the Hardware, Openness, Raspberry Pi, Cases and Extension Boards, Developing on the Raspberry Pi, Some Notes on the Hardware, Openness.</p>	12
III	<p>Prototyping the Physical Design: Preparation, Sketch, Iterate, and Explore, Nondigital Methods, Laser Cutting, Choosing a Laser Cutter, Software, Hinges and Joints, 3D Printing, Types of 3D Printing, Software, CNC Milling, Repurposing/Recycling.</p> <p>Prototyping Online Components: Getting Started with an API, Mashing Up APIs, Scraping, Legalities, writing a New API, Clockodillo, Security, implementing the API, Using Curl to Test, Going Further, Real-Time Reactions, Polling, Comet, Other Protocols, MQ Telemetry Transport, Extensible Messaging and Presence Protocol, Constrained Application Protocol.</p>	12
IV	Techniques for Writing Embedded Code: Memory Management,	12

	Types of Memory, Making the Most of Your RAM, Performance and Battery Life, Libraries, Debugging. Business Models: A Short History of Business Models, Space and Time, From Craft to Mass Production, The Long Tail of the Internet, Learning from History, The Business Model Canvas, Who Is the Business Model For? Models, Make Thing, Sell Thing, Subscriptions, Customisation, be a Key Resource, Provide Infrastructure: Sensor Networks, take a Percentage, Funding an Internet of Things Startup, Hobby Projects and Open Source, Venture Capital, Government Funding, Crowdfunding, Lean Startups.	
V	Moving to Manufacture: What Are You Producing? Designing Kits, Designing Printed circuit boards, Software Choices, The Design Process, Manufacturing Printed Circuit Boards, Etching Boards, Milling Boards. Assembly, Testing, Mass-Producing the Case and Other Fixtures, Certification, Costs, Scaling Up Software, Deployment, Correctness and Maintainability, Security, Performance, User Community. Ethics: Characterizing the Internet of Things, Privacy, Control, Disrupting Control, Crowdsourcing, Environment, Physical Thing, Electronics, Internet Service, Solutions, The Internet of Things as Part of the Solution, Cautious Optimism, The Open Internet of Things Definition.	12

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Designing the Internet of Things	Adrian McEwen, Hakim Cassimally	WILEY	First	2014
2.	Internet of Things – Architecture and Design	Raj Kamal	McGraw Hill	First	2017
3.	Getting Started with the Internet of Things	Cuno Pfister	O'Reilly	Sixth	2018
4.	Getting Started with Raspberry Pi	Matt Richardson and Shawn Wallace	SPD	Third	2016

B. Sc. (Information Technology)		Semester – V	
Course Name: Advanced Web Programming		Course Code: USIT503	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	<p>Introducing .NET: The .NET Framework, C#, VB, and the .NET Languages, The Common Language Runtime, The .NET Class Library.</p> <p>The C# Language: C# Language Basics, Variables and Data Types, Variable Operations, Object-Based Manipulation, Conditional Logic, Loops, Methods.</p> <p>Types, Objects, and Namespaces: The Basics About Classes, Building a Basic Class, Value Types and Reference Types, Understanding Namespaces and Assemblies, Advanced Class Programming.</p>	12
II	<p>Web Form Fundamentals: Writing Code, Using the Code-Behind Class, Adding Event Handlers, Understanding the Anatomy of an ASP.NET Application, Introducing Server Controls, Using the Page Class, Using Application Events, Configuring an ASP.NET Application.</p> <p>Form Controls: Stepping Up to Web Controls, Web Control Classes, List Controls, Table Controls, Web Control Events and AutoPostBack, Validation, Understanding Validation, Using the Validation Controls, Rich Controls, The Calendar, The AdRotator, Pages with Multiple Views, User Controls and Graphics, User Controls, Dynamic Graphics, The Chart Control, Website Navigation: Site Maps, URL Mapping and Routing, The SiteMapPath Control, The TreeView Control, The Menu Control.</p>	12
III	<p>Error Handling, Logging, and Tracing: Avoiding Common Errors, Understanding Exception Handling, Handling Exceptions, Throwing Your Own Exceptions, Using Page Tracing</p> <p>State Management: Understanding the Problem of State, Using View State, Transferring Information Between Pages, Using Cookies, Managing Session State, Configuring Session State, Using Application State, Comparing State Management Options</p> <p>Styles, Themes, and Master Pages: Styles, Themes, Master Page Basics, Advanced Master Pages,</p>	12
IV	<p>ADO.NET Fundamentals: Understanding Databases, Configuring Your Database, Understanding SQL Basics, Understanding the Data Provider Model, Using Direct Data Access, Using Disconnected Data Access.</p> <p>Data Binding: Introducing Data Binding, Using Single-Value Data Binding, Using Repeated-Value Data Binding, Working with Data</p>	12

	Source Controls, The Data Controls: The GridView, Formatting the GridView, selecting a GridView Row, Editing with the GridView, Sorting and Paging the GridView, Using GridView Templates, The DetailsView and FormView	
V	XML: XML Explained, The XML Classes, XML Validation, XML Display and Transforms. Security Fundamentals: Understanding Security Requirements, Authentication and Authorization, Forms Authentication, Windows Authentication. ASP.NET AJAX: Understanding Ajax, Using Partial Refreshes, Using Progress Notification, Implementing Timed Refreshes, Working with the ASP.NET AJAX Control Toolkit.	12

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Beginning ASP.NET 4.5 in C#	Matthew MacDonald	Apress		2012
2.	C# 2015	Anne Bohem and Joel Murach	Murach	Third	2016
3.	Murach's ASP.NET 4.6 Web Programming in C#2015	Mary Delamater and Anne Bohem	SPD	Sixth	2016
4.	ASP.NET 4.0 programming	J. Kanjilal	Tata McGraw-Hill		2011
5.	Programming ASP.NET	D.Esposito	Microsoft Press (Dreamtech)		2011
6.	Beginning Visual C# 2010	K. Watson, C. Nagel, J.H Padderson, J.D. Reid, M.Skinner	Wrox (Wiley)		2010

B. Sc. (Information Technology)		Semester – V	
Course Name: Artificial Intelligence		Course Code: USIT504 (Elective I)	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	Introduction: What is Artificial Intelligence? Foundations of AI, history, the state of art AI today. Intelligent Agents: agents and environment, good behavior, nature of environment, the structure of agents.	12
II	Solving Problems by Searching: Problem solving agents, examples problems, searching for solutions, uninformed search, informed search strategies, heuristic functions. Beyond Classical Search: local search algorithms, searching with non-deterministic action, searching with partial observations, online search agents and unknown environments.	12
III	Adversarial Search: Games, optimal decisions in games, alpha-beta pruning, stochastic games, partially observable games, state-of-the-art game programs. Logical Agents: Knowledge base agents, The Wumpus world, logic, propositional logic, propositional theorem proving, effective propositional model checking, agents based on propositional logic.	12
IV	First Order Logic: Syntax and semantics, using First Order Logic, Knowledge engineering in First Order Logic. Inference in First Order Logic: propositional vs. First Order, unification and lifting, forward and backward chaining, resolution.	12
V	Planning: Definition of Classical Planning, Algorithms for planning as state space search, planning graphs, other classical planning approaches, analysis of planning approaches, Time, Schedules and resources, hierarchical planning, Planning and Acting in Nondeterministic Domains, multiagent planning, Knowledge Representation: Categories and Objects, events, mental events and objects, reasoning systems for categories, reasoning with default information, Internet shopping world	12

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Artificial Intelligence: A Modern Approach	Stuart Russel and Peter Norvig	Pearson	3 rd	2015

2.	A First Course in Artificial Intelligence	Deepak Khemani	TMH	First	2017
3.	Artificial Intelligence: A Rational Approach	Rahul Deva	Shroff publishers	1 st	2018
4.	Artificial Intelligence	Elaine Rich, Kevin Knight and Shivashankar Nair	TMH	3 rd	2009
5.	Artificial Intelligence & Soft Computing for Beginners	Anandita Das Bhattacharjee	SPD	1 st	2013

B. Sc. (Information Technology)		Semester – V	
Course Name: Linux System Administration		Course Code: USIT505 (Elective I)	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	<p>Introduction to Red Hat Enterprise Linux: Linux, Open Source and Red Hat, Origins of Linux, Distributions, Duties of Linux System Administrator.</p> <p>Command Line: Working with the Bash Shell, Getting the Best of Bash, Useful Bash Key Sequences, Working with Bash History, Performing Basic File System Management Tasks, Working with Directories, Piping and Redirection, Finding Files</p> <p>System Administration Tasks: Performing Job Management Tasks, System and Process Monitoring and Management, Managing Processes with ps, Sending Signals to Processes with the kill Command, using top to Show Current System Activity, Managing Process Niceness, Scheduling Jobs, Mounting Devices, Working with Links, Creating Backups, Managing Printers, Setting Up System Logging, Setting Up Rsyslog, Common Log Files, Setting Up Logrotate</p> <p>Managing Software: Understanding RPM, Understanding Meta Package Handlers, Creating Your Own Repositories, Managing Repositories, Installing Software with Yum, Querying Software, Extracting Files from RPM Packages</p>	12
II	<p>Configuring and Managing Storage: Understanding Partitions and Logical Volumes, Creating Partitions, Creating File Systems, File Systems Overview, Creating File Systems, Changing File System Properties, Checking the File System Integrity, Mounting File Systems Automatically Through fstab, Working with Logical Volumes, Creating Logical Volumes, Resizing Logical Volumes, Working with Snapshots, Replacing Failing Storage Devices, Creating Swap Space, Working with Encrypted Volumes</p> <p>Connecting to the Network: Understanding NetworkManager, Working with Services and Runlevels, Configuring the Network with NetworkManager, Working with system-config-network, NetworkManager Configuration Files, Network Service Scripts, Networking from the Command Line, Troubleshooting Networking, Setting Up IPv6, Configuring SSH, Enabling the SSH Server, Using the SSH Client, Using PuTTY on Windows Machines, Configuring Key-Based SSH Authentication, Using Graphical Applications with SSH, Using SSH Port Forwarding, Configuring VNC Server Access</p>	12

	<p>Working with Users, Groups, and Permissions: Managing Users and Groups, Commands for User Management, Managing Passwords, Modifying and Deleting User Accounts, Configuration Files, Creating Groups, Using Graphical Tools for User, and Group Management, Using External Authentication Sources, the Authentication Process, sssd, nsswitch, Pluggable Authentication Modules, Managing Permissions, the Role of Ownership, Basic Permissions: Read, Write, and Execute, Advanced Permissions, Working with Access Control Lists, Setting Default Permissions with umask, Working with Attributes</p>	
III	<p>Securing Server with iptables: Understanding Firewalls, Setting Up a Firewall with system-config-firewall, Allowing Services, Trusted Interfaces, Masquerading, Configuration Files, Setting Up a Firewall with iptables, Tables, Chains, and Rules, Composition of Rule, Configuration Example, Advanced iptables Configuration, Configuring Logging, The Limit Module, Configuring NAT</p> <p>Setting Up Cryptographic Services: Introducing SSL, Proof of Authenticity: The Certificate Authority, Managing Certificates with openssl, Creating a Signing Request, Working with GNU Privacy Guard, Creating GPG Keys, Key Transfer, Managing GPG Keys, Encrypting Files with GPG, GPG Signing, Signing RPM Files</p> <p>Configuring Server for File Sharing: What is NFS? Advantages and Disadvantages of NFS, Configuring NFS4, Setting Up NFSv4, Mounting an NFS Share, Making NFS Mounts Persistent, Configuring Automount, Configuring Samba, Setting Up a Samba File Server, Samba Advanced Authentication Options, Accessing Samba Shares, Offering FTP Services.</p>	12
IV	<p>Configuring DNS and DHCP: Introduction to DNS, The DNS Hierarchy, DNS Server Types, The DNS Lookup Process, DNS Zone Types, Setting Up a DNS Server, Setting Up a Cache-Only Name Server, Setting Up a Primary Name Server, Setting Up a Secondary Name Server, Understanding DHCP, Setting Up a DHCP Server</p> <p>Setting Up a Mail Server: Using the Message Transfer Agent, the Mail Delivery Agent, the Mail User Agent, Setting Up Postfix as an SMTP Server, Working with Mutt, Basic Configuration, Internet Configuration, Configuring Dovecot for POP and IMAP</p> <p>Configuring Apache on Red Hat Enterprise Linux: Configuring the Apache Web Server, creating a Basic Website, Understanding the Apache Configuration Files, Apache Log Files, Working with Virtual Hosts, Securing the Web Server with TLS Certificates, Configuring Authentication, Setting Up Authentication with .htpasswd, Configuring LDAP Authentication, Setting Up MySQL</p>	12

V	<p>Introducing Bash Shell Scripting: Introduction, Elements of a Good Shell Script, Executing the Script, Working with Variables and Input, Understanding Variables, Variables, Subshells, and Sourcing, Working with Script Arguments, Asking for Input, Using Command Substitution, Substitution Operators, Changing Variable Content with Pattern Matching, Performing Calculations, Using Control Structures, Using if...then...else, Using case, Using while, Using until, Using for, Configuring booting with GRUB.</p> <p>High-Availability Clustering: High-Availability Clustering, The Workings of High Availability, High-Availability Requirements, Red Hat High-Availability Add-on Software, Components, Configuring Cluster-Based Services, Setting Up Bonding, Setting Up Shared Storage, Installing the Red Hat High Availability Add-On, Building the Initial State of the Cluster, Configuring Additional Cluster Properties, Configuring a Quorum Disk, Setting Up Fencing, Creating Resources and Services, Troubleshooting a Nonoperational Cluster, Configuring GFS2 File Systems</p> <p>Setting Up an Installation Server: Configuring a Network Server as an Installation Server, Setting Up a TFTP and DHCP Server for PXE Boot, Installing the TFTP Server, Configuring DHCP for PXE Boot, Creating the TFTP PXE Server Content, creating a Kickstart File, Using a Kickstart File to Perform an Automated, Installation, Modifying the Kickstart File with, system-config-kickstart, Making Manual Modifications to the Kickstart File</p>	12
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Red Hat Enterprise Linux6 Administration	Sander van Vugt	John Wiley and Sons		2013
2.	Red hat Linux Networking and System Administration	Terry Collings and Kurt Wall	Wiley	3 rd	
3.	Linux Administration: A Beginner's Guide	Wale Soyinka	TMH	Fifth Edition	

B. Sc. (Information Technology)		Semester – V	
Course Name: Enterprise Java		Course Code: USIT506 (Elective II)	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	<p>Understanding Java EE: What is an Enterprise Application? What is Java Enterprise Edition? Java EE Technologies, Java EE Evolution, Glassfish server</p> <p>JavaEE Architecture, Server and Containers: Types of System Architecture, Java EE Server, Java EE Containers.</p> <p>Introduction to Java Servlets: The Need for Dynamic Content, Java Servlet Technology, Why Servlets? What can Servlets do?</p> <p>Servlet API and Lifecycle: Java Servlet API, The Servlet Skeleton, The Servlet Life Cycle, A Simple Welcome Servlet</p> <p>Working with Servlets: Getting Started, Using Annotations Instead of Deployment Descriptor.</p> <p>Working with Databases: What is JDBC? JDBC Architecture, Accessing Database, The Servlet GUI and Database Example.</p>	12
II	<p>Request Dispatcher: RequestDispatcher Interface, Methods of RequestDispatcher, RequestDispatcher Application.</p> <p>COOKIES: Kinds of Cookies, Where Cookies Are Used? Creating Cookies Using Servlet, Dynamically Changing the Colors of A Page</p> <p>SESSION: What Are Sessions? Lifecycle of Http Session, Session Tracking With Servlet API, A Servlet Session Example</p> <p>Working with Files: Uploading Files, Creating an Upload File Application, Downloading Files, Creating a Download File Application.</p> <p>Working with Non-Blocking I/O: Creating a Non-Blocking Read Application, Creating The Web Application, Creating Java Class, Creating Servlets, Retrieving The File, Creating index.jsp</p>	12
III	<p>Introduction To Java Server Pages: Why use Java Server Pages? Disadvantages of JSP, JSP vs Servlets, Lifecycle of a JSP Page, How does a JSP function? How does JSP execute? About Java Server Pages</p> <p>Getting Started With Java Server Pages: Comments, JSP Document, JSP Elements, JSP GUI Example.</p> <p>Action Elements: Including other Files, Forwarding JSP Page to Another Page, Passing Parameters for other Actions, Loading a Java Bean.</p> <p>Implicit Objects, Scope and EL Expressions: Implicit Objects, Character Quoting Conventions,</p>	12

	<p>UnifiedExpressionLanguage[UnifiedEl], ExpressionLanguage.</p> <p>Java Server Pages Standard Tag Libraries: WhatiswronginusingJSPScriptletTags? HowJSTLFixesJSPScriptlet'sShortcomings? DisadvantagesOfJSTL, TagLibraries.</p>	
IV	<p>Introduction To EnterpriseJavabeans: EnterpriseBeanArchitecture, BenefitsofEnterpriseBean, TypesofEnterpriseBean, AccessingEnterpriseBeans, EnterpriseBeanApplication, PackagingEnterpriseBeans</p> <p>Workingwith Session Beans: WhentouseSessionBeans? TypesofSessionBeans, RemoteandLocalInterfaces, AccessingInterfaces, LifecycleofEnterpriseBeans, PackagingEnterpriseBeans, Exampleof StatefulSessionBean, Example ofStatelessSessionBean, Example of SingletonSessionBeans.</p> <p>Working with Message DrivenBeans: LifecycleofaMessageDrivenBean, UsesofMessageDrivenBeans, TheMessage DrivenBeansExample.</p> <p>Interceptors: Request andInterceptor, Defining An Interceptor, AroundInvokeMethod, ApplyingInterceptor, Adding An Interceptor To An Enterprise Bean, Build and Run the Web Application.</p> <p>Java Naming and Directory Interface: What is Naming Service? What is Directory Service? What is Java Naming and Directory interface? Basic Lookup, JNDI Namespace in Java EE, Resources and JNDI, Datasource Resource Definition in Java EE.</p>	12
V	<p>Persistence, Object/Relational Mapping And JPA: WhatisPersistence? PersistenceinJava, CurrentPersistenceStandardsinJava, WhyanotherPersistenceStandards? Object/RelationalMapping,</p> <p>Introduction to JavaPersistence API: TheJavaPersistenceAPI, JPA,ORM,DatabaseandtheApplication, ArchitectureofJPA, HowJPAWorks? JPA Specifications.</p> <p>Writing JPA Application: ApplicationRequirementSpecifications, SoftwareRequirements, TheApplicationDevelopmentApproach, CreatingDatabaseandTablesInMysql, creatingaWebApplication, AddingtheRequiredLibraryFiles, creatingaJavabeanClass, CreatingPersistenceUnit[Persistence.Xml], CreatingJSPS, TheJPAApplicationStructure, RunningtheJPAApplication.</p> <p>Introduction to Hibernate: WhatisHibernate? WhyHibernate? Hibernate,DatabaseandTheApplication, ComponentsofHibernate, ArchitectureofHibernate, HowHibernateWorks?</p> <p>WritingHibernateApplication: ApplicationRequirementSpecifications, SoftwareRequirements, TheApplicationDevelopmentApproach, CreatingDatabaseandTablesInMysql, creatingaWebApplication, AddingtheRequiredLibraryFiles, creatingaJavabeanClass, CreatingHibernateConfigurationFile, AddingaMappingClass, CreatingJSPS, RunningTheHibernateApplication.</p>	12

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Java EE 7 For Beginners	Sharanam Shah, Vaishali Shah	SPD	First	2017
2.	Java EE 8 Cookbook: Build reliable applications with the most robust and mature technology for enterprise development	Elder Moraes	Packt	First	2018
3.	Advanced Java Programming	Uttam Kumar Roy	Oxford Press		2015

B. Sc. (Information Technology)		Semester – V	
Course Name: Next Generation Technologies		Course Code: USIT507 (Elective II)	
Periods per week (1 Period is 50 minutes),		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	<p>Big Data: Getting Started, Big Data, Facts About Big Data, Big Data Sources, Three Vs of Big Data, Volume, Variety, Velocity, Usage of Big Data, Visibility, Discover and Analyze Information, Segmentation and Customizations, Aiding Decision Making, Innovation, Big Data Challenges, Policies and Procedures, Access to Data, Technology and Techniques, Legacy Systems and Big Data, Structure of Big Data, Data Storage, Data Processing, Big Data Technologies</p> <p>NoSQL: SQL, NoSQL, Definition, A Brief History of NoSQL, ACID vs. BASE, CAP Theorem (Brewer’s Theorem), The BASE, NoSQL Advantages and Disadvantages, Advantages of NoSQL, Disadvantages of NoSQL, SQL vs. NoSQL Databases, Categories of NoSQL Databases</p> <p>Introducing MongoDB: History, MongoDB Design Philosophy, Speed, Scalability, and Agility, Non-Relational Approach, JSON-Based Document Store, Performance vs. Features, Running the Database Anywhere, SQL Comparison</p>	12
II	<p>The MongoDB Data Model:The Data Model,JSON and BSON,The Identifier (_id),Capped Collection,Polymorphic Schemas,Object-Oriented Programming,Schema Evolution</p> <p>Using MongoDB Shell:Basic Querying,Create and Insert,Explicitly Creating Collections,Inserting Documents Using Loop,Inserting by Explicitly Specifying _id,Update,Delete,Read,Using Indexes,Stepping Beyond the Basics,Using Conditional Operators,Regular Expressions,MapReduce,aggregate(),Designing an Application’s Data Model,Relational Data Modeling and Normalization,MongoDB Document Data Model Approach</p> <p>MongoDB Architecture:Core</p>	12

	Processes,mongod,mongo,mongos,MongoDB Tools,Standalone Deployment,Replication,Master/Slave Replication,Replica Set,Implementing Advanced Clustering with Replica Sets,Sharding,Sharding Components,Data Distribution Process,Data Balancing Process,Operations,Implementing Sharding,Controlling Collection Distribution (Tag-Based Sharding),Points to Remember When Importing Data in a ShardedEnvironment,Monitoring for Sharding,Monitoring the Config Servers,Production Cluster Architecture,Scenario 1,Scenario 2,Scenario 3,Scenario 4	
III	<p>MongoDB Storage Engine: Data Storage Engine, Data File (Relevant for MMAPv1), Namespace (.ns File), Data File (Relevant for WiredTiger), Reads and Writes, How Data Is Written Using Journaling, GridFS – The MongoDB File System, The Rationale of GridFS, GridFSunder the Hood, Using GridFS, Indexing, Types of Indexes, Behaviors and Limitations</p> <p>MongoDB Use Cases: Use Case 1 -Performance Monitoring, Schema Design, Operations, Sharding, Managing the Data, Use Case 2 – Social Networking, Schema Design, Operations, Sharding</p> <p>MongoDB Limitations: MongoDB Space Is Too Large (Applicable for MMAPv1), Memory Issues (Applicable for Storage Engine MMAPv1), 32-bit vs. 64-bit, BSON Documents, Namespaces Limits, Indexes Limit, Capped Collections Limit - Maximum Number of Documents in a Capped Collection, Sharding Limitations, Shard Early to Avoid Any Issues, Shard Key Can't Be Updated, Shard Collection Limit, Select the Correct Shard Key, Security Limitations, No Authentication by Default, Traffic to and from MongoDB Isn't Encrypted, Write and Read Limitations, Case-Sensitive Queries, Type-Sensitive Fields, No JOIN, Transactions, MongoDB Not Applicable Range</p> <p>MongoDB Best Practices: Deployment, Hardware Suggestions from the MongoDB Site, Few Points to be Noted, Coding, Application Response Time Optimization, Data Safety, Administration, Replication Lag, Sharding, Monitoring</p>	12
IV	<p>The End of Disk? SSD and In-Memory Databases: The End of Disk?, Solid State Disk, The Economics of Disk, SSD-Enabled Databases, In-Memory Databases, TimesTen, Redis, SAP HANA, VoltDB, Oracle 12c “in-Memory Database, Berkeley Analytics Data Stack and Spark, Spark Architecture</p> <p>jQuery: Introduction, Traversing the DOM, DOM Manipulation with jQuery, Events, Ajax with jQuery, jQuery Plug-ins, jQuery Image Slider</p>	12
V	JSON: Introduction, JSON Grammar, JSON Values, JSON Tokens, Syntax, JSON vs XML,Data Types,Objects,Arrays,Creating JSON,	12

	JSON Object, Parsing JSON, Persisting JSON, Data Interchange, JSON PHP,JSON HTML,JSONP	
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Practical MongoDB	Shakuntala Gupta Edward NavinSabharwal	Apress		
2.	Beginning jQuery	Jack Franklin Russ Ferguson	Apress	Second	
3.	Next Generation Databases	Guy Harrison	Apress		
4.	Beginning JSON	Ben Smith	Apress		

B. Sc. (Information Technology)		Semester – V	
Course Name: Project Dissertation		Course Code: USIT5P1	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	--

The details are given in Appendix – I

B. Sc. (Information Technology)		Semester – V	
Course Name: Internet of Things Practical		Course Code: USIT5P2	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	--

Practical No	Details
0	Starting Raspbian OS, Familiarising with Raspberry Pi Components and interface, Connecting to ethernet, Monitor, USB.
1	Displaying different LED patterns with Raspberry Pi.
2	Displaying Time over 4-Digit 7-Segment Display using Raspberry Pi
3	Raspberry Pi Based Oscilloscope
4	Controlling Raspberry Pi with WhatsApp.
5	Setting up Wireless Access Point using Raspberry Pi
6	Fingerprint Sensor interfacing with Raspberry Pi
7	Raspberry Pi GPS Module Interfacing
8	IoT based Web Controlled Home Automation using Raspberry Pi
9	Visitor Monitoring with Raspberry Pi and Pi Camera
10	Interfacing Raspberry Pi with RFID.
11	Building Google Assistant with Raspberry Pi.
12	Installing Windows 10 IoT Core on Raspberry Pi

Raspberry Pi Kits and components should be made available in the ratio of 1 kit : 3 students minimum.

B. Sc. (Information Technology)		Semester – V	
Course Name: Advanced Web Programming Practical		Course Code: USIT5P3	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	--

List of Practical	
1.	Working with basic C# and ASP .NET
a.	Create an application that obtains four int values from the user and displays the product.
b.	Create an application to demonstrate string operations.
c.	Create an application that receives the (Student Id, Student Name, Course Name, Date of Birth) information from a set of students. The application should also display the information of all the students once the data entered.
d.	Create an application to demonstrate following operations i. Generate Fibonacci series. ii. Test for prime numbers. iii. Test for vowels. iv. Use of foreach loop with arrays v. Reverse a number and find sum of digits of a number.
2.	Working with Object Oriented C# and ASP .NET
a.	Create simple application to perform following operations i. Finding factorial Value ii. Money Conversion iii. Quadratic Equation iv. Temperature Conversion
b.	Create simple application to demonstrate use of following concepts i. Function Overloading ii. Inheritance (all types) iii. Constructor overloading iv. Interfaces
c.	Create simple application to demonstrate use of following concepts i. Using Delegates and events ii. Exception handling
3.	Working with Web Forms and Controls
a.	Create a simple web page with various sever controls to demonstrate setting and use of their properties. (Example : AutoPostBack)
b.	Demonstrate the use of Calendar control to perform following operations. a) Display messages in a calendar control b) Display vacation in a calendar control c) Selected day in a calendar control using style d) Difference between two calendar dates
c.	Demonstrate the use of Treeview control perform following operations.

	a) Treeview control and datalist	b) Treeview operations
4.	Working with Form Controls	
a.	Create a Registration form to demonstrate use of various Validation controls.	
b.	Create Web Form to demonstrate use of Adrotator Control.	
c.	Create Web Form to demonstrate use User Controls.	
5.	Working with Navigation, Beautification and Master page.	
a.	Create Web Form to demonstrate use of Website Navigation controls and Site Map.	
b.	Create a web application to demonstrate use of Master Page with applying Styles and Themes for page beautification.	
c.	Create a web application to demonstrate various states of ASP.NET Pages.	
6.	Working with Database	
a.	Create a web application bind data in a multiline textbox by querying in another textbox.	
b.	Create a web application to display records by using database.	
c.	Demonstrate the use of Datalist link control.	
7.	Working with Database	
a.	Create a web application to display Databinding using dropdownlist control.	
b.	Create a web application for to display the phone no of an author using database.	
c.	Create a web application for inserting and deleting record from a database. (Using Execute-Non Query).	
8.	Working with data controls	
a.	Create a web application to demonstrate various uses and properties of SqlDataSource.	
b.	Create a web application to demonstrate data binding using DetailsView and FormView Control.	
c.	Create a web application to display Using Disconnected Data Access and Databinding using GridView.	
9.	Working with GridView control	
a.	Create a web application to demonstrate use of GridView control template and GridView hyperlink.	
b.	Create a web application to demonstrate use of GridView button column and GridView events.	
c.	Create a web application to demonstrate GridView paging and Creating own table format using GridView.	
10.	Working with AJAX and XML	
a.	Create a web application to demonstrate reading and writing operation with XML.	
b.	Create a web application to demonstrate Form Security and Windows Security with proper Authentication and Authorization properties.	
c.	Create a web application to demonstrate use of various Ajax controls.	
11.	Programs to create and use DLL	

B. Sc. (Information Technology)		Semester – V	
Course Name: Artificial Intelligence Practical		Course Code: USIT5P4 (Elective I)	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	--

Practical No	Details	
1	a	Write a program to implement depth first search algorithm.
	b	Write a program to implement breadth first search algorithm.
2	a	Write a program to simulate 4-Queen / N-Queen problem.
	b	Write a program to solve tower of Hanoi problem.
3	a	Write a program to implement alpha beta search.
	b	Write a program for Hill climbing problem.
4	a	Write a program to implement A* algorithm.
	b	Write a program to implement AO* algorithm.
5	a	Write a program to solve water jug problem.
	b	Design the simulation of tic – tac – toe game using min-max algorithm.
6	a	Write a program to solve Missionaries and Cannibals problem.
	b	Design an application to simulate number puzzle problem.
7	a	Write a program to shuffle Deck of cards.
	b	Solve traveling salesman problem using artificial intelligence technique.
8	a	Solve the block of World problem.
	b	Solve constraint satisfaction problem
9	a	Derive the expressions based on Associative law
	b	Derive the expressions based on Distributive law
10	a	Write a program to derive the predicate. (for e.g.: Sachin is batsman , batsman is cricketer) - >Sachin is Cricketer.
	b	Write a program which contains three predicates: male, female, parent. Make rules for following family relations: father, mother, grandfather, grandmother, brother, sister, uncle, aunt, nephew and niece, cousin. Question: i. Draw Family Tree. ii. Define: Clauses, Facts, Predicates and Rules with conjunction and disjunction

The practicals can be implemented in C / C++ / Java/ Python / R /Prolog / LISP or any other language.

B. Sc. (Information Technology)		Semester – V	
Course Name: Linux System Administration		Course Code: USIT5P5 (Elective I)	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	--

Practical No	Details
0	Installation of RHEL 6.X
1	Graphical User Interface and Command Line Interface and Processes
a	Exploring the Graphical Desktop
b	The Command Line Interface
c	Managing Processes
2	Storage Devices and Links, Backup and Repository
b	Working with Storage Devices and Links
a	Making a Backup
b	Creating a Repository
3	Working with RPMsm Storage and Networking
a	Using Query Options
b	Extracting Files From RPMs
c	Configuring and Managing Storage
d	Connecting to the Network
4	Working with Users, Groups, and Permissions
5	Firewall and Cryptographic services
a	Securing Server with iptables
b	Setting Up Cryptographic Services
6	Configuring Server for File Sharing
a	Configuring NFS Server and Client
b	Configuring Samba
c	Configuring FTP
7	DNS, DHCP and Mail Server
a	Configuring DNS

b	Configuring DHCP
c	Setting Up a Mail Server
8	Web Server
a	Configuring Apache on Red Hat Enterprise Linux
b	Writing a Script to Monitor Activity on the Apache Web Server
c	Using the select Command
9	Shell Scripts and High-Availability Clustering
a	Writing Shell Scripts
b	Configuring Booting with GRUB
c	Configuring High Availability Clustering
10	Setting Up an Installation Server
a	Configuring Network Server as an Installation Server
b	Setting Up a TFTP and DHCP Server for PXE Boot

B. Sc. (Information Technology)		Semester – V	
Course Name: Enterprise Java		Course Code: USIT5P6 (Elective II)	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	--

List of Practical	
1.	Implement the following Simple Servlet applications.
a.	Create a simple calculator application using servlet.
b.	Create a servlet for a login page. If the username and password are correct then it says message “Hello <username>” else a message “login failed”
c.	Create a registration servlet in Java using JDBC. Accept the details such as Username, Password, Email, and Country from the user using HTML Form and store the registration details in the database.
2.	Implement the following Servlet applications with Cookies and Sessions.
a.	Using Request Dispatcher Interface create a Servlet which will validate the password entered by the user, if the user has entered "Servlet" as password, then he will be forwarded to Welcome Servlet else the user will stay on the index.html page and an error message will be displayed.
b.	Create a servlet that uses Cookies to store the number of times a user has visited servlet.
c.	Create a servlet demonstrating the use of session creation and destruction. Also check whether the user has visited this page first time or has visited earlier also using sessions.
3.	Implement the Servlet IO and File applications.
a.	Create a Servlet application to upload and download a file.
b.	Develop Simple Servlet Question Answer Application using Database.
c.	Create simple Servlet application to demonstrate Non-Blocking Read Operation.
4.	Implement the following JSP applications.
a.	Develop a simple JSP application to display values obtained from the use of intrinsic objects of various types.
b.	Develop a simple JSP application to pass values from one page to another with validations. (Name-txt, age-txt, hobbies-checkbox, email-txt, gender-radio button).
c.	Create a registration and login JSP application to register and authenticate the user based on username and password using JDBC.

5.	Implement the following JSP JSTL and EL Applications.
a.	Create an html page with fields, eno, name, age, desg, salary. Now on submit this data to a JSP page which will update the employee table of database with matching eno.
b.	Create a JSP page to demonstrate the use of Expression language.
c.	Create a JSP application to demonstrate the use of JSTL.
6.	Implement the following EJB Applications.
a.	Create a Currency Converter application using EJB.
b.	Develop a Simple Room Reservation System Application Using EJB.
c.	Develop simple shopping cart application using EJB [Stateful Session Bean].
7.	Implement the following EJB applications with different types of Beans.
a.	Develop simple EJB application to demonstrate Servlet Hit count using Singleton Session Beans.
b.	Develop simple visitor Statistics application using Message Driven Bean [Stateless Session Bean].
c.	Develop simple Marks Entry Application to demonstrate accessing Database using EJB.
8.	Implement the following JPA applications.
a.	Develop a simple Inventory Application Using JPA.
b.	Develop a Guestbook Application Using JPA.
c.	Create simple JPA application to store and retrieve Book details.
9.	Implement the following JPA applications with ORM and Hibernate.
a.	Develop a JPA Application to demonstrate use of ORM associations.
b.	Develop a Hibernate application to store Feedback of Website Visitor in MySQL Database.
c.	Develop a Hibernate application to store and retrieve employee details in MySQL Database.
10.	Implement the following Hibernate applications.
a.	Develop an application to demonstrate Hibernate One- To -One Mapping Using Annotation.
b.	Develop Hibernate application to enter and retrieve course details with ORM Mapping.
c.	Develop a five page web application site using any two or three Java EE Technologies.

B. Sc. (Information Technology)		Semester – V	
Course Name: Next Generation Technologies Practical		Course Code: USIT5P7 (Elective II)	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	--

Practical No	Details
1	MongoDB Basics
a	Write a MongoDB query to create and drop database.
b	Write a MongoDB query to create, display and drop collection
c	Write a MongoDB query to insert, query, update and delete a document.
2	Simple Queries with MongoDB
3	Implementing Aggregation
a	Write a MongoDB query to use sum, avg, min and max expression.
b	Write a MongoDB query to use push and addToSet expression.
c	Write a MongoDB query to use first and last expression.
4	Replication, Backup and Restore
a	Write a MongoDB query to create Replica of existing database.
b	Write a MongoDB query to create a backup of existing database.
c	Write a MongoDB query to restore database from the backup.
5	Java and MongoDB
a	Connecting Java with MongoDB and inserting, retrieving, updating and deleting.
6	PHP and MongoDB
a	Connecting PHP with MongoDB and inserting, retrieving, updating and deleting.
7	Python and MongoDB

a	Connecting Python with MongoDB and inserting, retrieving, updating and deleting.
8	Programs on Basic jQuery
a	jQuery Basic, jQuery Events
b	jQuery Selectors, jQuery Hide and Show effects
c	jQuery fading effects, jQuery Sliding effects
9	jQuery Advanced
a	jQuery Animation effects, jQuery Chaining
b	jQuery Callback, jQuery Get and Set Contents
c	jQuery Insert Content, jQuery Remove Elements and Attribute
10	JSON
a	Creating JSON
b	Parsing JSON
c	Persisting JSON
11	Create a JSON file and import it to MongoDB
a	Export MongoDB to JSON.
b	Write a MongoDB query to delete JSON object from MongoDB

SEMESTER VI

B. Sc. (Information Technology)		Semester – VI	
Course Name: Software Quality Assurance		Course Code: USIT601	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	<p>Introduction to Quality: Historical Perspective of Quality, What is Quality? (Is it a fact or perception?), Definitions of Quality, Core Components of Quality, Quality View, Financial Aspect of Quality, Customers, Suppliers and Processes, Total Quality Management (TQM), Quality Principles of Total Quality Management, Quality Management Through Statistical Process Control, Quality Management Through Cultural Changes, Continual (Continuous) Improvement Cycle, Quality in Different Areas, Benchmarking and Metrics, Problem Solving Techniques, Problem Solving Software Tools.</p> <p>Software Quality: Introduction, Constraints of Software Product Quality Assessment, Customer is a King, Quality and Productivity Relationship, Requirements of a Product, Organisation Culture, Characteristics of Software, Software Development Process, Types of Products, Schemes of Criticality Definitions, Problematic Areas of Software Development Life Cycle, Software Quality Management, Why Software Has Defects? Processes Related to Software Quality, Quality Management System Structure, Pillars of Quality Management System, Important Aspects of Quality Management.</p>	12
II	<p>Fundamentals of testing: Introduction, Necessity of testing, What is testing? Fundamental test process, The psychology of testing, Historical Perspective of Testing, Definitions of Testing, Approaches to Testing, Testing During Development Life Cycle, Requirement Traceability Matrix, Essentials of Software Testing, Workbench, Important Features of Testing Process, Misconceptions About Testing,</p>	12

	Principles of Software Testing, Salient Features of Good Testing, Test Policy, Test Strategy or Test Approach, Test Planning, Testing Process and Number of Defects Found in Testing, Test Team Efficiency, Mutation Testing, Challenges in Testing, Test Team Approach, Process Problems Faced by Testing, Cost Aspect of Testing, Establishing Testing Policy, Methods, Structured Approach to Testing, Categories of Defect, Defect, Error, or Mistake in Software, Developing Test Strategy, Developing Testing Methodologies (Test Plan), Testing Process, Attitude Towards Testing (Common People Issues), Test Methodologies/Approaches, People Challenges in Software Testing, Raising Management Awareness for Testing, Skills Required by Tester, Testing throughout the software life cycle, Software development models, Test levels, Test types, the targets of testing, Maintenance testing	
III	Unit Testing: Boundary Value Testing: Normal Boundary Value Testing, Robust Boundary Value Testing, Worst-Case Boundary Value Testing, Special Value Testing, Examples, Random Testing, Guidelines for Boundary Value Testing, Equivalence Class Testing: Equivalence Classes, Traditional Equivalence Class Testing, Improved Equivalence Class Testing, Edge Testing, Guidelines and Observations. Decision Table-Based Testing: Decision Tables, Decision Table Techniques, Cause-and-Effect Graphing, Guidelines and Observations, Path Testing: Program Graphs, DD-Paths, Test Coverage Metrics, Basis Path Testing, Guidelines and Observations, Data Flow Testing: Define/Use Testing, Slice-Based Testing, Program Slicing Tools.	12
IV	Software Verification and Validation: Introduction, Verification, Verification Workbench, Methods of Verification, Types of reviews on the basis of Stage Phase, Entities involved in verification, Reviews in testing lifecycle, Coverage in Verification, Concerns of Verification, Validation, Validation Workbench, Levels of Validation, Coverage in Validation, Acceptance Testing, Management of Verification and Validation, Software development verification and validation activities. V-test Model: Introduction, V-model for software, testing during Proposal stage, Testing during requirement stage, Testing during test planning phase, Testing during design phase, Testing during coding, VV Model, Critical Roles and Responsibilities.	12
V	Levels of Testing: Introduction, Proposal Testing, Requirement Testing, Design Testing, Code Review, Unit Testing, Module Testing, Integration Testing, Big-Bang Testing, Sandwich Testing, Critical Path First, Sub System Testing, System Testing, Testing Stages. Special Tests: Introduction, GUI testing, Compatibility Testing, Security Testing, Performance Testing, Volume Testing, Stress Testing, Recovery Testing, Installation Testing, Requirement Testing, Regression Testing, Error Handling Testing, Manual Support Testing,	12

	Intersystem Testing, Control Testing, Smoke Testing, Adhoc Testing, Parallel Testing, Execution Testing, Operations Testing, Compliance Testing, Usability Testing, Decision Table Testing, Documentation Testing, Training testing, Rapid Testing, Control flow graph, Generating tests on the basis of Combinatorial Designs, State Graph, Risk Associated with New Technologies, Process maturity level of Technology, Testing Adequacy of Control in New technology usage, Object Oriented Application Testing, Testing of Internal Controls, COTS Testing, Client Server Testing, Web Application Testing, Mobile Application Testing, eBusiness eCommerce Testing, Agile Development Testing, Data Warehousing Testing.	
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Software Testing and Continuous Quality Improvement	William E. Lewis	CRC Press	Third	2016
2	Software Testing: Principles, Techniques and Tools	M. G. Limaye	TMH		2017
3.	Foundations of Software Testing	Dorothy Graham, Erik van Veenendaal, Isabel Evans, Rex Black	Cengage Learning	3 rd	
4.	Software Testing: A Craftsman's Approach	Paul C. Jorgenson	CRC Press	4 th	2017

B. Sc. (Information Technology)		Semester – VI	
Course Name: Security in Computing		Course Code: USIT602	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	<p>Information Security Overview: The Importance of Information Protection, The Evolution of Information Security, Justifying Security Investment, Security Methodology, How to Build a Security Program, The Impossible Job, The Weakest Link, Strategy and Tactics, Business Processes vs. Technical Controls.</p> <p>Risk Analysis: Threat Definition, Types of Attacks, Risk Analysis.</p> <p>Secure Design Principles: The CIA Triad and Other Models, Defense Models, Zones of Trust, Best Practices for Network Defense.</p>	12
II	<p>Authentication and Authorization: Authentication, Authorization</p> <p>Encryption: A Brief History of Encryption, Symmetric-Key Cryptography, Public Key Cryptography, Public Key Infrastructure.</p> <p>Storage Security: Storage Security Evolution, Modern Storage Security, Risk Remediation, Best Practices.</p> <p>Database Security: General Database Security Concepts, Understanding Database Security Layers, Understanding Database-Level Security, Using Application Security, Database Backup and Recovery, Keeping Your Servers Up to Date, Database Auditing and Monitoring.</p>	12
III	<p>Secure Network Design: Introduction to Secure Network Design, Performance, Availability, Security.</p> <p>Network Device Security: Switch and Router Basics, Network Hardening.</p> <p>Firewalls: Overview, The Evolution of Firewalls, Core Firewall</p>	12

	Functions, Additional Firewall Capabilities, Firewall Design. Wireless Network Security: Radio Frequency Security Basics, Data-Link Layer Wireless Security Features, Flaws, and Threats, Wireless Vulnerabilities and Mitigations, Wireless Network Hardening Practices and Recommendations, Wireless Intrusion Detection and Prevention, Wireless Network Positioning and Secure Gateways.	
IV	Intrusion Detection and Prevention Systems: IDS Concepts, IDS Types and Detection Models, IDS Features, IDS Deployment Considerations, Security Information and Event Management (SIEM). Voice over IP (VoIP) and PBX Security: Background, VoIP Components, VoIP Vulnerabilities and Countermeasures, PBX, TEM: Telecom Expense Management. Operating System Security Models: Operating System Models, Classic Security Models, Reference Monitor, Trustworthy Computing, International Standards for Operating System Security.	12
V	Virtual Machines and Cloud Computing: Virtual Machines, Cloud Computing. Secure Application Design: Secure Development Lifecycle, Application Security Practices, Web Application Security, Client Application Security, Remote Administration Security. Physical Security: Classification of Assets, Physical Vulnerability Assessment, Choosing Site Location for Security, Securing Assets: Locks and Entry Controls, Physical Intrusion Detection.	12

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	TheCompleteReference: Information Security	Mark Rhodes-Ousley	McGraw-Hill	2 nd	2013
2.	Essential Cybersecurity Science	Josiah Dykstra	O'Reilly	Fifth	2017
3.	Principles of Computer Security: CompTIA Security+ and Beyond	Wm.Arthur Conklin, Greg White	McGraw Hill	Second	2010

B. Sc. (Information Technology)		Semester – VI	
Course Name: Business Intelligence		Course Code: USIT603	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	<p>Business intelligence: Effective and timely decisions, Data, information and knowledge, The role of mathematical models, Business intelligence architectures, Ethics and business intelligence</p> <p>Decision support systems: Definition of system, Representation of the decision-making process, Evolution of information systems, Definition of decision support system, Development of a decision support system</p>	12
II	<p>Mathematical models for decision making: Structure of mathematical models, Development of a model, Classes of models</p> <p>Data mining: Definition of data mining, Representation of input data , Data mining process, Analysis methodologies</p> <p>Data preparation: Data validation, Data transformation, Data reduction</p>	12
III	<p>Classification: Classification problems, Evaluation of classification models, Bayesian methods, Logistic regression, Neural networks, Support vector machines</p> <p>Clustering: Clustering methods, Partition methods, Hierarchical methods, Evaluation of clustering models</p>	12
IV	<p>Business intelligence applications:</p> <p>Marketing models: Relational marketing, Sales force management,</p> <p>Logistic and production models: Supply chain optimization, Optimization models for logistics planning, Revenue management systems.</p>	12

	Data envelopment analysis: Efficiency measures, Efficient frontier, The CCR model, Identification of good operating practices	
V	Knowledge Management: Introduction to Knowledge Management, Organizational Learning and Transformation, Knowledge Management Activities, Approaches to Knowledge Management, Information Technology (IT) In Knowledge Management, Knowledge Management Systems Implementation, Roles of People in Knowledge Management Artificial Intelligence and Expert Systems: Concepts and Definitions of Artificial Intelligence, Artificial Intelligence Versus Natural Intelligence, Basic Concepts of Expert Systems, Applications of Expert Systems, Structure of Expert Systems, Knowledge Engineering, Development of Expert Systems	12

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Business Intelligence: Data Mining and Optimization for Decision Making	Carlo Vercellis	Wiley	First	2009
2.	Decision support and Business Intelligence Systems	Efraim Turban, Ramesh Sharda, DursunDelen	Pearson	Ninth	2011
3.	Fundamental of Business Intelligence	Grossmann W, Rinderle-Ma	Springer	First	2015

B. Sc. (Information Technology)		Semester – VI	
Course Name: Principles of Geographic Information Systems		Course Code: USIT604 (Elective I)	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	<p>A Gentle Introduction to GIS The nature of GIS: Some fundamental observations, Defining GIS, GISystems, GIScience and GIApplications, Spatial data and Geoinformation. The real world and representations of it: Models and modelling, Maps, Databases, Spatial databases and spatial analysis</p> <p>Geographic Information and Spatial Database Models and Representations of the real world Geographic Phenomena: Defining geographic phenomena, types of geographic phenomena, Geographic fields, Geographic objects, Boundaries Computer Representations of Geographic Information: Regular tessellations, irregular tessellations, Vector representations, Topology and Spatial relationships, Scale and Resolution, Representation of Geographic fields, Representation of Geographic objects Organizing and Managing Spatial Data The Temporal Dimension</p>	12
II	<p>Data Management and Processing Systems Hardware and Software Trends Geographic Information Systems: GIS Software, GIS Architecture</p>	12

	<p>and functionality, Spatial Data Infrastructure (SDI)</p> <p>Stages of Spatial Data handling: Spatial data handling and preparation, Spatial Data Storage and maintenance, Spatial Query and Analysis, Spatial Data Presentation.</p> <p>Database management Systems: Reasons for using a DBMS, Alternatives for data management, The relational data model, Querying the relational database.</p> <p>GIS and Spatial Databases: Linking GIS and DBMS, Spatial database functionality.</p>	
III	<p>Spatial Referencing and Positioning</p> <p>Spatial Referencing: Reference surfaces for mapping, Coordinate Systems, Map Projections, Coordinate Transformations</p> <p>Satellite-based Positioning: Absolute positioning, Errors in absolute positioning, Relative positioning, Network positioning, code versus phase measurements, Positioning technology</p> <p>Data Entry and Preparation</p> <p>Spatial Data Input: Direct spatial data capture, Indirect spatial data capture, Obtaining spatial data elsewhere</p> <p>Data Quality: Accuracy and Positioning, Positional accuracy, Attribute accuracy, temporal accuracy, Lineage, Completeness, Logical consistency</p> <p>Data Preparation: Data checks and repairs, Combining data from multiple sources</p> <p>Point Data Transformation: Interpolating discrete data, Interpolating continuous data</p>	12
IV	<p>Spatial Data Analysis</p> <p>Classification of analytical GIS Capabilities</p> <p>Retrieval, classification and measurement: Measurement, Spatial selection queries, Classification</p> <p>Overlay functions: Vector overlay operators, Raster overlay operators</p> <p>Neighbourhood functions: Proximity computations, Computation of diffusion, Flow computation, Raster based surface analysis</p> <p>Analysis: Network analysis, interpolation, terrain modeling</p> <p>GIS and Application models: GPS, Open GIS Standards, GIS Applications and Advances</p> <p>Error Propagation in spatial data processing: How Errors propagate, Quantifying error propagation</p>	12
V	<p>Data Visualization</p> <p>GIS and Maps, The Visualization Process</p> <p>Visualization Strategies: Present or explore?</p> <p>The cartographic toolbox: What kind of data do I have? How can I map my data?</p> <p>How to map? How to map qualitative data, How to map quantitative data, How to map the terrain elevation, How to map time series</p>	12

	Map Cosmetics, Map Dissemination	
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Principles of Geographic Information Systems- An Introductory Text Book	Editors: Otto Huisman and Rolf A.	The International Institute of Geoinformation Science and Earth Observation	Fourth	2009
2.	Principles of Geographic Information Systems	P.A Burrough and R.A.McDonnell	Oxford University Press	Third	1999
3.	Fundamentals of Spatial Information Systems,	R.Laurini and D. Thompson,	Academic Press		1994
4.	Fundamentals of Geographic Information Systems	Michael N.Demers	Wiley Publications	Fourth	2009
5.	Introduction to Geographic Information Systems	Chang Kang-tsung (Karl),	McGrawHill	Any above 3 rd Edition	2013 7 th Edition
6.	GIS Fundamentals: A First Text on Geographic Information Systems	Paul Bolsatd	XanEdu Publishing Inc	5 th Edition	

B. Sc. (Information Technology)		Semester – VI	
Course Name: Enterprise Networking		Course Code: USIT605 (Elective II)	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	<p>General Network Design: Network Design Methodology, Architectures for the Enterprise, Borderless Networks Architecture, Collaboration and Video Architecture, Data Center and Virtualization Architecture, Design Lifecycle: Plan, Build, Manage Plan Phase Build Phase Manage Phase Prepare, Plan, Design, Implement, Operate, and Optimize Phases Prepare Phase Plan Phase Design Phase Implement Phase Operate Phase Optimize Phase Summary of PPDIIO Phases Project Deliverables Design Methodology Identifying Customer Design Requirements Characterizing the Existing Network Steps in Gathering Information Network Audit Tools Network Checklist Designing the Network Topology and Solutions Top-Down Approach Pilot and Prototype Tests Design Document</p> <p>Network Design Models: Hierarchical Network Models Benefits of the Hierarchical Model, Hierarchical Network Design, Core Layer, Distribution Layer, Access Layer, Hierarchical Model Examples, Hub-and-Spoke, Design Collapsed Core, Design Enterprise Architecture Model, Enterprise Campus Module, Enterprise Edge Area, E-Commerce Module, Internet Connectivity Module, VPN/Remote Access, Enterprise WAN, Service Provider Edge Module, Remote Modules, Enterprise Branch Module, Enterprise Data Center Module, Enterprise Teleworker Module, High Availability Network Services, Workstation-to-Router Redundancy and LAN, High Availability Protocols, ARP Explicit Configuration, RDP, RIP, HSRP, VRRP, GLBP, Server Redundancy, Route</p>	12

	Redundancy, Load Balancing, Increasing Availability, Link Media Redundancy	
II	<p>Enterprise LAN Design: LAN Media, Ethernet Design Rules, 100Mbps Fast Ethernet Design Rules, Gigabit Ethernet Design Rules, 1000BASE-LX Long-Wavelength Gigabit Ethernet, 1000BASE-SX Short-Wavelength Gigabit Ethernet, 1000BASE-CX Gigabit Ethernet over Coaxial Cable, 1000BASE-T Gigabit Ethernet over UTP 86, 10 Gigabit Ethernet Design Rules, 10GE Media Types, EtherChannel, Comparison of Campus Media LAN Hardware, Repeaters, Hubs, Bridges, Switches, Routers, Layer 3 Switches, Campus LAN Design and Best Practices Best Practices for Hierarchical Layers, Access Layer Best Practices, Distribution Layer Best Practices, Core Layer Best Practices, STP Design Considerations, STP Toolkit, PortFast, UplinkFast, BackboneFast, Loop Guard, Root Guard, BPDU Guard, BPDU Filter, VLAN and Trunk Considerations, Unidirectional Link Detection (UDLD) Protocol, Large-Building LANs, Enterprise Campus LANs, Edge Distribution, Medium-Size LANs, Small and Remote Site LANs, Server Farm Module, Server Connectivity Options, Enterprise Data Center Infrastructure, Campus LAN QoS Considerations, Multicast Traffic Considerations, CGMP, IGMP Snooping.</p> <p>Data Center Design: Enterprise DC Architecture, Data Center Foundation Components, Data Center Topology Components, Data Center Network Programmability, SDN, Controllers, APIs, ACI, Challenges in the DC, Data Center Facility Aspects, Data Center Space, Data Center Power, Data Center Cooling, Data Center Heat, Data Center Cabling, Enterprise DC Infrastructure, Data Center Storage, Data Center Reference Architecture, Defining the DC Access Layer, Defining the DC Aggregation Layer, Defining the DC Core Layer, Security in the DC, Fabric Extenders, Virtualization Overview, Challenges, Defining Virtualization and Benefits, Virtualization Risks, Types of Virtualization, Virtualization Technologies, VSS, VRF, vPC, Device Contexts, Server Virtualization, Server Scaling, Virtual Switching, Network Virtualization Design Considerations, Access Control, Path Isolation, Services Edge, Data Center Interconnect, DCI Use Cases, DCI Transport Options, DCI L2 Considerations, Load Balancing in the DC, Application Load Balancing, Network Load Balancing.</p>	12
III	<p>Wireless LAN Design: Wireless LAN Technologies, WLAN Standards, ISM and UNII Frequencies, Summary of WLAN Standards, Service Set Identifier, WLAN Layer 2 Access Method, WLAN Security, Unauthorized Access, WLAN Security Design Approach, IEEE 802.1X-2001 Port-Based Authentication, Dynamic WEP Keys and LEAP, Controlling WLAN Access to Servers, WLAN Authentication, Authentication Options, WLAN Controller Components, WLC Interface Types, AP Controller Equipment</p>	12

Scaling, Roaming and Mobility Groups, Intracontroller Roaming, Layer 2 Intercontroller Roaming, Layer 3 Intercontroller Roaming, Mobility Groups, WLAN Design, Controller Redundancy Design: Deterministic vs. Dynamic, N+1 WLC Redundancy, N+N WLC Redundancy, N+N+1 WLC Redundancy, Radio Management and Radio Groups, RF Groups, RF Site Survey, Using EoIP Tunnels for Guest Services, Wireless Mesh for Outdoor Wireless, Mesh Design Recommendations, Campus Design Considerations, Power over Ethernet (PoE), Wireless and Quality of Service (QoS), Branch Design Considerations, Local MAC, REAP, Hybrid REAP, Branch Office Controller Options.

WAN Technologies and the Enterprise Edge: WAN and Enterprise Edge Overview, Definition of WAN, WAN Edge Module, Enterprise Edge Modules, WAN Transport Technologies, ISDN, ISDN BRI Service, ISDN PRI Service, Digital Subscriber Line, Cable, Wireless, Frame Relay, Time-Division Multiplexing, Metro Ethernet, SONET/SDH, Multiprotocol Label Switching (MPLS), Dark Fiber, Dense Wavelength-Division Multiplexing, Ordering WAN Technology and Contracts, WAN and Edge Design Methodologies, Response Time, Throughput, Reliability, Bandwidth Considerations, WAN Link Categories, Optimizing Bandwidth Using QoS, Queuing, Traffic Shaping and Policing, Classification, Congestion Management, Priority Queuing, Custom Queuing, Weighted Fair Queuing, Class-Based Weighted Fair Queuing, Low-Latency Queuing, Traffic Shaping and Policing, Link Efficiency, Window Size, DMZ Connectivity, Segmenting DMZs, DMZ Services, Internet Connectivity, Centralized Internet (Branch) vs. Direct Internet (Branch), High Availability for the Internet Edge, VPN Network Design.

WAN Design

Traditional WAN Technologies Hub-and-Spoke Topology
 Full-Mesh Topology Partial-Mesh Topology Point-to-Point Topology
 Remote Site Connectivity
 Enterprise VPN vs. Service Provider VPN Enterprise Managed VPN:
 IPsec IPsec Direct Encapsulation Generic Routing Encapsulation
 IPsec DMVPN IPsec Virtual Tunnel Interface Design GETVPN
 Service Provider-Managed Offerings ,Metro Ethernet Service
 Provider VPNs: L2 vs. L3 ,Virtual Private Wire Services VPWS L2
 VPN Considerations ,Virtual Private LAN Services VPLS L2 VPN
 Considerations ,MPLS, MPLS Layer 3 Design Overview MPLS L3
 VPN Considerations ,VPN Benefits WAN Backup Design WAN
 Backup over the Internet Enterprise WAN Architecture Cisco
 Enterprise MAN/WAN Enterprise WAN/MAN Architecture
 Comparison ,Enterprise WAN Components Comparing Hardware and
 Software Enterprise Branch Architecture Branch Design Branch

	<p>Connectivity Redundancy for Branches Single WAN Carrier vs. Dual WAN Carriers Single MPLS Carrier Site ,Dual MPLS Carriers Hybrid WAN: L3 VPN with IPsec VPN ,Internet for Branches Flat Layer 2 vs. Collapsed Core ,Enterprise Branch Profiles Small Branch Design Medium Branch Design Large Branch Design Enterprise Teleworker Design ,ISRs for Teleworkers</p>	
<p>IV</p>	<p>Internet Protocol Version 4 Design,IPv4 Header ToS IPv4 Fragmentation IPv4 Addressing ,IPv4 Address Classes Class A Addresses Class B Addresses ,Class C Addresses Class D Addresses Class E Addresses ,IPv4 Address Types IPv4 Private Addresses NAT ,IPv4 Address Subnets Mask Nomenclature IP Address Subnet Design Example Determining the Network Portion of an IP Address Variable-Length Subnet Masks, Loopback Addresses IP Telephony Networks ,IPv4 Addressing Design Goal of IPv4 Address Design , Plan for Future Use of IPv4 Addresses , Performing Route Summarization , Plan for a Hierarchical IP Address Network , Private and Public IP Address and NAT Guidelines , Steps for Creating an IPv4 Address Plan</p> <p>Case Study: IP Address Subnet Allocation , Address Assignment and Name Resolution , Recommended Practices of IP Address Assignment , BOOTP DHCP DNS , Internet Protocol Version 6 Design, IPv6 Header IPv6 Address Representation IPv4-Compatible IPv6 Addresses IPv6 Prefix Representation IPv6 Address Scope Types and Address Allocations IPv6 Address Allocations IPv6 Unicast Address Global Unicast Addresses Link-Local Addresses , Unique Local IPv6 Address Global Aggregatable IPv6 Address , IPv4-Compatible IPv6 Address IPv6 Anycast Addresses , IPv6 Multicast Addresses IPv6 Mechanisms ICMPv6 , IPv6 Neighbor Discovery Protocol IPv6 Name Resolution , Path MTU Discovery IPv6 Address-Assignment Strategies , Manual Configuration SLAAC of Link-Local Address , SLAAC of Globally Unique IPv6 Address DHCPv6 , DHCPv6 Lite IPv6 Security IPv6 Routing Protocols RIPng OSPFv3 , BGP4 Multiprotocol Extensions (MP-BGP) for IPv6 , IPv6 Addressing Design , Planning for Addressing with IPv6 , Route Summarization with IPv6 IPv6 Private Addressing</p> <p>IPv6 for the Enterprise IPv6 Address Allocation , Partly Linked IPv4 Address into IPv6, Whole IPv4 Address Linked into IPv6</p> <p>IPv6 Addresses Allocated Per Location and/or Type , IPv4-to-IPv6 Transition Mechanisms and Deployment Models , Dual-Stack Mechanism IPv6 over IPv4 Tunnels , Protocol Translation Mechanisms IPv6 Deployment Models , Dual-Stack Model Hybrid Model Service Block Model ,IPv6 Deployment Model Comparison IPv6 Comparison with IPv4 ,OSPF, BGP, Route Manipulation, and IP Multicast,OSPFv2 OSPFv2 Metric OSPFv2 Adjacencies and Hello Timers , OSPFv2 Areas OSPF Area Design Considerations OSPF Router Types OSPF DRs LSA Types Autonomous System External Path Types OSPF Stub Area Types Stub Areas Totally Stubby Areas ,</p>	<p>12</p>

	<p>NSSAs Virtual Links OSPFv2 Router Authentication , OSPFv2 Summary OSPFv3 OSPFv3 Changes from OSPFv2, OSPFv3 Areas and Router Types OSPFv3 LSAs OSPFv3 Summary</p> <p>BGP BGP Neighbors eBGPiBGP Route Reflectors Confederations BGP Administrative Distance, BGP Attributes, Weight, and the BGP Decision Process</p> <p>BGP Path Attributes Next-Hop Attribute Local Preference Attribute Origin Attribute Autonomous System Path Attribute</p> <p>MED Attribute Community Attribute Atomic Aggregate and Aggregator Attributes Weight BGP Decision Process, BGP Summary, Route Manipulation PBR Route Summarization</p> <p>Route Redistribution Default Metric OSPF Redistribution Route Filtering Transit Traffic Routing Protocols on the Hierarchical Network Infrastructure IP Multicast Review, Multicast Addresses Layer 3 to Layer 2 Mapping IGMP, IGMPv1 IGMPv2 IGMPv3 CGMP IGMP Snooping, Sparse Versus Dense Multicast Multicast Source and Shared Trees PIM PIM-SM PIM DR Auto-RP PIMv2 Bootstrap Router, DVMRP IPv6 Multicast Addresses</p>	
<p>V</p>	<p>Managing Security</p> <p>Network Security Overview Security Legislation Security Threats Reconnaissance and Port Scanning Vulnerability Scanners</p> <p>Unauthorized Access Security Risks Targets Loss of Availability Integrity Violations and Confidentiality Breaches , Security Policy and Process Security Policy Defined , Basic Approach of a Security Policy Purpose of Security Policies, Security Policy Components Risk Assessment , Risk Index Continuous Security Integrating Security Mechanisms into Network Design Trust and Identity Management , Trust Domains of Trust Identity Passwords Tokens Certificates , Network Access Control Secure Services Encryption Fundamentals Encryption Keys VPN Protocols , Transmission Confidentiality Data Integrity Threat Defense , Physical Security Infrastructure Protection Security Management Solutions Security Solution Network Security Platforms , Trust and Identity Technologies Firewall Fundamentals , Types of Firewalls Next-Gen Firewalls NAT Placement , Firewall Guidelines Firewall ACLs , Identity and Access Control Deployments Detecting and Mitigating Threats IPS/IDS Fundamentals IPS/IDS Guidelines , Threat Detection and Mitigation Technologies , Threat-Detection and Threat-Mitigation Solutions , FirePOWER IPS Security Management Applications , Security Platform Solutions Security Management Network</p> <p>Integrating Security into Network Devices IOS Security, ISR G2 Security Hardware Options Securing the Enterprise, Implementing Security in the Campus Implementing Security in the Data Center Implementing Security in the Enterprise Edge</p> <p>Network Management Protocols, Simple Network Management Protocol SNMP Components, MIB SNMP Message Versions</p>	<p>12</p>

	SNMPv1 SNMPv2 SNMPv3, Other Network Management Technologies RMON, RMON2 NetFlow Compared to RMON and SNMP, CDP LLDP Syslog	
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	CCDA200-310 Official Cert Guide	ANTHONY BRUNO, CCIE No. 2738 STEVE JORDAN, CCIE No. 11293	Cisco Press		
2.	Network Warrior	Gary A Donabue	O Reilly	2 nd	2011

B. Sc. (Information Technology)		Semester – VI	
Course Name: IT Services Management		Course Code: USIT606 (Elective I)	
Periods per week (1 Period is 50 minutes),		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	<p>IT Service Management: Introduction, What is service management? What are services? Business Process, Principles of Service management: Specialisation and Coordination, The agency principle, Encapsulation, Principles of systems, The service Life Cycle, Functions and processes across the life cycle.</p> <p>Service Strategy Principles: Value creation, Service Assets, Service Provider Service Structures, Service Strategy Principles.</p> <p>Service Strategy: Define the market, Develop the offerings, Develop Strategic Assets, Prepare for execution.</p> <p>Challenges, Critical Success factors and risks: Complexity, Coordination and Control, Preserving value, Effectiveness in measurement, Risks.</p>	12
II	<p>Service Design: Fundamentals, Service Design Principles: Goals, Balanced Design, Identifying Service requirements, identifying and documenting business requirements and drivers, Design activities, Design aspects, Subsequent design activities, Design constraints, Service oriented architecture, Business Service Management, Service Design Models</p> <p>Service Design Processes: Service Catalogue Management, Service Level Management, Capacity Management, Availability Management, IT Service Continuity Management, Information Security</p>	12

	Management, Supplier Management Challenges, Critical Success factors and risks: Challenges, Risks	
III	Service Transition: Fundamentals, Service Transition Principles: Principles Supporting Service Transition, Policies for Service Transition Service Transition Processes: Transition planning and support, Change Management, Service Asses Configuration Management, Service and Deployment Management, Service Validation and Testing, Evaluation, Knowledge Management. Challenges, Critical Success factors and risks: Challenges, Critical Success factors, Risks, Service Transition under difficult Conditions.	12
IV	Service Operation: Fundamentals, Service Operation Principles: Functions, groups, teams, departments and divisions, a chieving balance in service operations, Providing service, Operation staff involvement in service design and service transition, Operational Health, Communication, Documentation Service Operation Processes: Event Management, Incident Management, Request fulfilment, Problem Management, Access Management, Operational activities of processes covered in other lifecycle phases. Challenges, Critical Success factors and risks: Challenges, Critical Success factors, Risks	12
V	Continual Service Improvement(CSI) Principles: CSI Approach, CSI and organizational change, Ownership, CSI register, External and Internal drivers, Service level management, Knowledge management, The Deming cycle, Service Measurement, IT governance, Frameworks, models, standards and quality Systems, CSI inputs and outputs. CSI Process: The seven-step improvement process. CSI Methods nad Techniques: Methods and techniques, Assessments, benchmarking, Service Measurement, Metrics, Return on Investment, Service reporting, CSI and other service management processes, Organising for CSI: Organisational development, Functions, roles, Customer Engagement, Responsibility model - RACI, Competence and training. Technology considerations: Tools to support CSI activities. Implementing CSI: Critical Considerations for implementing CSI,The start, Governance, CSI and organisational change, Communication Strategy and Plan	12

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	ITIL v3 Foundation Complete Certification Kit				2009
2.	ITIL v3 Service Strategy		OGC/TSO		

3.	ITIL v3 Service Transition		OGC/TSO		
4.	ITIL v3 Service Operation		OGC/TSO		
5.	ITIL Continual Service Improvement		TSO	2011	2011

B. Sc. (Information Technology)		Semester – VI	
Course Name: Cyber Laws		Course Code: USIT607 (Elective I)	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Unit	Details	Lectures
I	Power of Arrest Without Warrant Under the IT Act, 2000: A Critique, Crimes of this Millennium, Section 80 of the IT Act, 2000 – A Weapon or a Farce? Forgetting the Line Between Cognizable and Non-Cognizable Offences, Necessity of Arrest without Warrant from Any Place, Public or Otherwise, Check and Balances Against Arbitrary Arrests, Arrest for “About to Commit” an Offence Under the IT Act: A Tribute to Draco, Arrest, But NO Punishment! Cyber Crime and Criminal Justice: Penalties, Adjudication and Appeals Under the IT Act, 2000: Concept of “Cyber Crime “ and the IT Act , 2000, Hacking, Teenage Web Vandals, Cyber Fraud and Cyber Cheating, Virus on the Internet, Defamation, Harassment and E-mail Abuse, Cyber Pornography, Other IT Act Offences, Monetary Penalties, Adjudication and Appeals Under IT Act , 2000, Network Service Providers, Jurisdiction and Cyber Crime, Nature of Cyber Criminality, Strategies to Tackle Cyber Crime and Trends, Criminal Justice in India and Implications on Cyber Crime.	12
II	Contracts in the Infotech World: Contracts in the Infotech World, Click-Wrap and Shrink-Wrap Contract: Status under the Indian	12

	<p>Contract Act, 1872, Contract Formation Under the Indian Contract Act, 1872, Contract Formation on the Internet, Terms and Conditions of Contracts.</p> <p>Jurisdiction in the Cyber World: Questioning the Jurisdiction and Validity of the Present Law of Jurisdiction, Civil Law of Jurisdiction in India, Cause of Action, Jurisdiction and the Information Technology Act, 2000, Foreign Judgements in India, Place of Cause of Action in Contractual and IPR Disputes, Exclusion Clauses in Contracts, Abuse of Exclusion Clauses, Objection of Lack of Jurisdiction, Misuse of the Law of Jurisdiction, Legal Principles on Jurisdiction in the United State of America, Jurisdiction Disputes w.r.t. the Internet in the United State of America.</p>	
III	<p>Battling Cyber Squatters and Copyright Protection in the Cyber World: Concept of Domain Name and Reply to Cyber Squatters, Meta-Tagging, Legislative and Other Innovative Moves Against Cyber Squatting, The Battle Between Freedom and Control on the Internet, Works in Which Copyright Subsists and meaning of Copyright, Copyright Ownership and Assignment, License of Copyright, Copyright Terms and Respect for Foreign Works, Copyright Infringement, Remedies and Offences, Copyright Protection of Content on the Internet; Copyright Notice, Disclaimer and Acknowledgement, Downloading for Viewing Content on the Internet, Hyper-Linking and Framing, Liability of ISPs for Copyright Violation in the Cyber World: Legal Developments in the US, Napster and its Cousins: A Revolution on the Internet but a Crisis for Copyright Owners, Computer Software Piracy.</p>	12
IV	<p>E-Commerce Taxation: Real Problems in the Virtual World: A Tug of War on the Concept of ‘Permanent Establishment’, Finding the PE in Cross Border E-Commerce, The United Nations Model Tax Treaty, The Law of Double Taxation Avoidance Agreements and Taxable Jurisdiction Over Non-Residents, Under the Income Tax Act, 1961, Tax Agents of Non-Residents under the Income Tax Act, 1961 and the Relevance to E-Commerce, Source versus Residence and Classification between Business Income and Royalty, The Impact of the Internet on Customer Duties, Taxation Policies in India: At a Glance.</p> <p>Digital Signature, Certifying Authorities and E-Governance: Digital Signatures, Digital Signature Certificate, Certifying Authorities and Liability in the Event of Digital Signature Compromise, E-Governance in India: A Warning to Babudom!</p>	12
V	<p>The Indian Evidence Act of 1872 v. Information Technology Act, 2000: Status of Electronic Records as Evidence, Proof and Management of Electronic Records; Relevancy, Admissibility and Probative Value of E-Evidence, Proving Digital Signatures, Proof of Electronic Agreements, Proving Electronic Messages, Other Amendments in the Indian Evidence Act by the IT Act, Amendments to the Bankers Books Evidence Act, 1891 and Reserve Bank of India</p>	12

Act, 1934. Protection of Cyber Consumers in India: Are Cyber Consumers Covered Under the Consumer Protection Act? Goods and Services, Consumer Complaint, Defect in Goods and Deficiency in Services, Restrictive and Unfair Trade Practices, Instances of Unfair Trade Practices, Reliefs Under CPA, Beware Consumers, Consumer Foras, Jurisdiction and Implications on cyber Consumers in India, Applicability of CPA to Manufacturers, Distributors, Retailers and Service Providers Based in Foreign Lands Whose Goods are Sold or Services Provided to a Consumer in India. Amendments in Indian IT Act 2000	
--	--

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Cyber Law Simplified	VivekSood	TMH Education		2001
2.	Cybersecurity Law	Jeff Kosseff	Wiley		2017

B. Sc. (Information Technology)		Semester – VI	
Course Name: Project Implementation		Course Code: USIT6P1	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	150
	Internal	--	-

The details are given in Appendix – I

B. Sc. (Information Technology)		Semester – VI	
Course Name: Security in Computing Practical		Course Code: USIT6P2	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	-

Practical No	Details
1	Configure Routers
a	OSPF MD5 authentication.
b	NTP.
c	to log messages to the syslog server.
d	to support SSH connections.
2	Configure AAA Authentication
a	Configure a local user account on Router and configure authenticate on the console and vty lines using local AAA
b	Verify local AAA authentication from the Router console and the PC-A client
3	Configuring Extended ACLs
a	Configure, Apply and Verify an Extended Numbered ACL
4	Configure IP ACLs to Mitigate Attacks and IPV6 ACLs

a	Verify connectivity among devices before firewall configuration.
b	Use ACLs to ensure remote access to the routers is available only from management station PC-C.
c	Configure ACLs on to mitigate attacks.
d	Configuring IPv6 ACLs
5	Configuring a Zone-Based Policy Firewall
6	Configure IOS Intrusion Prevention System (IPS) Using the CLI
a	Enable IOS IPS.
b	Modify an IPS signature.
7	Layer 2 Security
a	Assign the Central switch as the root bridge.
b	Secure spanning-tree parameters to prevent STP manipulation attacks.
c	Enable port security to prevent CAM table overflow attacks.
8	Layer 2 VLAN Security
9	Configure and Verify a Site-to-Site IPsec VPN Using CLI
10	Configuring ASA Basic Settings and Firewall Using CLI
a	Configure basic ASA settings and interface security levels using CLI
b	Configure routing, address translation, and inspection policy using CLI
c	Configure DHCP, AAA, and SSH
d	Configure a DMZ, Static NAT, and ACLs

B. Sc. (Information Technology)		Semester – VI	
Course Name: Business Intelligence Practical		Course Code: USIT6P3	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	-

Practical No	Details
1	Import the legacy data from different sources such as (Excel , SqlServer, Oracle etc.) and load in the target system. (You can download sample database such as Adventureworks, Northwind, foodmart etc.)
2	Perform the Extraction Transformation and Loading (ETL) process to construct the database in the Sqlserver.
3	a. Create the Data staging area for the selected database. b. Create the cube with suitable dimension and fact tables based on ROLAP, MOLAP and HOLAP model.
4	a.Create the ETL map and setup the schedule for execution. b. Execute the MDX queries to extract the data from the datawarehouse.
5	a. Import the datawarehouse data in Microsoft Excel and create the Pivot table and Pivot Chart.

	b. Import the cube in Microsoft Excel and create the Pivot table and Pivot Chart to perform data analysis.
6	Apply the what – if Analysis for data visualization. Design and generate necessary reports based on the datawarehouse data.
7	Perform the data classification using classification algorithm.
8	Perform the data clustering using clustering algorithm.
9	Perform the Linear regression on the given datawarehouse data.
10	Perform the logistic regression on the given datawarehouse data.

The BI tools such as Tableau / Power BI / BIRT / R / Excel or any other can be used.

B. Sc. (Information Technology)		Semester – VI	
Course Name: Principles of Geographical Information System Practical		Course Code: USIT6P4 (Elective II)	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	-

Practical No	Details
0	Familiarizing Quantum GIS: Installation of QGIS, datasets for both Vector and Raster data, Maps.
1	Creating and Managing Vector Data: Adding vector layers, setting properties, formatting, calculating line lengths and statistics
2	Exploring and Managing Raster data: Adding raster layers, raster styling and analysis, raster mosaicking and clipping
3	Making a Map, Working with Attributes, Importing Spreadsheets or CSV files Using Plugins, Searching and Downloading OpenStreetMap Data

4	Working with attributes, terrain Data
5	Working with Projections and WMS Data
6	Georeferencing Topo Sheets and Scanned Maps Georeferencing Aerial Imagery Digitizing Map Data
7	Managing Data Tables and Spatial data Sets: Table joins, spatial joins, points in polygon analysis, performing spatial queries
8	Advanced GIS Operations 1: Nearest Neighbor Analysis, Sampling Raster Data using Points or Polygons, Interpolating Point Data
9	Advanced GIS Operations 2: Batch Processing using Processing Framework Automating Complex Workflows using Processing Modeler Automating Map Creation with Print Composer Atlas
10	Validating Map data

B. Sc. (Information Technology)		Semester – VI	
Course Name: Advanced Networking Practical		Course Code: USIT6P5 (Elective II)	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	-

Practical No	Details
1	Configuring OSPF – I
a	Single-Area OSPF Link Costs and Interface Priorities
b	Multi-Area OSPF with Stub Areas and Authentication
2	Configuring OSPF – II
a	OSPF Virtual Links and Area Summarization
b	OSPF over Frame Relay
3	Redistribution and Administrative Distances
a	Redistribution Between RIP and OSPF
b	Manipulating Administrative Distances

4	BGP
a	Configuring BGP with Default Routing
b	Using the AS_PATH Attribute
c	BGP Route Reflectors and Route Filters
5	IPv6
a	Configuring OSPF for IPv6
b	Configuring 6to4 Tunnels
6	VLANs and EtherChannel
a	Static VLANs, VLAN Trunking, and VTP Domains and Modes
b	Configuring EtherChannel
7	Spanning Tree Protocol
a	Spanning Tree Protocol (STP) Default Behavior
b	Modifying Default Spanning Tree Behavior
8	VLAN and Spanning Tree
a	Per-VLAN Spanning Tree Behavior
b	Multiple Spanning Tree
9	Internal VLAN Routing
a	Inter-VLAN Routing with an External Router
b	Inter-VLAN Routing with an Internal Route Processor
10	Configure NAT Services

B. Sc. (Information Technology)		Semester – VI	
Course Name: Advanced Mobile Programming Practical		Course Code: USIT6P6	
Periods per week (1 Period is 50 minutes)		3	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2½	50
	Internal	--	--

Practical No	Details
1	Introduction to Android, Introduction to Android Studio IDE, Application Fundamentals: Creating a Project, Android Components, Activities, Services, Content Providers, Broadcast Receivers, Interface overview, Creating Android Virtual device, USB debugging mode, Android Application Overview. Simple “Hello World” program.
2	Programming Resources Android Resources: (Color, Theme, String, Drawable, Dimension, Image),
3	Programming Activities and fragments Activity Life Cycle, Activity methods, Multiple Activities, Life Cycle of fragments and multiple fragments.
4	Programs related to different Layouts

	Coordinate, Linear, Relative, Table, Absolute, Frame, List View, Grid View.
5	Programming UI elements AppBar, Fragments, UI Components
6	Programming menus, dialog, dialog fragments
7	Programs on Intents, Events, Listeners and Adapters The Android Intent Class, Using Events and Event Listeners
8	Programs on Services, notification and broadcast receivers
9	Database Programming with SQLite
10	Programming threads, handles and asynchronized programs
11	Programming Media API and Telephone API
12	Programming Security and permissions
13	Programming Network Communications and Services (JSON)

APPENDIX – 1

Project Dissertation Semester V and Project Implementation Semester VI

Chapter 1 to 4 should be submitted in Semester V in spiral binding. These chapter have also to be included in Semester VI report. Semester VI report has to be hard bound with golden embossing. Students will be evaluated based on the dissertation in semester V and dissertation and viva voce in Semester VI.

I. OBJECTIVES

- Describe the Systems Development Life Cycle (SDLC).
- Evaluate systems requirements.
- Complete a problem definition.
- Evaluate a problem definition.
- Determine how to collect information to determine requirements.

- Perform and evaluate feasibility studies like cost-benefit analysis, technical feasibility, time feasibility and Operational feasibility for the project.
- Work on data collection methods for fact finding.
- Construct and evaluate data flow diagrams.
- Construct and evaluate data dictionaries.
- Evaluate methods of process description to include structured English, decision tables and decision trees.
- Evaluate alternative tools for the analysis process.
- Create and evaluate such alternative graphical tools as systems flow charts and state transition diagrams.
- Decide the S/W requirement specifications and H/W requirement specifications.
- Plan the systems design phase of the SDLC.
- Distinguish between logical and physical design requirements.
- Design and evaluate system outputs.
- Design and evaluate systems inputs.
- Design and evaluate validity checks for input data.
- Design and evaluate user interfaces for input.
- Design and evaluate file structures to include the use of indexes.
- Estimate storage requirements.
- Explain the various file update processes based on the standard file organizations.
- Decide various data structures.
- Construct and evaluate entity-relationship (ER) diagrams for RDBMS related projects.
- Perform normalization for the unnormalized tables for RDBMS related projects
- Decide the various processing systems to include distributed, client/server, online and others.
- Perform project cost estimates using various techniques.
- Schedule projects using both GANTT and PERT charts.
- Perform coding for the project.
- Documentation requirements and prepare and evaluate systems documentation.
- Perform various systems testing techniques/strategies to include the phases of testing.
- Systems implementation and its key problems.

- Generate various reports.
- Be able to prepare and evaluate a final report.
- Brief the maintenance procedures and the role of configuration management in operations.
- To decide the future scope and further enhancement of the system.
- Plan for several appendices to be placed in support with the project report documentation.
- Decide the various processing systems to include distributed, client/server, online and others.
- Perform project cost estimates using various techniques.
- Schedule projects using both GANTT and PERT charts.
- Perform coding for the project.
- Documentation requirements and prepare and evaluate systems documentation.
- Perform various systems testing techniques/strategies to include the phases of testing.
- Systems implementation and its key problems.
- Generate various reports.
- Be able to prepare and evaluate a final report.
- Brief the maintenance procedures and the role of configuration management in operations.
- To decide the future scope and further enhancement of the system.
- Plan for several appendices to be placed in support with the project report documentation.
- Work effectively as an individual or as a team member to produce correct, efficient, well-organized and documented programs in a reasonable time.
- Recognize problems that are amenable to computer solutions, and knowledge of the tool necessary for solving such problems.
- Develop of the ability to assess the implications of work performed.
- Get good exposure and command in one or more application areas and on the software
- Develop quality software using the software engineering principles
- Develop of the ability to communicate effectively.

II. Type of the Project

The majority of the students are expected to work on a real-life project preferably in some industry/ Research and Development Laboratories/Educational Institution/Software Company. Students are encouraged to work in the areas listed below . However, it is *not mandatory* for a

student to work on a real-life project. The student can formulate a project problem with the help of her/his Guide and submit the project proposal of the same. **Approval of the project proposal is mandatory.** If approved, the student can commence working on it, and complete it. Use the latest versions of the software packages for the development of the project.

III. SOFTWARE AND BROAD AREAS OF APPLICATION

FRONT END / GUI Tools	.Net Technologies,Java
DBMS/BACK END	Oracle, SQL Plus, MY SQL, SQL Server,
LANGUAGES	C, C++, Java, VC++, C#, R,Python
SCRIPTING LANGUAGES	PHP,JSP, SHELL Scripts (Unix), Tcl/TK,
.NET Platform	F#,C#. Net, Visual C#. Net, ASP.Net
MIDDLE WARE (COMPONENT) TECHNOLOGIES	COM/DCOM, Active-X, EJB
UNIX INTERNALS	Device Drivers, RPC, Threads, Socket programming
NETWORK/WIRELESS TECHNOLOGIES	-
REALTIME OPERATING SYSTEM/ EMBEDDED SKILLS	LINUX, Raspberry Pi, Arduino, 8051
APPLICATION AREAS	Financial / Insurance / Manufacturing / Multimedia / Computer Graphics / Instructional Design/ Database Management System/ Internet / Intranet / Computer Networking-Communication Software development/ E-Commerce/ ERP/ MRP/ TCP-IP programming / Routing protocols programming/ Socket programming.

IV.Introduction

The project report should be documented with scientific approach to the solution of the problem that the students have sought to address. The project report should be prepared in order to solve the problem in a methodical and professional manner, making due references to appropriate techniques, technologies and professional standards. The student should start the documentation process from the first phase of software development so that one can easily identify the issues to be focused upon in the ultimate project report. The student should also include the details from

the project diary, in which they will record the progress of their project throughout the course. The project report should contain enough details to enable examiners to evaluate the work. The important points should be highlighted in the body of the report, with details often referred to appendices.

1.1 PROJECT REPORT:

Title Page

Original Copy of the Approved Proforma of the Project Proposal

Certificate of Authenticated work

Role and Responsibility Form

Abstract

Acknowledgement

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Table of Figures

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1.1 Background

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1.3.2 Scope

1.3.3 Applicability

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1.5 Organisation of Report

CHAPTER 2: SURVEY OF TECHNOLOGIES

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3.2 Requirements Specification

3.3 Planning and Scheduling

3.4 Software and Hardware Requirements

3.5 Preliminary Product Description

3.6 Conceptual Models

CHAPTER 4: SYSTEM DESIGN

4.1 Basic Modules

4.2 Data Design

4.2.1 Schema Design

4.2.2 Data Integrity and Constraints

4.3 Procedural Design

4.3.1 Logic Diagrams

4.3.2 Data Structures

4.3.3 Algorithms Design

4.4 User interface design

4.5 Security Issues

4.6 Test Cases Design

The documentation should use tools like star UML, Visuo for windows, Rational Rose for design as part of Software Project Management Practical Course. The documentation should be spiral bound for semester V and the entire documentation should be hard bound during semester VI.

CHAPTER 5: IMPLEMENTATION AND TESTING

5.1 Implementation Approaches

5.2 Coding Details and Code Efficiency

5.2.1 Code Efficiency

5.3 Testing Approach

5.3.1 Unit Testing

5.3.2 Integrated Testing

5.3.3 Beta Testing

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5.5 Test Cases

CHAPTER 6: RESULTS AND DISCUSSION

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REFERENCES

GLOSSARY

APPENDIX A

APPENDIX B

V. EXPLANATION OF CONTENTS

Title Page

Sample format of Title page is given in Appendix 1 of this block. Students should follow the given format.

Original Copy of the Approved Proforma of the Project Proposal

Sample Proforma of Project Proposal is given in Appendix 2 of this block. Students should follow the given format.

Certificate of Authenticated work

Sample format of Certificate of Authenticated work is given in Appendix 3 of this block. Students should follow the given format.

Role and Responsibility Form

Sample format for Role and Responsibility Form is given in Appendix 4 of this block. Students should follow the given format.

Abstract

This should be one/two short paragraphs (100-150 words total), summarising the project work. It is important that this is not just a re-statement of the original project outline. A suggested flow is background, project aims and main achievements. From the abstract, a reader should be able to ascertain if the project is of interest to them and, it should present results of which they may wish to know more details.

Acknowledgements

This should express student's gratitude to those who have helped in the preparation of project.

Table of Contents: The table of contents gives the readers a view of the detailed structure of the report. The students would need to provide section and subsection headings with associated pages. The formatting details of these sections and subsections are given below.

Table of Figures: List of all Figures, Tables, Graphs, Charts etc. along with their page numbers in a table of figures.

Chapter 1: Introduction

The introduction has several parts as given below:

Background: A description of the background and context of the project and its relation to work already done in the area. Summarise existing work in the area concerned with the project work.

Objectives: Concise statement of the aims and objectives of the project. Define exactly what is going to be done in the project; the objectives should be about 30 /40 words.

Purpose, Scope and Applicability: The description of Purpose, Scope, and Applicability are given below:

- **Purpose:** Description of the topic of the project that answers questions on why this project is being done. How the project could improve the system its significance and theoretical framework.
- **Scope:** A brief overview of the methodology, assumptions and limitations. The students should answer the question: What are the main issues being covered in the project? What are the main functions of the project?
- **Applicability:** The student should explain the direct and indirect applications of their work. Briefly discuss how this project will serve the computer world and people.

Achievements: Explain what knowledge the student achieved after the completion of the work. What contributions has the project made to the chosen area? Goals achieved - describes the

degree to which the findings support the original objectives laid out by the project. The goals may be partially or fully achieved, or exceeded.

Organisation of Report: Summarising the remaining chapters of the project report, in effect, giving the reader an overview of what is to come in the project report.

Chapter 2: Survey of Technologies

In this chapter Survey of Technologies should demonstrate the students awareness and understanding of Available Technologies related to the topic of the project. The student should give the detail of all the related technologies that are necessary to complete the project. The should describe the technologies available in the chosen area and present a comparative study of all those Available Technologies. Explain why the student selected the one technology for the completion of the objectives of the project.

Chapter 3: Requirements and Analysis

Problem Definition: Define the problem on which the students are working in the project.

Provide details of the overall problem and then divide the problem in to sub-problems. Define each sub-problem clearly.

Requirements Specification: In this phase the student should define the requirements of the system, independent of how these requirements will be accomplished. The Requirements Specification describes the things in the system and the actions that can be done on these things. Identify the operation and problems of the existing system.

Planning and Scheduling: Planning and scheduling is a complicated part of software development. Planning, for our purposes, can be thought of as determining all the small tasks that must be carried out in order to accomplish the goal. Planning also takes into account, rules, known as constraints, which, control when certain tasks can or cannot happen. Scheduling can be thought of as determining whether adequate resources are available to carry out the plan. The student should show the Gantt chart and Program Evaluation Review Technique (PERT).

Software and Hardware Requirements: Define the details of all the software and hardware needed for the development and implementation of the project.

- Hardware Requirement: In this section, the equipment, graphics card, numeric co-processor, mouse, disk capacity, RAM capacity etc. necessary to run the software must be noted.
- Software Requirements: In this section, the operating system, the compiler, testing tools, linker, and the libraries etc. necessary to compile, link and install the software must be listed.

Preliminary Product Description: Identify the requirements and objectives of the new system. Define the functions and operation of the application/system the students are developing as project.

Conceptual Models: The student should understand the problem domain and produce a model of the system, which describes operations that can be performed on the system, and the allowable sequences of those operations. Conceptual Models could consist of complete Data Flow Diagrams, ER diagrams, Object-oriented diagrams, System Flowcharts etc.

Chapter 4: System Design

Describes desired features and operations in detail, including screen layouts, business rules, process diagrams, pseudocode and other documentation.

Basic Modules: The students should follow the divide and conquer theory, so divide the overall problem into more manageable parts and develop each part or module separately. When all modules are ready, the student should integrate all the modules into one system. In this phase, the student should briefly describe all the modules and the functionality of these modules.

Data Design: Data design will consist of how data is organised, managed and manipulated.

- Schema Design: Define the structure and explanation of schemas used in the project.
- Data Integrity and Constraints: Define and explain all the validity checks and constraints provided to maintain data integrity.

Procedural Design: Procedural design is a systematic way for developing algorithms or procedurals.

- Logic Diagrams: Define the systematical flow of procedure that improves its comprehension and helps the programmer during implementation. e.g., Control Flow Chart, Process Diagrams etc.
- Data Structures: Create and define the data structure used in procedures.
- Algorithms Design: With proper explanations of input data, output data, logic of processes, design and explain the working of algorithms.

User Interface Design: Define user, task, environment analysis and how to map those requirements in order to develop a “User Interface”. Describe the external and internal components and the architecture of user interface. Show some rough pictorial views of the user interface and its components.

Security Issues: Discuss Real-time considerations and Security issues related to the project and explain how the student intends avoiding those security problems. What are the security policy plans and architecture?

Test Cases Design: Define test cases, which will provide easy detection of errors and mistakes with in a minimum period of time and with the least effort. Explain the different conditions in which the students wish to ensure the correct working of the project.

Chapter 5: Implementation and Testing

Implementation Approaches: Define the plan of implementation, and the standards the students have used in the implementation.

Coding Details and Code Efficiency: Students not need include full source code, instead, include only the important codes (algorithms, applets code, forms code etc). The program code should contain comments needed for explaining the work a piece of code does. Comments may be needed to explain why it does it, or, why it does a particular way.

The student can explain the function of the code with a shot of the output screen of that program code.

- Code Efficiency: The student should explain how the code is efficient and how the students have handled code optimisation.

Testing Approach: Testing should be according to the scheme presented in the system design chapter and should follow some suitable model – e.g., category partition, state machine-based. Both functional testing and user-acceptance testing are appropriate. Explain the approach of testing.

- Unit Testing: Unit testing deals with testing a unit or module as a whole. This would test the interaction of many functions but, do confine the test within one module.
- Integrated Testing: Brings all the modules together into a special testing environment, then checks for errors, bugs and interoperability. It deals with tests for the entire application. Application limits and features are tested here.

Modifications and Improvements: Once the students finish the testing they are bound to be faced with bugs, errors and they will need to modify your source code to improve the system. Define what modification are implemented in the system and how it improved the system.

Chapter 6: Results and Discussion

Test Reports: Explain the test results and reports based on the test cases, which should show that the project is capable of facing any problematic situation and that it works fine in different conditions. Take the different sample inputs and show the outputs.

User Documentation: Define the working of the software; explain its different functions, components with screen shots. The user document should provide all the details of the product in such a way that any user reading the manual, is able to understand the working and functionality of the document.

Chapter 7: Conclusions

Conclusion: The conclusions can be summarised in a fairly short chapter (2 or 3 pages). This chapter brings together many of the points that would have made in the other chapters.

Limitations of the System: Explain the limitations encountered during the testing of the project that the students were not able to modify. List the criticisms accepted during the demonstrations of the project.

Future Scope of the Project describes two things: firstly, new areas of investigation prompted by developments in this project, and secondly, parts of the current work that was not completed due to time constraints and/or problems encountered.

REFERENCES

It is very important that the students acknowledge the work of others that they have used or adapted in their own work, or that provides the essential background or context to the project. The use of references is the standard way to do this. Please follow the given standard for the references for books, journals, and online material. The citation is mandatory in both the reports.

E.g:

Linhares, A., & Brum, P. (2007). Understanding our understanding of strategic scenarios: What role do chunks play? *Cognitive Science*, 31(6), 989-1007.
<https://doi.org/doi:10.1080/03640210701703725>

Lipson, Charles (2011). Cite right : A quick guide to citation styles; MLA, APA, Chicago, the sciences, professions, and more (2nd ed.). Chicago [u.a.]: University of Chicago Press. p. 187. ISBN 9780226484648.

Elaine Ritchie, J Knite. (2001). *Artificial Intelligence, Chapter 2 ,p.p 23 - 44.* Tata McGrawHill.

GLOSSARY

If you the students any acronyms, abbreviations, symbols, or uncommon terms in the project report then their meaning should be explained where they first occur. If they go on to use any of them extensively then it is helpful to list them in this section and define the meaning.

APPENDICES

These may be provided to include further details of results, mathematical derivations, certain illustrative parts of the program code (e.g., class interfaces), user documentation etc.

In particular, if there are technical details of the work done that might be useful to others who wish to build on this work, but that are not sufficiently important to the project as a whole to

justify being discussed in the main body of the project, then they should be included as appendices.

VI. SUMMARY

Project development usually involves an engineering approach to the design and development of a software system that fulfils a practical need. Projects also often form an important focus for discussion at interviews with future employers as they provide a detailed example of what the students are capable of achieving. In this course the students can choose your project topic from the lists given in Unit 4: Category-wise Problem Definition.

VII. FURTHER READINGS

1. Modern Systems Analysis and Design; Jeffrey A. Hoffer, Joey F. George, Joseph,S. Valacich; Pearson Education; Third Edition; 2002.
2. ISO/IEC 12207: Software Life Cycle Process
(<http://www.software.org/quagmire/descriptions/iso-iec12207.asp>).
3. IEEE 1063: Software User Documentation (<http://ieeexplore.ieee.org>).
4. ISO/IEC: 18019: Guidelines for the Design and Preparation of User Documentation for Application Software.
5. <http://www.sce.carleton.ca/squall>.
6. <http://en.tldp.org/HOWTO/Software-Release-Practice-HOWTO/documentation.html>.
7. <http://www.sei.cmu.edu/cmm/>

PROFORMA FOR THE APPROVAL PROJECT PROPOSAL

(Note:All entries of the proforma of approval should be filled up with appropriate and complete information. Incomplete proforma of approval in any respect will be summarily rejected.)

PNR No.:

Rollno: _____

1. Name of the Student

2. Title of the Project

3. Name of the Guide

4. Teaching experience of the Guide _____

5. Is this your first submission? Yes No

Signature of the Student

Signature of the Guide

Date:

Date:

Signature of the Coordinator

Date:

(All the text in the report should be in times new roman)

TITLE OF THE PROJECT
(NOT EXCEEDING 2 LINES, 24 BOLD,
ALL CAPS)

A Project Report (12 Bold)
Submitted in partial fulfillment of the
Requirements for the award of the Degree of (size-12)

**BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)(14 BOLD,
CAPS)**

By(12 Bold)

Name of The Student (size-15, title case)

Seat Number (size-15)

Under the esteemed guidance of (13 bold)

Mr./Mrs. Name of The Guide (15 bold, title case)

Designation (14 Bold, title case)

COLLEGE LOGO

DEPARTMENT OF INFORMATION TECHNOLOGY(12 BOLD, CAPS)

COLLEGE NAME (14 BOLD, CAPS)

(Affiliated to University of Mumbai) (12, Title case, bold, italic)

CITY, PIN CODE(12 bold, CAPS)

MAHARASHTRA (12 bold, CAPS)

YEAR (12 bold)

COLLEGE NAME (14 BOLD, CAPS)
(Affiliated to University of Mumbai) (13, bold, italic)
CITY-MAHARASHTRA-PINCODE(13 bold, CAPS)

DEPARTMENT OF INFORMATION TECHNOLOGY (14 BOLD, CAPS)

College Logo

CERTIFICATE (14 BOLD, CAPS, underlined, centered)

This is to certify that the project entitled, "**Title of The Project** ", is bonafied work of **NAME OF THE STUDENT** bearing Seat.No: (**NUMBER**) submitted in partial fulfillment of the requirements for the award of degree of BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY from University of Mumbai. (12, times new roman, justified)

Internal Guide (12 bold)

Coordinator

(Don't write names of lecturers or HOD)

External Examiner

Date:

College Seal

COMPANY CERTIFICATE (if applicable)

(Project Abstract page format)

Abstract (20bold, caps, centered)

Content (12, justified)

**Note: Entire document should be with 1.5
line spacing and all paragraphs should start with 1 tab space.**

ACKNOWLEDGEMENT

(20, BOLD, ALL CAPS, CENTERED)

The acknowledgement should be in times new roman, 12 font with 1.5 line spacing, justified.

(Declaration page format)

DECLARATION (20 bold, centered, allcaps)

Content (12, justified)

I here by declare that the project entitled, “**Title of the Project**” done at **place where the project is done**, has not been in any case duplicated to submit to any other university for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfillment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester project as part of our curriculum.

Name and Signature of the Student

TABLE OF CONTENTS (20bold, caps, centered)

Should be generated automatically using word processing software.

Chapter 1: Introduction	01(no bold)
1.1 Background	02(no bold)
1.2 Objectives
1.3 Purpose and Scope
1.2.1 Purpose
1.2.2 Scope

.....
.....

Chapter 2: System Analysis	
2.1 Existing System	
2.2 Proposed System	
2.3 Requirement Analysis	
2.4 Hardware Requirements	
2.5 Software Requirements	
2.6 Justification of selection of Technology	

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4.2 Testing Approach	
4.2.1 Unit Testing (Test cases and Test Results)	
4.2.2 Integration System (Test cases and Test Results)	

Chapter 5: Results and Discussions (Output Screens)	
Chapter 6: Conclusion and Future Work	
Chapter 7: References	

List of Tables (20 bold, centered, Title Case)

Should be generated automatically using word processing software.

List of Figures (20 bold, centered, Title Case)

Should be generated automatically using word processing software.

(Project Introduction page format)

Chapter 1

Introduction (20 Bold, centered)

Content or text (12, justified)

Note: Introduction has to cover brief description of the project with minimum 4 pages.

Chapter 2

System Analysis (20 bold, Centered)

Subheadings are as shown below with following format (16 bold, CAPS)

2.1 Existing System (16 Bold)

2.1.1 ----- (14 bold, title case)

2.1.1.1 ----- (12 bold, title case)

2.2 Proposed System

2.3 Requirement Analysis

2.4 Hardware Requirements

2.5 Software Requirements

2.6 Justification of Platform – (how h/w & s/w satisfying the project)

Table 2.1: Caption

Chapter 3

System Design (20 bold, centered)

Subheadings are as shown below with following format (16 bold, CAPS)
Specify figures as Fig 11.1 – caption

3.1 Module Division

3.2 Data Dictionary

3.3 E-R Diagrams

3.4 Data Flow Diagrams / UML

Note: write brief description at the bottom of all diagrams

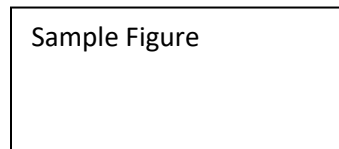


Fig. 3.1: Caption

Chapter 4

Implementation and Testing (20 bold, centered)

4.1 Code (Place Core segments)

Content includes description about coding phase in your project (Font-12)

(* don't include complete code-----just description)

4.2 Testing Approach

Subheadings are as shown below with following format (16 bold, CAPS)

4.2.1 Unit Testing

4.2.2 Integration Testing

Note:

- Explain about above testing methods
- Explain how the above techniques are applied in your project
Provide Test plans, test cases, etc relevant to your project

Chapter 5

Results and Discussions(20 bold, centered)

Note: Place Screen Shots and write the functionality of each screen at the bottom

Chapter 6

Conclusion and Future Work (20 bold, centered)

The conclusions can be summarized in a fairly short chapter around 300 words. Also include limitations of your system and future scope (12, justified)

Chapter 7

References (20 bold, centered)

Content (12, LEFT)

[1] Title of the book, Author

[2] Full URL of online references

[3] -----

*** NOTE ABOUT PROJECT VIVA VOCE:**

Student may be asked to write code for problem during VIVA to demonstrate his coding capabilities and he/she may be asked to write any segment of coding used in the in the project. The project can be done in group of at most four students. However, the length and depth of the project should be justified for the projects done in group. A big project can be modularised and different modules can be assigned as separate project to different students.

Marks Distribution:

Semester V: 50 Marks

Documentation: 50 marks

Semester VI: 150 Marks

Documentation: 50 Marks:

Implementation and Viva Voce: 100 Marks

The plagiarism should be maintained as per the UGC guidelines.

University Of Mumbai



Syllabus for M.Sc. I.T. Part II
Semester III and IV
Programme: M.Sc.
Subject: Information Technology
CHOICE BASED(REVISED)
with effect from the academic year
2020 – 2021

Artificial Intelligence Track
Image Processing Track
Cloud Computing Track
Security Track

SEMESTER - III					
Course Title					
Course Code	Theory	Credits	Course Code	Practical	Credits
PSIT301	Technical Writing and Entrepreneurship Development	4	PSIT3P1	Project Documentation and Viva	2
Elective 1: Select Any one from the courses listed below along with corresponding practical course					
PSIT302a	Applied Artificial Intelligence	4	PSIT3P2a	Applied Artificial Intelligence Practical	2
PSIT302b	Computer Vision		PSIT3P2b	Computer Vision Practical	
PSIT302c	Cloud Application Development		PSIT3P2c	Cloud Application Development Practical	
PSIT302d	Security Breaches and Countermeasures		PSIT3P2d	Security Breaches and Countermeasures Practical	
Elective 2: Select Any one from the courses listed below along with corresponding practical course					
PSIT303a	Machine Learning	4	PSIT3P3a	Machine Learning Practical	2
PSIT303b	Biomedical Image Processing		PSIT3P3b	Biomedical Image Processing Practical	
PSIT303c	Cloud Management		PSIT3P3c	Cloud Management Practical	
PSIT303d	Malware Analysis		PSIT3P3d	Malware Analysis Practical	
Elective 3: Select Any one from the courses listed below along with corresponding practical course					
PSIT304a	Robotic Process Automation	4	PSIT3P4a	Robotic Process Automation Practical	2
PSIT304b	Virtual Reality and Augmented Reality		PSIT3P4b	Virtual Reality and Augmented Reality Practical	
PSIT304c	Data Center Technologies		PSIT3P4c	Data Center Technologies Practical	
PSIT304d	Offensive Security		PSIT3P4d	Offensive Security Practical	
	Total Theory Credits	16		Total Practical Credits	8
Total Credits for Semester III: 24					

SEMESTER - IV					
Course Title					
Course Code	Theory	Credits	Course Code	Practical	Credits
PSIT401	Blockchain	4	PSIT4P1		2
Elective 1: Select Any one from the courses listed below along with corresponding practical course					
PSIT402a	Natural Language Processing	4	PSIT4P2a	Natural Language Processing Practical	2
PSIT402b	Digital Image Forensics		PSIT4P2b	Digital Image Forensics Practical	
PSIT402c	Advanced IoT		PSIT4P2c	Advanced IoT Practical	
PSIT402d	Cyber Forensics		PSIT4P2d	Cyber Forensics Practical	
Elective 2: Select Any one from the courses listed below along with corresponding practical course					
PSIT403a	Deep Learning	4	PSIT4P3a	Deep Learning Practical	2
PSIT403b	Remote Sensing		PSIT4P3b	Remote Sensing Practical	
PSIT403c	Server Virtualization on VMWare Platform		PSIT4P3c	Server Virtualization on VMWare Platform Practical	
PSIT403d	Security Operations Center		PSIT4P3d	Security Operations Center Practical	
Elective 3: Select Any one from the courses listed below. Project Implementation and Viva is compulsory					
PSIT404a	Human Computer Interaction	4	PSIT4P4	Project Implementation and Viva	2
PSIT404b	Advanced Applications of Image Processing				
PSIT404c	Storage as a Service				
PSIT404d	Information Security Auditing				
	Total Theory Credits	16		Total Practical Credits	8
Total Credits for Semester IV: 24					

If a student selects all 6 papers of Artificial Intelligence Track, he should be awarded the degree **M.Sc. (Information Technology), Artificial Intelligence Specialisation.**

If a student selects all 6 papers of Image Processing Track, he should be awarded the degree **M.Sc. (Information Technology), Image Processing Specialisation.**

If a student selects all 6 papers of Cloud Computing Track, he should be awarded the degree **M.Sc. (Information Technology), Cloud Computing Specialisation**

If a student selects all 6 papers of Artificial Security Track, he should be awarded the degree **M.Sc. (Information Technology), Security Specialisation**

All other students will be awarded M.Sc. (Information Technology) degree.

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SEMESTER III

PSIT301: Technical Writing and Entrepreneurship Development

M. Sc (Information Technology)		Semester – III	
Course Name: Technical Writing and Entrepreneurship Development		Course Code: PSIT301	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- This course aims to provide conceptual understanding of developing strong foundation in general writing, including research proposal and reports.
- It covers the technological developing skills for writing Article, Blog, E-Book, Commercial web Page design, Business Listing Press Release, E-Listing and Product Description.
- This course aims to provide conceptual understanding of innovation and entrepreneurship development.

Unit	Details	Lectures	Outcome
I	<p>Introduction to Technical Communication: What Is Technical Communication? The Challenges of Producing Technical Communication, Characteristics of a Technical Document, Measures of Excellence in Technical Documents, Skills and Qualities Shared by Successful Workplace Communicators, How Communication Skills and Qualities Affect Your Career?</p> <p>Understanding Ethical and Legal Considerations: A Brief Introduction to Ethics, Your Ethical Obligations, Your Legal Obligations, The Role of Corporate Culture in Ethical and Legal Conduct, Understanding Ethical and Legal Issues Related to Social Media, Communicating Ethically Across Cultures, Principles for Ethical Communication</p> <p>Writing Technical Documents: Planning, Drafting, Revising, Editing, Proofreading</p> <p>Writing Collaboratively: Advantages and Disadvantages of Collaboration, Managing Projects, Conducting Meetings, Using Social Media and Other Electronic Tools in Collaboration, Importance of Word Press Website, Gender and Collaboration, Culture and Collaboration.</p>	12	CO1
II	<p>Introduction to Content Writing: Types of Content (Article, Blog, E-Books, Press Release, Newsletters Etc), Exploring Content Publication Channels. Distribution of your content across various channels. Blog Creation: Understand the psychology behind your web traffic, Creating killing landing pages which attract users, Using</p>	12	CO2

	Landing Page Creators, Setting up Accelerated Mobile Pages, Identifying UI UX Experience of your website or blog. Organizing Your Information: Understanding Three Principles for Organizing Technical Information, Understanding Conventional Organizational Patterns, Emphasizing Important Information: Writing Clear, Informative Titles, Writing Clear, Informative Headings, Writing Clear Informative Lists, Writing Clear Informative Paragraphs.		
III	Creating Graphics: The Functions of Graphics, The Characteristics of an Effective Graphic, Understanding the Process of Creating Graphics, Using Color Effectively, Choosing the Appropriate Kind of Graphic, Creating Effective Graphics for Multicultural Readers. Researching Your Subject: Understanding the Differences Between Academic and Workplace Research, Understanding the Research Process, Conducting Secondary Research, Conducting Primary Research, Research and Documentation: Literature Reviews, Interviewing for Information, Documenting Sources, Copyright, Paraphrasing, Questionnaires. Report Components: Abstracts, Introductions, Tables of Contents, Executive Summaries, Feasibility Reports, Investigative Reports, Laboratory Reports, Test Reports, Trip Reports, Trouble Reports	12	CO3
IV	Writing Proposals: Understanding the Process of Writing Proposals, The Logistics of Proposals, The “Deliverables” of Proposals, Persuasion and Proposals, Writing a Proposal, The Structure of the Proposal. Writing Informational Reports: Understanding the Process of Writing Informational Reports, Writing Directives, Writing Field Reports, Writing Progress and Status Reports, Writing Incident Reports, Writing Meeting Minutes. Writing Recommendation Reports: Understanding the Role of Recommendation Reports, Using a Problem-Solving Model for Preparing Recommendation Reports, Writing Recommendation Reports. Reviewing, Evaluating, and Testing Documents and Websites: Understanding Reviewing, Evaluating, and Testing, Reviewing Documents and Websites, Conducting Usability Evaluations, Conducting Usability Tests, Using Internet tools to check writing Quality, Duplicate Content Detector, What is Plagiarism?, How to avoid writing plagiarism content? Innovation management: an introduction: The importance of innovation, Models of innovation, Innovation as a management process. Market adoption and technology diffusion: Time lag between innovation and useable product, Innovation and the market , Innovation and market vision ,Analysing internet search data to help	12	CO4

	adoption and forecasting sales ,Innovative new products and consumption patterns, Crowd sourcing for new product ideas, Frugal innovation and ideas from everywhere, Innovation diffusion theories.		
V	<p>Managing innovation within firms: Organisations and innovation, The dilemma of innovation management, Innovation dilemma in low technology sectors, Dynamic capabilities, Managing uncertainty, Managing innovation projects</p> <p>Operations and process innovation: Operations management, The nature of design and innovation in the context of operations, Process design, Process design and innovation</p> <p>Managing intellectual property: Intellectual property, Trade secrets, An introduction to patents, Trademarks, Brand names, Copyright</p> <p>Management of research and development: What is research and development?, R&D management and the industrial context, R&D investment and company success, Classifying R&D, R&D management and its link with business strategy, Strategic pressures on R&D, Which business to support and how?, Allocation of funds to R&D, Level of R&D expenditure</p> <p>Managing R&D projects: Successful technology management, The changing nature of R&D management, The acquisition of external technology, Effective R&D management, The link with the product innovation process, Evaluating R&D projects.</p>	12	CO5

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Technical Communication	Mike Markel	Bedford/St. Martin's	11	2014
2.	Innovation Management and New Product Development	Paul Trott	Pearson	06	2017
3.	Handbook of Technical Writing	Gerald J. Alred , Charles T. Brusaw , Walter E. Oliu	Bedford/St. Martin's	09	2008
4.	Technical Writing 101: A Real-World Guide to Planning and Writing Technical Content	Alan S. Pringle and Sarah S. O'Keefe	scriptorium	03	2009
5.	Innovation and Entrepreneurship	Peter Drucker	Harper Business	03	2009

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Develop technical documents that meet the requirements with standard guidelines. Understanding the essentials and hands-on learning about effective Website Development.

CO2: Write Better Quality Content Which Ranks faster at Search Engines. Build effective Social Media Pages.

CO3: Evaluate the essentials parameters of effective Social Media Pages.

CO4: Understand importance of innovation and entrepreneurship.

CO5: Analyze research and development projects.

PSIT3P1: Project Documentation and Viva

M. Sc (Information Technology)		Semester – III	
Course Name: Project Documentation and Viva		Course Code: PSIT3P1	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	--

The learners are expected to develop a project beyond the undergraduate level. Normal web sites, web applications, mobile apps are not expected. Preferably, the project should be from the elective chosen by the learner at the post graduate level. In semester three. The learner is supposed to prepare the synopsis and documentation. The same project has to be implemented in Semester IV.

More details about the project is given is Appendix 1.

PSIT302a: Applied Artificial Intelligence

M. Sc (Information Technology)		Semester – III	
Course Name: Applied Artificial Intelligence		Course Code: PSIT302a	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To explore the applied branches of artificial intelligence
- To enable the learner to understand applications of artificial intelligence
- To enable the student to solve the problem aligned with derived branches of artificial intelligence.

<i>Unit</i>	<i>Details</i>	<i>Lectures</i>	<i>Outcome</i>
I	Review of AI: History, foundation and Applications Expert System and Applications: Phases in Building Expert System, Expert System Architecture, Expert System versus Traditional Systems, Rule based Expert Systems, Blackboard Systems, Truth Maintenance System, Application of Expert Systems, Shells and Tools	12	CO1
II	Probability Theory: joint probability, conditional probability, Bayes's theorem, probabilities in rules and facts of rule based system, cumulative probabilities, rule based system and Bayesian method Fuzzy Sets and Fuzzy Logic: Fuzzy Sets, Fuzzy set operations, Types of Member ship Functions, Multivalued Logic, Fuzzy Logic, Linguistic variables and Hedges, Fuzzy propositions, inference rules for fuzzy propositions, fuzzy systems, possibility theory and other enhancement to Logic	12	CO2
III	Machine Learning Paradigms: Machine Learning systems, supervised and un-supervised learning, inductive learning, deductive learning, clustering, support vector machines, case based reasoning and learning. Artificial Neural Networks: Artificial Neural Networks, Single-Layer feedforward networks, multi-layer feed-forward networks, radial basis function networks, design issues of artificial neural networks and recurrent networks	12	CO3
IV	Evolutionary Computation: Soft computing, genetic algorithms, genetic programming concepts, evolutionary programming, swarm intelligence, ant colony paradigm, particle swarm optimization and applications of evolutionary algorithms. Intelligent Agents: Agents vs software programs, classification of agents, working of an agent, single agent and multiagent systems, performance evaluation, architecture, agent communication language, applications	12	CO4

V	Advanced Knowledge Representation Techniques: Conceptual dependency theory, script structures, CYC theory, script structure, CYC theory, case grammars, semantic web. Natural Language Processing: Sentence Analysis phases, grammars and parsers, types of parsers, semantic analysis, universal networking language, dictionary	12	CO5
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Artificial Intelligence	Saroj Kaushik	Cengage	1 st	2019
2.	Artificial Intelligence: A Modern Approach	A. Russel, Peter Norvig		1 st	
3.	Artificial Intelligence	Elaine Rich, Kevin Knight, Shivashankar B. Nair	Tata Mc-Grawhill	3rd	

M. Sc (Information Technology)		Semester – III	
Course Name: Artificial Intelligence Practical		Course Code: PSIT3P2a	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	--

<p>List of Practical: 10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.</p>
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Course Outcomes:

After completion of course the learner will:

CO1: be able to understand the fundamentals concepts of expert system and its applications.

CO2: be able to use probability and concept of fuzzy sets for solving AI based problems.

CO3: be able to understand the applications of Machine Learning. The learner can also apply fuzzy system for solving problems.

CO4: learner will be able to apply to understand the applications of genetic algorithms in different problems related to artificial intelligence.

CO5: A learner can use knowledge representation techniques in natural language processing.

PSIT302b: Computer Vision

M. Sc (Information Technology)		Semester – III	
Course Name: Computer Vision		Course Code: PSIT302b	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To develop the student's understanding of the issues involved in trying to define and simulate perception.
- To familiarize the student with specific, well known computer vision methods, algorithms and results.
- To provide the student additional experience in the analysis and evaluation of complicated systems.
- To provide the student additional software development experience.
- To provide the student with paper and proposal writing experience.

Unit	Details	Lectures	Outcome
I	<p>Introduction: What is computer vision?, A brief history, Image formation, Geometric primitives and transformations, Geometric primitives, D transformations, D rotations, D to D projections, Lens distortions, Photometric image formation, Lighting, Reflectance and shading, Optics, The digital camera, Sampling and aliasing, Color, Compression</p> <p>Feature-based alignment: D and D feature-based alignment, D alignment using least squares, Application: Panography, Iterative algorithms, Robust least squares and RANSAC, D alignment, Pose estimation, Linear algorithms, Iterative algorithms, Application: Augmented reality, Geometric intrinsic calibration, Calibration patterns, Vanishing points, Application: Single view metrology, Rotational motion, Radial distortion</p>	12	CO1
II	<p>Structure from motion : Triangulation, Two-frame structure from motion, Projective (uncalibrated) reconstruction, Self-calibration, Application: View morphing, Factorization, Perspective and projective factorization, Application: Sparse D model extraction, Bundle adjustment, Exploiting sparsity, Application: Match move and augmented reality, Uncertainty and ambiguities, Application: Reconstruction from Internet photos, Constrained structure and motion, Line-based techniques, Plane-based techniques</p> <p>Dense motion estimation : Translational alignment, Hierarchical motion estimation, Fourier-based alignment,</p>	12	CO2

	Incremental refinement , Parametric motion, Application: Video stabilization, Learned motion models , Spline-based motion, Application: Medical image registration, Optical flow, Multi-frame motion estimation ,Application: Video denoising , Application: De-interlacing , Layered motion, Application: Frame interpolation, Transparent layers and reflections		
III	<p>Image stitching : Motion models, Planar perspective motion, Application: Whiteboard and document scanning , Rotational panoramas , Gap closing , Application: Video summarization and compression, Cylindrical and spherical coordinates, Global alignment, Bundle adjustment, Parallax removal , Recognizing panoramas, Direct vs feature-based alignment, Compositing , Choosing a compositing surface, Pixel selection and weighting (de-ghosting) , Application: Photomontage, Blending</p> <p>Computational photography : Photometric calibration , Radiometric response function , Noise level estimation , Vignetting , Optical blur (spatial response) estimation , High dynamic range imaging , Tone mapping , Application: Flash photography, Super-resolution and blur removal, Color image demosaicing , Application: Colorization, Image matting and compositing , Blue screen matting , Natural image matting , Optimization-based matting , Smoke, shadow, and flash matting , Video matting , Texture analysis and synthesis , Application: Hole filling and inpainting , Application: Non-photorealistic rendering</p>	12	CO3
IV	<p>Stereo correspondence Epipolar geometry , Rectification , Plane sweep , Sparse correspondence , D curves and profiles , Dense correspondence, Similarity measures , Local methods , Sub-pixel estimation and uncertainty , Application: Stereo-based head tracking , Global optimization , Dynamic programming , Segmentation-based techniques, Application: Z-keying and background replacement, Multi-view stereo, Volumetric and D surface reconstruction, Shape from silhouettes</p> <p>3D reconstruction : Shape from X , Shape from shading and photometric stereo, Shape from texture, Shape from focus , Active rangefinding , Range data merging , Application: Digital heritage , Surface representations , Surface interpolation, Surface simplification, Geometry images , Point-based representations, Volumetric representations , Implicit surfaces and level sets , Model-based reconstruction, Architecture, Heads and faces , Application: Facial animation , Whole body modeling and tracking , Recovering texture maps and albedos , Estimating BRDFs , Application: D photography</p>	12	CO4

V	<p>Image-based rendering : View interpolation, View-dependent texture maps, Application: Photo Tourism , Layered depth images, Impostors, sprites, and layers, Light fields and Lumigraphs , Unstructured Lumigraph, Surface light fields, Application: Concentric mosaics, Environment mattes, Higher-dimensional light fields , The modeling to rendering continuum, Video-based rendering , Video-based animation, Video textures , Application: Animating pictures, D Video, Application: Video-based walkthroughs</p> <p>Recognition : Object detection, Face detection, Pedestrian detection, Face recognition, Eigenfaces, Active appearance and D shape models, Application: Personal photo collections, Instance recognition, Geometric alignment, Large databases, Application: Location recognition, Category recognition, Bag of words, Part-based models, Recognition with segmentation, Application: Intelligent photo editing, Context and scene understanding , Learning and large image collections, Application: Image search, Recognition databases and test sets</p>	12	CO5
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Books and References:

Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Computer Vision: Algorithms and Applications	Richard Szeliski	Springer	1 st Edition	2010

M. Sc (Information Technology)		Semester – III	
Course Name: Computer Vision Practical		Course Code: PSIT3P2b	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	--

List of Practical:

10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Understand the basics of computer vision

CO2: Understand and analyse various structure from motion and various estimates of Dense Motion

CO3: Apply various motion models to images and understand computation photography techniques

CO4: Apply Epipolar geometry , Rectification and various other 3D correspondence and Stereo reconstruction techniques

CO5: Understand image-based rendering and reconstruction

PSIT302c: Cloud Application Development

M. Sc (Information Technology)		Semester – III	
Course Name: Cloud Application Development		Course Code: PSIT302c	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To develop and deploy Microservices for cloud
- To understand Kubernetes and deploy applications on Azure Kubernetes Service
- To understand DevOps for Azure
- To follow the DevOps practices for software development
- To build APIs for Azure and AWS

Unit	Details	Lectures	Outcomes
I	<p>Implementing Microservices: Client to microservices communication, Interservice communication, data considerations, security, monitoring, microservices hosting platform options.</p> <p>Azure Service Fabric: Introduction, core concepts, supported programming models, service fabric clusters, develop and deploy applications of service fabric.</p> <p>Monitoring Azure Service Fabric Clusters: Azure application, resource manager template, Adding Application Monitoring to a Stateless Service Using Application Insights, Cluster monitoring, Infrastructure monitoring.</p>	12	CO1
II	<p>Azure Kubernetes Service (AKS): Introduction to kubernetes and AKS, AKS development tools, Deploy applications on AKS.</p> <p>Monitoring AKS: Monitoring, Azure monitor and analytics, monitoring AKS clusters, native kubernetes dashboard, Prometheus and Grafana.</p> <p>Securing Microservices: Authentication in microservices, Implenting security using API gateway pattern, Creating application using Ocrlot and securing APIs with Azure AD.</p> <p>Database Design for Microservices: Data stores, monolithic approach, Microservices approach, harnessing cloud computing, dataase options on MS Azure, overcoming application development challenges.</p> <p>Building Microservices on Azure Stack: Azure stack, Offering IaaS, PaaS on-premises simplified, SaaS on Azure stack.</p>	12	CO2

III	<p>.NET DevOps for Azure: DevOps introduction, Problem and solution.</p> <p>Professional Grade DevOps Environment: The state of DevOps, professional grade DevOps vision, DevOps architecture, tools for professional DevOps environment, DevOps centered application.</p> <p>Tracking work: Process template, Types of work items, Customizing the process, Working with the process.</p> <p>Tracking code: Number of repositories, Git repository, structure, branching pattern, Azure repos configuration, Git and Azure.</p>	12	CO3
IV	<p>Building the code: Structure of build, using builds with .NET core and Azure pipelines,</p> <p>Validating the code: Strategy for defect detection, Implementing defect detection.</p> <p>Release candidate creation: Designing release candidate architecture, Azure artifacts workflow for release candidates,</p> <p>Deploying the release: Designing deployment pipeline, Implementing deployment in Azure pipelines.</p> <p>Operating and monitoring release: Principles, Architectures for observability, Jumpstarting observability.</p>	12	CO4
V	<p>Introduction to APIs: Introduction, API economy, APIs in public sector.</p> <p>API Strategy and Architecture: API Strategy, API value chain, API architecture, API management.</p> <p>API Development: Considerations, Standards, kick-start API development, team orientation.</p> <p>API Gateways: API Gateways in public cloud, Azure API management, AWS API gateway.</p> <p>API Security: Request-based security, Authentication and authorization.</p>	12	CO5

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Building Microservices Applications on Microsoft Azure- Designing, Developing, Deploying, and Monitoring	Harsh Chawla Hemant Kathuria	Apress	--	2019
2.	.NET DevOps for Azure A Developer's Guide to DevOps Architecture the Right Way	Jeffrey Palermo	Apress	--	2019
3.	Practical API Architecture and Development with Azure and AWS - Design and Implementation of APIs for the Cloud	Thurupathan Vijayakumar	Apress	--	2018

M. Sc (Information Technology)		Semester – III	
Course Name: Cloud Application Development Practical		Course Code: PSIT3P2c	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	--

List of Practical:

10 practical covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO01: Develop the Microservices for cloud and deploy them on Microsoft Azure.

CO02: Build and deploy services to Azure Kubernetes service.

CO03: Understand and build the DevOps way.

CO04: Thoroughly build the applications in the DevOps way.

CO05: Build the APIs for Microsoft Azure and AWS.

PSIT302d: Security Breaches and Countermeasures

M. Sc (Information Technology)		Semester – III	
Course Name: Security Breaches and Countermeasures		Course Code: PSIT302d	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To get the insight of the security loopholes in every aspect of computing.
- To understand the threats and different types of attacks that can be launched on computing systems.
- To know the countermeasures that can be taken to prevent attacks on computing systems.
- To test the software against the attacks.

Unit	Details	Lectures	Outcome
I	<p>Introduction to Security Breaching: Overview of Information Security, Threats and Attack vectors, Concepts of Hacking – Ethical and Unethical, Information Security Controls, Concepts of penetration Testing, Information Security Laws and Standards.</p> <p>Evaluation Security of IT Organisation: Concepts, Methodology, Tools, Countermeasures, Penetration Testing.</p> <p>Network Scanning: Concepts, Scanning beyond IDS and firewalls, Tools, Banner Grabbing, Scanning Techniques, Network Diagrams, penetration testing.</p> <p>Enumeration: Concepts, Different types of enumeration: Netbios, SNMP, LDAP, NTP, SMTP, DNS, other enumeration techniques, Countermeasures, Penetration Testing</p>	12	CO1
II	<p>Analysis of Vulnerability: Concepts, Assessment Solutions, Scoring Systems, Assessment Tools, Assessment Reports.</p> <p>Breaching System Security: Concepts, Cracking passwords, Escalating privileges, Executing Applications, Hiding files, covering tracks, penetration testing.</p> <p>Threats due to malware: Concepts, Malware Analysis, Trojan concepts, countermeasures, Virus and worm concepts, anti-malware software, penetration testing.</p> <p>Network Sniffing: Concepts, countermeasures, sniffing techniques, detection techniques, tools, penetration testing.</p>	12	CO2

III	<p>Social Engineering: Concepts, Impersonation on networking sites, Techniques, Identity theft, Insider threats, countermeasures, Pen testing.</p> <p>Denial of Service and Distributed Denial of service: Concepts, techniques, botnets, attack tools, countermeasures, protection tools, penetration testing.</p> <p>Hijacking an active session: Concepts, tools, application level session hijacking, countermeasures, network level session hijacking, penetration testing.</p> <p>Evasion of IDS, Firewalls and Honeypots: Introduction and concepts, detecting honeypots, evading IDS, IDS and Firewall evasion countermeasures, evading firewalls, penetration testing.</p>	12	CO3
IV	<p>Compromising Web Servers: Concepts, attacks, attack methodology, attack tools, countermeasures, patch management, web server security tools, penetration testing.</p> <p>Compromising Web Applications: Concepts, threats, methods, tools, countermeasures, testing tools, penetration testing.</p> <p>Performing SQL Injection: Concepts, types, methodology, tools, techniques, countermeasures.</p> <p>Compromising Wireless Networks: Concepts, wireless encryption, threats, methodology, tools, compromising Bluetooth, countermeasures, wireless security tools, penetration testing.</p>	12	CO4
V	<p>Compromising Mobile Platforms: Attack vectors, Compromising Android OS, Compromising iOS, Mobile spyware, Mobile Device Management, Mobile security, penetration testing.</p> <p>Compromising IoT: Concepts, attacks, compromising methodology, tools, countermeasures, penetration testing.</p> <p>Cloud Security: Concepts, Security, threats, attacks, tools, penetration testing.</p> <p>Cryptography: Concepts, email encryption, algorithms, disk encryption, tools, cryptanalysis, Public key infrastructure, countermeasures.</p>	12	CO5

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	CEHv10, Certified Ethical Hacker Study Guide	Ric Messier	Sybex - Wiley	-	2019
2.	All in One, Certified Ethical Hacker	Matt Walker	Tata McGraw Hill	-	2012
3.	CEH V10: EC-Council Certified Ethical Hacker Complete Training Guide	I.P. Specialist	IPSPECIALIST	-	2018

M. Sc (Information Technology)		Semester – III	
Course Name: Security Breaches and Countermeasures Practical		Course Code: PSIT3P3d	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:

10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcome:

CO1: The student should be able to identify the different security breaches that can occur. The student should be able to evaluate the security of an organization and identify the loopholes. The student should be able to perform enumeration and network scanning.

CO2: The student should be able to identify the vulnerability in the systems, breach the security of the system, identify the threats due to malware and sniff the network. The student should be able to do the penetration testing to check the vulnerability of the system towards malware and network sniffing.

CO3: The student should be able to perform social engineering and educate people to be careful from attacks due to social engineering, understand and launch DoS and DDoS attacks, hijack and active session and evade IDS and Firewalls. This should help the students to make the organization understand the threats in their systems and build robust systems.

CO4: The student should be able to identify the vulnerabilities in the Web Servers, Web Applications, perform SQL injection and get into the wireless networks. The student should be able to help the organization aware about these vulnerabilities in their systems.

CO5: The student should be able to identify the vulnerabilities in the newer technologies like mobiles, IoT and cloud computing. The student should be able to use different methods of cryptography.

PSIT303a: Machine Learning

M. Sc (Information Technology)		Semester – III	
Course Name: Machine Learning		Course Code: PSIT303a	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- Understanding Human learning aspects.
- Understanding primitives in learning process by computer.
- Understanding nature of problems solved with Machine Learning

Unit	Details	Lectures	Outcome
I	Introduction: Machine learning, Examples of Machine Learning Problems, Structure of Learning, learning versus Designing, Training versus Testing, Characteristics of Machine learning tasks, Predictive and descriptive tasks, Machine learning Models: Geometric Models, Logical Models, Probabilistic Models. Features: Feature types, Feature Construction and Transformation, Feature Selection.	12	CO1
II	Classification and Regression: Classification: Binary Classification- Assessing Classification performance, Class probability Estimation Assessing class probability Estimates, Multiclass Classification. Regression: Assessing performance of Regression- Error measures, Overfitting- Catalysts for Overfitting, Case study of Polynomial Regression. Theory of Generalization: Effective number of hypothesis, Bounding the Growth function, VC Dimensions, Regularization theory.	12	CO2
III	Linear Models: Least Squares method, Multivariate Linear Regression, Regularized Regression, Using Least Square regression for Classification. Perceptron, Support Vector Machines, Soft Margin SVM, Obtaining probabilities from Linear classifiers, Kernel methods for non-Linearity.	12	CO2 CO3
IV	Logic Based and Algebraic Model: Distance Based Models: Neighbours and Examples, Nearest Neighbours Classification, Distance based clustering-K means Algorithm, Hierarchical clustering, Rule Based Models: Rule learning for subgroup discovery, Association rule mining. Tree Based Models: Decision Trees, Ranking and Probability estimation Trees, Regression trees, Clustering Trees.	12	CO2 CO3 CO4

V	Probabilistic Model: Normal Distribution and Its Geometric Interpretations, Naïve Bayes Classifier, Discriminative learning with Maximum likelihood, Probabilistic Models with Hidden variables: Estimation-Maximization Methods, Gaussian Mixtures, and Compression based Models. Trends In Machine Learning : Model and Symbols- Bagging and Boosting, Multitask learning, Online learning and Sequence Prediction, Data Streams and Active Learning, Deep Learning, Reinforcement Learning.	12	CO5
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Machine Learning: The Art and Science of Algorithms that Make Sense of Data	Peter Flach	Cambridge University Press		2012
2.	Introduction to Statistical Machine Learning with Applications in R	Hastie, Tibshirani, Friedman	Springer	2nd	2012
3.	Introduction to Machine Learning	Ethem Alpaydin	PHI	2nd	2013

M. Sc (Information Technology)		Semester – III	
Course Name: Machine Learning Practical		Course Code: PSIT3P3a	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:
10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Understand the key issues in Machine Learning and its associated applications in intelligent business and scientific computing.

CO2: Acquire the knowledge about classification and regression techniques where a learner will be able to explore his skill to generate data base knowledge using the prescribed techniques.

CO3: Understand and implement the techniques for extracting the knowledge using machine learning methods.

CO4: Achieve adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc.

CO5: Understand the statistical approach related to machine learning. He will also Apply the algorithms to a real-world problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the models.

PSIT303b: Biomedical Image Processing

M. Sc (Information Technology)		Semester – III	
Course Name: Biomedical Image Processing		Course Code: PSIT303b	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To design intelligent systems that can analyze biomedical images.
- To understand different scientific approaches in biomedical image processing.
- To understand the structure of biomedical images and how to correlate it with different biological data.
- To design systems to identify different physical conditions on the basis of biomedical data.

Unit	Details	Lectures	Outcome
I	<p>Introduction: Biosignals, Biosignal Measurement Systems, Transducers, Amplifier/Detector, Analog Signal Processing and Filters, ADC Conversion, Data Banks</p> <p>Bio signal Measurements, Noise, and Analysis: Biosignals, Noise, Signal Analysis: Data Functions and Transforms</p> <p>Spectral Analysis: Classical Methods : Fourier Series Analysis, Power Spectrum, Spectral Averaging: Welch's Method</p> <p>Noise Reduction and Digital Filters : Noise Reduction, Noise Reduction through Ensemble Averaging, Z-Transform, Finite Impulse Response Filters, Infinite Impulse Response Filters</p>	12	CO1
II	<p>Modern Spectral Analysis: The Search for Narrowband Signals: Parametric Methods, Nonparametric Analysis: Eigen analysis Frequency Estimation</p> <p>Time Frequency Analysis: Basic Approaches, The Short-Term Fourier Transform: The Spectrogram, The Wigner Ville Distribution: A Special Case of Cohen's Class, Cohen's Class Distributions</p> <p>Wavelet Analysis: Continuous Wavelet Transform, Discrete Wavelet Transform, Feature Detection: Wavelet Packets</p> <p>Optimal and Adaptive Filters: Optimal Signal Processing: Wiener Filters, Adaptive Signal Processing, Phase-Sensitive Detection</p>	12	CO2

III	<p>Multivariate Analyses: Principal Component Analysis and Independent Component Analysis : Linear Transformations, Principal Component Analysis, Independent Component Analysis</p> <p>Chaos and Nonlinear Dynamics : Nonlinear Systems, Phase Space, Estimating the Embedding Parameters, Quantifying Trajectories in Phase Space: The Lyapunov Exponent, Nonlinear Analysis: The Correlation Dimension, Tests for Nonlinearity: Surrogate Data Analysis</p> <p>Nonlinearity Detection: Information-Based Methods : Information and Regularity, Mutual Information Function, Spectral Entropy, Phase-Space-Based Entropy Methods, Detrended Fluctuation Analysis</p>	12	CO3
IV	<p>Image Processing: Filters, Transformations, and Registration : Two-Dimensional Fourier Transform, Linear Filtering, Spatial Transformations, Image Registration</p> <p>Image Segmentation : Pixel-Based Methods, Continuity-Based Methods, Multi thresholding Morphological Operations, Edge-Based Segmentation</p> <p>Image Acquisition and Reconstruction : Imaging Modalities, CT, PET, and SPECT, Magnetic Resonance Imaging, Functional MRI</p>	12	CO4
V	<p>Classification I: Linear Discriminant Analysis and Support Vector Machines : Linear Discriminators, Evaluating Classifier Performance, Higher Dimensions: Kernel Support Vector Machines, Machine Capacity: Overfitting or "Less Is More", Extending the Number of Variables and Classes, Cluster Analysis</p> <p>Classification II: Adaptive Neural Nets : Training the McCullough Pitts Neuron, The Gradient Decent Method or Delta Rule, Two-Layer Nets: Back Projection, Three-Layer Nets, Training Strategies, Multiple Classifications, Multiple Input Variables</p>	12	CO5

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Biosignal and Medical Image Processing	John L. Semmlow, Benjamin Griffel	CRC Press	3 rd	2014
2.	Biomedical Signal and Image Processing	Kayvan Najarian Robert Splinter	CRC Press	2 nd	2012
3.	Introduction to Biomedical Imaging	Andrew Webb	Wiley-Interscience		2003

M. Sc (Information Technology)		Semester – III	
Course Name: Biomedical Image Processing Practical		Course Code: PSIT3P3b	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:

10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Understand basics of Bio signals and various classical techniques of bio signal processing.

CO2: Understand various modern spectral analysis techniques.

CO3: Understand and apply various multivariate analysis techniques on bio signals.

CO4: Understand and apply various transformations filters to images, and different techniques for image acquisition and construction.

CO5: Understand the AI perspective in biological image processing using SVM and Neural Networks.

PSIT303c: Cloud Management

M. Sc (Information Technology)		Semester – III	
Course Name: Cloud Management		Course Code: PSIT303c	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To Understand the Fundamental Ideas Behind Cloud Computing, The Evolution Of The Paradigm, Its Applicability; Benefits, As Well As Current And Future Challenges;
- The Basic ideas And Principles In Data Center Design; Cloud Management Techniques And Cloud Software Deployment Considerations;
- Different CPU, Memory And I/O Virtualization Techniques That Serve In Offering Software, Computation
- And Storage Services On The Cloud; Software Defined Networks (SDN) And Software Defined Storage (SDS);
- Cloud Storage Technologies And Relevant Distributed File Systems, Nosql Databases And Object Storage;
- The Variety Of Programming Models And Develop Working Experience In Several Of Them.

Unit	Details	Lectures	Outcome
I	What is VMM? What's new in VMM Get Started Release notes - VMM Turn telemetry data on/off Deploy a VMM cloud Create a VMM cloud Manage a VMM cloud Deploy a guarded host fabric Deploy guarded hosts Configure fallback HGS settings Deploy a shielded VHDX and VM template Deploy a shielded VM Deploy a shielded Linux VM Deploy and manage a software defined network (SDN) infrastructure Deploy an SDN network controller Deploy an SDN SLB Deploy an SDN RAS gateway Deploy SDN using PowerShell Set up a VM network in SDN Encrypt VM networks in SDN Allow and block VM traffic with SDN port ACLs Control SDN virtual network bandwidth with QoS Load balance network traffic Set up NAT for traffic forwarding in an SDN Route traffic across networks in the SDN infrastructure Configure SDN guest clusters Update the NC server certificate Set up SDN SLB VIPs Back up and restore the SDN infrastructure Remove an SDN from VMM Manage SDN resources in the VMM fabric Deploy and manage Storage Spaces	12	CO1

	<p>Direct Set up a hyper-converged Storage Spaces Direct cluster Set up a disaggregated Storage Spaces Direct cluster Manage Storage Spaces Direct clusters Assign storage QoS policies for Clusters How To Plan System requirements – VMM Plan VMM installation Plan a VMM high availability deployment Identify VMM ports and protocols Plan the VMM compute fabric Plan the VMM networking fabric Identify supported storage arrays Upgrade and install</p> <p>Upgrade VMM Install VMM Install the VMM console Enable enhanced console session Deploy VMM for high availability Deploy a highly available VMM management server Deploy a highly available SQL Server database for VMM Deploy a highly available VMM library Set up TLS 1.2 Deploy update rollups Back up and restore VMM Manage the VMM library Library overview Add file-based resources to the VMM library</p> <p>Add profiles to the VMM library Add VM templates to the VMM library Add service templates to the VMM library Manage VMM library resources Manage virtualization servers Manage VMM host groups Add existing Hyper-V hosts and clusters to the fabric Add a Nano server as a Hyper-V host or cluster Run a script on host</p> <p>Create a cluster from standalone Hyper-V hosts Provision a Hyper-V host or cluster from bare-metal Create a guest Hyper-V cluster from a service template Set up networking for Hyper-V hosts and clusters Set up storage for Hyper-V hosts and clusters Manage MPIO for Hyper-V hosts and clusters Manage Hyper-V extended port ACLs Manage Hyper-V clusters Update Hyper-V hosts and clusters Run a rolling upgrade of Hyper-V clusters Service Hyper-V hosts for maintenance Manage VMware servers Manage management servers Manage infrastructure servers Manage update servers Manage networking Network fabric overview Set up logical networks Set up logical networks in UR1 Set up VM networks</p> <p>Set up IP address pools Add a network gateway Set up port profiles Set up logical switches Set up MAC address pools Integrate NLB with service templates Set up an IPAM server Manage storage Set up storage fabric Set up storage classifications Add storage devices Allocate storage to host groups Set up a Microsoft iSCSI Target Server Set up a Virtual Fibre Channel Set up file storage Set up Storage Replica in VMM</p>		
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<p style="text-align: center;">II</p>	<p>Service Manager What's new in Service Manager Get started Evaluation and activation of Service Manager Service Manager components Supported configurations System requirements - Service Manager Release notes - Service Manager Enable service log on Manage telemetry settings How to Plan Planning for Service Manager Plan for deployment Service Manager editions Recommended deployment topologies Operations Manager considerations Service Manager databases Port assignments Prepare for deployment Service Manager performance Plan for performance and scalability Plan for hardware performance Deploy Deploy Service Manager Deployment scenarios Install on a single computer Install on two computers Install on four computers Set up remote SQL Server Reporting Services Use SQL Server AlwaysOn availability groups for failover Create and deploy server images Install on VMs Configure PowerShell Register with the data warehouse to enable reporting Deploy additional management servers Deployment considerations with a disjointed namespace Learn about the new Self Service portal Deploy the Self-Service portal Set up load balancing Back up the encryption key Index non-English knowledge articles Troubleshoot deployment issues Deploy from a command line Move databases Upgrade Upgrade Service Manager Upgrade the self-service portal to Service Manager 2016 Upgrade SQL Server Reporting Services Set up a lab environment for upgrade Prepare the production environment Prepare the lab environment Run an upgrade Complete tasks after upgrade Troubleshoot upgrade issues Administer Use management packs to add functionality Use connectors to import data Import data from Active Directory Domain Services Import data and alerts from Operations Manager Import data from Configuration Manager Import runbooks from Orchestrator Import data from VMM Use a CSV file to import data Optionally disable ECL logging for faster connector synchronization Configuration items Configure incident management Configure service level management Configure workflows Configure change and activity management Configure release management Configure Desired Configuration Management to generate incidents Configure notifications Use the service catalog to offer services Use groups, queues, and lists in Service Manager</p>	<p style="text-align: center;">12</p>	<p style="text-align: center;">CO2</p>
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	<p>Use runbooks to automate procedures User interface customization</p> <p>Manage user roles Manage Run As accounts Manage knowledge articles Configure and use Service Manager cmdlets Manage the data warehouse Register source systems to the data warehouse</p> <p>Troubleshoot computer problems with tasks Configure your preference for sharing diagnostic and usage data Operate Search for information Manage incidents and problems Manage changes and activities Manage service requests Manage release records</p> <p>Data warehouse reporting and analytics Use and manage standard reports</p>		
III	<p>What is Configuration Manager? Microsoft Endpoint Configuration Manager FAQ What happened to SCCM? Introduction</p> <p>Find help for Configuration Manager How to use the docs How to use the console Accessibility features Software Center user guide Fundamentals Configuration Manager fundamentals</p> <p>Sites and hierarchies About upgrade, update, and install Manage devices Client management Security Role-based administration Configuration Manager and Windows as a Service</p> <p>Plan and design Get ready for Configuration Manager Product changes Features and capabilities Security and privacy for Configuration Manager Security and privacy overview</p> <p>Plan for security Security best practices and privacy information</p> <p>Privacy statement - Configuration Manager Cmdlet Library Additional privacy information Configure security Cryptographic controls technical reference Enable TLS About enabling TLS Enable TLS on clients Enable TLS on site servers and remote site systems Common issues when enabling TLS 1Migrate data between hierarchies Migration overview Plan for migration Planning for migration Prerequisites for migration Checklists for migration</p> <p>Determine whether to migrate data Planning the source hierarchy</p> <p>Planning migration jobs Planning client migration Planning for content deployment Planning to migrate objects Planning to monitor migration Planning to complete migration Configure source hierarchies and source sites Operations for migrating Security and privacy for migration Deploy servers and roles Deploy servers and roles Install infrastructure Get installation media Before you run setup Setup reference Setup downloader Prerequisite checker</p>	12	CO3

	<p>Prerequisite checks Installing sites Prepare to install sites overview</p> <p>Prepare to install sites Prerequisites for installing sites Use the setup wizard Use a command-line Command-line overview Command-line options Install consoles Upgrade an evaluation install</p> <p>Upgrade to Configuration Manager Scenarios to streamline your installation Configure sites and hierarchies Configure sites and hierarchies overview Add site system roles Add site system roles overview Install site system roles Install cloud-based distribution points About the service connection point Configuration options for site system roles Database replicas for management points Site components Publish site data Manage content and content infrastructure Content infrastructure overview Install and configure distribution points Deploy and manage content Monitor content</p> <p>Microsoft Connected Cache Troubleshoot Microsoft Connected Cache Run discovery Discovery methods overview About discovery methods Select discovery methods Configure discovery methods Site boundaries and boundary groups Site boundaries and boundary groups overview Boundaries Boundary groups Procedures for boundary groups High availability High availability options Site server high availability Flowchart - Passive site server setup Flowchart - Promote site server (planned) Flowchart - Promote site server (unplanned) Prepare to use SQL Server Always On Configure SQL Server Always On Use a SQL Server cluster</p> <p>Custom locations for database files Configure role-based administration</p>		
<p>IV</p>	<p>What's new in Orchestrator Automate with runbooks Get started</p> <p>Install Orchestrator Work with runbooks in the Orchestrator console</p> <p>Example runbook: Creating a runbook to monitor a folder Release notes – Orchestrator Turn on/off telemetry How To Plan</p> <p>Database sizing and performance Feature performance considerations System requirements – Orchestrator</p> <p>Design a runbook Deploy Upgrade Orchestrator Deploy runbooks Configure Orchestrator database connections Migrate Orchestrator between environments Change the Orchestrator database Manage Runbooks</p> <p>Design and build runbooks Create and test a sample runbook Control runbook activities Monitor activities Runbook properties</p> <p>Track runbooks Install TLS Install and enable TLS 1.2 Manage Orchestrator Servers Runbook permissions Back up Orchestrator</p>	<p>12</p>	<p>CO4</p>

	<p>Bench mark Optimize performance of .Net activities Configure runbook throttling Recover a database Recover web components Add an integration pack View Orchestrator data with PowerPivot Change Orchestrator user groups Common activity properties Computer groups Standard Activities Orchestrator standard activities Alphabetical list of Standard Activities Ports and protocols of Standard Activities System Run Program Run .NET Script End Process Start/Stop Service Restart System Save Event Log Query WMI Run SSH Command Get SNMP Variable Monitor SNMP Trap Send SNMP Trap Set SNMP Variable Scheduling Monitor Date/Time Check Schedule Monitoring Monitor Event Log Monitor Service Get Service Status Monitor Process Get Process Status Monitor Computer/IP Get Computer/IP Status Monitor Disk Space Get Disk Space Status Monitor Internet Application Get Internet Application Status Monitor WMI File Management Compress File Copy File Create Folder Decompress File Delete File Delete Folder Get File Status Monitor File Monitor Folder Move File Move Folder PGP Decrypt File PGP Encrypt File Print File Rename File Email Send Email Notification Send Event Log Message Send Syslog Message Send Platform Event Utilities Apply XSLT Query XML Map Published Data Compare Values Write Web Pages Read Text Log Write to Database Query Database Monitor Counter Get Counter Value Modify Counter Invoke Web Services Format Date/Time Generate Random Text Map Network Path Disconnect Network Path Get Dial-up Status Connect/Disconnect Dial-up Text File Management Append Line Delete Line Find Text Get Lines Insert Line Read Line Search and Replace Text Runbook Control Invoke Runbook Initialize Data Junction Return Data Orchestrator Integration Toolkit Overview of Orchestrator Integration Toolkit Installation Command Line Activity Wizard Integration Pack Wizard Integration Packs Active Directory Active Directory activities Add Computer To Group Add Group To Group Add User To Group Create Computer Create Group Create User Delete Computer Delete Group Delete User Disable Computer Disable User Enable Computer Enable User</p>		
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	<p>Get Computer Get Group Get Organizational Unit Get User Move Computer Move Group Move User Remove Computer From Group</p> <p>Remove Group From Group Remove User From Group Rename Group Rename User Reset User Password Unlock User Update Computer Update Group Update User</p>		
V	<p>Data Protection Manager How does DPM work? What can DPM back up? DPM-compatible tape libraries Get Started DPM build versions DPM release notes What's new in DPM What DPM supports How To Plan Your DPM Environment Get ready to deploy DPM servers</p> <p>Prepare your environment for DPM Prepare data storage Identify compatible tape libraries Identify data sources you want to protect Install or Upgrade DPM Install DPM Upgrade your DPM installation Add Modern Backup storage</p> <p>Deduplicate DPM storage Deploy DPM Deploy the DPM protection agent Deploy protection groups Configure firewall settings Offline backup Using own disk Protect Workloads Back up Hyper-V virtual machines Back up Exchange with DPM Back up SharePoint with DPM Back up SQL Server with DPM Back up client computers with DPM Back up file data with DPM Back up system state and bare metal Back up and restore VMware servers Back up and restore VMM servers</p> <p>Prepare to back up a generic data source Prepare machines in workgroups and untrusted domains for backup Back up the DPM server Monitor and Manage Monitor DPM Set up DPM logging Generate DPM reports Use SCOM to manage and monitor DPM servers Improve replication performance Use central console to manage DPM servers</p>	12	CO5

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Microsoft SCVMM 2019	Whitepaper	Microsoft		2019
2.	Microsoft Endpoint Manager 2019	Whitepaper	Microsoft		2019
3.	Microsoft SCO 2019	Whitepaper	Microsoft		2019
4.	Microsoft SCOM 2019	Whitepaper	Microsoft		2019
5.	Microsoft SCSM 2019	Whitepaper	Microsoft		2019
6.	Microsoft DPM 2019	Whitepaper	Microsoft		2019
7.	Introducing Microsoft System Center 2012	Mitch Tulloch with Symon Perriman and the System Center Team	Microsoft Press		2012

M. Sc (Information Technology)		Semester – III	
Course Name: Cloud Management Practical		Course Code: PSIT3P3c	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:

10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Understand the concepts of VMM, SDN, NAS , HyperV etc.

CO2: Understand and demonstrate the use of Service manager with various deployments that can be performed using it.

CO3: Understand SCCM and Demonstrate the use of Configuration Manager

CO4: Understand automation with runbooks and demonstrate the use of Windows Orchestrator

CO5: Understand and demonstrate the use of Data Protection Manager

PSIT303d: Malware Analysis

M. Sc (Information Technology)		Semester – III	
Course Name: Malware Analysis		Course Code: PSIT303d	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- Possess the skills necessary to carry out independent analysis of modern malware samples using both static and dynamic analysis techniques.
- Have an intimate understanding of executable formats, Windows internals and API, and analysis techniques.
- Extract investigative leads from host and network-based indicators associated with a malicious program.
- Apply techniques and concepts to unpack, extract, decrypt, or bypass new anti-analysis techniques in future malware samples.
- Achieve proficiency with industry standard tools including IDA Pro, OllyDbg, WinDBG, PE Explorer, ProcMon etc.

Unit	Details	Lectures	Outcome
I	Malware Analysis: Introduction, Techniques, Types of malware, General rules for Malware Analysis. Basic Static Techniques: Antivirus Scanning, Hashing, Finding Strings, Packed and Obfuscated Malware, Portable Executable Malware, Portable executable File Format, Linked Libraries and Functions, Static Analysis, The PE file headers and sections. Malware Analysis in Virtual Machines: Structure of VM, Creating and using Malware Analysis machine, Risks of using VMware for malware analysis, Record/Replay. Basic Dynamic Analysis: Sandboxes, Running Malware, Monitoring with process monitor, Viewing processes with process explorer, Comparing registry snapshots with regshot, Faking a network, Packet sniffing with Wireshark, Using INetSim, Basic Dynamic Tools. x86 Disassembly	12	CO1
II	IDA PRO: Loading an executable, IDA Pro Interface, Using cross references, Analysing functions, Using graphing options, Enhancing disassembly, Extending IDA with plug-ins. Recognising C Code constructs in assembly: Global v/s local variables, Disassembling arithmetic operations, recognizing if statements, recognizing loops, function call conventions, Analysing switch statements, Disassembling arrays, Identifying structs, Analysing linked list traversal. Analysing Malicious Windows Programs: The windows API, The Windows Registry, Networking APIs,	12	CO2

	<p>Understanding running malware. Kernel v/s user mode, Native API.</p> <p>Advanced Dynamic Analysis – Debugging: Source-level v/s Assembly-level debugging, kernel v/s user mode debugging, Using a debugger, Exceptions, Modifying execution with a debugger, modifying program execution.</p>		
III	<p>Advanced Dynamic Analysis – OLLYDBG: Loading Malware, The Ollydbg Interface, Memory Map, Viewing threads and Stacks, Executing code, Breakpoints, Loading DLLs, Tracing, Exception handling, Patching, Analysing shell code, Assistance features, Plug-ins, Scriptable debugging. Kernel Debugging with WINDBG: Drivers and kernel code, Using WinDbg, Microsoft Symbols, kernel debugging and using it, Rootkits, Loading drivers, kernel issues with windows.</p> <p>Malware Functionality – Malware Behavior: Downloaders and launchers, Backdoors, Credential stealers, Persistence mechanisms, Privilege escalation, covering the tracks.</p> <p>Covert Malware Launching: Launchers, Process injection, Process replacement, Hook injection, detours, APC injection.</p>	12	CO3
IV	<p>Data Encoding: Goal of Analysing algorithms, Simple ciphers, Common cryptographic algorithms, Custom encoding, decoding.</p> <p>Malware – focused network signatures: Network countermeasures, Safely investigating attacker online, Content-Based Network Countermeasures, Combining Dynamic and Static Analysis Techniques, Understanding the Attacker’s Perspective.</p> <p>Anti-disassembly: Concepts, Defeating disassembly algorithms, anti-disassembly techniques, Obscuring flow control, Thwarting stack-frame analysis.</p> <p>Anti-debugging: Windows debugger detection, debugger behavior, Interfering with debugger functionality, Debugger vulnerabilities.</p>	12	CO4
V	<p>Anti-virtual machine techniques: VMWare artifacts, Vulnerable functions, Tweaking settings, Escaping the virtual machine.</p> <p>Packers and unpacking: Packer anatomy, Identifying Packed Programs, Unpacking options, Automated Unpacking, Manual Unpacking, Common packers, Analysing without unpacking, Packed DLLs,</p> <p>Shellcode Analysis: Loading shellcode for analysis, Position-independent Code, Identifying Execution Location, Manual Symbol Resolution, Shellcode encoding, NOP Sleds, Finding Shellcode.</p> <p>C++ Analysis: OOP, Virtual and Non-virtual functions, Creating and destroying objects.</p>	12	CO5

	64-bit Malware: Why 64-bit malware? Differences in x64 architecture, Windows 32-bit on Windows 64-bit, 64-bit hints at malware functionality.		
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Practical Malware Analysis – The Hands-On Guide to Dissecting Malicious Software	Michael Sikorski, Andrew Honig	No Scratch Press	-	2013
2.	Mastering Malware Analysis	Alexey Kleymenov, Amr Thabet	Packt Publishing	-	2019
3.	Windows Malware Analysis Essentials	Victor Marak	Packt Publishing		2015

M. Sc (Information Technology)		Semester – III	
Course Name: Malware Analysis Practical		Course Code: PSIT3P3d	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical: 10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Understand various introductory techniques of malware analysis and creating the testing environment

CO2: Perform advanced dynamic analysis and recognize constructs in assembly code.

CO3: Perform Reverse Engineering using OLLYDBG and WINDBG and study the behaviours and functions of malware

CO4: Understand data encoding, various techniques for anti-disassembly and anti-debugging

CO5: Understand various anti virtual machine techniques and perform shellcode analysis of various languages along with x64 architecture.

PSIT304a: Robotic Process Automation

M. Sc (Information Technology)		Semester – III	
Course Name: Robotic Process Automation		Course Code: PSIT304a	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To make the students aware about the automation today in the industry.
- To make the students aware about the tools used for automation.
- To help the students automate a complete process

Unit	Details	Lectures	Outcome
I	<p>Robotic Process Automation: Scope and techniques of automation, About UiPath</p> <p>Record and Play: UiPath stack, Downloading and installing UiPath Studio, Learning UiPath Studio, Task recorder, Step-by-step examples using the recorder.</p>	12	CO1
II	<p>Sequence, Flowchart, and Control Flow: Sequencing the workflow, Activities, Control flow, various types of loops, and decision making, Step-by-step example using Sequence and Flowchart, Step-by-step example using Sequence and Control flow</p> <p>Data Manipulation: Variables and scope, Collections, Arguments – Purpose and use, Data table usage with examples, Clipboard management, File operation with step-by-step example, CSV/Excel to data table and vice versa (with a step-by-step example)</p>	12	CO2
III	<p>Taking Control of the Controls : Finding and attaching windows, Finding the control, Techniques for waiting for a control, Act on controls – mouse and keyboard activities, Working with UiExplorer, Handling events, Revisit recorder, Screen Scraping, When to use OCR, Types of OCR available, How to use OCR, Avoiding typical failure points</p> <p>Tame that Application with Plugins and Extensions: Terminal plugin, SAP automation, Java plugin, Citrix automation, Mail plugin, PDF plugin, Web integration, Excel and Word plugins, Credential management, Extensions – Java, Chrome, Firefox, and Silverlight</p>	12	CO3
IV	<p>Handling User Events and Assistant Bots: What are assistant bots?, Monitoring system event triggers, Hotkey trigger, Mouse trigger, System trigger ,Monitoring image and element triggers, An example of</p>	12	CO4

	monitoring email, Example of monitoring a copying event and blocking it, Launching an assistant bot on a keyboard event Exception Handling, Debugging, and Logging: Exception handling, Common exceptions and ways to handle them, Logging and taking screenshots, Debugging techniques, Collecting crash dumps, Error reporting		
V	Managing and Maintaining the Code: Project organization, Nesting workflows, Reusability of workflows, Commenting techniques, State Machine, When to use Flowcharts, State Machines, or Sequences, Using config files and examples of a config file, Integrating a TFS server Deploying and Maintaining the Bot: Publishing using publish utility, Overview of Orchestration Server, Using Orchestration Server to control bots, Using Orchestration Server to deploy bots, License management, Publishing and managing updates	12	CO5

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Learning Robotic Process Automation	Alok Mani Tripathi	Packt	1st	2018
2.	Robotic Process Automation Tools, Process Automation and their benefits: Understanding RPA and Intelligent Automation	Srikanth Merianda	Createspace Independent Publishing	1 st	2018
3.	The Simple Implementation Guide to Robotic Process Automation (Rpa): How to Best Implement Rpa in an Organization	Kelly Wibbenmeyer	iUniverse	1st	2018

M. Sc (Information Technology)		Semester – III	
Course Name: Robotic Process Automation		Course Code: PSIT3P4a	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:
10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completing the course, a learner will be able to:

CO1: Understand the mechanism of business process and can provide the solution in an optimize way.

CO2: Understand the features use for interacting with database plugins.

CO3: Use the plug-ins and other controls used for process automation.

CO4: Use and handle the different events, debugging and managing the errors.

CO5: Test and deploy the automated process.

PSIT304b: Virtual Reality and Augmented Reality

M. Sc (Information Technology)		Semester – III	
Course Name: Virtual Reality and Augmented Reality		Course Code: PSIT304b	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To learn background of VR including a brief history of VR, different forms of VR and related technologies, and broad overview of some of the most important concepts
- To provide background in perception to educate VR creators on concepts and theories of how we perceive and interact with the world around us
- To make learner aware of high-level concepts for designing/building assets and how subtle design choices can influence user behavior
- To learn about art for VR and AR should be optimized for spatial displays with spatially aware input devices to interact with digital objects in true 3D
- Walkthrough of VRTK, an open source project meant to spur on cross-platform development

Unit	Details	Lectures	Outcome
I	Introduction: What Is Virtual Reality, A History of VR, An Overview of Various Realities, Immersion, Presence, and Reality Trade-Offs, The Basics: Design Guidelines, Objective and Subjective Reality, Perceptual Models and Processes, Perceptual Modalities	12	CO1
II	Perception of Space and Time, Perceptual Stability, Attention, and Action, Perception: Design Guidelines, Adverse Health Effects, Motion Sickness, Eye Strain, Seizures, and Aftereffects, Hardware Challenges, Latency, Measuring Sickness, Reducing Adverse Effects, Adverse Health Effects: Design Guidelines	12	CO2
III	Content Creation, Concepts of Content Creation, Environmental Design, Affecting Behavior, Transitioning to VR Content Creation, Content Creation: Design Guidelines, Interaction, Human-Centered Interaction, VR Interaction Concepts, Input Devices, Interaction Patterns and Techniques, Interaction: Design Guidelines	12	CO3
IV	Design and Art Across Digital Realities, Designing for Our Senses, Virtual Reality for Art, 3D Art Optimization, Computer Vision That Makes Augmented Reality Possible Works, Virtual Reality and Augmented Reality: Cross-Platform Theory	12	CO4
V	Virtual Reality Toolkit: Open Source Framework for the Community, Data and Machine Learning Visualization	12	CO5

	Design and Development in Spatial Computing, Character AI and Behaviors, The Virtual and Augmented Reality Health Technology Ecosystem		
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	The VR Book, Human Centered Design for Virtual Reality	Jason Jerald	ACM Books	1st	2016
2.	Creating Augmented and Virtual Realities	Erin Pangilinan, Steve Lukas, Vasanth Mohan	O'Reilly	1st	2019
3.	Virtual reality with VRTK4	Rakesh Baruah	APress	1st	2020

M. Sc (Information Technology)		Semester – III	
Course Name: Virtual Reality and Augmented Reality Practical		Course Code: PSIT3P4b	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical: 10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.
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Course Outcomes:

After completion of the course, a student should be able to:

CO1: Apply the concepts of VR and AR in real life.

CO2: Reduce the greatest risk to VR.

CO3: Design the way users interact within the scenes they find themselves in.

CO4: be exposed to VR, AR and today's resources

CO5: Effectively use open source VR software.

PSIT304c: Data Centre Technologies

M. Sc (Information Technology)		Semester – III	
Course Name: Data Centre Technologies		Course Code: PSIT304c	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- Identify important requirements to design and support a data center.
- Determine a data center environment's requirement including systems and network architecture as well as services.
- Evaluate options for server farms, network designs, high availability, load balancing, data center services, and trends that might affect data center designs.
- Assess threats, vulnerabilities and common attacks, and network security devices available to protect data centers.
- Design a data center infrastructure integrating features that address security, performance, and availability.
- Measure data center traffic patterns and performance metrics.

Unit	Details	Lectures	Outcome
I	Virtualization History and Definitions Data Center Essential Definitions Data Center Evolution Operational Areas and Data Center Architecture The Origins of Data Center Virtualization Virtual Memory Mainframe Virtualization Hot Standby Router Protocol Defining Virtualization Data Center Virtualization Timeline Classifying Virtualization Technologies A Virtualization Taxonomy Virtualization Scalability Technology Areas Classification Examples Summary Data Center Network Evolution Ethernet Protocol: Then and Now Ethernet Media Coaxial Cable Twisted-Pair Optical Fiber Direct-Attach Twinaxial Cables Ethernet Data Rate Timeline Data Center Network Topologies Data Center Network Layers Design Factors for Data Center Networks Physical Network Layout Considerations The ANSI/TIA-942 Standard Network Virtualization Benefits Network Logical Partitioning Network Simplification and Traffic Load Balancing Management Consolidation and Cabling Optimization Network Extension	12	CO1

	<p>The Humble Beginnings of Network Virtualization Network Partitioning Concepts from the Bridging World Defining VLANs VLAN Trunks Two Common Misconceptions About VLANs Misconception Number 1: A VLAN Must Be Associated to an IP Subnet Misconception Number 2: Layer 3 VLANs Spanning Tree Protocol and VLANs Spanning Tree Protocol at Work Port States Spanning Tree Protocol Enhancements Spanning Tree Instances Private VLANs VLAN Specifics Native VLAN Reserved VLANs IDs Resource Sharing Control and Management Plane Concepts from the Routing World Overlapping Addresses in a Data Center Defining and Configuring VRFs VRFs and Routing Protocols VRFs and the Management Plane VRF-Awareness VRF Resource Allocation Control</p>		
II	<p>An Army of One: ACE Virtual Contexts Application Networking Services The Use of Load Balancers Load-Balancing Concepts Layer 4 Switching Versus Layer 7 Switching Connection Management Address Translation and Load Balancing Server NAT Dual NAT Port Redirection Transparent Mode Other Load-Balancing Applications Firewall Load Balancing Reverse Proxy Load Balancing Offloading Servers SSL Offload TCP Offload HTTP Compression Load Balancer Proliferation in the Data Center Load Balancer Performance Security Policies Suboptimal Traffic Application Environment Independency ACE Virtual Contexts Application Control Engine Physical Connections Connecting an ACE Appliance Connecting an ACE Module Creating and Allocating Resources to Virtual Contexts Integrating ACE Virtual Contexts to the Data Center Network Routed Design Bridged Design One-Armed Design Managing and Configuring ACE Virtual Contexts Allowing Management Traffic to a Virtual Context Allowing Load Balancing Traffic Through a Virtual Context Controlling Management Access to Virtual Contexts ACE Virtual Context Additional Characteristics Sharing VLANs Among Contexts Virtual Context Fault Tolerance Instant Switches: Virtual Device Contexts Extending Device Virtualization Why Use VDCs? VDCs in Detail Creating and Configuring VDCs VDC Names</p>	12	CO2

	<p>and CLI Prompts Virtualization Nesting Allocating Resources to VDCs Using Resource Templates Managing VDCs VDC Operations Processes Failures and VDCs VDC Out-of-Band Management Role-Based Access Control and VDCs Global Resources</p> <p>Fooling Spanning Tree</p> <p>Spanning Tree Protocol and Link Utilization</p> <p>Link Aggregation Server Connectivity and NIC Teaming</p> <p>Cross-Switch PortChannels</p> <p>Virtual PortChannels Virtual PortChannel Definitions</p> <p>Configuring Virtual PortChannels</p> <p>Step 1: Defining the Domain</p> <p>Step 2: Establishing Peer Keepalive Connectivity</p> <p>Step 3: Creating the Peer Link</p> <p>Step 4: Creating the Virtual PortChannel</p> <p>Spanning Tree Protocol and Virtual Port Channels Peer Link Failure and Orphan Ports</p> <p>First-Hop Routing Protocols and Virtual Port Channels</p> <p>Layer 2 Multipathing and vPC+</p> <p>FabricPath Data Plane FabricPath Control Plane</p> <p>FabricPath and Spanning Tree Protocol</p> <p>Virtual PortChannel Plus</p> <p>Virtualized Chassis with Fabric Extenders</p> <p>Server Access Models Understanding Fabric Extenders</p> <p>Fabric Extender Options</p> <p>Connecting a Fabric Extender to a Parent Switch Fabric Extended Interfaces and Spanning Tree Protocol Fabric Interfaces Redundancy Fabric Extender Topologies</p> <p>Straight-Through Topologies Dual-Homed Topologies</p>		
<p>III</p>	<p>Virtualized Chassis with Fabric Extenders</p> <p>Server Access Models Understanding Fabric Extenders</p> <p>Fabric Extender Options</p> <p>Connecting a Fabric Extender to a Parent Switch Fabric Extended Interfaces and Spanning Tree Protocol Fabric Interfaces Redundancy Fabric Extender Topologies</p> <p>Straight-Through Topologies Dual-Homed Topologies</p> <p>Use Case: Mixed Access Data Center</p> <p>A Tale of Two Data Centers</p> <p>A Brief History of Distributed Data Centers</p> <p>The Cold Age (Mid-1970s to 1980s) The Hot Age (1990s to Mid-2000s) The Active-Active Age (Mid-2000s to Today) The Case for Layer 2 Extensions Challenges of Layer 2 Extensions Ethernet Extensions over Optical Connections Virtual PortChannels</p> <p>FabricPath Ethernet Extensions over MPLS</p> <p>MPLS Basic Concepts Ethernet over MPLS</p> <p>Virtual Private LAN Service Ethernet Extensions over IP</p> <p>MPLS over GRE</p>	<p>12</p>	<p>CO3</p>

	<p>Overlay Transport Virtualization OTV Terminology OTV Basic Configuration</p> <p>OTV Loop Avoidance and Multihoming</p> <p>Migration to OTV OTV Site Designs</p> <p>VLAN Identifiers and Layer 2 Extensions</p> <p>Internal Routing in Connected Data Centers</p> <p>Use Case: Active-Active Greenfield Data Centers</p> <p>Summary</p> <p>Storage Evolution</p> <p>Data Center Storage Devices</p> <p>Hard Disk Drives Disk Arrays</p> <p>Tape Drives and Libraries Accessing Data in Rest Block-Based Access <i>Small Computer Systems Interface Mainframe Storage Access</i></p> <p>Advanced Technology Attachment</p> <p>File Access Network File System</p> <p>Common Internet File System Record Access</p> <p>Storage Virtualization Virtualizing Storage Devices</p> <p>Virtualizing LUNs Virtualizing File Systems Virtualizing SANs</p>		
IV	<p>Server Evolution</p> <p>Server Architectures Mainframes RISC Servers x86 Servers x86 Hardware Evolution</p> <p>CPU Evolution Memory Evolution Expansion Bus Evolution Physical Format Evolution</p> <p>Introducing x86 Server Virtualization</p> <p>Virtualization Unleashed Unified Computing</p> <p>Changing Personalities</p> <p>Server Provisioning Challenges</p> <p>Server Domain Operations Infrastructure Domain Operations Unified Computing and Service Profiles</p> <p>Building Service Profiles Identifying a Service Profile</p> <p>Storage Definitions Network Definitions</p> <p>Virtual Interface Placement Server Boot Order</p> <p>Maintenance Policy Server Assignment Operational Policies</p> <p>Configuration External IPMI Management Configuration Management IP Address</p> <p><i>Additional Policies</i> Associating a Service Profile to a Server Installing an Operating System Verifying Stateless Computing</p> <p>Using Policies BIOS Setting Policies</p> <p>Firmware Policies Industrializing Server Provisioning</p> <p>Cloning Pools</p> <p>Service Profile Templates Server Pools</p> <p>Use Case: Seasonal Workloads</p>	12	CO4
V	<p>Moving Targets</p> <p>Virtual Network Services Definitions</p> <p>Virtual Network Services Data Path</p> <p>vPath-Enabled Virtual Network Services</p>	12	CO5

	Cisco Virtual Security Gateway: Compute Virtual Firewall Installing Virtual Security Gateway Creating Security Policies, Sending Data Traffic to VSG Virtual Machine Attributes and Virtual Zones Application Acceleration, WAN Acceleration and Online Migration Routing in the Virtual World Site Selection and Server Virtualization Route Health Injection Global Server Load Balancing Location/ID Separation Protocol Use Case: Virtual Data Center The Virtual Data Center and Cloud Computing The Virtual Data Center Automation and Standardization What Is Cloud Computing? Cloud Implementation Example Journey to the Cloud Networking in the Clouds Software-Defined Networks Open Stack Network Overlays		
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Data Center Virtualization Fundamentals	Gustavo Alessandro Andrade Santana	Cisco Press	1 st	2014

M. Sc (Information Technology)		Semester – III	
Course Name: Data Centre Technologies Practical		Course Code: PSIT3P4c	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:
10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

- CO1:** Understand basic concepts in Virtualization.
- CO2:** Understand concepts of Load Balancing and Aggregation /virtual switching
- CO3:** Understand Data center Migration and Fabric Building
- CO4:** Understand various Changes in Server Architecture
- CO5:** Understand the concepts of Cloud computing and how to move towards a cloud computing technology.

PSIT304d: Offensive Security

M. Sc (Information Technology)		Semester – III	
Course Name: Offensive Security		Course Code: PSIT304d	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- Understanding of security requirements within an organization
- How to inspect, protect assets from technical and managerial perspectives
- To Learn various offensive strategies to penetrate the organizations security.
- To learn various tools that aid in offensive security testing.

Unit	Details	Lectures	Outcome
I	Fault Tolerance and Resilience in Cloud Computing Environments, Securing Web Applications, Services, and Servers, Wireless Network Security, Wireless Sensor Network Security: The Internet of Things, Security for the Internet of Things, Cellular Network Security	12	CO1
II	Social Engineering Deceptions and Defenses, What Is Vulnerability Assessment, Risk Management, Insider Threat, Disaster Recovery, Security Policies and Plans Development	12	CO2
III	Introduction to Metasploit and Supporting Tools The importance of penetration testing Vulnerability assessment versus penetration testing The need for a penetration testing framework Introduction to Metasploit When to use Metasploit? Making Metasploit effective and powerful using supplementary tools Nessus NMAP w3af Armitage Setting up Your Environment Using the Kali Linux virtual machine - the easiest way Installing Metasploit on Windows Installing Metasploit on Linux Setting up exploitable targets in a virtual environment Metasploit Components and Environment Configuration Anatomy and structure of Metasploit Metasploit components Auxiliaries Exploits Encoders Payloads Post, Playing around with msfconsole Variables in Metasploit Updating the Metasploit Framework 55	12	CO3

<p>IV</p>	<p>Information Gathering with Metasploit Information gathering and enumeration Transmission Control Protocol User Datagram Protocol File Transfer Protocol Server Message Block Hypertext Transfer Protocol Simple Mail Transfer Protocol Secure Shell Domain Name System Remote Desktop Protocol Password sniffing Advanced search with shodan Vulnerability Hunting with Metasploit Managing the database Work spaces Importing scans Backing up the database NMAP NMAP scanning approach Nessus Scanning using Nessus from msfconsole Vulnerability detection with Metasploit auxiliaries Auto exploitation with db_autopwn Post exploitation What is meterpreter? Searching for content Screen capture Keystroke logging Dumping the hashes and cracking with JTR Shell command Privilege escalation Client-side Attacks with Metasploit Need of client-side attacks What are client-side attacks? What is a Shellcode? What is a reverse shell? What is a bind shell? What is an encoder? The msfvenom utility Generating a payload with msfvenom Social Engineering with Metasploit Generating malicious PDF Creating infectious media drives</p>	<p>12</p>	<p>CO4</p>
<p>V</p>	<p>Approaching a Penetration Test Using Metasploit Organizing a penetration test Preinteractions Intelligence gathering/reconnaissance phase Predicting the test grounds Modeling threats Vulnerability analysis Exploitation and post-exploitation Reporting Mounting the environment Setting up Kali Linux in virtual environment The fundamentals of Metasploit Conducting a penetration test with Metasploit Recalling the basics of Metasploit Benefits of penetration testing using Metasploit Open source Support for testing large networks and easy naming conventions Smart payload generation and switching mechanism Cleaner exits The GUI environment</p>	<p>12</p>	<p>CO5</p>

	<p>Penetration testing an unknown network Assumptions Gathering intelligence Using databases in Metasploit Modeling threats Vulnerability analysis of VSFTPD backdoor The attack procedure The procedure of exploiting the vulnerability Exploitation and post exploitation Vulnerability analysis of PHP-CGI query string parameter vulnerability Exploitation and post exploitation Vulnerability analysis of HFS Exploitation and post exploitation Maintaining access Clearing tracks Revising the approach Reinventing Metasploit Ruby – the heart of Metasploit Creating your first Ruby program Interacting with the Ruby shell Defining methods in the shell Variables and data types in Ruby Working with strings Concatenating strings The substring function The split function Numbers and conversions in Ruby Conversions in Ruby Ranges in Ruby Arrays in Ruby Methods in Ruby Decision-making operators Loops in Ruby Regular expressions Wrapping up with Ruby basics Developing custom modules Building a module in a nutshell The architecture of the Metasploit framework Understanding the file structure The libraries layout Understanding the existing modules The format of a Metasploit module Disassembling existing HTTP server scanner module Libraries and the function Writing out a custom FTP scanner module Libraries and the function Using msftidy Writing out a custom SSH authentication brute forcer Rephrasing the equation Writing a drive disabler post exploitation module Writing a credential harvester post exploitation module Breakthrough meterpreter scripting Essentials of meterpreter scripting Pivoting the target network Setting up persistent access API calls and mixins Fabricating custom meterpreter scripts Working with RailGun Interactive Ruby shell basics Understanding RailGun and its scripting Manipulating Windows API calls Fabricating sophisticated RailGun scripts</p>		
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	<p>The Exploit Formulation Process</p> <p>The absolute basics of exploitation</p> <p>The basics The architecture System organization basics</p> <p>Registers</p> <p>Exploiting stack-based buffer overflows with Metasploit</p> <p>Crashing the vulnerable application</p> <p>Building the exploit base Calculating the offset Using the pattern_create tool</p> <p>Using the pattern_offset tool Finding the JMP ESP address Using Immunity Debugger to find executable modules</p> <p>Using msfbinscan Stuffing the space</p> <p>Relevance of NOPs Determining bad characters</p> <p>Determining space limitations</p> <p>Writing the Metasploit exploit module</p> <p>Exploiting SEH-based buffer overflows with Metasploit</p> <p>Building the exploit base Calculating the offset Using pattern_create tool Using pattern_offset tool <i>Table of Contents</i></p> <p>Finding the POP/POP/RET address</p> <p>The Mona script Using msfbinscan</p> <p>Writing the Metasploit SEH exploit module Using NASM shell for writing assembly instructions</p> <p>Bypassing DEP in Metasploit modules Using msfrop to find ROP gadgets Using Mona to create ROP chains</p> <p>Writing the Metasploit exploit module for DEP bypass</p>		
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Computer and Information Security Handbook	John R. Vacca	Morgan Kaufmann Publisher	3 rd	2017
2.	Metasploit Revealed: Secrets of the Expert Pentester	Sagar Rahalkar	Packt Publishing		2017

M. Sc (Information Technology)		Semester – III	
Course Name: Offensive Security Practical		Course Code: PSIT3P4d	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:
10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Understand basic security issues in cloud, IoT etc.

CO2: Understand different security techniques and policies

CO3: Use Vulnerability assessment and exploitation tool

CO4: Analyze the network perform reconnaissance and enumerate the target to detect vulnerabilities

CO5: Perform offensive tests using Metasploit on various application, generating payloads etc.

SEMESTER IV

PSIT401: Blockchain

M. Sc (Information Technology)		Semester – IV	
Course Name: Blockchain		Course Code: PSIT401	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To provide conceptual understanding of the function of Blockchain as a method of securing distributed ledgers, how consensus on their contents is achieved, and the new applications that they enable.
- To cover the technological underpinnings of blockchain operations as distributed data structures and decision-making systems, their functionality and different architecture types.
- To provide a critical evaluation of existing “smart contract” capabilities and platforms, and examine their future directions, opportunities, risks and challenges.

Unit	Details	Lectures	Outcome
I	<p>Blockchain: Introduction, History, Centralised versus Decentralised systems, Layers of blockchain, Importance of blockchain, Blockchain uses and use cases.</p> <p>Working of Blockchain: Blockchain foundation, Cryptography, Game Theory, Computer Science Engineering, Properties of blockchain solutions, blockchain transactions, distributed consensus mechanisms, Blockchain mechanisms, Scaling blockchain</p> <p>Working of Bitcoin: Money, Bitcoin, Bitcoin blockchain, bitcoin network, bitcoin scripts, Full Nodes and SVPs, Bitcoin wallets.</p>	12	CO1
II	<p>Ethereum: three parts of blockchain, Ether as currency and commodity, Building trustless systems, Smart contracts, Ethereum Virtual Machine, The Mist browser, Wallets as a Computing Metaphor, The Bank Teller Metaphor, Breaking with Banking History, How Encryption Leads to Trust, System Requirements, Using Parity with Geth, Anonymity in Cryptocurrency, Central Bank Network, Virtual Machines, EVM Applications, State Machines, Guts of the EVM, Blocks, Mining’s Place in the State Transition Function, Renting Time on the EVM, Gas, Working with Gas, Accounts, Transactions, and Messages, Transactions and Messages, Estimating Gas Fees for Operations, Opcodes in the EVM.</p>	12	CO2

	<p>Solidity Programming: Introduction, Global Banking Made Real, Complementary Currency, Programming the EVM, Design Rationale, Importance of Formal Proofs, Automated Proofs, Testing, Formatting Solidity Files, Reading Code, Statements and Expressions in Solidity, Value Types, Global Special Variables, Units, and Functions,</p>		
III	<p>Hyperledger: Overview, Fabric, composer, installing hyperledger fabric and composer, deploying, running the network, error troubleshooting.</p> <p>Smart Contracts and Tokens: EVM as Back End, Assets Backed by Anything, Cryptocurrency Is a Measure of Time, Function of Collectibles in Human Systems, Platforms for High-Value Digital Collectibles, Tokens as Category of Smart Contract, Creating a Token, Deploying the Contract, Playing with Contracts.</p>	12	CO3
IV	<p>Mining Ether: Why? Ether's Source, Defining Mining, Difficulty, Self-Regulation, and the Race for Profit, How Proof of Work Helps Regulate Block Time, DAG and Nonce, Faster Blocks, Stale Blocks, Difficulties, Ancestry of Blocks and Transactions, Ethereum and Bitcoin, Forking, Mining, Geth on Windows, Executing Commands in the EVM via the Geth Console, Launching Geth with Flags, Mining on the Testnet, GPU Mining Rigs, Mining on a Pool with Multiple GPUs.</p> <p>Cryptoeconomics: Introduction, Usefulness of cryptoeconomics, Speed of blocks, Ether Issuance scheme, Common Attack Scenarios.</p>	12	CO4
V	<p>Blockchain Application Development: Decentralized Applications, Blockchain Application Development, Interacting with the Bitcoin Blockchain, Interacting Programmatically with Ethereum—Sending Transactions, Creating a Smart Contract, Executing Smart Contract Functions, Public vs. Private Blockchains, Decentralized Application Architecture,</p> <p>Building an Ethereum DApp: The DApp, Setting Up a Private Ethereum Network, Creating the Smart Contract, Deploying the Smart Contract, Client Application,</p> <p>DApp deployment: Seven Ways to Think About Smart Contracts, Dapp Contract Data Models, EVM back-end and front-end communication, JSON-RPC, Web 3, JavaScript API, Using Meteor with the EVM, Executing Contracts in the Console, Recommendations for Prototyping, Third-Party Deployment Libraries, Creating Private Chains.</p>	12	CO5

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Beginning Blockchain A Beginner's Guide to Building Blockchain Solutions	Bikramaditya Singhal, Gautam Dhameja, Priyansu Sekhar Panda	Apress		2018
2.	Introducing Ethereum and Solidity	Chris Dannen	Apress		2017
3.	The Blockchain Developer	Elad Elrom	Apress		2019
4.	Mastering Ethereum	Andreas M. Antonopoulos Dr. Gavin Wood	O'Reilly	First	2018
5.	Blockchain Enabled Applications	Vikram Dhillon David Metcalf Max Hooper	Apress		2017

M. Sc (Information Technology)		Semester – III	
Course Name: Blockchain		Course Code: PSIT	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:

10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: The students would understand the structure of a blockchain and why/when it is better than a simple distributed database.

CO2: Analyze the incentive structure in a blockchain based system and critically assess its functions, benefits and vulnerabilities

CO3: Evaluate the setting where a blockchain based structure may be applied, its potential and its limitations

CO4: Understand what constitutes a “smart” contract, what are its legal implications and what it can and cannot do, now and in the near future

CO5: Develop blockchain DApps.

PSIT402a: Natural Language Processing

M. Sc (Information Technology)		Semester – IV	
Course Name: Natural Language Processing		Course Code: PSIT402a	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- The prime objective of this course is to introduce the students to the field of Language Computing and its applications ranging from classical era to modern context.
- To provide understanding of various NLP tasks and NLP abstractions such as Morphological analysis, POS tagging, concept of syntactic parsing, semantic analysis etc.
- To provide knowledge of different approaches/algorithms for carrying out NLP tasks.
- To highlight the concepts of Language grammar and grammar representation in Computational Linguistics.

Unit	Details	Lectures	Outcome
I	Introduction to NLP, brief history, NLP applications: Speech to Text(STT), Text to Speech(TTS), Story Understanding, NL Generation, QA system, Machine Translation, Text Summarization, Text classification, Sentiment Analysis, Grammar/Spell Checkers etc., challenges/Open Problems, NLP abstraction levels, Natural Language (NL) Characteristics and NL computing approaches/techniques and steps, NL tasks: Segmentation, Chunking, tagging, NER, Parsing, Word Sense Disambiguation, NL Generation, Web 2.0 Applications : Sentiment Analysis; Text Entailment; Cross Lingual Information Retrieval (CLIR).	12	CO1
II	Text Processing Challenges, Overview of Language Scripts and their representation on Machines using Character Sets, Language, Corpus and Application Dependence issues, Segmentation: word level(Tokenization), Sentence level. Regular Expression and Automata Morphology, Types, Survey of English and Indian Languages Morphology, Morphological parsing FSA and FST, Porter stemmer, Rule based and Paradigm based Morphology, Human Morphological Processing, Machine Learning approaches.	12	CO2
III	Word Classes and Part-of-Speech tagging(POS), survey of POS tagsets, Rule based approaches (ENGTOWL), Stochastic approaches(Probabilistic, N-gram and HMM), TBL morphology, unknown word handling,	12	CO3

	evaluation metrics: Precision/Recall/F-measure, error analysis.		
IV	NL parsing basics, approaches: TopDown, BottomUp, Overview of Grammar Formalisms: constituency and dependency school, Grammar notations CFG, LFG, PCFG, LTAG, Feature- Unification, overview of English CFG, Indian Language Parsing in Paninian Karaka Theory, CFG parsing using Earley's and CYK algorithms, Probabilistic parsing, Dependency Parsing: Covington algorithm, MALT parser, MST parser.	12	CO4
V	Concepts and issues in NL, Theories and approaches for Semantic Analysis, Meaning Representation, word similarity, Lexical Semantics, word senses and relationships, WordNet (English and IndoWordnet), Word Sense Disambiguation: Lesk Algorithm Walker's algorithm, Coreferences Resolution:Anaphora, Cataphora.	12	CO5

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Handbook of Natural Language Processing	Indurkha, N., & Damerau, F. J.	CRC Press Taylor and Francis Group	2 nd	2010
2.	Speech and Language Processing	Martin, J. H., & Jurafsky, D.	Pearson Education India	2 nd	2013
3.	Foundations of Statistical Natural Language Processing	Manning, Christopher and Heinrich, Schutze	MIT Press	1 st	1997
4.	Natural Language Processing With Python	Steven Bird, Edward Loper	O'Reilly Media	2 nd	2016
5.	Video Links 1. http://www.nptelvideos.in/2012/11/natural-language-processing.html				

M. Sc (Information Technology)		Semester – IV	
Course Name: Natural Language Processing Practical		Course Code: PSIT4P2a	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:
10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Students will get idea about know-hows, issues and challenge in Natural Language Processing and NLP applications and their relevance in the classical and modern context.

CO2: Student will get understanding of Computational techniques and approaches for solving NLP problems and develop modules for NLP tasks and tools such as Morph Analyzer, POS tagger, Chunker, Parser, WSD tool etc.

CO3: Students will also be introduced to various grammar formalisms, which they can apply in different fields of study.

CO4: Students can take up project work or work in R&D firms working in NLP and its allied areas.

CO5: Student will be able to understand applications in different sectors

PSIT402b: Digital Image Forensics

M. Sc (Information Technology)		Semester – IV	
Course Name: Digital Image Forensics		Course Code: PSIT402b	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To understand describe the origin of computer forensics and the relationship between law enforcement and industry.
- Describe electronic evidence and the computing investigation process.
- Extracting Digital Evidence from Images and establishing them in court of Law.
- Enhancing images for investigation and various techniques to enhance images.
- Interpret and present Evidences in Court of Law.

Unit	Details	Lectures	Outcome
I	History of Forensic Digital Enhancement, Establishing Integrity of Digital Images for Court,	12	CO1
II	Digital Still and Video Cameras, Color Modes and Channel Blending to Extract Detail	12	CO2
III	Multiple Image Techniques, Fast Fourier Transform (FFT) – Background Pattern Removal.	12	CO3
IV	Contrast Adjustment Techniques, Advanced Processing Techniques, Comparison and Measurement	12	CO4
V	The Approach – Developing Enhancement Strategies for Images Intended for Analysis, Digital Imaging in the Courts, Interpreting and Presenting Evidence	12	CO5

Books and References:

Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Forensic Digital Image Processing: Optimization of Impression Evidence	Brian Dalrymple, Jill Smith	CRC Press		2018
2.	Forensic Uses of Digital Imaging	John C. Russ, Jens Rindel, P. Lord	Taylor & Francis Group	2 nd	2016

M. Sc (Information Technology)		Semester – III	
Course Name: Digital Image Forensics Practical		Course Code: PSIT4P2b	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:

10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Understand the basics of image forensics and techniques to establish their integrity

CO2: Understand different techniques for extracting detail from images.

CO3: Understand and apply various advanced techniques in image processing and to compare and measure various parameters associated with them

CO4: Apply various enhancement strategies for digital images

CO5: Prepare the evidence to be acceptable in the court of law.

PSIT402c: Advanced IoT

M. Sc (Information Technology)		Semester – IV	
Course Name: Advanced IoT		Course Code: PSIT402c	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To understand the latest developments in IoT
- To build smart IoT applications
- To leverage the applications of IoT in different technologies
- To build own IoT platform

Unit	Details	Lectures	Outcome
I	The Artificial Intelligence 2.0, IoT and Azure IoT Suite, Creating Smart IoT Application	12	CO1
II	Cognitive APIs, Consuming Microsoft Cognitive APIs, Building Smarter Application using Cognitive APIs.	12	CO2
III	Implementing Blockchain as a service, Capturing, Analysing and Visualizing real-time data, Making prediction with machine learning.	12	CO3
IV	IoT and Microservices, Service Fabric, Build your own IoT platform: Introduction, Building blocks for IoT solution, Essentials for building your own platform, Platform requirements, building the platform by initializing cloud instance, installing basic software stacks, securing instance and software, installing node.js and Node-RED, Message broker.	12	CO4
V	Building Critical components, configuring message broker, creating REST interface, Rule engine and authentication, documentation and testing, Introspection on what we build and deliverables.	12	CO5

Books and References:

Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	IoT, AI, and Blockchain for .NET- Building a Next-Generation Application from the Ground Up	Nishith Pathak Anurag Bhandari	Apress	--	2018
2.	Microservices, IoT and Azure	Bob Familiar	Apress	--	2015
3.	Build your own IoT Platform	Anand Tamboli	Apress	--	2019

4.	Internet of Things Architectures, Protocols and Standards	Simone Cirani Gianluigi Ferrari Marco Picone Luca Veltri	Wiley	1	2019
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M. Sc (Information Technology)		Semester – IV	
Course Name: Advanced IoT Practical		Course Code: PSIT4P2c	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:

10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Build smart IoT applications on Azure.

CO2: Use Microsoft cognitive APIs to build IoT applications.

CO3: Implement Blockchain in IoT.

CO4: Install and use microservices in IoT.

CO5: Build own IoT platform and use it in a customised way.

PSIT402d: Cyber Forensics

M. Sc (Information Technology)		Semester – IV	
Course Name: Cyber Forensics		Course Code: PSIT402d	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- Explain laws relevant to computer forensics
- Seize digital evidence from pc systems
- Recover data to be used as evidence
- Analyse data and reconstruct events
- Explain how data may be concealed or hidden

Unit	Details	Lectures	Outcome
I	Computer Forensics: The present Scenario, The Investigation Process, Computers – Searching and Seizing, Electronic Evidence, Procedures to be followed by the first responder.	12	CO1
II	Setting up a lab for Computer Forensics, Hard Disks and File Systems, Forensics on Windows Machine, Acquire and Duplicate Data	12	CO2
III	Recovery of deleted files and partitions, Using Access Data FTK and Encase for forensics Investigation, Forensic analysis of Steganography and Image files, Cracking Application passwords.	12	CO3
IV	Capturing logs and correlating to the events, Network Forensics – Investigating logs and Network traffic, Investigating Wireless and Web Attacks.	12	CO4
V	Email Tracking and Email Crime investigation. Mobile Forensics, Reports of Investigation, Become an expert witness.	12	CO5

Books and References:

Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	EC-Council CHFIv10 Study Guide	--	EC-Council	--	2018
2.	The official CHFI Exam 312-49 study Guide	Dave Kleiman	SYNGRESS	--	2007
3.	Digital Forensics and Incident Response	Gerard Johansen	Packt Publishing	--	2020
4.	Practical Cyber Forensics	Niranjan Reddy	Apress	--	2019

M. Sc (Information Technology)		Semester – IV	
Course Name: Cyber Forensics Practical		Course Code: PSIT4P2d	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:

10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Investigate the cyber forensics with standard operating procedures.

CO2: Recover the data from the hard disk with legal procedure.

CO3: To recover and analyse the data using forensics tool

CO4: Acquire the knowledge of network analysis and use it for analysing the internet attacks.

CO5: Able to investigate internet frauds done through various gadgets like mobile, laptops, tablets and become a forensic investigator.

PSIT403a: Deep Learning

M. Sc (Information Technology)		Semester – IV	
Course Name: Deep Learning		Course Code: PSIT403a	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To present the mathematical, statistical and computational challenges of building neural networks
- To study the concepts of deep learning
- To enable the students to know deep learning techniques to support real-time applications

Unit	Details	Lectures	Outcome
I	Applied Math and Machine Learning Basics: Linear Algebra: Scalars, Vectors, Matrices and Tensors , Multiplying Matrices and Vectors , Identity and Inverse Matrices, Linear Dependence and Span , norms, special matrices and vectors, eigen decompositions. Numerical Computation: Overflow and under flow, poor conditioning, Gradient Based Optimization, Constraint optimization.	12	CO1
II	Deep Networks: Deep feedforward network , regularization for deep learning , Optimization for Training deep models	12	CO2
III	Convolutional Networks, Sequence Modelling, Applications	12	CO3
IV	Deep Learning Research: Linear Factor Models, Autoencoders, representation learning	12	CO4
V	Approximate Inference, Deep Generative Models	12	CO5

Books and References:

Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Deep Learning	Ian Goodfellow, Yoshua Bengio, Aaron Courville	An MIT Press book	1st	2016
2.	Fundamentals of Deep Learning	Nikhil Buduma	O'Reilly	1st	2017
3.	Deep Learning: Methods and Applications	Deng & Yu	Now Publishers	1st	2013
4.	Deep Learning CookBook	Douwe Osinga	O'Reilly	1st	2017

M. Sc (Information Technology)		Semester – IV	
Course Name: Deep Learning Practical		Course Code: PSIT4P3a	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:

10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Describes basics of mathematical foundation that will help the learner to understand the concepts of Deep Learning.

CO2: Understand and describe model of deep learning

CO3: Design and implement various deep supervised learning architectures for text & image data.

CO4: Design and implement various deep learning models and architectures.

CO5: Apply various deep learning techniques to design efficient algorithms for real-world applications.

PSIT403b: Remote Sensing

M. Sc (Information Technology)		Semester – IV	
Course Name: Remote Sensing Practical		Course Code: PSIT403b	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- Attain a foundational knowledge and comprehension of the physical, computational, and perceptual basis for remote sensing.
- Gain familiarity with a variety of physical, biological, and human geographic applications of remote sensing.
- Gain basic experience in the hands-on application of remote sensing data through visual interpretation and digital image processing exercises.
- Analyze and synthesize understanding by identifying and developing a research and application proposal using remote sensing.

Unit	Details	Lectures	Outcome
I	Remote Sensing: Basic Principles Introduction, Electromagnetic Radiation and Its Properties, Terminology, Nature of Electromagnetic Radiation, The Electromagnetic Spectrum, Sources of Electromagnetic Radiation, Interactions with the Earth's Atmosphere, Interaction with Earth-Surface Materials, Spectral Reflectance of Earth Surface Materials Remote Sensing Platforms and Sensors Introduction, Characteristics of Imaging Remote Sensing Instruments, Spatial Resolution, Spectral Resolution, Radiometric Resolution, Optical, Near-infrared and Thermal Imaging Sensors, Along-Track Scanning Radiometer (ATSR), Advanced Very High Resolution Radiometer (AVHRR) and NPOESS VIIRS, MODIS, Ocean Observing Instruments, IRS LISS, Landsat Instruments, SPOT Sensors, Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER), High-Resolution Commercial and Small Satellite Systems, Microwave Imaging Sensors, European Space Agency Synthetic Aperture Spaceborne Radars, Radarsat, TerraSAR-X and COSMO/Skymed, ALOS PALSAR	12	CO1
II	Hardware and Software Aspects of Digital Image Processing Introduction, Properties of Digital Remote Sensing Data, Digital Data, Data Formats, System Processing,	12	CO2

	<p>Numerical Analysis and Software Accuracy, Some Remarks on Statistics, Preprocessing of Remotely-Sensed Data Introduction, Cosmetic Operations, Missing Scan Lines, Destriping Methods, Geometric Correction and Registration, Orbital Geometry Model, Transformation Based on Ground Control Points, Resampling Procedures, Image Registration, Other Geometric Correction Methods, Atmospheric Correction, Background, Image-Based Methods, Radiative Transfer Models, Empirical Line Method, Illumination and View Angle Effects, Sensor Calibration, Terrain Effects</p>		
III	<p>Image Enhancement Techniques Introduction, Human Visual System, Contrast Enhancement, Linear Contrast Stretch, Histogram Equalization, Gaussian Stretch, Pseudocolour Enhancement, Density Slicing, Pseudocolour Transform, Image Transforms Introduction, Arithmetic Operations, Image Addition, Image Subtraction, Image Multiplication, Image Division and Vegetation Indices, Empirically Based Image Transforms, Perpendicular Vegetation Index, Tasselled Cap (Kauth–Thomas) Transformation, Principal Components Analysis, Standard Principal Components Analysis, Noise-Adjusted PCA, Decorrelation Stretch, Hue-Saturation-Intensity (HSI) Transform, The Discrete Fourier Transform, Two-Dimensional Fourier Transform, Applications of the Fourier Transform, The Discrete Wavelet Transform, The One-Dimensional Discrete Wavelet Transform, The Two-Dimensional Discrete Wavelet Transform, Change Detection, Introduction, NDVI Difference Image, PCA, Canonical Correlation Change Analysis, Image Fusion, HSI Algorithm, PCA, Gram-Schmidt Orthogonalization, Wavelet-Based Methods, Evaluation – Subjective Methods, Evaluation – Objective Methods</p>	12	CO3
IV	<p>Filtering Techniques Spatial Domain Low-Pass (Smoothing) Filters, Moving Average Filter, Median Filter, Adaptive Filters, Spatial Domain High-Pass (Sharpening) Filters, Image Subtraction Method, Derivative-Based Methods, Spatial Domain Edge Detectors, Frequency Domain Filters Classification : Geometrical Basis of Classification, Unsupervised Classification, The <i>k</i>-Means Algorithm, ISODATA, A Modified <i>k</i>-Means Algorithm, Supervised Classification, Training Samples, Statistical Classifiers, Neural Classifiers, Subpixel Classification Techniques, The Linear Mixture Model, Spectral Angle Mapping, ICA, Fuzzy Classifiers, More Advanced Approaches to</p>	12	CO4

	<p>Image Classification, Support Vector Machines , Decision Trees , Other Methods of Classification, Incorporation of Non-spectral Features, Texture, Use of External Data, Contextual Information, Feature Selection, Classification Accuracy</p> <p>Advanced Topics</p> <p>Introduction, SAR Interferometry, Basic Principles, Interferometric Processing, Problems in SAR Interferometry, Applications of SAR Interferometry, Imaging Spectroscopy, Processing Imaging Spectroscopy Data, Lidar, Lidar Details, Lidar Applications</p>		
V	<p>Environmental Geographical Information Systems: A Remote Sensing Perspective, Definitions, The Synergy between Remote Sensing and GIS, Data Models, Data Structures and File Formats, Spatial Data Models, Data Structures, File Formats, Raster to Vector and Vector to Raster Conversion, Geodata Processing, Buffering, Overlay, Locational Analysis, Slope and Aspect, Proximity Analysis, Contiguity and Connectivity, Spatial Analysis, Point Patterns and Interpolation.</p> <p>Relating Field and Remotely-Sensed Measurements: Statistical Analysis, Exploratory Data Analysis and Data Mining, Environmental Modelling, Visualization, Multicriteria Decision Analysis of Groundwater Recharge Zones, Data Characteristics, Multicriteria Decision Analysis, Evaluation, Assessing Flash Flood Hazards by Classifying Wadi Deposits in Arid Environments, Water Resources in Arid Lands, Case Study from the Sinai Peninsula, Egypt, Optical and Microwave Data Fusion, Classification of Wadi Deposits, Correlation of Classification Results with Geology and Terrain Data, Remote Sensing and GIS in Archaeological Studies, Introduction, Homul (Guatemala) Case Study, Aksum (Ethiopia) Case Study</p>	12	CO5

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Computer Processing of Remotely-Sensed Images: An Introduction	Paul M. Mather, Magaly Koch	Wiley-Blackwell	4 th	2011
2.	Remote Sensing for Geoscientists Image Analysis and Integration	Gary L. Prost	CRC Press	3 rd	2014
3.	Remote Sensing: Models and Methods for Image Processing	Robert A. Schowengerdt	Elsevier	3 rd	2007

4.	Introductory Digital Image Processing: A Remote Sensing Perspective	John R. Jensen	Pearson		2015
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M. Sc (Information Technology)		Semester – IV	
Course Name: Remote Sensing Practical		Course Code: PSIT4P3b	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:

10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Understand the basics of remote sensing and its various applications

CO2: Understand the Hardware and Software aspects of Digital Image Processing and demonstrate various techniques in pre-processing data

CO3: Demonstrate various image enhancement and transformation techniques.

CO4: Understand and Demonstrate various filtering, classification techniques along with advanced functionalities.

CO5: Perform comparison of Field and Remotely sensed measurements using various techniques.

PSIT403c: Server Virtualization on VMWare Platform

M. Sc (Information Technology)		Semester – IV	
Course Name: Server Virtualization on VMWare Platform		Course Code: PSIT403c	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- Identify the need for Server Virtualization
- Describe the components and features of vSphere 6.7 and ESXi
- Describe how VMware's products help solve business and technical challenges with regard to Server Virtualization

Unit	Details	Lectures	Outcome
I	<p>Introducing VMware vSphere 6.7: Exploring VMware vSphere 6.7, Examining the Products in the vSphere Suite, Examining the Features in VMware vSphere, Licensing VMware vSphere, Why Choose vSphere?</p> <p>Planning and Installing VMware ESXi: VMware ESXi Architecture, Understanding the ESXi Hypervisor, Examining the ESXi Components, Planning a VMware vSphere Deployment, Choosing a Server Platform, Determining a Storage Architecture, Integrating with the Network Infrastructure, Deploying VMware ESXi, Installing VMware ESXi Interactively, Performing an Unattended Installation of VMware ESXi, Deploying VMware ESXi with vSphere Auto Deploy, Performing Post-installation Configuration, Reconfiguring the Management Network, Using the vSphere Host Client, Configuring Time Synchronization, Configuring Name Resolution,</p> <p>Installing and Configuring vCenter Server: Introducing vCenter Server, Centralizing User Authentication Using vCenter Single Sign-On, Understanding the Platform Services Controller, Using the vSphere Web Client for Administration, Providing an Extensible Framework, Choosing the Version of vCenter Server, Planning and Designing a vCenter Server Deployment, Sizing Hardware for vCenter Server, Planning for vCenter Server Availability, Running vCenter Server and Its Components as VMs, Installing vCenter Server and Its Components, Installing vCenter Server in an Enhanced Linked Mode Group, Exploring vCenter Server, The vSphere Web Client Home Screen,</p>	12	CO1

	<p>Using the Navigator, Creating and Managing a vCenter Server Inventory, Understanding Inventory Views and Objects, Creating and Adding Inventory Objects, Exploring vCenter Server's Management Features, Understanding Basic Host Management, Examining Basic Host Configuration, Using Scheduled Tasks, Using the Events and Events Consoles in vCenter Server, Working with Host Profiles, Tags and Custom Attributes, Managing vCenter Server Settings, General vCenter Server Settings, Licensing, Message of the Day, Advanced Settings, Auto Deploy, vCenter HA, Key Management Servers, Storage Providers, vSphere Web Client Administration, Roles, Licensing, vCenter Solutions Manager, System Configuration, VMware Appliance Management Administration, Summary, Monitor, Access, Networking, Time, Services, Update, Administration, Syslog, Backup.</p>		
II	<p>vSphere Update Manager and the vCenter Support Tools: vSphere Update Manager, vSphere Update Manager and the vCenter Server Appliance, Installing the Update Manager Download Service, The vSphere Update Manager Plug-in Contents, Reconfiguring the VUM or UMDS, Installation with the Update Manager Utility, Upgrading VUM from a Previous Version, Configuring vSphere Update Manager, Creating Baselines Routine Updates, Attaching and Detaching Baselines or Baseline Groups, Performing a Scan, Staging Patches, Remediating Hosts, Upgrading VMware Tools, Upgrading Host Extensions, Upgrading Hosts with vSphere Update Manager, Importing an ESXi Image and Creating the Host Upgrade Baseline, Upgrading a Host, Upgrading VM Hardware, Performing an Orchestrated Upgrade, Investigating Alternative Update Options, Using vSphere Update Manager PowerCLI, Upgrading and Patching without vSphere Update Manager, vSphere Auto Deploy, Deploying Hosts with Auto Deploy, vCenter Support Tools, ESXi Dump Collector, Other vCenter Support Tools. Creating and Configuring a vSphere Network: Putting Together a vSphere Network, Working with vSphere Standard Switches, Comparing Virtual Switches and Physical Switches, Understanding Ports and Port Groups, Understanding Uplinks, Configuring the Management Network, Configuring VMkernel Networking, Enabling Enhanced Multicast Functions, Configuring TCP/IP Stacks, Configuring Virtual Machine Networking, Configuring VLANs, Configuring NIC Teaming, Using and Configuring Traffic Shaping, Bringing It All Together, Working with vSphere Distributed Switches,</p>	12	CO2

	<p>Creating a vSphere Distributed Switch, Removing an ESXi Host from a Distributed Switch, Removing a Distributed Switch, Managing Distributed Switches, Working with Distributed Port Groups, Managing VMkernel Adapters, Using NetFlow on vSphere Distributed Switches, Enabling Switch Discovery Protocols, Enabling Enhanced Multicast Functions, Setting Up Private VLANs, Configuring LACP, Configuring Virtual Switch Security, Understanding and Using Promiscuous Mode, Allowing MAC Address Changes and Forged Transmits.</p>		
III	<p>Creating and Configuring Storage Devices: Reviewing the Importance of Storage Design, Examining Shared Storage Fundamentals, Comparing Local Storage with Shared Storage, Defining Common Storage Array Architectures, Explaining RAID, Understanding vSAN, Understanding Midrange and External Enterprise Storage Array Design, Choosing a Storage Protocol, Making Basic Storage Choices, Implementing vSphere Storage Fundamentals, Reviewing Core vSphere Storage Concepts, Understanding Virtual Volumes, SCs vs LUNs, Storage Policies, Virtual Volumes, Working with VMFS Datastores, Working with Raw Device Mappings, Working with NFS Datastores, Working with vSAN, Working with Virtual Machine–Level Storage, Configuration, Leveraging SAN and NAS Best Practices</p> <p>Ensuring High Availability and Business Continuity: Understanding the Layers of High Availability, Clustering VMs, Introducing Network Load Balancing Clustering, Introducing Windows Server Failover Clustering, Implementing vSphere High Availability, Understanding vSphere High Availability Clusters. Understanding vSphere High Availability’s Core Components, Enabling vSphere HA, Configuring vSphere High Availability, Configuring vSphere HA Groups, Rules, Overrides, and Orchestrated VM Restart, Managing vSphere High Availability, Introducing vSphere SMP Fault Tolerance, Using vSphere SMP Fault Tolerance with vSphere High Availability, Examining vSphere Fault Tolerance, Use Cases, Planning for Business Continuity, Providing Data Protection, Recovering from Disasters, Using vSphere Replication. Securing VMware vSphere: Overview of vSphere Security, Securing ESXi Hosts, Working with ESXi Authentication, Controlling Access to ESXi Hosts, Keeping ESXi Hosts Patched, Managing ESXi Host Permissions, Configuring ESXi Host Logging, Securing the ESXi Boot Process, Reviewing Other ESXi Security Recommendations, Securing vCenter Server,</p>	12	CO3

	<p>Managing vSphere Certificates, Working with Certificate Stores, Getting Started with Certificate Management, Authenticating Users with Single Sign-On, Understanding the vpxuser Account, Managing vCenter Server Permissions, Configuring vCenter Server Appliance Logging, Securing Virtual Machines, Configuring a Key Management Server for VM and VSAN Encryption, Virtual Trusted Platform Module, Configuring Network Security Policies, Keeping VMs Patched.</p>		
IV	<p>Creating and Managing Virtual Machines: Understanding Virtual Machines, Examining Virtual Machines from the Inside, Examining Virtual Machines from the Outside, Creating a Virtual Machine, Choosing Values for Your New Virtual Machine, Sizing Virtual Machines, Naming Virtual Machines, Sizing Virtual Machine Hard Disks, Virtual Machine Graphics, Installing a Guest Operating System, Working with Installation Media, Using the Installation Media, Working in the Virtual Machine Console, Installing VMware Tools, Installing VMware Tools in Windows, Installing VMware Tools in Linux, Managing Virtual Machines, Adding or Registering Existing VMs, Changing VM Power States, Removing VMs, Deleting VMs, Modifying Virtual Machines, Changing Virtual Machine Hardware, Using Virtual Machine Snapshots.</p> <p>Using Templates and vApps: Cloning VMs, Creating a Customization Specification, Cloning a Virtual Machine, Introducing vSphere Instant Cloning, Creating Templates and Deploying Virtual Machines, Cloning a Virtual Machine to a Template, Deploying a Virtual Machine from a Template, Using OVF Templates, Deploying a VM from an OVF Template, Exporting a VM as an OVF Template, Examining OVF Templates, Using Content Libraries, Content Library Data and Storage, Content Library Synchronization, Creating and Publishing a Content Library, Subscribing to a Content Library, Operating Content Libraries, Working with vApps, Creating a vApp, Editing a vApp, Changing a vApp's Power State, Cloning a vApp, Importing Machines from Other Environments, Managing Resource Allocation: Reviewing Virtual Machine, Resource Allocation, Working with Virtual Machine Memory, Understanding ESXi Advanced Memory Technologies, Controlling Memory Allocation, Managing Virtual Machine CPU Utilization, Default CPU Allocation, Setting CPU Affinity, Using CPU Reservations, Using CPU Limits, Using CPU Shares, Summarizing How Reservations, Limits, and Shares Work with CPUs, Using Resource Pools, Configuring</p>	12	CO4

	Resource Pools, Understanding Resource Allocation with Resource Pools, Regulating Network I/O Utilization, Controlling Storage I/O Utilization, Enabling Storage I/O Control, Configuring Storage Resource Settings for a Virtual Machine, Using Flash Storage.		
V	<p>Balancing Resource Utilization: Comparing Utilization with Allocation, Exploring vMotion, Examining vMotion Requirements, Performing a vMotion Migration Within a Cluster, Ensuring vMotion Compatibility, Using Per-Virtual-Machine CPU Masking, Using Enhanced vMotion Compatibility, Using Storage vMotion, Combining vMotion with Storage vMotion, Cross-vCenter vMotion, Examining Cross-vCenter vMotion Requirements, Performing a Cross-vCenter Motion, Exploring vSphere Distributed Resource Scheduler, Understanding Manual Automation Behavior, Reviewing Partially Automated Behavior, Examining Fully Automated Behavior, Working with Distributed Resource Scheduler Rules, Working with Storage DRS, Creating and Working with Datastore Clusters, Configuring Storage DRS.</p> <p>Monitoring VMware vSphere Performance: Overview of Performance Monitoring, Using Alarms Understanding Alarm Scopes, Creating Alarms, Managing Alarms, Working with Performance Charts, Overview Layout, Advanced Layout, Working with <i>esxtop</i>, Monitoring CPU Usage, Monitoring Memory Usage, Monitoring Network Usage, Monitoring Disk Usage.</p> <p>Automating VMware vSphere: Why Use Automation? vSphere Automation Automating with PowerCLI, PowerShell and PowerCLI, What's New in PowerCLI, Installing and Configuring PowerCLI on Windows, Installing and Configuring PowerCLI on macOS, Installing and Configuring PowerCLI on Linux, Additional PowerCLI Capabilities Getting Started with PowerCLI, Building PowerCLI Scripts, PowerCLI Advanced Capabilities, Additional Resources.</p>	12	CO5

Books and References:					
Sr No	Title	Author/s	Publisher	Edition	Year
1.	Mastering VMware vSphere 67	Nick Marshall, Mike Brown, G Blair Fritz, Ryan Johnson	Sybex, Wiley	--	2019
2.	Mastering VMware vSphere 67	Martin Gavanda, Andrea Mauro, Paolo Valsecchi, Karel Novak	Packt	--	2019

M Sc (Information Technology)		Semester – IV	
Course Name: Server Virtualization on VMWare Platform Practical		Course Code: PSIT4P3c	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical:

10 practicals covering the entire syllabus must be performed The detailed list of practical will be circulated later in the official workshop

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Understand VMWare VSphere 67, Install ESXi and Configure VSphere Centre

CO2: Demonstrate the use of VSphere Update Manager and Create a VSphere Network

CO3: Understand VSphere Security, Create and configure storage devices and Perform configurations to ensure business continuity

CO4: Demonstrate Resource allocation, Creating and managing virtual machine and the use of templates

CO5: Understand automation of vSphere and manage resource allocation

PSIT403d: Security Operations Centre

M. Sc (Information Technology)		Semester – IV	
Course Name: Security Operations Centre		Course Code: PSIT403d	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- The SOC (Security Operations Centre) allows an organization to enforce and test its security policies, processes, procedures and activities through one central platform that monitors and evaluates the effectiveness of the individual elements and the overall security system of the organization.
- This will also allow the learners to configure various use cases and detect various attacks across the network and report them in real time and also take appropriate actions.
- This course will cover the design, deployment and operation of the SOC.
- Once this course is completed, students will have the skills to perform your SOC responsibilities effectively.

Unit	Details	Lectures	Outcome
I	Introduction to Security Operations Management Foundation Topics Introduction to Identity and Access Management Phases of the Identity and Access Lifecycle Registration and Identity Validation Privileges Provisioning Access Review Access Revocation Password Management Password Creation Password Storage and Transmission Password Reset Password Synchronization Directory Management Single Sign-On Kerberos Federated SSO Security Assertion Markup Language OAuth OpenID Connect Security Events and Logs Management Logs Collection, Analysis, and Disposal Syslog Security Information and Event Manager Assets Management Assets Inventory Assets Ownership Assets Acceptable Use and Return Policies Assets Classification Assets Labeling Assets and Information Handling Media Management Introduction to Enterprise Mobility Management Mobile Device Management Configuration and Change Management Configuration Management Change Management Vulnerability Management	12	CO1

	<p>Vulnerability Identification Finding Information about a Vulnerability Vulnerability Scan Penetration Assessment</p> <p>Product Vulnerability Management</p> <p>Vulnerability Analysis and Prioritization</p> <p>Vulnerability Remediation Patch Management</p> <p>References and Additional Readings</p> <p>Fundamentals of Cryptography and Public Key Infrastructure (PKI)</p> <p>Cryptography Ciphers and Keys</p> <p>Ciphers Keys Block and Stream Ciphers</p> <p>Symmetric and Asymmetric Algorithms</p> <p>Symmetric Algorithms Asymmetric Algorithms Hashes</p> <p>Hashed Message Authentication Code Digital Signatures</p> <p>Digital Signatures in Action Key Management</p> <p>Next-Generation Encryption Protocols</p> <p>IPsec and SSL IPsec SSL Fundamentals of PKI Public and Private Key Pairs RSA Algorithm, the Keys, and Digital Certificates</p> <p>Certificate Authorities Root and Identity Certificates</p> <p>Root Certificate Identity Certificate X.500 and X.509v3 Certificates</p> <p>Authenticating and Enrolling with the CA</p> <p>Public Key Cryptography Standards</p> <p>Simple Certificate Enrollment Protocol</p> <p>Revoking Digital Certificates Using Digital Certificates</p> <p>PKI Topologies Single Root CA</p> <p>Hierarchical CA with Subordinate CAs</p> <p>Cross-certifying CAs Exam Preparation Tasks</p> <p>Review All Key Topics Complete Tables and Lists from Memory</p> <p>Introduction to Virtual Private Networks (VPNs)</p> <p>What Are VPNs? Site-to-site vs. Remote-Access VPNs</p> <p>An Overview of IPsec IKEv1 Phase 1 IKEv1 Phase 2 IKEv2 SSL VPNs</p> <p>SSL VPN Design Considerations User Connectivity</p> <p>VPN Device Feature Set</p> <p>Infrastructure Planning Implementation Scope</p>		
<p>II</p>	<p>Windows-Based Analysis</p> <p>Process and Threads Memory Allocation</p> <p>Windows Registration Windows Management</p> <p>Instrumentation Handles Services</p> <p>Windows Event Logs Exam Preparation Tasks</p> <p>Linux- and Mac OS X-Based Analysis</p> <p>Processes Forks Permissions Symlinks</p> <p>Daemons UNIX-Based Syslog</p> <p>Apache Access Logs</p> <p>Endpoint Security Technologies</p> <p>Antimalware and Antivirus Software</p>	<p>12</p>	<p>CO2</p>

	Host-Based Firewalls and Host-Based Intrusion Prevention Application-Level Whitelisting and Blacklisting System-Based Sandboxing		
III	<p>Threat Analysis What Is the CIA Triad: Confidentiality, Integrity, and Availability? Confidentiality Integrity Availability Threat Modeling Defining and Analyzing the Attack Vector Understanding the Attack Complexity Privileges and User Interaction The Attack Scope Exam Preparation Tasks</p> <p>Forensics Introduction to Cybersecurity Forensics The Role of Attribution in a Cybersecurity Investigation The Use of Digital Evidence Defining Digital Forensic Evidence Understanding Best, Corroborating, and Indirect or Circumstantial Evidence Collecting Evidence from Endpoints and Servers Collecting Evidence from Mobile Devices Collecting Evidence from Network Infrastructure Devices Chain of Custody Fundamentals of Microsoft Windows Forensics Processes, Threads, and Services Memory Management Windows Registry The Windows File System Master Boot Record (MBR) The Master File Table (MFT) Data Area and Free Space FAT NTFS MFT Timestamps, MACE, and Alternate Data Streams EFI Fundamentals of Linux Forensics Linux Processes Ext4 Journaling Linux MBR and Swap File System Exam Preparation Tasks</p> <p>Fundamentals of Intrusion Analysis Common Artifact Elements and Sources of Security Events False Positives, False Negatives, True Positives, and True Negatives Understanding Regular Expressions Protocols, Protocol Headers, and Intrusion Analysis Using Packet Captures for Intrusion Analysis Mapping Security Event Types to Source Technologies</p>	12	CO3
IV	<p>Introduction to Incident Response and the Incident Handling Process Introduction to Incident Response What Are Events and Incidents? The Incident Response Plan The Incident Response Process The Preparation Phase The Detection and Analysis Phase Containment, Eradication, and Recovery Post-Incident Activity (Postmortem) Information Sharing and</p>	12	CO4

	<p>Coordination Incident Response Team Structure The Vocabulary for Event Recording and Incident Sharing (VERIS)</p> <p>Incident Response Teams Computer Security Incident Response Teams (CSIRTs) Product Security Incident Response Teams (PSIRTs) Security Vulnerabilities and Their Severity Vulnerability Chaining Role in Fixing Prioritization Fixing Theoretical Vulnerabilities Internally Versus Externally Found Vulnerabilities National CSIRTs and Computer Emergency Response Teams (CERTs) Coordination Centers Incident Response Providers and Managed Security Service Providers (MSSPs)</p> <p>Compliance Frameworks Payment Card Industry Data Security Standard (PCI DSS) PCI DSS Data Health Insurance Portability and Accountability Act (HIPAA) HIPAA Security Rule HIPAA Safeguards Administrative Safeguards Physical Safeguards Technical Safeguards Sarbanes-Oxley (SOX) Section 302 Section 404 Section 409 SOX Auditing Internal Controls</p> <p>Network and Host Profiling Network Profiling Throughput Measuring Throughput Used Ports Session Duration Critical Asset Address Space Host Profiling Listening Ports Logged-in Users/Service Accounts Running Processes Applications</p>		
V	<p>The Art of Data and Event Analysis Normalizing Data Interpreting Common Data Values into a Universal Format Using the 5-Tuple Correlation to Respond to Security Incidents Retrospective Analysis and Identifying Malicious Files Identifying a Malicious File Mapping Threat Intelligence with DNS and Other Artifacts Deterministic Versus Probabilistic Analysis</p> <p>Intrusion Event Categories Diamond Model of Intrusion Cyber Kill Chain Model Reconnaissance Weaponization Delivery Exploitation Installation Command and Control Action and Objectives</p> <p>Types of Attacks and Vulnerabilities Types of Attacks Reconnaissance Attacks Social Engineering Privilege Escalation Attacks Backdoors Code Execution Man-in-the Middle Attacks Denial-of-Service Attacks Direct DDoS Botnets Participating in DDoS Attacks Reflected DDoS Attacks</p>	12	CO5

Attack Methods for Data Exfiltration ARP Cache Poisoning Spoofing Attacks Route Manipulation Attacks Password Attacks Wireless Attacks Types of Vulnerabilities Security Evasion Techniques Key Encryption and Tunneling Concepts Resource Exhaustion Traffic Fragmentation Protocol-Level Misinterpretation Traffic Timing, Substitution, and Insertion Pivoting		
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	CCNA Cyber Ops SECOPS 210-255 Official Cert Guide	Omar Santos, Joseph Muniz	CISCO	1 st	2017
2.	CCNA Cyber Ops SECFND 210-250 Official Cert Guide	Omar Santos, Joseph Muniz	CISCO	1 st	2017
3.	CCNA Cyber security Operations Companion Guide		CISCO	1 st	2018

M. Sc (Information Technology)		Semester – IV	
Course Name: Security Operations Centre Practical		Course Code: PSIT4P3d	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

List of Practical: 10 practicals covering the entire syllabus must be performed. The detailed list of practical will be circulated later in the official workshop.

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Understanding basics of SOC, Cryptography and managing and deploying VPNs.

CO2: Analyse Windows and Linux based logs along with logs generated by endpoints.

CO3: Understand and analyze various forms of intrusions, threats and perform forensic analysis on them.

CO4: Understand the incident response process and handle incidents by adhering to compliance policies and standards set by the organization.

CO5: Understand the various types of attacks and vulnerabilities, categorize events and perform incident analysis.

PSIT404a: Human Computer Interaction

M. Sc (Information Technology)		Semester – IV	
Course Name: Human Computer Interaction		Course Code: PSIT404a	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- Understand the important aspects of implementation of human-computer interfaces.
- Identify the various tools and techniques for interface analysis, design, and evaluation.
- Identify the impact of usable interfaces in the acceptance and performance utilization of information systems

Unit	Details	Lectures	Outcome
I	<p>The Interaction: Models of interaction, Design Focus, Frameworks and HCI, Ergonomics, Interaction styles, Elements of the WIMP interface, Interactivity</p> <p>Paradigms: Introduction, Paradigms for interaction</p> <p>Interaction design basics: What is design?, The process of design, User focus, Cultural probes, Navigation design, the big button trap, Modes, Screen design and layout, Alignment and layout matters, Checking screen colors, Iteration and prototyping</p> <p>HCI in the software process: The software life cycle, Usability engineering, Iterative design and prototyping, Prototyping in practice, Design rationale</p>	12	CO1
II	<p>Design: Principles to support usability, Standards, Guidelines, Golden rules and heuristics, HCI patterns</p> <p>Implementation support: Elements of windowing systems, Programming the application, Going with the grain, Using toolkits, User interface management systems</p> <p>Evaluation techniques: What is evaluation?, Goals of evaluation, Evaluation through expert analysis, Evaluation through user participation, Choosing an evaluation method</p>	12	CO2
III	<p>Universal design: Universal design principles, Multi-modal interaction, Designing websites for screen readers, Choosing the right kind of speech, Designing for diversity</p> <p>User support: Requirements of user support, Approaches to user support, Adaptive help systems, Designing user support systems</p> <p>Cognitive models: Goal and task hierarchies, Linguistic</p>	12	CO3

	models, The challenge of display-based systems, Physical and device models, Cognitive architectures		
IV	<p>Socio-organizational issues and stakeholder requirements: Organizational issues, Capturing requirements</p> <p>Communication and collaboration models: Face-to-face communication, Conversation, Text-based communication, Group working</p> <p>Task analysis: Differences between task analysis and other techniques, Task decomposition, Knowledge-based analysis, Entity–relationship-based techniques, Sources of information and data collection, Uses of task analysis</p>	12	CO4
V	<p>Dialog notations and design: What is dialog?, Dialog design notations, Diagrammatic notations, Textual dialog notations, Dialog semantics, Dialog analysis and design</p> <p>Models of the system: Standard formalisms, Interaction models, Continuous behavior</p> <p>Modeling rich interaction: Status–event analysis, Rich contexts, Low intention and sensor-based interaction</p>	12	CO5

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Human Computer Interaction	Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale	Pearson Education	3 rd	
2.	Designing the User Interface	Shneiderman B., Plaisant C., Cohen M., Jacobs S.	Pearson	5th	2013

Course Outcomes:

After completion of the course, a student should be able to:

- CO1:** have a clear understanding of HCI principles that influence a system’s interface design, before writing any code.
- CO2:** understand the evaluation techniques used for any of the proposed system.
- CO3:** understand the cognitive models and its design.
- CO4:** able to understand how to manage the system resources and do the task analysis.
- CO5:** able to design and implement a complete system.

PSIT404b: Advanced IoT

M. Sc (Information Technology)		Semester – IV	
Course Name: Advanced IoT		Course Code: PSIT404b	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- To understand the applications on image processing in different disciplines.
- To apply the concepts to new areas of research in Image processing.

Unit	Details	Lectures	Outcome
I	Fuzzy Approaches and Analysis in Image Processing, Text information extraction from images, Image and Video steganography based on DCT and wavelet transform.	12	CO1
II	Zernike-Moments-Based Shape Descriptors for Pattern Recognition and Classification Applications, An Image De-Noising Method Based on Intensity Histogram Equalization Technique for Image Enhancement, A New Image Encryption Method Based on Improved Cipher Block Chaining with Optimization Technique	12	CO2
III	A Technique to Approximate Digital Planar Curve with Polygon, Shape Determination of Aspired Foreign Body on Pediatric Radiography Images Using Rule-Based Approach, Evaluation of Image Detection and Description Algorithms for Application in Monocular SLAM, Diophantine Equations for Enhanced Security in Watermarking Scheme for Image Authentication	12	CO3
IV	Design, Construction, and Programming of a Mobile Robot Controlled by Artificial Vision, Review and Applications of Multimodal Biometrics for Secured Systems, Background Subtraction and Object Tracking via Key Frame-Based Rotational Symmetry Dynamic Texture, A Novel Approach of Human Tracking Mechanism in Wireless Camera Networks	12	CO4
V	Digital Image Steganography: Survey, Analysis, and Application, Vegetation Index: Ideas, Methods, Influences, and Trends, Expert System through GIS-Based Cloud	12	CO5

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Advanced Image Processing Techniques and Applications	N. Suresh Kumar, Arun Kumar Sangaiah, M. Arun, S. Anand	IGI global	--	2017

Course Outcomes:

After completion of the course, a student should be able to:

CO01: Understand the advanced applications of Image processing.

CO02: Understand the application of image processing pattern recognition, encryption and image enhancement.

CO03: Understand and apply the image processing techniques in identification of foreign body using radiography, watermarking techniques.

CO04: Apply the image processing techniques to robot vision, biometrics, human tracking using wireless camera.

CO05: Apply image processing in steganography, expert systems through GIS based cloud.

PSIT404c: Storage as a Service

M. Sc (Information Technology)		Semester – IV	
Course Name: Storage as a Service		Course Code: PSIT404c	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- Understand the need for Storage Area Network and Data protection to satisfy the information explosion requirements.
- Study storage technologies: SAN, NAS, IP storage etc., which will bridge the gap between the emerging trends in industry and academics.
- To get an insight of Storage area network architecture, protocols and its infrastructure.
- To study and discuss the applications of SAN to fulfill the needs of the storage management in the heterogeneous environment.
- Study and understand the management of Storage Networks
- To understand different techniques of managing store.

Unit	Details	Lectures	Outcome
I	Introduction to Information Storage Information Storage Data Types of Data Big Data Information Storage Evolution of Storage Architecture Data Center Infrastructure Core Elements of a Data Center Key Characteristics of a Data Center Managing a Data Center Virtualization and Cloud Computing Data Center Environment Application Database Management System (DBMS) Host (Compute) Operating System Memory Virtualization Device Driver 20 Volume Manager File System Compute Virtualization Connectivity Physical Components of Connectivity Interface Protocols IDE/ATA and Serial ATA 28 SCSI and Serial SCSI Fiber Channel Internet Protocol (IP) Storage Disk Drive Components Platter Spindle Read/Write Head Actuator Arm Assembly Drive Controller Board Physical Disk Structure Zoned Bit Recording Logical Block Addressing Disk Drive Performance Disk Service Time Seek Time Rotational Latency Data Transfer Rate Disk I/O Controller Utilization Host Access to Data Direct-Attached Storage DAS Benefit and Limitations Storage Design Based on Application Requirements and Disk Performance Disk Native Command Queuing	12	CO1

	<p>Introduction to Flash Drives Components and Architecture of Flash Drives Features of Enterprise Flash Drives Concept in Practice: VMware ESXi Data Protection: RAID RAID Implementation Methods Software RAID Hardware RAID Array Components RAID Techniques Striping Mirroring Parity RAID Levels RAID 0 RAID 1 Nested RAID RAID 3 RAID 4 RAID 5 RAID 6 RAID Impact on Disk Performance Application IOPS and RAID Configurations RAID Comparison Hot Spares</p>		
<p>II</p>	<p>Intelligent Storage Systems Components of an Intelligent Storage System Front End Cache Structure of Cache Read Operation with Cache Write Operation with Cache Implementation Cache Management Cache Data Protection Back End Physical Disk Storage Provisioning Traditional Storage Provisioning LUN Expansion: MetaLUN Virtual Storage Provisioning 82 Comparison between Virtual and Traditional Storage Provisioning Use Cases for Thin and Traditional LUNs LUN Masking Types of Intelligent Storage Systems High-End Storage Systems Midrange Storage Systems Fiber Channel Storage Area Networks Fiber Channel: Overview The SAN and Its Evolution Components of FC SAN Node Ports Cables and Connectors Contents Interconnect Devices SAN Management Software FC Connectivity Point-to-Point Fiber Channel Arbitrated Loop Fiber Channel Switched Fabric FC-SW Transmission Switched Fabric Ports Fiber Channel Architecture Fiber Channel Protocol Stack FC-4 Layer FC-2 Layer FC-1 Layer FC-0 Layer Fiber Channel Addressing World Wide Names FC Frame 110. Structure and Organization of FC Data Flow Control BB_Credit EE_Credit Classes of Service Fabric Services Switched Fabric Login Types Zoning Types of Zoning FC SAN Topologies Mesh Topology Core-Edge Fabric Benefits and Limitations of Core-Edge Fabric Virtualization in SAN Block-level Storage Virtualization Virtual SAN (VSAN) IP SAN and FCoE iSCSI Components of iSCSI iSCSI Host Connectivity iSCSI Topologies Native iSCSI Connectivity Bridged iSCSI Connectivity Combining FC and Native iSCSI Connectivity iSCSI Protocol Stack iSCSI PDU 6 iSCSI Discovery iSCSI Names iSCSI Session iSCSI Command Sequencing FCIP FCIP Protocol Stack FCIP Topology FCIP Performance and Security FCoE I/O</p>	<p>12</p>	<p>CO2</p>

	<p>Consolidation Using FCoE Components of an FCoE Network</p> <p>Converged Network Adapter Cables</p> <p>FCoE Switches FCoE Frame Structure</p> <p>FCoE Frame Mapping FCoE Enabling Technologies</p> <p>Priority-Based Flow Control (PFC) Enhanced Transmission Selection (ETS)</p> <p>Congestion Notification (CN)</p> <p>Data Center Bridging Exchange Protocol (DCBX) 1</p>		
III	<p>Network-Attached Storage General-Purpose Servers versus NAS Devices</p> <p>Benefits of NAS File Systems and Network File Sharing</p> <p>Accessing a File System</p> <p>Network File Sharing Components of NAS</p> <p>NAS I/O Operation NAS Implementations</p> <p>Unified NAS Unified NAS Connectivity 164</p> <p>Gateway NAS Gateway NAS Connectivity</p> <p>Scale-Out NAS Scale-Out NAS Connectivity</p> <p>NAS File-Sharing Protocols NFS CIFS</p> <p>Factors Affecting NAS Performance File-Level Virtualization</p> <p>Object-Based and Unified Storage</p> <p>Object-Based Storage Devices Object-Based Storage Architecture Components of OSD Object Storage and Retrieval in OSD</p> <p>Benefits of Object-Based Storage</p> <p>Common Use Cases for Object-Based Storage Content-Addressed Storage CAS Use Cases</p> <p>Healthcare Solution: Storing Patient Studies</p> <p>Finance Solution: Storing Financial Records Unified Storage Components of Unified Storage Data Access from Unified Storage</p> <p>Introduction to Business Continuity</p> <p>Information Availability</p> <p>Causes of Information Unavailability</p> <p>Consequences of Downtime</p> <p>Measuring Information Availability</p> <p>BC Terminology BC Planning Life Cycle</p> <p>Failure Analysis Single Point of Failure</p> <p>Resolving Single Points of Failure Multipathing Software Business Impact Analysis BC Technology Solutions</p> <p>I/O Operation without PowerPath I/O Operation with PowerPath Automatic Path Failover Path Failure without PowerPath</p> <p>Path Failover with PowerPath: Active-Active Array Path Failover with PowerPath: Active-Passive Array</p> <p>Backup and Archive</p> <p>Backup Purpose Disaster Recovery Operational Recovery Archival Backup Considerations Backup</p>	12	CO3

	<p>Granularity Recovery Considerations Backup Methods 6 Backup Architecture Backup and Restore Operations Backup Topologies Backup in NAS Environments Server-Based and Serverless Backup NDMP-Based Backup Backup Targets Backup to Tape Physical Tape Library Limitations of Tape 2 Backup to Disk Backup to Virtual Tape Virtual Tape Library Data Deduplication for Backup Data Deduplication Methods Data Deduplication Implementation Source-Based Data Deduplication Target-Based Data Deduplication Backup in Virtualized Environments Data Archive Archiving Solution Architecture Use Case: E-mail Archiving Use Case: File Archiving</p>		
IV	<p>Local Replication Replication Terminology Uses of Local Replicas Replica Consistency Consistency of a Replicated File System Consistency of a Replicated Database Local Replication Technologies Host-Based Local Replication LVM-Based Replication Advantages of LVM-Based Replication Limitations of LVM-Based Replication File System Snapshot Storage Array-Based Local Replication Full-Volume Mirroring Pointer-Based, Full-Volume Replication Pointer-Based Virtual Replication Network- Based Local Replication Continuous Data Protection CDP Local Replication Operation Tracking Changes to Source and Replica Restore and Restart Considerations Creating Multiple Replicas Local Replication in a Virtualized Environment Remote Replication Modes of Remote Replication Remote Replication Technologies Host-Based Remote Replication LVM-Based Remote Replication Host- Based Log Shipping Storage Array-Based Remote Replication Synchronous Replication Mode Asynchronous Replication Mode Disk-Buffered Replication Mode Network-Based Remote Replication CDP Remote Replication Three-Site Replication Three-Site Replication — Cascade/Multihop Synchronous + Asynchronous Synchronous + Disk Buffered Three-Site Replication — Triangle/Multitarget Data Migration Solutions Remote Replication and Migration in a Virtualized Environment Cloud Computing Cloud Enabling Technologies Characteristics of Cloud Computing Benefits of Cloud Computing</p>	12	CO4

	<p>Cloud Service Models Infrastructure-as-a-Service Platform-as-a-Service Software-as-a-Service Cloud Deployment Models</p> <p>Public Cloud Private Cloud Community Cloud Hybrid Cloud Cloud Computing Infrastructure Physical Infrastructure Virtual Infrastructure Applications and Platform Software Cloud Management and Service Creation Tools Cloud Challenges</p> <p>Challenges for Consumers Challenges for Providers Cloud Adoption Considerations</p>		
V	<p>Securing the Storage Infrastructure</p> <p>Information Security Framework Risk Triad</p> <p>Assets Threats Vulnerability Storage Security Domains</p> <p>Securing the Application Access Domain Controlling User Access to Data Protecting the Storage Infrastructure 341</p> <p>Data Encryption Securing the Management Access Domain Controlling Administrative Access Protecting the Management Infrastructure Securing Backup, Replication, and Archive Security Implementations in Storage Networking FC SAN FC SAN Security Architecture Basic SAN Security Mechanisms LUN Masking and Zoning</p> <p>Securing Switch Ports Switch-Wide and Fabric-Wide Access Control</p> <p>Logical Partitioning of a Fabric: Virtual SAN</p> <p>NAS NAS File Sharing: Windows ACLs</p> <p>NAS File Sharing: UNIX Permissions</p> <p>NAS File Sharing: Authentication and Authorization Kerberos Network-Layer Firewalls IP SAN Securing Storage Infrastructure in Virtualized and Cloud Environments Security Concerns</p> <p>Security Measures Security at the Compute Level Security at the Network Level Security at the Storage Level Concepts in Practice: RSA and VMware Security Products RSA Secure ID RSA Identity and Access Management</p> <p>RSA Data Protection Manager VMware vShield</p> <p>Managing the Storage Infrastructure</p> <p>Monitoring the Storage Infrastructure</p> <p>Monitoring Parameters Components Monitored Hosts Storage Network Storage</p> <p>Monitoring Examples Accessibility Monitoring Capacity Monitoring Performance Monitoring Security Monitoring Alerts</p> <p>Storage Infrastructure Management Activities</p> <p>Availability Management Capacity Management Performance Management Security Management Reporting Storage Infrastructure Management in a</p>	12	CO5

Virtualized Environment Storage Management Examples Storage Allocation to a New Server/Host File System Space Management Chargeback Report Storage Infrastructure Management Challenges Developing an Ideal Solution 384Storage Management Initiative Enterprise Management Platform Information Lifecycle Management Storage Tiering Intra-Array Storage Tiering Inter-Array Storage Tiering		
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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Information Storage and Management: Storing, Managing, and Protecting Digital Information in Classic, Virtualized, and Cloud Environments	EMC	John Wiley & Sons	2 nd	2012

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Understand different techniques of storage and RAID Technologies

CO2: Understand different intelligent storage technologies. Also, understand the benefits of Fibre Channel Storage Networks along with iSCSI.

CO3: Understand the architecture of NAS and deployment along with Object based and unified storage technologies. Also, the learner will be able to configure the storage devices to maintain highest level of availability

CO4: Understand Replication and Migration techniques and implement them.

CO5: Understand Different techniques for managing and securing storage infrastructure.

PSIT404d: Information Security Auditing

M. Sc (Information Technology)		Semester – IV	
Course Name: Information Security Auditing		Course Code: PSIT404d	
Periods per week (1 Period is 60 minutes)		4	
Credits		4	
		Hours	Marks
Evaluation System	Theory Examination	2½	60
	Internal	--	40

Course Objectives:

- Understand various information security policies in place.
- Assess an organization based on the needs and suggest the requisite information security policies to be deployed.
- Audit the organization across relevant policies and assist the organization in implementing such policies along with suggesting improvements.

Unit	Details	Lectures	Outcome
I	Secrets of a Successful Auditor Understanding the Demand for IS Audits Understanding Policies, Standards, Guidelines, and Procedures Understanding Professional Ethics Understanding the Purpose of an Audit Differentiating between Auditor and Auditee Roles Implementing Audit Standards Auditor Is an Executive Position Understanding the Corporate Organizational Structure Governance Strategy Planning for Organizational Control Overview of Tactical Management Planning and Performance Overview of Business Process Reengineering Operations Management Summary Audit Process Understanding the Audit Program Establishing and Approving an Audit Charter Preplanning Specific Audits Performing an Audit Risk Assessment Determining Whether an Audit Is Possible Performing the Audit Gathering Audit Evidence Conducting Audit Evidence Testing Generating Audit Findings Report Findings Conducting Follow-up (Closing Meeting)	12	CO1
II	Information Systems Acquisition and Development Project Governance and Management Business Case and Feasibility Analysis System Development Methodologies Control Identification and Design Testing Methodologies Configuration and Release Management	12	CO2

	System Migration, Infrastructure Deployment and Data Conversion Post-implementation Review		
III	Information Systems Operations Introduction Common Technology Components IT Asset Management Job Scheduling and Production Process Automation System Interfaces End-user Computing Data Governance Systems Performance Management Problem and Incident Management Change, Configuration, Release and IT Service Level Management Database Management Business Resilience Business Impact Analysis Data Backup, Storage and Restoration Business Continuity Plan Disaster Recovery Plans	12	CO3
IV	Information Systems Life Cycle Governance in Software Development Management of Software Quality Overview of the Executive Steering Committee Change Management Management of the Software Project Overview of the System Development Life Cycle Overview of Data Architecture Decision Support Systems Program Architecture Centralization vs. Decentralization Electronic Commerce System Implementation and Operations Understanding the Nature of IT Services Performing IT Operations Management Performing Capacity Management Using Administrative Protection Performing Problem Management Monitoring the Status of Controls Implementing Physical Protection	12	CO4
V	Protecting Information Assets Understanding the Threat Using Technical Protection Business Continuity and Disaster Recovery Debunking the Myths Understanding the Five Conflicting Disciplines Called Business Continuity Defining Disaster Recovery Defining the Purpose of Business Continuity Uniting Other Plans with Business Continuity Understanding the Five Phases of a Business Continuity Program Understanding the Auditor Interests in BC/DR Plans	12	CO5

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	CISA®: Certified Information Systems Auditor	David Cannon	SYBEX	Fourth Edition	2016
2.	CISA Review Manual 27th Edition		ISACA		2019
3.	CISA Certified Information Systems Auditor All-in-One Exam Guide, Fourth Edition,		O'Reilly	4th Edition	2019

Course Outcomes:

After completion of the course, a student should be able to:

CO1: Understand various information security policies and process flow, Ethics of an Information security Auditor.

CO2: Understand various information systems in an organization, their criticality and various governance and management policies associated with them.

CO3: Critically analyse various operational strategies like asset management, data governance etc. and suggest requisite changes as per organizations requirements with improvements.

CO4: Understand the information flow across the organization and identify the weak spots, and also suggest improvements to strengthen them.

CO5: Come up with strong strategies to protect information assets and come up with an efficient business continuity plan, disaster recovery strategy etc.

PSIT4P4: Project Implementation and Viva

M. Sc (Information Technology)		Semester – IV	
Course Name: Project Implementation and Viva		Course Code: PSIT4P4	
Periods per week (1 Period is 60 minutes)		4	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	2	50
	Internal	--	-

The project dissertation and Viva Voce details are given in Appendix 1.

Evaluation Scheme

Internal Evaluation (40 Marks)

The internal assessment marks shall be awarded as follows:

1. 30 marks (Any one of the following):
 - a. Written Test or
 - b. SWAYAM (Advanced Course) of minimum 20 hours and certification exam completed or
 - c. NPTEL (Advanced Course) of minimum 20 hours and certification exam completed or
 - d. Valid International Certifications (Prometric, Pearson, Certiport, Coursera, Udemy and the like)
 - e. One certification marks shall be awarded one course only. For four courses, the students will have to complete four certifications.
2. 10 marks
The marks given out of 40 (30 in Semester 4) for publishing the research paper should be divided into four course and should awarded out of 10 in each of the four course.

i. Suggested format of Question paper of 30 marks for the written test.

Q1.	Attempt <i>any two</i> of the following:	16
a.		
b.		
c.		
d.		
Q2.	Attempt <i>any two</i> of the following:	14
a.		
b.		
c.		
d.		

- ii. 10 marks from every course coming to a total of 40 marks, shall be awarded on publishing of research paper in UGC approved / Other Journal with plagiarism less than 10%. The marks can be awarded as per the impact factor of the journal, quality of the paper, importance of the contents published, social value.

External Examination: (60 marks)

	All questions are compulsory	
Q1	(Based on Unit 1) Attempt <i>any two</i> of the following:	12
a.		
b.		

c.		
d.		
Q2	(Based on Unit 2) Attempt <i>any two</i> of the following:	12
Q3	(Based on Unit 3) Attempt <i>any two</i> of the following:	12
Q4	(Based on Unit 4) Attempt <i>any two</i> of the following:	12
Q5	(Based on Unit 5) Attempt <i>any two</i> of the following:	12

Practical Evaluation (50 marks)

A Certified copy of hard-bound journal is essential to appear for the practical examination.

1.	Practical Question 1	20
2.	Practical Question 2	20
3.	Journal	5
4.	Viva Voce	5

OR

1.	Practical Question	40
2.	Journal	5
3.	Viva Voce	5

Project Documentation and Viva Voce Evaluation

The documentation should be checked for plagiarism and as per UGC guidelines, should be less than 10%.

1.	Documentation Report (Chapter 1 to 4)	20
2.	Innovation in the topic	10
3.	Documentation/Topic presentation and viva voce	20

Project Implementation and Viva Voce Evaluation

1.	Documentation Report (Chapter 5 to last)	20
2.	Implementation	10
3.	Relevance of the topic	10
4.	Viva Voce	10

Appendix – 1

Project Documentation and Viva-voce (Semester III) and Project Implementation and Viva-Voce (Semester IV)

Goals of the course Project Documentation and Viva-Voce

The student should:

- be able to apply relevant knowledge and abilities, within the main field of study, to a given problem
- within given constraints, even with limited information, independently analyse and discuss complex inquiries/problems and handle larger problems on the advanced level within the main field of study
- reflect on, evaluate and critically review one's own and others' scientific results
- be able to document and present one's own work with strict requirements on structure, format, and language usage
- be able to identify one's need for further knowledge and continuously develop one's own knowledge

To start the project:

- Start thinking early in the programme about suitable projects.
- Read the instructions for the project.
- Attend and listen to other student's final oral presentations.
- Look at the finished reports.
- Talk to senior master students.
- Attend possible information events (workshops / seminars / conferences etc.) about the related topics.

Application and approval:

- Read all the detailed information about project.
- Finalise finding a place and supervisor.
- Check with the coordinator about subject/project, place and supervisor.
- Write the project proposal and plan along with the supervisor.
- Fill out the application together with the supervisor.
- Hand over the complete application, proposal and plan to the coordinator.
- Get an acknowledgement and approval from the coordinator to start the project.

During the project:

- Search, gather and read information and literature about the theory.
- Document well the practical work and your results.
- Take part in seminars and the running follow-ups/supervision.
- Think early on about disposition and writing of the final report.
- Discuss your thoughts with the supervisor and others.
- Read the SOP and the rest you need again.
- Plan for and do the mid-term reporting to the coordinator/examiner.
- Do a mid-term report also at the work-place (can be a requirement in some work-places).
- Write the first draft of the final report and rewrite it based on feedback from the supervisor and possibly others.
- Plan for the final presentation of the report.

Finishing the project:

- Finish the report and obtain an OK from the supervisor.

- Ask the supervisor to send the certificate and feedback form to the coordinator.
- Attend the pre-final oral presentation arranged by the Coordinator.
- Rewrite the final report again based on feedback from the opponents and possibly others.
- Prepare a title page and a popular science summary for your report.
- Send the completed final report to the coordinator (via plagiarism software)
- Rewrite the report based on possible feedback from the coordinator.
- Appear for the final exam.

Project Proposal/research plan

- The student should spend the first 1-2 weeks writing a 1-2 pages project plan containing:
 - Short background of the project
 - Aims of the project
 - Short description of methods that will be used
 - Estimated time schedule for the project
- The research plan should be handed in to the supervisor and the coordinator.
- Writing the project plan will help you plan your project work and get you started in finding information and understanding of methods needed to perform the project.

Project Documentation

The documentation should contain:

- Introduction - that should contain a technical and social (when possible) motivation of the project topic.
- Description of the problems/topics.
- Status of the research/knowledge in the field and literature review.
- Description of the methodology/approach. (The actual structure of the chapters here depends on the topic of the documentation.)
- Results - must always contain analyses of results and associated uncertainties.
- Conclusions and proposals for the future work.
- Appendices (when needed).
- Bibliography - references and links.

For the master's documentation, the chapters cannot be dictated, they may vary according to the type of project. However, in Semester III Project Documentation and Viva Voce must contain at least 4 chapters (Introduction, Review of Literature, Methodology / Approach, Proposed Design / UI design, etc. depending on the type of project.) The Semester III report should be spiral bound.

In Semester IV, the remaining Chapters should be included (which should include Experiments performed, Results and discussion, Conclusions and proposals for future work, Appendices) and Bibliography - references and links. Semester IV report should include all the chapters and should be hardbound.



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Diwali Maa Degree College of Science
Mohanlal Raichand Mehta College of Commerce
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli Navi Mumbai

**DEPARTMENT OF SCIENCE
CERTIFICATE COURSE**

INDEX

Sr. No	Year	Name of Activity	Date	Page No.
1	2023-2024	• Science Spectrum	28 th July-7 th Aug 2023	
2		• Application of Science in Changing World	20 th -26 th June, 2023	
3		• Advances in Chemistry	20 th -26 th June, 2023	





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Amritlal Raichand Mehta College of Arts
Dr. R.T. Doshi College of Computer Science
NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle)

Date: 7.11.2023

NOTICE

All faculties of the Science Department are hereby informed that there will be a meeting on 9.11.2023 at 1 p.m.in Chemistry Lab.

All the members are requested to be present for the same.

AGENDA

- 1] To discuss about conducting "Certificate Course" for F.Y., S.Y. and T.Y. class.
- 2] To discuss regarding theme, duration, objective and outcome of the course.
- 3] Any other matter with the permission of Chairperson.

Leena
Dr. Leena Sarkar
H.O.D.





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Date: 9.11.2023

Minutes of the Meeting

On 9.11.2023, a meeting was held with the faculties of Science Department at 1:00 p.m. in Chemistry Lab. The meeting was presided over by the H.O.D. Dr. Leena Sarkar.

Following members were present in the meeting: -

1. Dr. Leena Sarkar [H.O.D.]
2. Asst. Prof. Sandhya Patil
3. Asst. Prof. Harshada Niju
4. Asst. Prof. Savita Kumari
5. Dr. Shweta Rathore
6. Dr. Prajakta Kadu
7. Dr. Kanika Pahwa
8. Asst. Prof. Pintoo Jaiswar
9. Asst. Prof. Sagar Shinde
10. Asst. Prof. Nishant Bist
11. Asst. Prof. Ulfat Shaikh
12. Asst. Prof. Chaitanya Morya

Leena
Sandhya
Harshada
Savita
Shweta
Prajakta
Kanika
Pintoo
Sagar
Nishant
Ulfat

Following points were discussed in the meeting :-

- 1] H.O.D. Dr. Leena Sarkar madam suggested Certificate Course should be conducted for F.Y., S.Y. and T.Y. students for their holistic development.
- 2] The theme of the course was finalized as "Unleash Your Competitive Exam Potential" after discussion from 28th November-5th December 2023.
- 3] Dr. Kanika Pahwa [Zoology Department] was appointed as a convenor for conducting Certificate Course for F.Y., S.Y. and Dr. Shweta Rathore was appointed for T.Y.
- 4] In this meeting, theme, time table and syllabus for Certificate Course was finalized.
- 5] Meeting was ended with vote of thanks.





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Certificate Course

on

“Unleash Your Competitive Exam Potential”

(28th November-5th December 2023)

Duration-Hrs

Program: B.Sc.

Number of Lectures: 36

OBJECTIVES: -

- To gain a comprehensive understanding of the format, structure, and types of questions commonly found in competitive exams.
- To strengthen core concepts and foundational knowledge in relevant subjects through targeted lessons and practice.
- To learn time-management techniques to optimize the use of the limited time available during exams, ensuring that each question is addressed appropriately.
- To enhance critical thinking and problem-solving skills necessary for solving complex and challenging questions often encountered in competitive exams.
- To provide motivational sessions to boost confidence and inspire participants to stay focused on their goals, especially during challenging periods of preparation.

OUTCOMES:

- Learner gained increased confidence in tackling various types of questions, as well as facing the challenges and pressures associated with competitive exams.
- Learner developed the ability to manage time efficiently during exams, ensuring that each section is approached strategically and completed within the allocated timeframe.
- Learner improved critical thinking and problem-solving skills, enabling participants to analyze and solve complex questions more effectively.
- Students gained clearer understanding of personal goals, and stay motivated to pursue academic and career aspirations with determination and focus.





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Certificate Course

on

“Unleash Your Competitive Exam Potential”

SYLLABUS

S.No.	Faculty Name	Topic	No. of Lectures
1.	Dr. Leena Sarkar	Assessment	3
2.	Dr. Shweta Rathore	Sustainable Goals	3
3.	Asst. Prof. Harshada Niju	Comprehension	3
4.	Asst. Prof. Sandhya Patil	Teaching Aptitude	3
5.	Asst. Prof. Savita Kumari	Research Aptitude	3
6.	Dr. Prajakta Kadu	Research Methodology	3
7.	Dr. Kanika Pahwa	Environmental Issues	3
8.	Asst. Prof. Pintoo Jaiswar	Mathematical Reasoning	3
9.	Asst. Prof. Nishant Bist	Overview of Competitive Exams	3
10.	Asst. Prof. Sagar Shinde	Information & Communication Technology	3
11.	Asst. Prof. Ulffat Shaikh	Basics of Science- Communication Skills	3
12.	Asst. Prof. Chaitanya Morya	Planning and Strategy	3





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Certificate Course)
on
“Unleash Your Competitive Exam Potential”

TIME TABLE

Day /Time	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8:40- 9:30	(K.P.)	(S.K.)	(H.N.)	(S.K.)	(K.P.)	(U.S.)
9.30-10:20	(C.M.)	(S.P.)	(N.B.)	(C.M.)	(N.B.)	(H.N.)
10:20-11:10	(S.R.)	(S.R.)	(U.S.)	(S.P.)	(C.M.)	(S.P.)
11:10 -11:30	BREAK					
11:30-12:20	(P.K.)	(K.P.)	(S.R.)	(H.N.)	(P.K.)	(N.B.)
12:20-1:10	(S.K.)	(P.J.)	(P.J.)	(U.S.)	(P.J.)	(P.K.)
1:10-2:00	(S.S.)	(S.S.)	(S.S.)	(L.S.)	(L.S.)	(L.S.)

L.S.- Dr. Leena Sarkar S.P.- Mrs. Sandhya Patil H.N.- Dr. Harshada Niju S.K.- Ms. Savita Kumari
S.R.-Dr. Shweta Rathore P.K.- Dr. Prajakta Kadu K.P.- Dr. Kanika Pahwa P.J.- Mr. Pintoo Jaiswar S.S.- Mr.
Sagar Shinde N.B.- Mr. Nishant Bist U.S.- Mr. Ulffat Shaikh C.M. – Mr. Chaitanya Morya





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CERTIFICATE COURSE
 "Unleash Your Competitive Exam Potential"

F.Y. B.Sc.

ATTENDANCE

Date: 29th Nov 2023

Sr. No	Name of Student	Class	Lec 1	Lec 2	Lec 3	Lec 4	Lec 5	Lect 6
1]	Usha.D. Suthas	FYBSC	Usha	Usha	Usha	Usha	Usha	Usha
2]	Khushboo Sahani	FYBSC	Khushboo	Khushboo	Khushboo	Khushboo	Khushboo	Khushboo
3]	Priya.A. Sharma	FYBSC	Sharma	Sharma	Sharma	Sharma	Sharma	Sharma
4]	Sai.Kadam	FYBSC	Kadam	Kadam	Kadam	Kadam	Kadam	Kadam
5]	Gauri Mohite	FYBSC	Xauri	Xauri	Xauri	Xauri	Xauri	Xauri
6]	Dhruvika Pabil	FYBSC	Tatidharvika	Tatidharvika	Tatidharvika	Tatidharvika	Tatidharvika	Tatidharvika
7]	Dhruvika Prakash Pabil	F.Y.BSC	Tatidharvika	Tatidharvika	Tatidharvika	Tatidharvika	Tatidharvika	Tatidharvika
8]	Tanvi Sagat	FYBSC	Sagat	Sagat	Sagat	Sagat	Sagat	Sagat
9]	Mohini Rumade	FYBSC	Rumade	Rumade	Rumade	Rumade	Rumade	Rumade
10]	Rahul kushwaha	FYBSC	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul
11]	Vikrant Kulkarni	FYBSC	Vikrant	Vikrant	Vikrant	Vikrant	Vikrant	Vikrant
12]	Gaurav J. Naikhan	FYBSC	Naikhan	Naikhan	Naikhan	Naikhan	Naikhan	Naikhan
13]	Sairaj A. Gaorkar	FYBSC	Gaorkar	Gaorkar	Gaorkar	Gaorkar	Gaorkar	Gaorkar
14]	Angel Furtado	FYBSC	Angel	Angel	Angel	Angel	Angel	Angel
15]	Sanika Suryawanshi	FYBSC	Sanika	Sanika	Sanika	Sanika	Sanika	Sanika
16]	Ambuja.R. Yadav	FYBSC	Ambuja	Ambuja	Ambuja	Ambuja	Ambuja	Ambuja
17]	Mandar Desai	FYBSC	Mandar	Mandar	Mandar	Mandar	Mandar	Mandar
18]	Prasenjit Jyankar	FYBSC	Prasenjit	Prasenjit	Prasenjit	Prasenjit	Prasenjit	Prasenjit
19]	Sujal Poi	FYBSC	Sujal	Sujal	Sujal	Sujal	Sujal	Sujal
20]	Chinmay Karode	FYBSC	Karode	Karode	Karode	Karode	Karode	Karode



SR PJ SS

FYB.Sc



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CERTIFICATE COURSE
"Unleash Your Competitive Exam Potential"

ATTENDANCE

Date: 30/11/23

Sr. No	Name of Student	Class	Lec 1	Lec 2	Lec 3	Lec 4	Lec 5	Lec 6
1	Gauri Mohite	FYBSc	Gauri	Gauri	Gauri	Gauri	Gauri	Gauri
2	Sai Kadam	FYBSc	Sadam	Sadam	Sadam	Sadam	Sadam	Sadam
3	Ambuja R. Yadav	FYBSc	Ambuja	Ambuja	Ambuja	Ambuja	Ambuja	Ambuja
4	Khushboo Sahani	FYBSc	Khushboo	Khushboo	Khushboo	Khushboo	Khushboo	Khushboo
5	Priya A. Sharma	FYBSc	Pharman	Pharman	Pharman	Pharman	Pharman	Pharman
6	RAJNANDANI VISHWAKAR	FYBSc	Nandini	Nandini	Nandini	Nandini	Nandini	Nandini
7	Usha D. Suthar	FYBSc	Usha	Usha	Usha	Usha	Usha	Usha
8	Dhruva Prakash Patil	FYBSc	Dhruva	Dhruva	Dhruva	Dhruva	Dhruva	Dhruva
9	Janhvi Sagat	FYBSc	Sagat	Sagat	Sagat	Sagat	Sagat	Sagat
10	Rahul Kushwaha	FYBSc	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul
11	Sairaj Gaonkar	FYBSc	Sairaj	Sairaj	Sairaj	Sairaj	Sairaj	Sairaj
12	Ruby S. Ram	FYBSc	Ruby	Ruby	Ruby	Ruby	Ruby	Ruby
13	Gaurav S. Naugane	FYBSc	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav
14	Vikrant Kulkarni	FYBSc	Vikrant	Vikrant	Vikrant	Vikrant	Vikrant	Vikrant
15	Angel Futado	FYBSc	Angel	Angel	Angel	Angel	Angel	Angel
16	Sanika Suryawanshi	FYBSc	Sanika	Sanika	Sanika	Sanika	Sanika	Sanika
17	Saijeet Poi	F.YBSc	S. Poi	S. Poi	S. Poi	S. Poi	S. Poi	S. Poi
18	Mandar Desai	F.YBSc	Mandar	Mandar	Mandar	Mandar	Mandar	Mandar
19	Prasajeet	FYBSc	P	P	P	P	P	P
20	Chinmay	FYBSc	Chinmay	Chinmay	Chinmay	Chinmay	Chinmay	Chinmay





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CERTIFICATE COURSE
"Unleash Your Competitive Exam Potential"

ATTENDANCE

Date: 04/12/2023

Sr. No	Name of Student	Class	Lec 1	Lec 2	Lec 3	Lec 4	Lec 5
1]	Khushboo Sahani	FYBSC	Khushboo	Khushboo	Khushboo	Khushboo	Khushboo
2.	Usha. D. Suthar	FYBSC	Usha	Usha	Usha	Usha	Usha
3]	Vikrant Kulkarni	FYBSC	Vikrant	Vikrant	Vikrant	Vikrant	Vikrant
4]	Gaurav S. Nayhan	FYBSc	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav
5)	Rahul Kishwaha	FYBSc	Rahul	Rahul	Rahul	Rahul	Rahul
6)	Sujali Pui	FYBSC	Sujali	Sujali	Sujali	Sujali	Sujali
7)	Yash Tiwari	FYBSC	Yash	Yash	Yash	Yash	Yash
8]	Chetan Chavan	FYBSc	Chetan	Chetan	Chetan	Chetan	Chetan
9]	Angel Furtado	FYBSc	Angel	Angel	Angel	Angel	Angel
10)	Sanika Suryawanshi	FYBSc	Sanika	Sanika	Sanika	Sanika	Sanika
11)	Ambuja Yadav	FYBSC	Ambuja	Ambuja	Ambuja	Ambuja	Ambuja
12)	Gauri Mohite	FYBSc	Gauri	Gauri	Gauri	Gauri	Gauri
13)	Sal Kadam	FYBSC	Sal	Sal	Sal	Sal	Sal
14)	Priya Sharma	FYBSC	Priya	Priya	Priya	Priya	Priya
15)	Ruby Ram	FYBSC	Ruby	Ruby	Ruby	Ruby	Ruby
16)	RAJNANDINI Vishwakarma	FYBSC	Rajandini	Rajandini	Rajandini	Rajandini	Rajandini
17)	SNEHA GOPAL GUPTA	FYBSC	Sneha	Sneha	Sneha	Sneha	Sneha
18)	Anchal Chavan	FYBSC	Anchal	Anchal	Anchal	Anchal	Anchal
19)	Sairaj Gaonkar	FYBSC	Sairaj	Sairaj	Sairaj	Sairaj	Sairaj
20)	Jankvi Sajal	FYBSC	Jankvi	Jankvi	Jankvi	Jankvi	Jankvi
21)	Prasenjit Saini	FYBSC	Prasenjit	Prasenjit	Prasenjit	Prasenjit	Prasenjit
22)	Chinmay Karode	FYBSC	Chinmay	Chinmay	Chinmay	Chinmay	Chinmay
23)	Mandar Desai	FYBSC	Mandar	Mandar	Mandar	Mandar	Mandar
24)	Arjun Ingle	FYBSC	Arjun	Arjun	Arjun	Arjun	Arjun





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CERTIFICATE COURSE ASSESSMENT

Sr. no	Roll no.	K.P. (10)	P.K. (10)	H.N. (20)	S.P	S.R(14).	U.S. (5)	P.J. (10)	S.S.
1.	1001	6	5	AB	AB	AB	5	6	5
2.	1002	9	5	18	AB	07	5	5	5
3.	1004	10	6	AB	AB	05	5	4	5
4.	1006	10	5	AB	AB	04	5	5	4
5.	1008	9	8	06	1	05	4	8	5
6.	1010	10	7	14	AB	06	5	9	4
7.	1011	6	6	AB	AB	AB	4	10	5
8.	1061	9	7	18	AB	04	5	7	5
9.	1062	7	5	8	AB	07	5	5	2
10	1063	6	6	10	AB	05	5	6	5
11	1064	AB	AB	AB	3	AB	AB	AB	AB
12	1065	5	6	AB	AB	AB	4	6	2
13	1065	8	7	AB	AB	AB	AB	7	AB
14	1066	AB	6	2	AB	05	5	5	AB
15	1067	5	8	8	AB	06	5	8	5
16	1069	8	5	AB	AB	04	5	5	5
17	1070	10	6	14	AB	08	5	5	5
18	1071	10	6	6	AB	05	4	6	5
19	1073	9	5	10	AB	06	5	5	5
20	1074	10	7	12	3	07	5	7	5
21	1075	6	6	AB	4	07	4	6	5
22	1076	5	7	6	AB	06	3	7	4



23	1079	7	6	4	AB	AB	4	6	4
24	1080	10	6	6	2	04	3	6	2
25	1081	9	7	12	5	06	4	7	4
26	1083	10	6	14	4	06	5	6	5
27	1084	AB	AB	AB	AB	AB	4	AB	4
28	1085	AB	5	AB	AB	AB	AB	5	AB
29	1086	7	6	14	AB	06	4	6	5
30	1087	10	AB	6	AB	05	3	AB	5
31	1088	10	7	8	3	03	5	7	5
32	1089	8	7	8	5	05	5	6	5
33	1090	AB	AB	AB	AB	AB	2	AB	5
34	1091	8	6	12	4	06	5	6	5
35	1092	5	6	AB	AB	07	5	6	5





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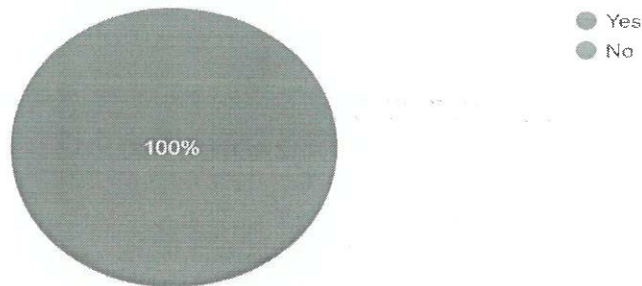
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FEEDBACK ANALYSIS

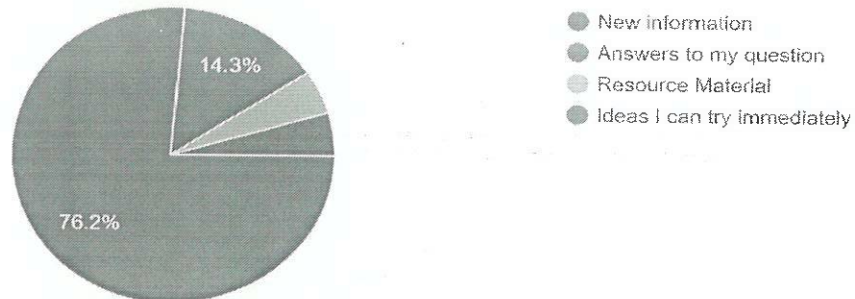
Was the learning objective of the course fulfilled?

21 responses



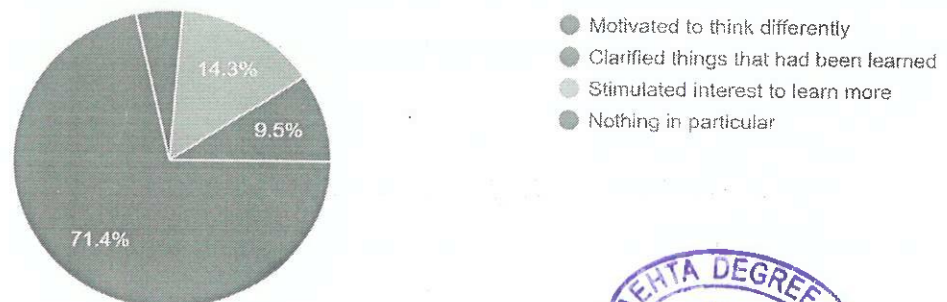
What did you gain from the sessions?

21 responses



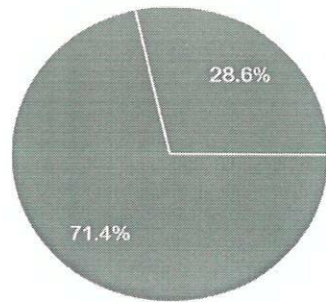
What benefits have you obtained from sessions?

21 responses



The lecture sequence was well planned

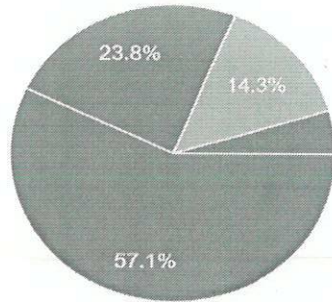
21 responses



- Agree
- Neutral
- Disagree

Please give overall rating of the course

21 responses



- Excellent
- Very good
- Good
- Fair
- Poor





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Summary Report


The Department of Science conducted Certificate Course on “Unleash Your Competitive Exam Potential” for the class B.Sc. F.Y. dated 28th November-5th December 2023. The course was conducted with the aim of equipping participants with the knowledge and skills necessary to excel in competitive environments across various domains. The course focused on strategic planning, innovation, effective decision-making to foster competitive advantage and holistic understanding of strategies and tools essential for thriving in competitive environments. Students strengthened core concepts and foundational knowledge in relevant subjects through targeted lessons and practice.

In summary, the learner

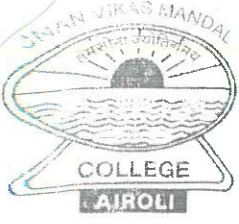
- Gained increased confidence in tackling various types of questions.
- Developed the ability to manage time efficiently during exams.
- Improved critical thinking and problem-solving skills.
- Gained clearer understanding of personal goals.


Dr. Kanika Pahwa
Convener


Dr. Leena Sarkar
H.O.D.


Dr. B.R. Deshpande
I/c Principal
JNAN VIKAS MANDAL'S
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Plot no.9, Sector -19, Airoli Navi Mumbai

Date : 26/04/2023

NOTICE

All faculties of the Science Department are hereby informed that the departmental meeting will be conducted on 27th April 2023 at 11am in Conference room. All the members are requested to be present for the same.

AGENDA

- 1] To discuss about conducting "Certificate Course" for S.Y.B.Sc. class
- 2] To discuss regarding objective & course outcome of "Certificate Course"
- 3] To discuss regarding time & duration of "Certificate Course"
- 4] Any other matter with the permission of Chairperson.

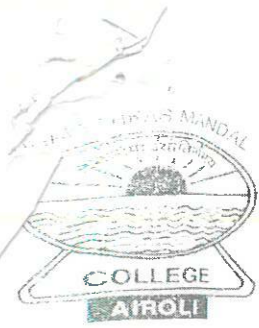
Keena

Dr. Leena Sarkar

Principal & Chairperson



PRINCIPAL
JNAN VIKAS MANDAL'S
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Plot no.9, Sector -19, Airoli Navi Mumbai

- **Name of the activity** – Certificate Course in “Application of Science in Changing World”
[Departmental Course]

- **Members Involved** –

1. Dr. Leena Sarkar [Principal & HOD]
2. Asst. Prof. Sandhya Patil
3. Asst. Prof. Harshada Niju
4. Dr. Prajakta Kadu
5. Asst. Prof. Savita Kumari
6. Dr. Shweta Rathore
7. Asst. Prof. Sagar Shinde
8. Asst. Prof. Pintoo Jaiswar
9. Asst. Prof. Nishant Bist
10. Dr. Kanika Pahawa





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Mohanlal Raichand Mehta College of Commerce
Padmashree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli Navi Mumbai

Date :- 27/04/2023

Minutes of the Meeting

On 27th April 2023, meeting of all faculties of Science Department with Principal Madam held at 11.00 a.m. in conference room. The meeting was presided over by the chairperson - Principal Dr. Leena Sarkar.

Following points were discussed in the meeting and decisions were taken in order to discuss about the organization of Certificate course.

- 1] Principal Dr. Leena Sarkar madam suggested that faculties from all department of science should conduct "Certificate Course" for S.Y.B.Sc. class.
- 2] Principal Dr. Leena Sarkar madam appointed Dr. Prajakta Kadu [Zoology Department] as a convenor for conducting this Certificate Course.
- 3] In this meeting, orientation of Certificate Course was finalized.
 - Date of Duration – 20th June, 2023
 - Duration of the Course – 30 Hours
 - Course Title – "Application of Sciences In Changing World"
 - Course Design will be prepared for S.Y.B.Sc.Class which include objective, course outcome, time table, syllabus & assessment method.
- 4] Meeting was end with vote of thanks.



Following members were present in the meeting :

1. Dr. Leena Sarkar [Principal] *Leena*
2. Asst. Prof. Sandhya Patil *Sandhya*
3. Asst. Prof. Harshada Niju *Harshada*
4. Dr. Prajakta Kadu *Pra*
5. Asst. Prof. Savita Kumari *Savit*
6. Dr. Shweta Rathore *Shweta*
7. Asst. Prof. Sagar Shinde *S*
8. Asst. Prof. Pintoo Jaiswar *PJ*
9. Asst. Prof. Nishant Bist *NB*
10. Dr. Kanika Pahawa *Kanika*





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Plot no.9, Sector -19, Airoli Navi Mumbai

Date – 19/06/2023

NOTICE OF CERTIFICATE COURSE

All the students of S.Y.B.Sc. are hereby informed that the Certificate Course in “Application of Sciences In Changing World” organized by the Department of Science will be commencing from Tuesday, 20th June 2023. This course is Free of Cost and will be helpful for students to have a thorough knowledge of new & advanced applications in basic sciences. So all the students are requested to be present for the course.

Dr. Prajakta Kadu
Convenor

Dr. Leena Sarkar
Principal & Chairperson



PRINCIPAL
JNAN VIKAS MANDAL'S
M.R. MEHTA COLLEGE OF COMMERCE
D.M. COLLEGE OF SCIENCE
A.R. MEHTA COLLEGE OF ARTS
Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE
Plot No.9, SEC.- 19, AIROLI,
NAVI MUMBAI-400 708

FEEDBACK FORM IMAGES

2023-24 Feedback Form of Certificate Course

Certificate Course 'Application of sciences in changing world' SYBSc SEM - III 2023 - 24

Email *

Valid email

This form is collecting emails. [Change settings](#)

Name of the Student *

Short answer text

Class *

Class *

Short answer text

1) Was the learning objective of the course fulfilled? *

Yes

No



2) Course gave you knowledge of advance science subject ? *

- Yes
- No

3) Did the course help you to develop professional / commercial skills ? *

- Yes
- No

4) Was the course well organized ? *

	1	2	3	4	
Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excellent

5) How was the content of the course designed? *

	1	2	3	4	
Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excellent

6) Overall rating of the Certificate Course ? *

	1	2	3	4	
Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excellent





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S.Y.B.Sc Certificate Course [2023-24]

"Application of Science In Changing World"

Attendance

Date - 20/06/2023

Sr. No	Name of Student	Lec. 1 (S.S) SS	Lec. 2 S.K	Lec. 3 P.J	Lec. 4 HN	Lec. 5 (S.S)
		Sign	Sign	Sign	Sign	Sign
1	Nisha Suthar					
2	Archana Gupta	Archana	Archana	Archana	Archana	Archana
3	Komal Gupta	Komal	Komal	Komal	Komal	Komal
4	Sahil Kalantre	Kalantre	Kalantre	Kalantre	Kalantre	Kalantre
5	Snulabsha Shah	Shah	Shah	Shah	Shah	Shah
6	Vinayak Gaikwad	Gaikwad	Gaikwad	Gaikwad	Gaikwad	Gaikwad
7	DHIRAJ JAISWAR	DHIRAJ	DHIRAJ	DHIRAJ	DHIRAJ	DHIRAJ
8	Manisha Yadav	Yadav	Yadav	Yadav	Yadav	Yadav
9	Tarshashila Pawar.	Pawar	Pawar	Pawar	Pawar	Pawar
10	Aditi Sharma	Sharma	Sharma	Sharma	Sharma	Sharma
11	Kishor. Mali	Mali	Mali	Mali	Mali	Mali
12	Abhishek Surve	Surve	Surve	Surve	Surve	Surve
13	Sahil Shedge	Shedge	Shedge	Shedge	Shedge	Shedge
14	Nehal Ambhree.	Ambhree	Ambhree	Ambhree	Ambhree	Ambhree
15	Atish. M. Nikam	Nikam	Nikam	Nikam	Nikam	Nikam
16	Sansk ruti. P. Patil	Patil	Patil	Patil	Patil	Patil
17	Branjel P. Gawas	AB	Gawas	Gawas	Gawas	Gawas
18	Vaishanvi Shewale	AB	Omsheval	Omsheval	Omsheval	Omsheval
19	shubhangi Rajdev	AB	Rajdev	Rajdev	Rajdev	Rajdev
20	puja B. yadav	AB	Puja	Puja	Puja	Puja
	Name of Teacher [Initial]	S.Shinde	Savita	PT	HN	S.Shinde
	Sign of Teacher					

- 21. Triyanka .B. Yadav.
- 22. Akanksha ; K. Dhumal.
- 23. Komal .S. Pandey
- 24. Poo Priya Negi

AB





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S.Y.B.Sc Certificate Course [2023-24]

"Application of Science In Changing World"

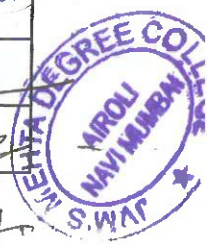
Attendance

Date - 21/06/2023

Sr. No		Lec. 1 P.K	Lec. 2 HN	Lec. 3 PT	Lec. 4 CP	Lec. 5 P.K.
	Name of Student	Sign	Sign	Sign	Sign	Sign
1	Sanskriti. L. Patil	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
2	DHIRAJ. Jaiswar	DHIRAJ	DHIRAJ	DHIRAJ	DHIRAJ	DHIRAJ
3	Komal Pandey	KomalPandey	KomalPandey	KomalPandey	KomalPandey	KomalPandey
4	Gulabsha Shah	Shah Gulab	Shah Gulab	Shah Gulab	Shah Gulab	Shah Gulab
5	Nisha Suthar	Nisha	Nisha	Nisha	Nisha	Nisha
6	Komal Gupta	Komal	Komal	Komal	Komal	Komal
7	Dhanashree Mhatre	Dhanashree	Dhanashree	Dhanashree	Dhanashree	Dhanashree
8	Gahil Kalantre	Kalantre	Kalantre	Kalantre	Kalantre	Kalantre
9	Puja B. yadav	Puja	Puja	Puja	Puja	Puja
10	Neha Arbhuse	Neha	Neha	Neha	Neha	Neha
11	Archana G. Gupta	Archana	Archana	Archana	Archana	Archana
12	Manisha Yadav	Manisha	Manisha	Manisha	Manisha	Manisha
13	Triyanka .B. Yadav.	Triyanka	Triyanka	Triyanka	Triyanka	Triyanka
14	shubhangi Rajdev	Rajdev	Rajdev	Rajdev	Rajdev	Rajdev
15	Pranjal .P. Gawas	Gawas	Gawas	Gawas	Gawas	Gawas
16	Vaishnavi Sheval'e	Amshewale	Amshewale	Amshewale	Amshewale	Amshewale
17)	Akanksha k. Dhumal.	shumal.	shumal	shumal	shumal	shumal.
18	Payal Shinde	Payal	Payal	Payal	Payal	Payal
19	Mansi Chavan	Karav	Karav	Karav	Karav	Karav
20	Peadiip Kadam	Kadam	Kadam	Kadam	Kadam	Kadam
21.	Atish . M: Nikam	Atish	Atish	Atish	Atish	Atish
22.	Kishor Mali	Kishor	Kishor	Kishor	Kishor	Kishor

23. Aditi Sharma
24. Abhishek Surve
25. Takshashila Pawar.

[Signatures]
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S.Y.B.Sc Certificate Course [2023-24]

“Application of Science In Changing World”

Attendance

Date - 22/06/2023

Sr. No	Name of Student	Lec. 1 K.P Sign	Lec. 2 M.B Sign	Lec. 3 S.K Sign	Lec. 4 P.K Sign	Lec. 5 Sign
1	Gulabsha Shah	<i>Gulabsha</i>	<i>Gulabsha</i>	<i>Gulabsha</i>	<i>Gulabsha</i>	A
2	Nisha Suthar	<i>Nisha</i>	<i>Nisha</i>	<i>Nisha</i>	<i>Nisha</i>	S
3	Komal Pandey	<i>Komal</i>	<i>Komal</i>	<i>Komal</i>	<i>Komal</i>	S
4	Komal Gupta	<i>Komal</i>	<i>Komal</i>	<i>Komal</i>	<i>Komal</i>	J
5	Neel Ambhore	<i>Neel</i>	<i>Neel</i>	<i>Neel</i>	<i>Neel</i>	G
6	Archana G. Gupta	<i>Archana</i>	<i>Archana</i>	<i>Archana</i>	<i>Archana</i>	M
7	Jankhuri R. Patil	<i>Jankhuri</i>	<i>Jankhuri</i>	<i>Jankhuri</i>	<i>Jankhuri</i>	M
8	Payal Shirde	<i>Payal</i>	<i>Payal</i>	<i>Payal</i>	<i>Payal</i>	E
9	Mansi Chavam	<i>Mansi</i>	<i>Mansi</i>	<i>Mansi</i>	<i>Mansi</i>	M
10	Peadipe Kadam	<i>Peadipe</i>	<i>Peadipe</i>	<i>Peadipe</i>	<i>Peadipe</i>	T
11	Aish M. Nikam	<i>Aish</i>	<i>Aish</i>	<i>Aish</i>	<i>Aish</i>	
12	Abhishek Surve	<i>Abhishek</i>	<i>Abhishek</i>	<i>Abhishek</i>	<i>Abhishek</i>	
13	DHIRAJ Jaiswar	<i>DHIRAJ</i>	<i>DHIRAJ</i>	<i>DHIRAJ</i>	<i>DHIRAJ</i>	
14	Sahil Shedge	<i>Sahil</i>	<i>Sahil</i>	<i>Sahil</i>	<i>Sahil</i>	
15	Kishor Mali	<i>Kishor</i>	<i>Kishor</i>	<i>Kishor</i>	<i>Kishor</i>	
16	Vinayak Gaikwad	<i>Vinayak</i>	<i>Vinayak</i>	<i>Vinayak</i>	<i>Vinayak</i>	
17	Puja B. Yadav	<i>Puja</i>	<i>Puja</i>	<i>Puja</i>	<i>Puja</i>	
18	Akanksha K. Dhumal	<i>Akanksha</i>	<i>Akanksha</i>	<i>Akanksha</i>	<i>Akanksha</i>	
19	Triyanka B. Yadav	<i>Triyanka</i>	<i>Triyanka</i>	<i>Triyanka</i>	<i>Triyanka</i>	
20	Shubhangi Jalindar R.	<i>Shubhangi</i>	<i>Shubhangi</i>	<i>Shubhangi</i>	<i>Shubhangi</i>	
21	Vaishnavi Shewale	<i>Vaishnavi</i>	<i>Vaishnavi</i>	<i>Vaishnavi</i>	<i>Vaishnavi</i>	
22	Pranjal Pratap Gawai	<i>Pranjal</i>	<i>Pranjal</i>	<i>Pranjal</i>	<i>Pranjal</i>	
23	Sheetal G. Namwade	<i>Sheetal</i>	<i>Sheetal</i>	<i>Sheetal</i>	<i>Sheetal</i>	
23	Sahil Kalantre	<i>Sahil</i>	<i>Sahil</i>	<i>Sahil</i>	<i>Sahil</i>	AB
25	Tanushashila Pawar	<i>Tanushashila</i>	<i>Tanushashila</i>	<i>Tanushashila</i>	<i>Tanushashila</i>	AB





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Plot no.9, Sector -19, AiroliNavi Mumbai

S.Y.B.Sc Certificate Course [2023-24]

"Application of Science In Changing World"

Attendance

Date - 23/06/2023

Sr. No	Name of Student	Lec. 1 P.J	Lec. 2 S.P	Lec. 3 PK	Lec. 4 N.B	Lec. 5 (2 Lecture N.B. 6:11-2pm)
		Sign	Sign	Sign	Sign	Sign
1	Tejal. R. Koteekar	<i>Tejal</i>	<i>Tejal</i>	<i>Tejal</i>	<i>Tejal</i>	<i>Tejal</i>
2	Gulabsha Shah	<i>Gulabsha</i>	<i>Gulabsha</i>	<i>Gulabsha</i>	<i>Gulabsha</i>	<i>Gulabsha</i>
3	Nisha Suthar	<i>Nisha</i>	<i>Nisha</i>	<i>Nisha</i>	<i>Nisha</i>	<i>Nisha</i>
4	Komal Pandey	<i>Komal</i>	<i>Komal</i>	<i>Komal</i>	<i>Komal</i>	<i>Komal</i>
5	Nehal Ambhase	<i>Nehal</i>	<i>Nehal</i>	<i>Nehal</i>	<i>Nehal</i>	<i>Nehal</i>
6	Archana Gupta	<i>Archana</i>	<i>Archana</i>	<i>Archana</i>	<i>Archana</i>	<i>Archana</i>
7	Sanskruiti. R. Patil	<i>Sanskruiti</i>	<i>Sanskruiti</i>	<i>Sanskruiti</i>	<i>Sanskruiti</i>	<i>Sanskruiti</i>
8	DHIRAJ. T	<i>DHIRAJ</i>	<i>DHIRAJ</i>	<i>DHIRAJ</i>	<i>DHIRAJ</i>	<i>DHIRAJ</i>
9	Abhishek Surve	<i>Abhishek</i>	<i>Abhishek</i>	<i>Abhishek</i>	<i>Abhishek</i>	<i>Abhishek</i>
10	Branjal P. Gawas	<i>Branjal</i>	<i>Branjal</i>	<i>Branjal</i>	<i>Branjal</i>	<i>Branjal</i>
11	Sheetal G. Namuwale	<i>Sheetal</i>	<i>Sheetal</i>	<i>Sheetal</i>	<i>Sheetal</i>	<i>Sheetal</i>
12	Akanksha. Keshav. Dhurnal.	<i>Akanksha</i>	<i>Akanksha</i>	<i>Akanksha</i>	<i>Akanksha</i>	<i>Akanksha</i>
13	Shubhangi Rajdev	<i>Shubhangi</i>	<i>Shubhangi</i>	<i>Shubhangi</i>	<i>Shubhangi</i>	<i>Shubhangi</i>
14	Kriyanka. B. Yadav.	<i>Kriyanka</i>	<i>Kriyanka</i>	<i>Kriyanka</i>	<i>Kriyanka</i>	<i>Kriyanka</i>
15	Puja. B. yadav	<i>Puja</i>	<i>Puja</i>	<i>Puja</i>	<i>Puja</i>	<i>Puja</i>
16	Pritee. S. Jadhav	<i>Pritee</i>	<i>Pritee</i>	<i>Pritee</i>	<i>Pritee</i>	<i>Pritee</i>
17	Aditi Sharma	<i>Aditi</i>	<i>Aditi</i>	<i>Aditi</i>	<i>Aditi</i>	<i>Aditi</i>
18	Vaishanvi Shewale	<i>AR</i>	<i>Omshewale</i>	<i>Omshewale</i>	<i>Omshewale</i>	<i>Omshewale</i>
19	Dhanashree Mhatre	<i>Dhanashree</i>	<i>Dhanashree</i>	<i>Dhanashree</i>	<i>Dhanashree</i>	<i>Dhanashree</i>
20	Kishor. Mali	<i>Kishor</i>	<i>Kishor</i>	<i>Kishor</i>	<i>Kishor</i>	<i>Kishor</i>
21						
22						
23	Takshashila Naagar	<i>Takshashila</i>	<i>Takshashila</i>	<i>Takshashila</i>	<i>Takshashila</i>	<i>Takshashila</i>
24	Manisha Yadav	<i>Manisha</i>	<i>Manisha</i>	<i>Manisha</i>	<i>Manisha</i>	<i>Manisha</i>





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Plot no.9, Sector -19, AiroliNavi Mumbai

S.Y.B.Sc Certificate Course [2023-24]

"Application of Science In Changing World"

Attendance

Date - 24 / Jun / 23

Sr. No		Lec. 1 SS	Lec. 2 PJ	Lec. 3 KP	Lec. 4 KP	Lec. 5
	Name of Student	Sign	Sign	Sign	Sign	Sign
1	Vinayak Gaikwad	Braikwad	Braikwad	Braikwad	AB	A
2	Sahil Kalantre	sahil	Sahil	Sahil	Sahil	S
3	Archana. G. Gupta	Archana	Archana	AB	AB	S
4	Komal Pandey	Komal	Komal	AB	AB	I
5	Dhanashree Mhatre.	D	D	AB	AB	G
6	Sahil V. Shedge	Sahil	Sahil	Sahil	AB	N
7	DHIRAJ. Jaiswar	DHIRAJ	DHIRAJ	DHIRAJ	AB	M
8	Kishor Mali	Kishor	Kishor	Kishor	Kishor	E
9	Aditi Sharma	Aditi	Aditi	Aditi	Aditi	N
10	Atish. M. Nikam	Atish	Atish	Atish	Atish	T
11						
12	Pranjal Grawas	Prawas	Prawas	Prawas	Prawas	
13	Puja .B. Yadav	Puja	Puja	Puja	Puja	
14	Triyanka .B. Yadav	Triyanka	Triyanka	Triyanka	Triyanka	
15	Alanksha. K. phumal.	phumal	phumal	phumal	phumal	
16	Shubhangi Jalindar Rajdev	Rajdev	Rajdev	AB	AB	
17	Aakansha Vishwakarma	Aakansha	Aakansha	Aakansha	Aakansha	
18	Nisha Suthar	Nisha	Nisha	AB	AB	
19	Vaishanvi Shewale	AB	Omshewale	Omshewale	Omshewale	
20	Abhishek Surve	Surve	Surve	Surve	Surve	
21	Pritya Negi	AB	AB	AB	Pritya	
22						
23	Manisha Yadav	AB	AB	AB	Manisha	
24	Tejal Kolekar	AB	AB	AB	Tejal	





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S.Y.B.Sc Certificate Course [2023-24]

"Application of Science In Changing World"

Attendance

Date - 26/06/2023

Sr. No	Name of Student	Lec. 1 H.N Sign	Lec. 2 S.S Sign	Lec. 3 SR Sign	Lec. 4 K.P Sign	Lec. 5 Sign
1	Sanskruiti L. Patil			AB		A
2	Archana G. Gupta			AB		S
3	Neel Ambhore					S
4	Rajdev Shubhangi					T
5	Tejal Kotekar					G
6	Manisha Yadav					A
7	Alkantsha K. Dhumal					M
8	Puja B. Yadav					E
9	Vaishnavi Shewale					A
10	Pranjal Gowar					T
11	Atish M. Nikam					
12	Sahil V. Shedge					
13	Triyanka B. Yadav					
14	Abhishek Surve					
15	Aditi Sharma					
16	Payal Shinde	AB				
17	Mansi Chavan	AB				
18	Pradip Kadam	AB				
19	Vinayak Garkwad	AB				
20	Dhishay Jayswal	AB		AB		
21	Sahil Kalantre	AB				
22	Kishor Mali					
23						
24						





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S.Y.B.Sc Certificate Course [2023-24]

"Application of Science In Changing World"

Evaluation [Marks]

Sr. No	Name of Student	Chemistry Marks [40%]	Physics Marks [40%]	Zoology Marks [40%]	Maths Marks [40%]
1	Komal Pandey	87 %	100 %	100 %	50 %
2	Shubhangi Rajdev	60 %	85 %	80 %	40 %
3	Akanksha Dhumal	67 %	85 %	100 %	50 %
4	Archana Gupta	57 %	100 %	100 %	50 %
5	Priyanka Yadav	40 %	100 %	100 %	45 %
6	Pooja Yadav	40 %	80 %	80 %	45 %
7	Pranjal Gawale	60 %	100 %	100 %	50 %
8	Neha Amboste	40 %	100 %	90 %	45 %
9	Sanskriti Patil	40 %	95 %	100 %	40 %
10	Atish Nikam	40 %	100 %	100 %	50 %
11	Dhiraj Taiswar	46 %	50 %	50 %	50 %
12	Vinayak Gaikwad	73 %	100 %	100 %	50 %
13	Sahil Kalantre	60 %	90 %	100 %	50 %
14	Dhanashree Mhatre	40 %	80 %	45 %	40 %
15	Gulabsha Shah	60 %	95 %	40 %	50 %
16	Nisha Sutar	60 %	95 %	90 %	50 %
17	Payal Shinde	40 %	80 %	40 %	50 %
18	Manali Chavan	60 %	100 %	80 %	40 %
19	Pradip Kadam	60 %	95 %	40 %	50 %
20	Abhishek Surve	40 %	85 %	40 %	45 %
21	Sahil Shedge	40 %	75 %	40 %	50 %
22	Kishori Mali	60 %	90 %	45 %	50 %
23	Vaishnavi Shewale	60 %	100 %	90 %	40 %
24	Sheetal Narwade	40 %	40 %	90 %	40 %





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S.Y.B.Sc Certificate Course [2023-24]

“Application of Science In Changing World”

OBJECTIVES OF THE COURSE -

- To acquire knowledge of recent developments in sciences
- To understand new concept develop in sciences
- To learn significance of application of new developments in sciences
- To understand new mechanism in sciences

COURSE OUTCOME -

- Students understood basic skills and new principles of sciences
- It develop ability to understand and demonstrate new development in sciences
- It will expose students to multi-faceted new options after pursuing pure sciences
- Students cultivate the ability to work with new development in science and technology

COURSE DURATION -

- 30 Lectures of 1 week [per day 4 Lectures]



ASSESSMENT –

- Exam – The most important part of assessment is the exam which will be conducted at the end of the certificate course through which students can check their IQ related to the subject.
- Attendance – This will help students to maintain flow in their learning concepts.
- Active Participation – This will improve student's communication and alertness and will learn the practical things related to the topic.

EARN A CERTIFICATE –

- Certificates were given to all the students who scored 40% and above marks.





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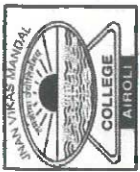
SY.B.Sc SEM III- CERTIFICATE COURSE [2023-24]

"APPLICATION OF SCIENCE IN CHANGING WORLD"

SYLLABUS

Sr. No.	Faculty Name	Topic Name
1	Dr. Harshada Niju	Applications of Electrochemistry - Electroplating
2	Asst. Prof. Sandhya Patil	Analysis of Ibuprofen, Vitamin C
3	Asst. Prof. Savita Kumari	Scope of Green Chemistry
4	Dr. Shweta Rathore	Applications of Medicinal Chemistry
5	Dr. Prajakta Kadu	Applications of Economic Zoology [Sericulture & Vermiculture]
6	Dr. Kanika Pahwa	Sustainable Farming : Aquaponics & Hydroponics
7	Asst. Prof. Sagar Shinde	Green Energy Solutions
8	Asst. Prof. Nishant Bist	Applications of Nano Science & Nano Technology
9	Asst. Prof. Pintoo Jaiswar	Application of Number System





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Certificate Course Time - Table

“Application of Science In Changing World” [20th -26th June 2023]

Class - S.Y.B.Sc.

Academic Year: 2023-24

TIME	DAY						
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	
8.40 To 9.30	(H.N)	(S.S)	(S.R.)	(P.K)	(P.J)	(N.B)	
9.30 To 10.20	(S.S)	(H.N)	(P.K)	(N.B)	(S.P)	(K.P)	
10.30 TO 11.20	(S.R.)	(K.P)	(P.J)	(S.K)	(P.K)	(S.S)	
11.20 To 12.10	(K.P)	(S.K)	(S.P)	(P.J)	(N.B)	(P.J)	
12.10 To 1.00	Assignment (N.B)	Assignment (S.S)	Assignment (P.K)	Assignment (K.P)	Assignment (P.J)	Assignment (S.P)	

H.N – Dr. Harshada Niju S.P – Mrs. Sandhya Patil S.K – Miss Savita Kumari S.R – Dr. Shweta Rathore P.K – Dr. Prajakta Kadu K.P-Dr. Kamika Pahawa
S.S. – Mr. Sagar Shinde N.B. – Mr. Nishant Bist P.J – Mr. Pintoo Jaiswar

Prajakta

Dr. Prajakta Kadu

In-charge [Certificate Course]

Neena

Dr. Leena Sarkar

Principal & Chairperson

PRINCIPAL

**JNAN VIKAS MANDAL'S
M.B. MEHTA COLLEGE OF COMMERCE**





JNAN VIKAS MANDAL'S DEGREE COLLEGE

NAAC RE-ACCREDITED 'A' GRADE (CGPA 3.33)

CERTIFICATE

This is to certify that Mr./Ms. _____ of S.Y.B.Sc. Class
has participated in 30 hours Certificate Course in "Application of Sciences In Changing World"
organized by Department of Science between 20th June to 26th June 2023.

Dr. Prajakta Kadu
Convenor

Dr. Leena Sarkar
Principal & Chairperson





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CERTIFICATE COURSE - S.Y.B.Sc. (2023-24)

"Application of Science In Changing World"

REPORT

Department of science conducted certificate course for S.Y.B.Sc students from 20th June to 26th June 2023. Faculties from Department of Chemistry, Physics, Zoology and Mathematics participated in this course. 33 students from S.Y.B.Sc. Class attended certificate course.

In this certificate course, students learned various applications of new developments in sciences. Students also understand basic skills and new principles of sciences. All this will ultimately help the students for their career prospects and future benefits. The result assessment was calculated on the basis of test, assignment taken by the faculties at the end of the course.

E- Certificates were given to all the students who scored 40% and above marks.

Dr. Prajakta Kadu

Convenor

Dr. Leena-Sarkar

Principal and Chairperson

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Date: 12/06/2023

NOTICE

All faculties of the Chemistry Department are hereby informed that tomorrow on 13th June 2023 there will be meeting at 1.00 pm in Chemistry staff room.

All the members are requested to be present for the same.

AGENDA

- 1] To discuss about conducting "Certificate Course" for T.Y.B.Sc. Class.
- 2] Any other matter with the permission of Chairperson.

Leena

Dr. Leena Sarkar

H.O.D (Dept. of Science) & Principal

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Date :- 13/06/2023

Minutes of the Meeting

A meeting of staff members of Department of Chemistry with Principal was held in Chemistry Department staffroom on 13th June 2023 at 1.00 p.m. The meeting was presided over by the Principal Dr. Leena Sarkar. Following members were present in the meeting.

1. Dr. Leena Sarkar [Principal]
2. Asst. Prof. Sandhya Patil
3. Asst. Prof. Harshada Niju
4. Asst. Prof. Savita Kumari
- 5 Dr. Shweta Rathore

Signature

Leena
Sandhya
Harshada
Sarkar
Shweta

8

Following points were discussed in the meeting:-

- 1] Principal Dr. Leena Sarkar told that as per academic calendar the Certificate course has to be started after completion of Bridge Course. The dates decided for Certificate course of T.Y.B.Sc (Chemistry) were from 20th June to 26th June 2023.
- 2) Principal Dr. Leena Sarkar madam asked to decide the theme of the Course. After discussion the theme "Advances in Chemistry" was finalized.
- 3] The time table and syllabus for Certificate Course was finalized in the meeting.
- 4] Meeting was end with vote of thanks.

Sandhya Patil
Asst. Prof. Sandhya Patil
(Convener)

Leena
Dr. Leena Sarkar
H.O.D (Dept. of Science) & Principal

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Certificate Course in

"ADVANCES IN CHEMISTRY" T.Y.B.Sc. Chemistry Sem V 2022-23

Duration-30 Hrs

OBJECTIVES: -

- Learners will gain knowledge about Hydrogels and their applications.
- Learner will study the supramolecules.
- Learner will gain information about petroleum products and their methods of Analysis.
- Learner will study Biosensors .

OUTCOME: -

- Learner is knowledge of advantages, limitations and applications of Hydrogels..
- Develop an understanding of supramolecules.
- Learner has knowledge about petroleum products and is able to do analysis of oils.
- Learners got knowledge about biosensors and its applications.





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COURSE SYLLABUS

CERTIFICATE COURSE " ADVANCES IN CHEMISTRY" CONTENT- 2023-24

(For T.Y.B.Sc. Chemistry) 20th-25th June 2022

Asst. Prof. Harshada Niju - 8 L

	MODULE-1
1.1.	Hydrogels: Introduction (1L)
1.2.	Preparation and its classification (2L)
1.3	Advantages and disadvantages (2L)
1.4	Applications (2L)
1.5	Assignment (1L)
Asst. Prof. Shweta Rathore - 7 L	
	MODULE-2
2.1	Biosensors (1L)
2.2	Principle(1L)
2.3	Types of biosensors(1L)





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2.4	Application of Biosensors(1L)
2.5	Examples of Biosensors(1L)
2.6	Devices used in Biosensors(1L)
2.7	Assignment -(1L)
Asst. Prof. Savita Kumari - 7 L	
MODULE-3	
3.1.	Chemistry of Supramolecules 1 (1L)
3.2.	Chemistry of Supramolecules 2 (1L)
3.3	Chemistry of Supramolecules 3 (1L)
3.4	Chemistry of Supramolecules 4 (1L)
3.5	Chemistry of Supramolecules 5 (1L)
3.6	Chemistry of Supramolecules 6 (1L)
3.7	Assignment (1L)





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Asst. Prof. Sandhya Patil 8 L	
	MODULE-4
4.1	Branches of Chemistry (1L)
4.2	Petroleum Products (1L)
4.3	Use of Petroleum products(1L)
4.4	Separation methods of Petroleum Products (1L)
4.5	Analysis of Oils (1L)
4.6	Analysis of Petroleum products (1L)
4.7	Assignment (2 L)





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Certificate Course "ADVANCES IN CHEMISTRY"
Timetable
20th -26th June 2023

Class-T.Y.B.Sc.

Academic year: 2023-24

Time	Day					
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8.40 to 9.40 am	(S.R.)	(S.P)	(S.P.)	(S.K)	(H.N.)	(S.P.)
9.40 to 10.40 am	(S.K)	(S.P)	(S.R.)	(S.P.)	(H.N.)	(H.N.)
11.00 to 12.00	(S.P.)	(S.K)	(H.N.)	(H.N.)	(S.K)	(S.R.)
12.00 to 1.00 pm	(H.N.)	(S.R.)	(S.K)	(S.R.)	(S.R.)	(S.K.)
1.00 to 2.00 p.m.	Assignment (S.P)	Assignment (S.P)	Assignment (S.R)	Assignment (S.K)	Assignment (H.N)	Assignment (H.N)

H.N – Dr. Harshada Niju S.P – Mrs. Sandhya Patil S.K – Miss Savita Kumari S.R – Dr. Shweta Rathore


Mrs. Sandhya Patil

(In charge for Certificate Course)


Dr. Leena Sarkar

H.O.D, Dept. of Science & Principal



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Participant list T.Y.B.Sc Certificate Course 2023-24 "Advances in Chemistry"

Sr. No.	Name of Student
1	Sanika Govind Pote
2	Madhavi Sanjay Kanase
3	Ayaneesh Umashankar Yadav
4	Jaywant Bajirao Lotale
5	Ritika Giri
6	Riya Subhash Vishwakarma
7	Pratiksha Shravan Borde
8	PoojaUmesh Shah
9	Omkar Sanjay Nanavare
10	Parul Pawankumar Singh
11	Nikita Nagnath Lagade





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T.Y.B.Sc 2023-24 Certificate Course "Advancesin Chemistry"

Attendance

Date - 20/06/23

Sr. No	Time	Lec. 1	Lec 2	Lec 3	Lec 4	Lec 5
	Name of Student	Sign	Sign	Sign	Sign	Sign
1	Avaneesh Yadav					
2	Pooja Shah					
3	Pratiksha Borde					
4	Madavi Kanase					
5	Nikita Lagade					
6	Riya Vishwakarma					
7	Omkar Nanavare					
8						
9						
10						
11						
12						
13						
14						
15						
	Name of Teacher		S.R	S.R	S.R	S.R
	Sign of Teacher					





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T.Y.B.Sc 2023-24 Certificate Course "Advancesin Chemistry"

Attendance

Date - 21/06/23

Sr. No	Time	Lec. 1	Lec 2	Lec 3	Lec 4	Lec 5
Name of Student	Sign	Sign	Sign	Sign	Sign	Sign
1	Riya vishwakarma	Riyav	Riyav	Riyav	Riyav	Riyav
2	Madani Kanase	Madani	Madani	Madani	Madani	Madani
3	Avaneesh yadav	A	A	A	A	A
4	Lotale Jayavant	Blatte	Blatte			
5	Pratiksha Borde	Borde	Borde	Borde	Borde	Borde
6	Sanika Pote	Sanika	Sanika	Sanika	Sanika	Sanika
7	omkar Nanavare	Omkar	Omkar	Omkar	Omkar	Omkar
8	Ritika Gusei	Ritika	Ritika	Ritika	Ritika	Ritika
9	Pooja Shah		Shah	Shah		Shah
10	Jayavant Lotale		Blatte			
11						
12						
13						
14						
15						
Name of Teacher	Savitri Pabil	Savitri	Hanshika	Savitri	Savitri	Savitri
Sign of Teacher						





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T.Y.B.Sc 2023-24 Certificate Course "Advancesin Chemistry"

Attendance

Date - 22/06/23

Sr. No	Time	Lec. 1	Lec 2	Lec 3	Lec 4	Lec 5
Name of Student	Sign	Sign	Sign	Sign	Sign	Sign
1	Riya vishwakarma	Riyen	Riyen	Riyen	Riyen	Riyen
2	Jayavant Lotele	Jalaka	Jalaka			
3	Avanesh Yadav	A	A	A	A	A
4	Madavi Kanase	Madavi	Madavi	Madavi	Madavi	Madavi
5	omkar Namavane	omkar	omkar	omkar	omkar	omkar
6	Parul Singh		Parul	Parul		
7	Pooja Bhan		Bhan	Bhan	Phat	Bhan
8						
9						
10						
11						
12						
13						
14						
15						
Name of Teacher	Savita	Savita	Harshada	Harshada	Savita	
Sign of Teacher	Savita	Savita	Harshada	Harshada	Savita	





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T.Y.B.Sc 2023-24 Certificate Course " Advancesin Chemistry"

Attendance

Date - 23-06-2023

Sr. No	Time	Lec. 1	Lec 2	Lec 3	Lec 4	Lec 5
	Name of Student	Sign	Sign	Sign	Sign	Sign
1	Omkar Sanjay Narmada	<u>Omkar</u>	<u>Omkar</u>	<u>Omkar</u>	<u>Omkar</u>	<u>Omkar</u>
2	Ritika Givi	<u>Ritika</u>	<u>Ritika</u>	<u>Ritika</u>	<u>Ritika</u>	<u>Ritika</u>
3	Riya vishwakarma	<u>Riyaw</u>	<u>Riyaw</u>	<u>Riyaw</u>	<u>Riyaw</u>	<u>Riyaw</u>
4	Parul singh			<u>Parul</u>	<u>Parul</u>	
5	Madavi kanase	<u>Madavi</u>	<u>Madavi</u>	<u>Madavi</u>	<u>Madavi</u>	<u>Madavi</u>
6	Avaneesh Yadav	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>
7	Pooja Shah		<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>
8	Sanika Apte	<u>Sanika</u>	<u>Sanika</u>	<u>Sanika</u>	<u>Sanika</u>	<u>Sanika</u>
9	Pratiksha Borde		<u>Borde</u>	<u>Borde</u>	<u>Borde</u>	<u>Borde</u>
10						
11						
12						
13						
14						
15						
	Name of Teacher	<u>Harshada</u>	<u>Harshada</u>	<u>Sanika</u>	<u>Sanika</u>	<u>Harshada</u>
	Sign of Teacher	<u>Harshada</u>	<u>Harshada</u>	<u>Sanika</u>	<u>Sanika</u>	<u>Harshada</u>





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T.Y.B.Sc 2023-24 Certificate Course "Advancesin Chemistry"

Attendance

Date - 24-06-2023

Sr. No	Time	Lec. 1	Lec 2	Lec 3	Lec 4	Lec 5
Name of Student	Sign	Sign	Sign	Sign	Sign	Sign
1	Riya vishwakarma	Riyaw	Riyaw	Riyaw	Riyaw	Riyaw
2	Omka Sonjay Mamavare	omkar	omka	omkar	omkar	omkar
3	Jayavant Latale	Jlette	Jlette	Jlette	Jlette	Jlette
4	Avanesh Yadav	A	A	A	A	A
5	Madavi Kanase	Madavi	madavi	Madavi	Madavi	Madavi
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
Name of Teacher		S.P.	S.P.	HN	HN	HN
Sign of Teacher				Harshade	Harshade	Harshade





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T.Y.B.Sc 2023-24 Certificate Course "Advancesin Chemistry"

Attendance

Date - 26-06-2023

	Time					
Sr. No		Lec. 1	Lec 2	Lec 3	Lec 4	Lec 5
	Name of Student	Sign	Sign	Sign	Sign	Sign
1	Pratiksha Borde	Borde	Borde	Borde	Borde	Borde
2	Riya vishwakarma	Riyaw	Riyaw	Riyaw	Riyaw	Riyaw
3	Ritika Givi	Ritika	Ritika	Ritika	Ritika	Ritika
4	Sanika Pate	Sanika	Jani	Soni	Jani	Sanika
5	Madavi kande	Madu	Mai	Madhi	Madhi	Madavi
6	Anesh yadav	A	A	A	A	A
7						
8						
9						
10						
11						
12						
13						
14						
15						
	Name of Teacher	Savita	Savita	Savita	Savita	Savita
	Sign of Teacher	S	S	S	S	S





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Tests Record

S. No.	NAME OF STUDENT	TEST-1 20 Mks. (H.N)	TEST-3 20 Mks. (S.P)	TEST-5 10 Mks. (S.K)	TEST-6 10 Mks. (S.R)	Total out of 60	
1	Omkar Nanavare	18	16	08	08	50	
2	Madhavi Kanse	16	10	06	06	38	
3	Avaneesh Yadav	14	08	05	08	35	
4	Ritika Giri	14	16	05	08	43	
5	Pratiksha	12	14	07	05	38	
6	Parul Singh	10	12	A	A	22	
7	Sanika Pote	16	12	04	A	32	
8	Pooja Shah	16	12	07	A	35	
9	Riya Vishwakarma	18	14	06	06	44	
10	Nikita Lagade	16	12	6	09	43	
11	Jayawant Lotale	A	A	A	A	A	






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Model Certificate




Mrs. Sandhya Patil
Convener

Convener


Dr. Leena Sarkar
Principal

HOD(Dept. of Chemistry) & Principal



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Certificate Course in
“ADVANCES IN CHEMISTRY”
T.Y.B.Sc. Chemistry 2023-24
Summary Report

Duration-30 Hrs

**Certificate Course was conducted for T.Y.B.Sc (Chemistry)
students from 20th June 2021 to 26rd June 2021 on the Topic
“ADVANCES IN CHEMISTRY”**

The topics covered were as follows

Faculty Name	Topic
Asst. Prof. Harshada Niju	Hydrogels
Asst. Prof. Sandhya Patil	Petroleum products
Asst. Prof. Savita Kumari	Supramolecules
Dr. Shweta Rathore	Biosensors

Outcomes achieved-

- Learner got knowledge of Hydrogels, its advantages, limitations and applications of Hydrogels.
- Learners developed an understanding of supramolecules.
- Learner got information about petroleum products and they are able to do analysis of oils.
- Learners got knowledge about biosensors and its applications.





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DiwaliMaa Degree College of Science

Mohanlal Raichand Mehta College of Commerce

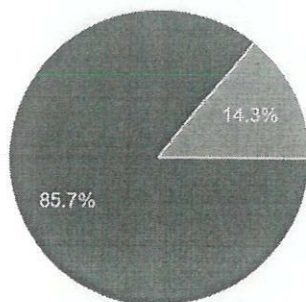
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Feedback Analysis

1. What did you gain from the sessions?

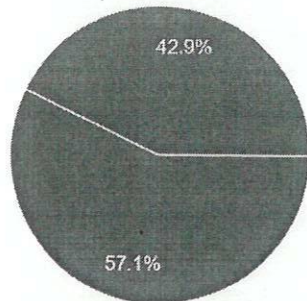
7 responses



- New information
- Answers to my question
- Resource Material
- Ideas I can try immediately

2. What benefits have you obtained from sessions?

7 responses



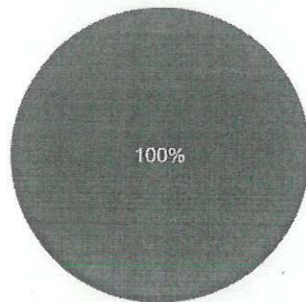
- Motivated to think differently
- Clarified things that had been learned
- Stimulated interest to learn more
- Nothing in particular





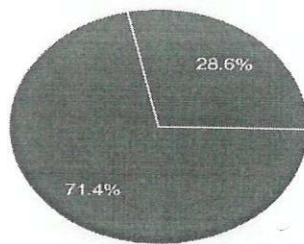
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Plot no.9, Sector -19, Airoli , Navi Mumbai

4. The lecture sequence was well planned
7 responses



● Agree
● Neutral
● Disagree

5. Please give overall rating of the course
7 responses



● Excellent
● Very good
● Good
● Fair
● Poor

Feed back was collected through G form

(https://docs.google.com/forms/d/e/1FAIpQLSeNCqZxgn4VIAKplOwn-9aOdWPq3FRuFHgP4f842vGgYwZaQ/viewform?usp=sf_link) in which all students were satisfied with the course .

Mrs. Sandhya Patil

Convener

Dr. Leena Sarkar

HOD(Dept. of Chemistry) & Principal

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Plot no.9, Sector -19, Airoli Navi Mumbai

Date: 17/06/2022

NOTICE

All faculties of Science Department are hereby informed that tomorrow on 18th June 2022 there will be meeting at 2 p.m. in Chemistry Lab.

All the members are requested to be present for the same.

AGENDA

- 1] To discuss about conducting "Certificate Course" for S.Y.B.Sc. Sem III class.
- 2] Any other matter with the permission of Chairperson.



Leena
Dr. Leena Sarkar

(Principal & Chairperson)

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Mohanalal Raichand Mehta College of Commerce
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli Navi Mumbai

Date :- 18/06/2022

Minutes of the Meeting

Online meeting was held with the faculties of Science Department on 18th June 2022 at 2.00 p.m in Chemistry Lab chaired by Principal Dr. Leena Sarkar

Following points were discussed in the meeting :-

- 1] Principal Dr. Leena Sarkar madam suggested Certificate Course should be conducted for S.Y. B.Sc. students for their holistic development.
- 2] Principal Dr. Leena Sarkar madam appointed Dr. Kanika Pahwa as convenor for conducting this Certificate Course.
- 3] In this meeting, theme was finalized as New Horizon in Science.
- 4] Time table and syllabus for Certificate Course was finalized.
- 5] Meeting was ended with vote of thanks.

Following members were present in the meeting: -

1. Dr. Leena Sarkar [Principal] *Leena*
2. Asst. Prof. Sandhya Patil *Sandhya*
3. Asst. Prof. Harshada Niju *Harshada*
4. Dr. Prajakta Kadu *Pk*
5. Asst. Prof. Savita Kumari *Savita*
6. Dr. Shweta Rathore *Shweta*
7. Asst. Prof. Pintoo Jaiswar *Pintoo*
8. Dr. Kanika Pahwa *Kanika*

Kanika
Dr. Kanika Pahwa
Convener



Leena
Dr. Leena Sarkar
(Principal & Chairperson)

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Amritlal Raichand Mehta Degree College of Arts
Shree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli, Navi Mumbai

Certificate Course- S.Y. B.Sc. Sem III (2022-2023)
on
"New Horizon in Science"

Duration-40 Hrs
Program: B.Sc.
Course: Online Certificate course in Science
Number of Lectures: 40

OBJECTIVES: -

- To make students understand the importance of how chemistry provides new solutions to problems in health, materials, and energy usage.
- To impart knowledge of Business Statistics and Mental Aptitude.
- To introduce learners to the concept of metals analysis with titrimetry.
- To make students understand the complexities and causes of animal behaviour.
- To make students aware about the science behind vaccination technology.

OUTCOME: -

- Students will develop research, problem solving and analytical skills.
- Learners will develop mental aptitude by exploring different fields of mathematics.
- Learner will be able to appreciate the role of biological science for human welfare.
- Learners will understand how science and technology is directly related to the development of human race.

SYLLABUS:-

S.No.	Faculty Name	Topic	No. of Lectures
1.	Dr. Shweta Rathore	Medicinal Food	3
2.	Asst. Prof. Harshada Niju	Liquid crystals and their applications	2
		What are mesoporous materials and their applications	1
3.	Asst. Prof. Sandhya Patil	Analysis of metals by titrimetry	3



4.	Asst. Prof. Savita Kumari	Importance of chemistry in our life	3
5.	Dr. Prajakta Kadu	Science behind Vaccination	4
6.	Dr. Kanika Pahwa	Interesting facts about Animal World	4
7.	Asst. Prof. Pintoo Jaiswar	Business Statistics Mental Aptitude	2 2

TIME TABLE:-

Class - S.Y.B.Sc.

Academic year: 2022-23

Time	Day					
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9.00 To 10.00	(P.K)	(P.K)	(H.N)	(S.R)	(P.K)	(P.K)
10.00 To 11.00	(H.N)	(P.J)	(S.K)	(H.N)	(S.R)	(S.K)
11.20 TO 12.20	(S.R.)	(S.P)	(S.P.)	(P.J)	(S.P.)	(P.J)
12.20 To 1.20	(K.P)	(K.P)	(P.J)	(K.P)	(S.K)	(K.P)
1:30 To 2:30	Assessment (K.P)	Assessment (P.K)	Assessment (H.N)	Assessment (P.J)	Assessment (S.K)	Assessment (S.R)

H.N - Mrs. Harshada Niju S.P - Mrs. Sandhya Patil S.K - Miss Savita Kumari S.R - Dr. Shweta Rathore P.J - Mr. Pintoo Jaiswar P.K - Dr. Prajakta Kadu
K.P - Dr. Kanika Pahwa

Sign of Class teacher -

Sign of H.O.D.-

Sign of Principal-

ATTENDANCE SHEET

1. Name of Teacher: Dr. Shweta Rathore				
Name of Student	20.06.22	23.6.22	24.06.22	Total (3)
Apeeksha Indore	P	P	P	3
Samruddhi Londhe	P	P	P	3
Nikita Lagade	P	P	A	2
Parul Singh	P	P	P	3
Sanika Pote	P	A	A	1



Pratiksha Bore	P	P	A	2
Riya Vishwakarma	P	P	P	3
Lotale Jayawant	P	A	A	1
Roshni Prajapati	A	A	P	1

2. Name of Teacher: Asst. Prof. Harshada Niju

Name of Student	20.06.22	22.6.22	23.06.22	Total (3)
Apeeksha Indore	P	P	P	3
Samruddhi Londhe	P	P	P	3
Nikita Lagade	P	P	P	3
Parul Singh	P	P	P	3
Sanika Pote	P	A	A	1
Pratiksha Bore	P	A	P	2
Riya Vishwakarma	P	P	P	3
Lotale Jayawant	P	A	A	1
Roshni Prajapati	A	A	P	1

3. Name of Teacher: Asst. Prof. Sandhya Patil

Name of Student	21.06.22	22.6.22	24.06.22	Total (3)
Apeeksha Indore	P	P	P	3
Samruddhi Londhe	P	P	P	3
Nikita Lagade	P	P	A	2
Parul Singh	P	P	P	3
Sanika Pote	P	A	A	1
Pratiksha Bore	P	A	A	1
Riya Vishwakarma	P	P	P	3
Lotale Jayawant	A	A	A	0
Roshni Prajapati	P	A	P	2

4. Name of Teacher: Asst. Prof. Savita Kumari

Name of Student	22.06.2022	24.6.2022	25.06.2022	Total (3)
Apeeksha Indore	P	P	P	3
Samruddhi Londhe	P	P	P	3
Nikita Lagade	P	A	A	1
Parul Singh	P	P	P	3



Sanika Pote	A	A	A	0
Pratiksha Bore	A	A	A	0
Riya Vishwakarma	P	P	P	3
Lotale Jayawant	A	A	A	0
Roshni Prajapati	A	A	A	0

5. Name of Teacher: Dr. Prajakta Kadu					
Name of Student	20.06.22	21.6.22	24.06.22	25.06.22	Total (4)
Apeeksha Indore	P	P	P	P	4
Samruddhi Londhe	P	P	P	P	4
Nikita Lagade	P	P	A	A	2
Parul Singh	P	P	P	P	4
Sanika Pote	P	P	A	A	2
Pratiksha Bore	P	P	A	A	2
Riya Vishwakarma	P	P	P	P	4
Lotale Jayawant	P	P	A	A	2
Roshni Prajapati	A	P	P	A	2

6. Name of Teacher: Dr. Kanika Pahwa					
Name of Student	20.06.22	21.6.22	23.06.22	25.06.22	Total (4)
Apeeksha Indore	P	P	P	P	4
Samruddhi Londhe	P	P	P	P	4
Nikita Lagade	P	P	P	A	3
Parul Singh	P	P	P	P	4
Sanika Pote	P	A	A	A	1
Pratiksha Bore	P	A	P	A	2
Riya Vishwakarma	P	A	P	P	3
Lotale Jayawant	A	A	A	A	0
Roshni Prajapati	A	A	P	A	1

7. Name of Teacher: Asst. Prof. Pintoo Jaiswar					
Name of Student	21.06.22	22.6.22	23.06.22	25.06.22	Total (4)
Riya Vishwakarma	P	P	P	P	4
Apeksha	P	P	P	P	4
Samriddhi	P	P	P	P	4



Nikita	P	P	P	A	3
Parul	P	P	P	P	4

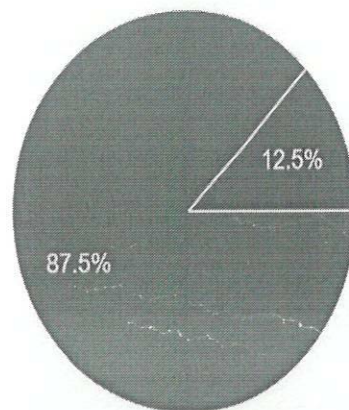
ASSESSMENT SHEET

Name of Student	TEST 1	TEST 2	TEST 3	TEST 4	TEST 4
Riya Vishwakarma	12	6	15	14	19
Apeksha Indore	15	16	18	16	20
Samruddhi Londhe	11	6	16	16	20
Nikita Lagade	16	14	14	Ab	Ab
Parul Singh	12	Ab	17	18	18
Roshani Prajapati	A	Ab	15	Ab	Ab
Ritika Giri	A	16	Ab	Ab	Ab
Avaneesh Yadav	A	12	Ab	Ab	Ab

FEEDBACK ANALYSIS

1. What did you gain from the sessions?

8 responses

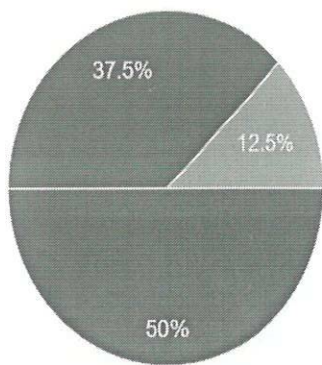


- New information
- Answers to my question
- Resource Material
- Ideas I can try immediately



2. What benefits have you obtained from sessions?

8 responses



- Motivated to think differently
- Clarified things that had been learned
- Stimulated interest to learn more
- Nothing in particular

3. Your suggestion for next certificate course

Want more certificate course

Yes

it was nice

Good

Yes

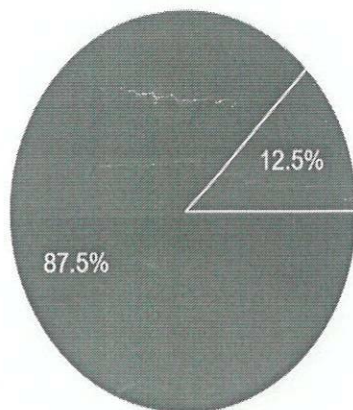
Next certificate course should be even better

..

Same as first

4. The lecture sequence was well planned

8 responses

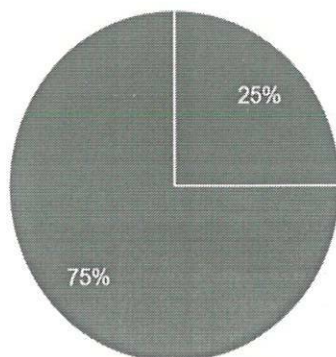


- Agree
- Neutral
- Disagree



5. Please give overall rating of the course

8 responses



- Excellent
- Very good
- Good
- Fair
- Poor





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JNAN VIKAS MANDAL'S
Mohanlal Raichand Mehta College of Commerce
Diwali Maa Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli, Navi Mumbai

Certificate Course- (S.Y.B.Sc., 2022-2023)

on
"New Horizon in Science"

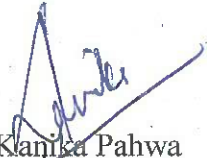
Program: B.Sc.

Course: Online Certificate course in Science


Number of Lectures: 40

List of Students Enrolled

S.no	Name of the Student
1.	Samruddhi Londhe
2.	Nikita Lagade
3.	Parul Singh
4.	Sanika Pote
5.	Pratiksha Bore
6.	Riya Vishwakarma
7.	Lotale Jayawant
8.	Roshni Prajapati
9.	Apeeksha Indore
10.	Ritika Giri
11.	Avaneesh Yadav


Dr. Klanika Pahwa
(Convener)



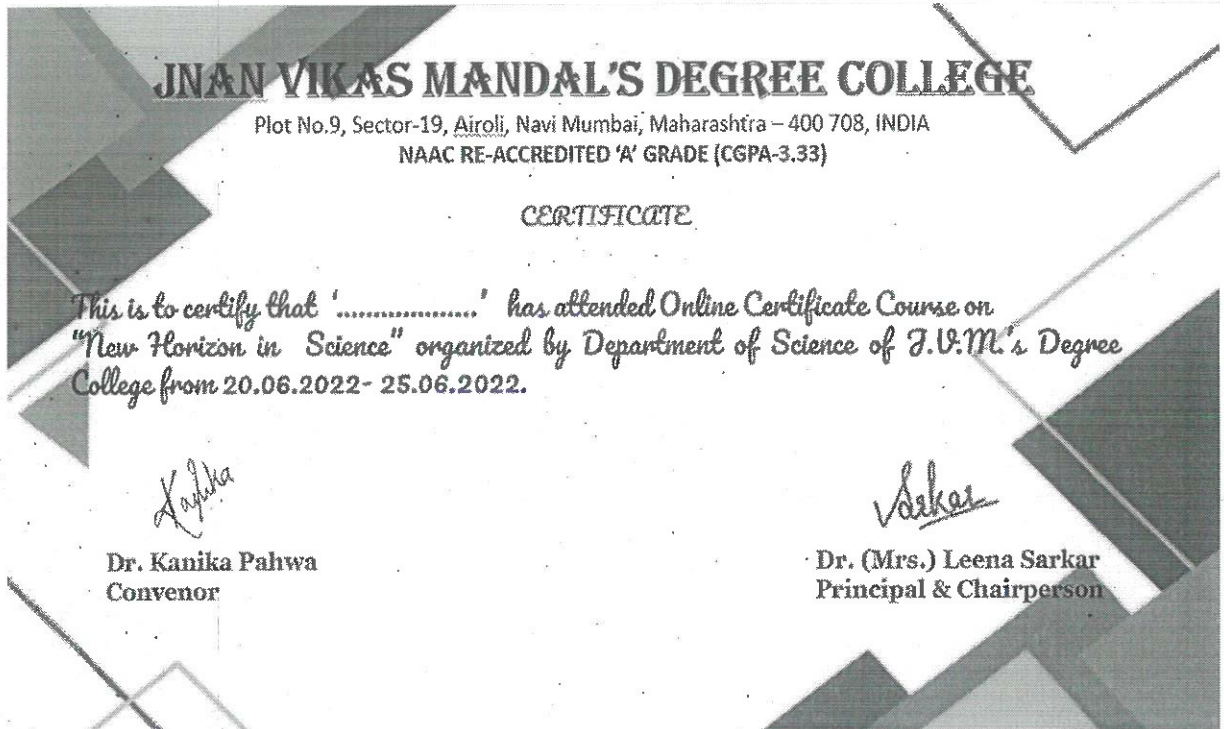

Dr. Leena Sarkar
(Principal & Chairperson)


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Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli Navi Mumbai

Model Certificate:-




Dr. Kanika Pahwa
(Convenor)




Dr. Leena Sarkar
(Principal & Chairperson)

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Plot no.9, Sector -19, Airoli, Navi Mumbai

Certificate Course- S.Y. B.Sc. Sem III (2022-2023)
on
"New Horizon in Science"

Duration-40 Hrs

Program: B.Sc.

Course: Online Certificate course in Science

Number of Lectures: 40

Summary Report

The Certificate Course in **New Horizon in Science** was designed with an holistic approach focussing on overall development of the students viz. research, problem solving and analytical skills. After completing the course, learners were able to:

- Learners got equipped with the knowledge of mesoporous materials and metal analysis, thus, understood how chemistry provides new solutions to problems in health, materials, and energy usage.
- Explored business statistics domain in mathematics which enhanced their mental aptitude.
- Learner understood the role of biological science for human welfare with detailed information about vaccine technology.
- Learners got insights of the significant role of science and technology in the development of human race.

The Certificate Course was overall successful in achieving its objectives, hence fulfilling the purpose.


Dr. Kanika Pahwa

(Convener)




Dr. Leena Sarkar

(Principal & Chairperson)

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(2)



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 Plot no.9, Sector -19, Airoli Navi Mumbai

Date: 18/06/2022

NOTICE

All faculties of the Science Department are hereby informed that tomorrow on 19th June 2022 there will be meeting at 12:00 noon in Chemistry Lab.

All the members are requested to be present for the same.

AGENDA

- 1] To discuss about conducting "Certificate Course" for T.Y.B.Sc. class.
- 2] Any other matter with the permission of Chairperson.



Leena

Dr. Leena Sarkar

(Principal & Chairperson)

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Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli Navi Mumbai

Date :- 19/06/2022

Minutes of the Meeting

The meeting was arranged on 19th June 2022 to decide about the process to conduct the certificate course by Physics Department for the academic year 2022-2023.

Following points were discussed in the meeting :

- 1] As per the suggestions by respected Principal madam Dr. Leena Sarkar, Certificate course on the topic "Advancement in Instrumentation" was finalized. The aim was to inculcate scientific temper in the students.
- 2] Principal Dr. Leena Sarkar madam appointed Asst. Prof. Sagar Shinde [Physics Department] as a convener for conducting this Certificate Course.
- 3] In this meeting, theme, time table and syllabus for Certificate Course was finalized.
- 4] Meeting was end with vote of thanks.

Following members were present in the meeting: -

1. Dr. Leena Sarkar [Principal] *Leena*
2. Asst. Prof. Sandhya Patil *Sandhya*
3. Asst. Prof. Harshada Niju *Harshada*
4. Asst. Prof. Savita Kumari *Savita*
5. Dr. Shweta Rathore *Shweta*
6. Asst. Prof. Pintoo Jaiswar *Pintoo*

[Signature]
Asst. Prof. Sagar Shinde

Convener



Leena
Dr. Leena Sarkar

(Principal & Chairperson)

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JNAN VIKAS MANDAL'S (Linguistic Minority)

Mohanlal Raichand Mehta College of Commerce

DiwaliMaa College of Science

Amritlal Raichand Mehta College of Arts

Dr. R.T. Doshi College of Computer Science

Plot No.9, Sector -19, Airoli, Navi Mumbai 400708

Program	B.Sc.
Year	2022-23
Eligibility	T.Y.B.Sc.
Course	Online Certificate course in Science
Total Marks	100
Number of Lectures	40
Objectives of the Course	
<ul style="list-style-type: none"> • To help the learner with useful tips and tricks for using Google effectively. • To encourage the learner to use e-resources and software for learning more interesting. • To enlighten the learner about the innovative and sustainable approach of Home automation and repairing and maintenance of appliances. • To bring awareness about the sustainable energy - Solar Cell • To introduce learner to an important branch of Physics – Electronics and it's applications in various fields. • To impart knowledge of Standard Operating Procedures to be followed in handling the instruments and appliances along with the understanding of do's and don't's. 	
Course Outcome	
<ul style="list-style-type: none"> • It will help the learner to thrive in this competitive world and gain edge over their peer group, thus, contributing in their life and career significantly. • Learner will be exposed to mobile as well as computer shortcuts that will be used while doing job efficiently which will save time. • Learner can do formatting, reset, hidden content check, IMEI no. check etc. like tasks in any android phones. • It will expose the learner to multifaceted options after pursuing pure sciences with Physics for having a satisfying career. • It can help the learner to start up their own profitable business, aiding to "AATM- 	



NIRBHAR BHARAT™

- Learner will be able to appreciate the gist of vital concepts of physics and will be able to visualise the mechanism & physics behind our day-to-day experience in surrounding.
- Learner will get an idea of handling of different home appliances and also basic knowledge gain for industry.



SYLLABUS

S.No.	Faculty Name	Topic	No. of Lectures
1	Mr. Sagar Shinde	Transducers	4
2	Mr. Sagar Shinde	Probability - Basic	2
3	Mr. Sagar Shinde	Crazy Shortcuts in Computerworld	2
4	Mr. Sagar Shinde	Basics of Home Appliances	2
5	Mr. Sagar Shinde	Communication System	4
6	Mr. Sagar Shinde	Probability - Advance	2
7	Mr. Sagar Shinde	Crazy Shortcuts in Mobile world	2
8	Mr. Sagar Shinde	Maintenance of Home Appliances	2
9	Mr. Sagar Shinde	Boolean Algebra	4
10	Mr. Sagar Shinde	Assessment	6
		Total	30



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JVM's Degree College
T.Y. B.Sc. Physics Certificate Course 2022-23
“Advancement in Instrumentation”

Time	9 a.m. -10 a.m.	10:00 a.m.-11:00 a.m.	11:20 a.m. -12:20 p.m.	12:20 p.m.-1:20 p.m.
20/06/2022 Monday	Mr. Sagar Shinde Transducers	Mr. Sagar Shinde Transducers	Mr. Sagar Shinde Probability - Basic	Mr. Sagar Shinde Probability- Basic
21/06/2022 Tuesday	Mr. Sagar Shinde Crazy Shortcuts in Computerworld	Mr. Sagar Shinde Crazy Shortcuts in Computerworld	Mr. Sagar Shinde Basics of Home Appliances	Mr. Sagar Shinde Basics of Home Appliances
22/06/2022 Wednesday	Mr. Sagar Shinde Communication System	Mr. Sagar Shinde Communication System	Mr. Sagar Shinde Probability - Advance	Mr. Sagar Shinde Probability - Advance
23/06/2022 Thursday	Mr. Sagar Shinde Crazy Shortcuts in Mobile world	Mr. Sagar Shinde Crazy Shortcuts in Mobile world	Mr. Sagar Shinde Maintenance of Home Appliances	Mr. Sagar Shinde Maintenance of Home Appliances
24/06/2022 Friday	Mr. Sagar Shinde Transducers	Mr. Sagar Shinde Transducers	Mr. Sagar Shinde Boolean Algebra	Mr. Sagar Shinde Boolean Algebra
25/06/2022 Saturday	Mr. Sagar Shinde Communication System	Mr. Sagar Shinde Communication System	Mr. Sagar Shinde Boolean Algebra	Mr. Sagar Shinde Boolean Algebra

- 6 Hrs of assessment will be done at the end of every day of the programme by subject teachers.





SS

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Plot no.9, Sector -19, Airoli, Navi Mumbai

T.Y. B.Sc. Certificate Course- (2022-2023)

On

“Advancement in Instrumentation”

Duration: - 30 Hrs.

Program: B.Sc.

Course: Online Certificate Course in Science

Number of Lectures: 30

List of Students Enrolled

Roll No.	Name of the Student
1301	Vinod Gupta
1302	Tanmay Jadhav
1304	Vedant Rokade

Mr. Sagar Shinde

Convenor

Dr. Leena Sarkar

Principal & Chairperson

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ATTENDANCE

1. Name of Teacher: Mr. Sagar Shinde						
Name of Student	20.06.2022	21.06.2022	22.06.2022	23.06.2022	24.06.2022	25.06.2022
Vinod Gupta	P	P	P	P	P	P
Vedant Rokade	A	P	P	P	P	P
Tanmay Jadhav	A	P	P	P	P	P

ASSESSMENT

Name of Student	TEST 1	TEST 2
Vinod Gupta	19	20
Vedant Rokade	18	20
Tanmay Jadhav	19	20





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T.Y.B.Sc Certificate Course "Advancement in Instrumentation"			
Assessment (25th- June-2022)			
Name of the student	Class	Email address	Score
Vinod Gupta	TYBS c Phy	guptavinodsu143@gmail.com	19 / 20
Tanmay Jadhav	TYBS c Phy	tanmayjadhav1564@gmail.com	18 / 20
Vedant Rokade	TYBS c Phy	vedantrocade173@gmail.com	19 / 20
Quiz Link	https://forms.gle/zxjpRnCHBgk2vLMH9		


Mr. Sagar Shinde

Convenor


Dr. Leena Sarkar

Principal & Chairperson

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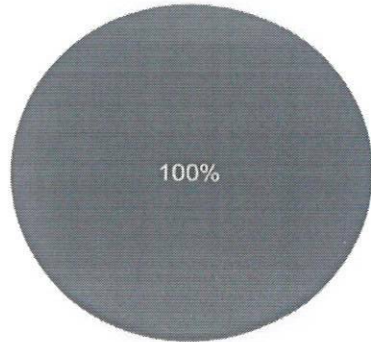


FEEDBACK ANALYSIS

Does College arrange Certificate Course regularly?

 Copy

3 responses

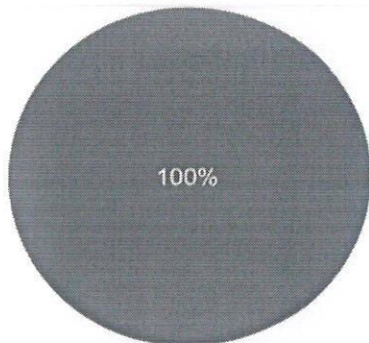


- Yes
- No

Are you aware of the Vision for the Certificate Course ? Are they Followed ?

 Copy

3 responses

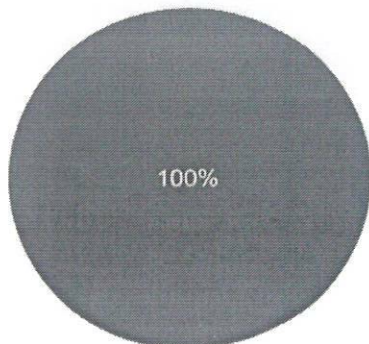


- Yes
- No

Did the teachers share with you Plan for Certificate Course in class?

 Copy

3 responses



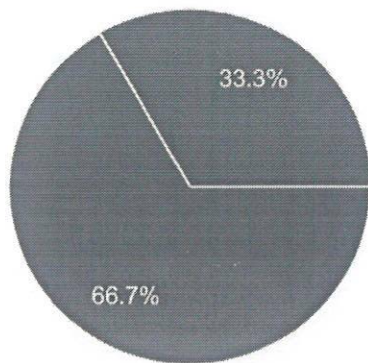
- Yes
- No



How well did the teachers prepare for the Certificate Course classes?

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3 responses

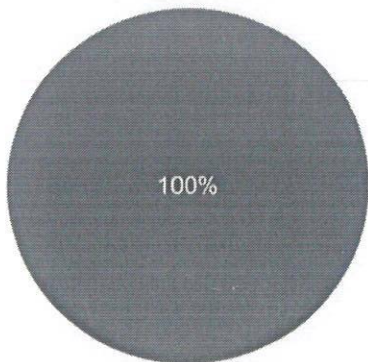


- Significantly
- Very well
- Moderately

How well were the teachers able to communicate?

 Copy

3 responses

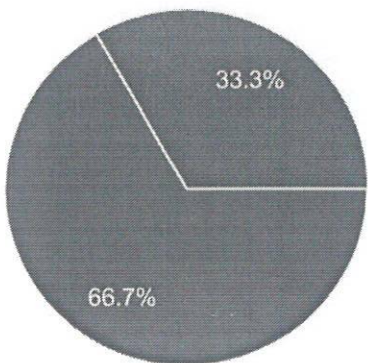


- Always effective
- Sometimes effective
- Just satisfactorily
- Ineffective

The teacher's approach to teaching can best be described as

 Copy

3 responses



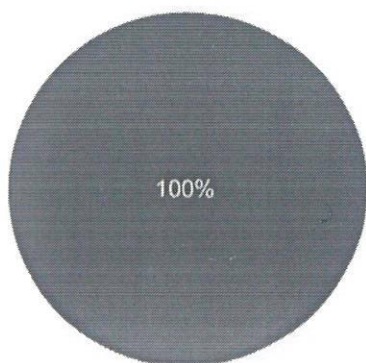
- Excellent
- Very good
- Good
- Fair
- Poor



Do you think that teaching methods adopted by the teachers help in attaining objectives of the Certificate Course ?



3 responses

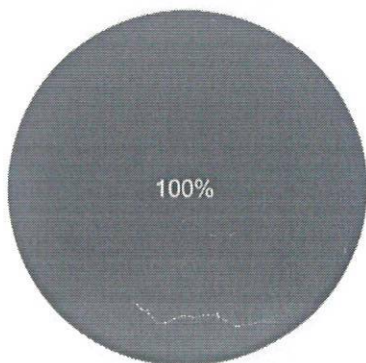


- Yes
- No

Teachers inform you about your expected competencies, course outcomes.



3 responses



- Yes
- No

The teachers illustrate the concepts through examples and applications.



3 responses



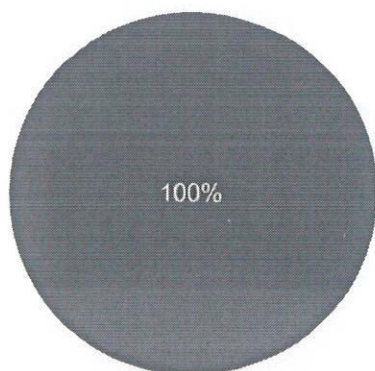
- Every time
- Usually
- Sometimes
- Never



The teacher identify your strengths and encourage you to explore in right direction

 Copy

3 responses

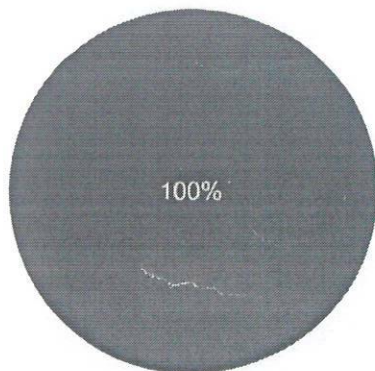


- yes
- No

Teacher are able to identify your weaknesses and help you to overcome them.

 Copy

3 responses

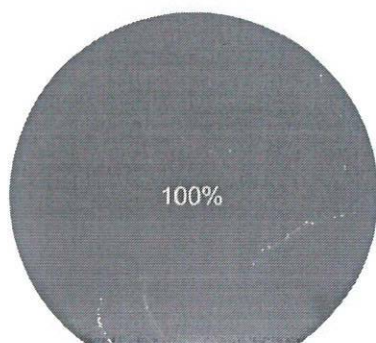


- yes
- No

The overall quality of online teaching-learning process used by Asst. Prof. Sagar Shinde is very good.

 Copy

3 responses




- Strongly Agree
- Agree
- Neutral
- Disagree





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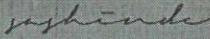

Model Certificate





Jnan Vikas Mandal's Degree College
NAAC Re-Accredited 'A' Grade (CGPA- 3.33)
Plot No. 9, Sector-19, Airoli, Navi Mumbai, Maharashtra - 400 708

CERTIFICATE

This certificate is awarded to
<< Name >>
who has successfully completed ten days Certificate course on
Advancement in Instrumentation
organized by Physics department of
JVM's Degree College from 20th June -25th June 2022

 Asst. Prof. Sagar Shinde Course Co-ordinator	 Dr. Leena Sarkar Principal
--	--


Mr. Sagar Shinde
Convenor


Dr. Leena Sarkar
Principal & Chairperson



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T.Y. B.Sc. Certificate Course- (2022-2023)

On

“Advancement in Instrumentation”

Summary Report

I. Introduction : I. Introduction-The Certificate Course in Advancement in Instrumentation was designed to provide learners with knowledge and skills related to computer hardware and software, problem-solving, web technologies, effective communication, mobile technology, team working, and business scenarios. The course was aimed at helping learners gain practical knowledge and skills that can be applied in their personal and professional lives.

II. Learning Outcomes : The course was successful in achieving its objectives. After completing the course, learners were able to:

1. Demonstrate a basic understanding of computer hardware and software
2. Apply problem-solving skills to real-life scenarios
3. Utilize web technologies effectively
4. Present conclusions effectively, both orally and in writing
5. Demonstrate a basic understanding of the mobile world
6. Work effectively in teams
7. Apply the skills learned in the course to business scenarios

III. Conclusion : The Certificate Course in Advancement in Instrumentation was successful in achieving its objectives. The course provided learners with practical knowledge and skills that can be applied in their personal and professional lives. The feedback from learners was positive, and the evaluation results showed a significant improvement in learners' knowledge and skills after completing the course.





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Date: 18/06/2022

NOTICE

All faculties of the Science Department are hereby informed that tomorrow on 20th June 2022 there will be meeting at 12:00 noon in Chemistry Lab.

All the members are requested to be present for the same.

AGENDA

- 1] To discuss about conducting "Certificate Course" for T.Y.B.Sc. class.
- 2] Any other matter with the permission of Chairperson.



Leena
 Dr. Leena Sarkar

(Principal & Chairperson)

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Plot no.9, Sector -19, Airoli Navi Mumbai

Date :- 20/06/2022

Minutes of the Meeting

Chemistry Department meeting was held on 20th June 2022 at 12.00 noon chaired by Principal Dr. Leena Sarkar

Following points were discussed in the meeting :-

- 1] Principal Dr. Leena Sarkar madam suggested Certificate Course should be conducted for T.Y. B.Sc. students.
- 2] Principal Dr. Leena Sarkar madam appointed Asst. Prof. Sandhya Patil as a convenor for conducting this Certificate Course.
- 3] In this meeting theme was finalized as Dimensions of Chemistry.
- 4] Time table and syllabus for Certificate Course was finalized.
- 5] Meeting was end with vote of thanks.

Following members were present in the meeting: -

1. Dr. Leena Sarkar [Principal] *Leena*
2. Asst. Prof. Sandhya Patil *Sandhya*
3. Asst. Prof. Harshada Niju *Harshada*
4. Asst. Prof. Savita Kumari *Savita*
5. Dr. Shweta Rathore *Shweta*

Sandhya
Asst. Prof. Sandhya Patil

Convener



Leena
Dr. Leena Sarkar

(Principal & Chairperson)

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Certificate Course in

"DIMENSIONS OF CHEMISTRY" T.Y.B.Sc. Chemistry Sem V
2022-23

Duration-30 Hrs

OBJECTIVES: -

- Learners will gain knowledge about Ferrofluids and their applications.
- Learner will study the chemicals involved in cosmetic products.
- Learner will gain information about fluid industry.
- Learning will study Fascinating organic molecules.
- Learner will gain information about the preparation of water for injection.

OUTCOME: -

- Learner is able to do analysis of Normal Saline.
- Develop an understanding of Ferro fluids.
- Learner has knowledge about materials used for preparation of cosmetic products such as Sunscreen lotion, face serums etc.
- Learners got knowledge about many fascinating organic molecules.



COURSE SYLLABUS**CERTIFICATE COURSE “ DIMENSIONS OF CHEMISTRY” CONTENT- 2022-23****(For T.Y.B.Sc. Chemistry) 20th-25th June 2022****Asst. Prof. Harshada Niju - 8 L**

	MODULE-1
1.1.	Ferrofluids: Introduction (1L)
1.2.	What are ferrofluids (2L)
1.3	Chemistry Behind Ferrofluids (2L)
1.4	Applications (2L)
1.5	Assignment (1L)
Asst. Prof. Shweta Rathore - 7 L	
	MODULE-2
2.1	Cosmetic Chemistry 1-introduction, Types (1L)
2.2	Cosmetic chemistry 2- Sunscreen Lotion (1L)
2.3	Cosmetic Chemistry 3-, Retinol (1L)
2.4	Cosmetic Chemistry 4-Vitamin C (1L)



2.5	Cosmetic Chemistry 5-hylaruonic Acid (1L)
2.6	Cosmetic Chemistry 6- Glycolic acid (1L)
2.7	Assignment -(1L)
Asst. Prof. Savita Kumari - 7 L	
	MODULE-3
3.1.	Fascinating organic molecules 1 (1L)
3.2.	Fascinating organic molecules 2 (1L)
3.3	Fascinating organic molecules 3 (1L)
3.4	Fascinating organic molecules 4 (1L)
3.5	Fascinating organic molecules 5 (1L)
3.6	Fascinating organic molecules 6 (1L)
3.7	Assignment (1L)
Asst. Prof. Sandhya Patil 8 L	
	MODULE-4
4.1	Importance of IV fluids(1L)
4.2	Ty IV fluids (1L)



4.3	Requirements for IV fluid industry (1L)
4.4	Profit calculation (1L)
4.5	Water for injection preparation steps (1L)
4.6	Analysis methods for Normal Saline (2L)
4.7	Assignment (1 L)

Timetable

Time	Day					
Day	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9.00 to 10.00 am	(S.R.) Cosmetic Chemistry	(S.P) IV fluid industry	(S.P.) IV fluid industry	(S.K) Fascinating organic molecules	(H.N.) Ferrofluids	(S.P.) IV fluid industry
10.00 to 11.00 am	(S.K)	(S.P) IV fluid industry	(S.R.) Cosmetic Chemistry	(S.P.) IV fluid industry	(H.N.) Ferrofluids	(H.N.) Ferrofluids
11.20 to 12.20 pm	(S.P.) IV fluid industry	(S.K) Fascinating organic molecules	(H.N.) Ferrofluids	(H.N.) Ferrofluids	(S.K) Fascinating organic molecules	(S.R.) Cosmetic Chemistry
12.20 to 1.20 pm	(H.N.) Ferrofluids	(S.R.) Cosmetic Chemistry	(S.K) Fascinating organic molecules	(S.R.) Cosmetic Chemistry	(S.R.) Cosmetic Chemistry	(S.K.) Fascinating organic molecules
1.30 to 2.30 p.m.	Fascinating organic molecules	Assignment (S.P)	Assignment (S.R)	Assignment (S.K)	(H.N.) Ferrofluids	Assignment (H.N)

H.N – Mrs. Harshada Niju S.P – Mrs. Sandhya Patil S.K – Miss Savita Kumari S.R – Dr. Shweta Rathore





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T.Y. B.Sc. Certificate Course- (2022-2023)

On

" Dimensions of Chemistry "

Duration: - 30Hrs.

Program: B.Sc.

Course: Certificate Course in Chemistry

Number of Lectures: 30

List of Students Enrolled

Sr. No	Name of student		
		10	Abhinaya Nadar
1	Aditi Chourasia	11	Tanaya Aher
2	Saurabh Rane	12	Sanjana Ghare
3	Sai Panchal	13	Snehal Pawar
4	Anurag Ambonkar	14	Kavita Gond
5	Santosh Patil	15	Vishal Yadav
6	Anjali Gupta	16	Ashish Jagdale
7	Pooja Pawar	17	Pallavi Mane
8	Muskan F.Shaikh	18	Sandeep Varma
9	Shweta Pawar	19	Kavita Gond

Mrs. Sandhya Patil

Convener

Dr. Leena Sarkar

Principal & Chairperson



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ATTENDANCE SHEET T.Y.B.Sc Certificate Course 2022-23

“Dimensions of Chemistry”

Name of Teacher – Asst. Prof. Sandhya Patil						
Name of Student	20/06/22	21/06/22	22/06/22	23/06/22	25/06/22	
Tanaya Aher	P	P	P	P	P	
Shweta Pawar	P	P	P	P	P	
Snehal Pawar	P	P	P	P	A	
Abhinaya Nadar	P	P	P	P	P	
Anjali Gupta	P	A	P	P	A	
Renuka Chaudhari	P	P	A	P	A	
Kavita Gond	P	P	P	P	P	
Pooja Pawar	P	P	P	P	P	
Sai Panchal	P	P	P	P	P	
Saurabh Rane	P	P	P	P	P	
Aditi Chaurasia	P	P	P	P	A	
Pallavi Mane	A	P	A	A	P	
Ritesh Kirdat	A	P	P	A	A	
Sandeep Verma	A	P	P	P	A	
Santosh Patil	A	P	P	P	A	
Anurag Ambonkar	P	P	P	P	P	
Muskan F. Shaikh	A	P	P	A	A	
Vishal Yadav	A	P	P	P	A	
Ashish Jagdale	A	A	P	P	A	
Sanjana Ghare	A	A	P	P	P	
Soham Narankar	A	A	A	P	A	
Name of Teacher – Asst. Harshada Niju						
Name of Student	20/06/22	22/06/22	23/06/22	24/06/22	25/06/22	
Tanaya Aher	P	P	P	P	P	
Shweta Pawar	P	P	P	P	P	
Snehal Pawar	P	P	P	P	A	
Abhinaya Nadar	P	P	P	P	P	
Anjali Gupta	P	P	P	P	A	





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Certificate Course in
“DIMENSIONS OF CHEMISTRY”
T.Y.B.Sc. Chemistry Sem V 2022-23
Summary Report

Duration-30 Hrs

Certificate Course was conducted for T.Y.B.Sc (Chemistry) students from 20th June 2022 to 25th June 2022 on the Topic “ Dimensions of Chemistry”

Outcome 1

- Learner is able to do the analysis of Normal Saline-

The outcome achieved – As the students came to know the types of saline their importance, and methods of industrial preparation. They had practical of use of a flame photometer in Third year where they understood practical use of the instrument for the analysis of Saline.

Outcome 2

- Develop an understanding of Ferrofluids.

Outcome Achieved – Students got knowledge of Ferrofluids and their applications.

Outcome 3

- Learner has knowledge about materials used for the preparation of cosmetic products such as Sunscreen lotion, face serums etc.

Outcome Achieved- Learner could understand the analysis of cosmetics in Theory syllabus of Analytical Chemistry to more extent as they already had basic knowledge about the requirement, content, and preparation of cosmetic products.





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- Learners got knowledge about many fascinating organic molecules
The outcome achieved- Students developed an interest in Chemistry as they understood the details of many fascinating organic molecules.
The assessment was done through 10 mks test taken for each module .
After Completion of the Course and the Test record was as follows

Sr. No	Name of student	Test by Mrs. Harshada Niju	Test by Mrs. Sandhya Patil	Test by Miss Savita Kumar	Test by Dr. Shweta Rathore
		Total Marks 10	Total Marks 10	Total Marks 10	Total Marks 10
1	Aditi Chourasia	8	8	9	8
2	Saurabh Rane	7	7	7	6
3	Sai Panchal	6	7	6	7
4	Anurag Ambonkar	8	8	9	9
5	Santosh Patil	6	7	6	7
6	Anjali Gupta	5	6	6	6
7	Pooja Pawar				7
8	Muskan F.Shaikh	4	5	5	5
9	Shweta Pawar	7	8	8	8
10	Abhinaya Nadar	9	9	8	9
11	Tanaya Aher	9	9	8	9





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12	Sanjana Ghare	6	7	6	7
13	Snehal Pawar	5	6	7	6
14	Kavita Gond	5	6	5	6
15	Vishal Yadav	5	4	4	6
16	Ashish Jagdale	5	6	5	5
17	Pallavi Mane	8	7	8	8
18	Sandeep Varma	7	6	7	5
19	Kavita Gond	5	6	5	7

Feed back was collected through the link

https://docs.google.com/forms/d/e/1FAIpQLSc9mYZaPA829HV98SoKwTfPhQ8szZt7b8Ns48VYwW4HZHTQQ/viewform?usp=sf_link

in which students 83.3 % of students responded as they gained new information, 88.8 % of students responded as the course was beneficial as it clarified the things that they had learnt and it motivated them to think differently.


Mrs. Sandhya Patil

Convener




Dr. Leena Sarkar

Principal & Chairperson

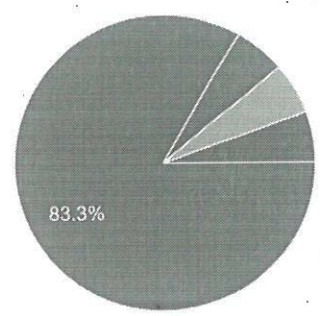
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Feedback Analysis of 2022-23 Certificate Course for T.Y. B.Sc (Chemistry)

"Dimensions of Chemistry"

1. What did you gain from the sessions?

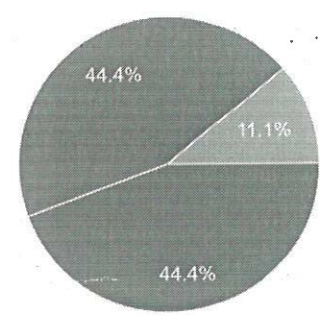
18 responses



- New information
- Answers to my question
- Resource Material
- Ideas I can try immediately

2. What benefits have you obtained from sessions?

18 responses



- Motivated to think differently
- Clarified things that had been learned
- Stimulated interest to learn more
- Nothing in particular

3. Your suggestion for next certificate course 18 responses

No

NA

Good

Sure



These offline sessions r perfect
Clarified things that been learn



Nothing

Yes

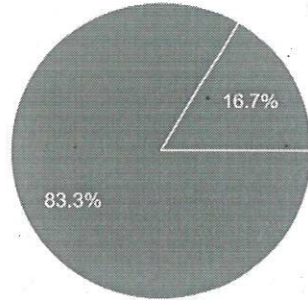
should be conducted in same way

nothing

Nothing

4. The lecture sequence was well planned

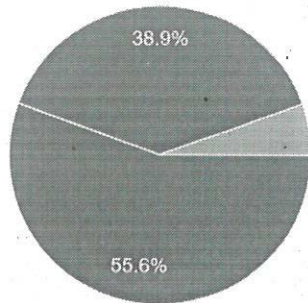
18 responses



- Agree
- Neutral
- Disagree

5. Please give overall rating of the course

18 responses



- Excellent
- Very good
- Good
- Fair
- Poor





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Diwali Maa Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli, Navi Mumbai

Model Certificate

JNAN VIKAS MANDAL'S DEGREE COLLEGE
 NAAC Re -Accredited 'A' Grade (CGPA -3.33)
 Plot No. 9, Sector -19, Airoli , Navi Mumbai, Maharashtra -400 708.



Date: 27/06/2022

CERTIFICATE


This is to certify that Mr./Ms. of Class
 T.Y.B.Sc(Chemistry)has successfully completed
Certificate Course on 'Dimensions of Chemistry'
 organized by Department of Chemistry, J.V.M.'s Degree College
 from 20th June 2022 to 25th June 2022.



Asst. Prof. Sandhya Patil
Course Co-ordinator




Dr. Leena Sarkar
Principal



Mrs. Sandhya Patil
Convener





Dr. Leena Sarkar
Principal & Chairperson
PRINCIPAL
 JNAN VIKAS MANDAL'S
 M.R. MEHTA COLLEGE OF COMMERCE
 D.M. COLLEGE OF SCIENCE
 A.R. MEHTA COLLEGE OF ARTS
 Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENC
 Plot No.9, SEC.- 19, AIROLI,
 NAVI MUMBAI-400 708



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Dr. R.T. Doshi College of Computer Science
NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle)

Date: 04/12/2023

NOTICE

All Students are hereby informed that the department of CS is arranging a Certificate Course from 6th December 2023 to 12th December 2023.


Mrs. Janhavi Kshirsagar

Co-ordinator CS-IT Dept


Dr. B.R. Deshpande

I/c Principal

I/c. PRINCIPAL

JNAN VIKAS MANDAL'S

M.R. MEHTA COLLEGE OF COMMERCE

D.M. MEHTA COLLEGE OF SCIENCE

A.R. MEHTA COLLEGE OF ARTS

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Plot No.9, SEC.-19, AIROLI,

NAVI MUMBAI-400 708.



Date: 28/11/2023




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NOTICE

All departmental members are hereby informed that the departmental meeting is arranged on November 30, 2023 at 1:30 p.m. in CS lab.

Agenda

1. Conduction of Certificate Course of FYCS students
2. Exam Conduction of Certificate Course


Asst. Prof. Janhavi Kshirsagar
Coordinator CS-IT DEPT



Date: 30/11/2023



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Minutes of Meeting

November 30, 2023

The departmental meeting was held on November 30, 2023 at 1:30 p.m. in CS Lab.

Following matters were discussed and finalized as per agenda.

❖ Conduction of Bridge course of FYCS students

It was decided to conduct Certificate for FYCS students from 6th December 2023 to 12th December 2023. Total 5 modules shall be included in the Certificate Course. And it was decided that it should be 30 hours.

The duty of syllabus compilation was allotted to Mrs. Janhavi Kshirsagar and Ms. Shakuntala Kulkarni was allotted duty of timetable creation.

❖ Exam conduction of bridge course

It was decided to conduct examination on Google Form on 12th December 2023 after completion of lectures.

Adjournment: Meeting was adjourned at 2:30 pm.





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NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle)

Date: 30/11/2023

Following members were present:

Dr. B.R. Deshpande- I/c. Principal
Asst.Prof Janhavi Kshirsagar - CS/IT Coordinator
Asst. Prof Sarita Sarang
Dr. Sanjivani Nalkar
Asst. Prof. Shakuntala Kulkarni
Asst. Prof. Vinaya Mangale

Signature










Flyer :



JNAN VIKAS MANDAL'S DEGREE COLLEGE
NAAC RE-ACCREDITED 'A+' GRADE (CGPA 3.31)
Plot No. 9, Sector-19, Airoli, Navi Mumbai

*Department of Computer Science
Organizes
Certificate Course
For
FIRST Year Computer Science*

Date: 6th December 2023 to 12th December 2023
Duration: 30 Hours

Organizing Team:
Mrs. Sarita Sarang
Dr. Sanjivani Nalkar
Ms. Shakuntala Kulkarni

Mrs. Janhavi Kshirsagar
CS-IT Coordinator

Dr. B. R. Deshpande
I/c Principal and Chairperson





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Certificate Course for F.Y.B.Sc (C.S.)

Duration: - 30 hours

OBJECTIVES: -

- 1) To introduce participants to the fundamental concepts of embedded systems.
- 2) To provide insights into the interaction between hardware and software in embedded systems.
- 3) To familiarize participants with the concepts of real-time operating systems.
- 4) To equip participants with skills that are relevant to the industry and current trends in embedded systems.

OUTCOME: -

Students will be able to

- 1) Develop a solid understanding of the fundamental concepts and principles of embedded systems.
- 2) Gain proficiency in both hardware and software aspects of embedded systems.
- 3) Gain experience in completing embedded system projects from conception to implementation, demonstrating the ability to work on complex systems.


Module	Contents	Number of hours
I	Introduction	5 hours



	<p>What is an Embedded System, Embedded System Vs, General Computing System.</p> <p>Characteristic and quality attributes of Embedded System</p> <p>Characteristics of an Embedded System, Quality Attributes of Embedded System.</p>	
	Case study/Assignment and test	1 hour
II	<p>The Typical Embedded System</p> <p>Core of Embedded System (Different Types of Processors), Memory, Sensors and Actuators, Communication Interface, Embedded Firmware. IO Devices</p>	5 hours
	Case study/Assignment and test	1 hour
III	<p>Memories and Memory Subsystem</p> <p>Introduction, Classifying Memory, A general Memory Interface, ROM Overview, Static RAM Overview, Dynamic RAM Overview, Chip Organization, A SRAM Design, A DRAM Design, The DRAM Memory Interface</p>	5 hours
	Case study/Assignment and test	1 hour
IV	<p>Programming Concept and Embedded Programming in C/C++ and Java</p> <p>Software programming in Assembly Language (ALP) and in High-level Language 'C'. C program Elements: Header and Source Files and Pre-processor Directives, Program Elements: Macros and Functions, Program Elements: Types, Data Structures, Modifiers, Statements, Loops and Pointers,</p>	5 hours
	Case study/Assignment and test	1 hour
V	<p>Real Time Operating System(RTOS)</p> <p>Operating System Basics, Types of Operating Systems, Device Drivers, How to choose an RTOS, Features of RTOS, Advantages Disadvantages Applications in which RTOS used.</p>	5 hours



Time Table :

						
MohanlalRaichand Mehta College of Commerce DiwaliMaa Degree College of Science AmritlalRaichand Mehta Degree College of Arts Padmashree(Dr.) R.T. Doshi Degree College of Computer Science Plot no.9, Sector -19, Airoli Navi Mumbai Permanently Unaided, Affiliated to Mumbai University NAAC Re-accredited CGPA "A+" Grade (3rd cycle)						
FYCS Certificate Course Time table 2023-24						
Date	6/12/2023	7/12/2023	8/12/2023	9/12/2023	11/12/2023	12/12/2023
7:50-8:40	Module 5	Module 2	Module 4	Module 3	Module 1	Module 4
8:40-9:30	Module 3	Module 4	Module 5	Module 1	Module 4	Module 3
9:30-9:50	BREAK					
9:50-10:40	Module 2	Module 5	Module 3	Module 2	Module 5	Module 2
10:40-11:30	Module 4	Module 1	Module 1	Module 5	Module 2	Module 1
	Module 1	Module 3	Module 2	Module 4	Module 3	Module 5
Module 1: Mrs. Janhavi Kshirsagar			Module 4: Ms. Shakuntala Kulkarni			
Module 2: Mrs. Sarita Sarang			Module 5: Mrs. Vinaya M			
Module 3: Dr. Sanjivani Nalkar						

**Exam Paper :**

Section 1 of 3

FYCS - Certificate Course 2023-24

Form description

This form is automatically collecting emails from all respondents. [Change settings](#)

Name *

Short answer text

Email Address *

Short answer text

WhatsApp Number *

Short answer text

Roll Number *



Section 2 of 3

Answer the Following Questions



Description (optional)

An embedded system is a combination of _____.*

- Software
- Hardware
- Both a and b
- Devices

Which is the first microcontroller?*

- 8051
- Arm
- TMS1000
- Intel 4004



ARM stands for _____ *

- Advanced Rate Machines
- Artificial Running Machines
- Advanced RISC Machines
- Running Machines

The embedded system architecture can represent as a architecture. *

- Layered
- Continuous
- Single
- Un-layered

Which of the following designed system factors are minimized for an embedded application? *

- Cost
- Size
- Performance
- Both a and b

Which memory storage is widely used in PCs and Embedded Systems? *

- a) EEPROM
- b) Flash memory
- c) SRAM
- d) DRAM



How is the protection and security for an embedded system made? *

- a) Security chips
- b) Memory disk security
- c) IPR
- d) OTP

Which type of memory is suitable for low volume production of embedded systems? *

- a) Non-volatile
- b) RAM
- c) Volatile
- d) ROM

How an embedded system communicate with the outside world? *

- a) Memory
- b) Output
- c) Peripherals
- d) Input 1

Which of the following unit protects the memory? *

- a) memory management unit
- b) peripheral unit
- c) execution unit
- d) bus interface unit 1



Which one of the errors will be handled by an Operating System?

- a) lack of paper in printer
- b) connection failure in the network
- c) power failure
- d) all of the mentioned

What is the Real Time Operating System?

- a) Used for monitoring events as they occur
- b) Used for program development
- c) Used for Mainframe Computers
- d) Used for program development

Device driver required in?

- a) Register
- b) Main Memory
- c) Disk
- d) Cache

Operating System is a -----software

- a) System
- b) Application
- c) Real time
- d) Other



When the system processes data instructions without any delay is called as

- a) online system
- b) real-time system
- c) instruction system
- d) offline system

Choose a right C Statement. *

- Loops or Repetition block executes a group of statements repeatedly.
- Loop is usually executed as long as a condition is met.
- Loops usually take advantage of Loop Counter
- All the above.

Loops In C Language are implemented using.? *

- While Block
- For Block
- Do While Block
- All the above

What is the way to suddenly come out of or Quit any Loop in C Language.? *

- continue; statement
- break; statement
- leave; statement
- quit; statement



Prior to using a pointer variable it should be *

- Declared
- Initialized
- Both declared and initialized
- None of these

Is the NULL pointer same as an uninitialised pointer? *

- True
- False

Which of the following is serial access memory? *

- RAM
- Flash memory
- Shifters
- ROM



_____ converts physical characteristics into electrical signals *

- Actuator
- Sensor
- Signal
- All of the Above

The communication channel which interconnects the various components within an embedded product is referred as _____ *

- Device Level Communication
- Product Level Communication
- Embedded System
- None of the Above

_____ converts electrical signals into physical characteristics. *

- Actuator
- Sensor
- Signal
- All of the Above

Which design allows the reuse of the software and the hardware components? *

- Memory Design
- Input design
- Platform-based design
- Peripheral design





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i

List of Participants

Sr No	Roll Number	Name	Email Address	WhatsApp Number	Score
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5	1605	BAROT RAJESH DINESH	rajeshbarot1278@gmail.com	8976042325	44 / 50
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17	1619	Pranay Kadam	pranaykadam2006@gmail.com	9702400741	46 / 50
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24	1625	Anand Mishra	mr.moon15m@gmail.com	9029803560	42 / 50
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58	1662	Saurav Santosh Kadam	sauravkadam0710@gmail.com	9833015192	40 / 50



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65	1669	Sanket Yadav	yadav.sanketkumar05@gmail.com	8545948499	38 / 50
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67	1671	Rushabh	rushabhnaik972@gmail.com	9136785830	36 / 50
68	1672	Kamal Yashwant Chaugule	Kamalchaugule09@gmail.com	9594210500	42 / 50



Feedback Form :

Feedback Form



Description (optional)

Were the objectives of the course clear to you? *

- Very Clear
- Moderately Clear
- Not at all Clear

The lectures were clear & easy to understand. *

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly disagree



The course was organized in a manner that helped you understand the underlying concepts. *

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly disagree

How useful to you was this course? *

- Very Useful
- Moderately useful
- Not at all useful

How much did you learn from this course? *

- A great deal
- A lot
- A moderate amount
- A little
- Nothing

Overall, how would you describe the quality of the instruction in this course? *

- Excellent
- Very good
- Good
- Fair
- Poor



What skills or knowledge did you learn or improve? *

Long answer text



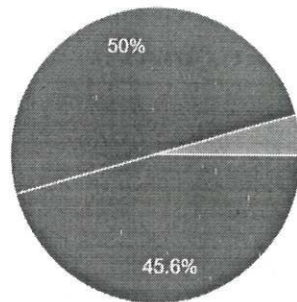


Feedback Analysis :

Certificate Course Feedback Analysis FYCS Sem-II June 2023-24

Were the objectives of the course clear to you?

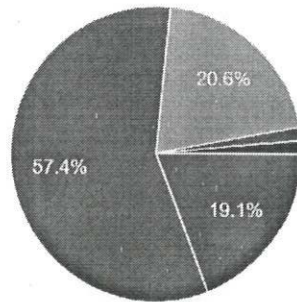
68 responses



- Very Clear
- Moderately Clear
- Not at all Clear

The lectures were clear & easy to understand.

68 responses

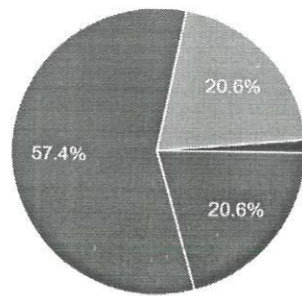


- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly disagree



The course was organized in a manner that helped you understand the underlying concepts.

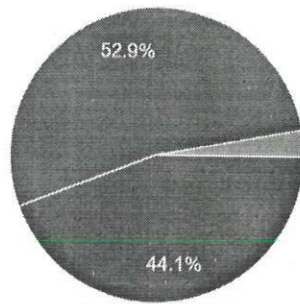
68 responses



- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly disagree

How useful to you was this course?

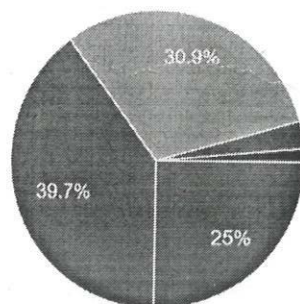
68 responses



- Very Useful
- Moderately useful
- Not at all useful

How much did you learn from this course?

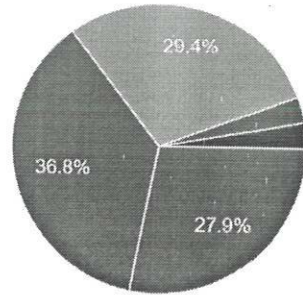
68 responses



- A great deal
- A lot
- A moderate amount
- A little
- Nothing




Overall, how would you describe the quality of the instruction in this course?
68 responses



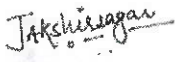
- Excellent
- Very good
- Good
- Fair
- Poor




Certificate :

 **Jnan Vikas Mandal's Degree College**
NAAC Re-Accredited 'A' Grade (CGPA- 3.33)
Plot No. 9, Sector-19, Airoli, Navi Mumbai, Maharashtra - 400 708

Certificate
This certificate is awarded to
<<NAME>>
*of F.Y.B.Sc (C.S) who has successfully completed Certificate Course organized by
Department of Computer Science of JVM's Degree College from 6th December 2023
to 12th December 2023.*


Asst. Prof. Janhavi Kshirsagar
CS-IT Coordinator and Course Convener


Dr. B. R. Deshpande
I/C Principal





JNAN VIKAS MANDAL'S
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Amritlal Raichand Mehta College of Arts
Dr. R.T. Doshi College of Computer Science
NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle)

Report on Certificate Course

From December 6th to December 12th, 2023, a certificate course on "Embedded Systems" was organized for First Year Computer Science (FYCS) students. The comprehensive course spanned a total duration of 30 hours and encompassed five distinct modules, providing students with a thorough understanding of embedded systems.

The course benefitted 68 students.

In summary, a certificate course in embedded systems is essential for individuals seeking to stay competitive in the rapidly evolving technological landscape, providing them with practical skills, industry relevance, and a foundation for pursuing diverse career paths.

A test was conducted for all the students using Google Form on 12th December 2023 after lectures. Those students who cleared their certificate course examination were awarded with E-Certificates.

Mrs. Janhavi Kshirsagar
Co-ordinator CS-IT DEPT



Dr. B.R. Deshpande

I/c Principal
I/c. PRINCIPAL
JNAN VIKAS MANDAL'S
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DiwaliMaa Degree College of Science
MohanlalRaichand Mehta College of Commerce
Padmashree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, AiroliNavi Mumbai

Date: 02/12/2023

NOTICE (Student)

All Students are hereby informed that the departmental is arranging a certificate course from Dec 06, 2023 to Dec 12, 2023.

Mrs. Janhavi Kshirsagar

Co-ordinator CS-IT DEPT



Dr. B.R. Deshpande

I/c Principal
I/c. PRINCIPAL
JNAN VIKAS MANDAL'S
M.R. MEHTA COLLEGE OF COMMERCE
D.M. MEHTA COLLEGE OF SCIENCE
A.R. MEHTA COLLEGE OF ARTS
Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE
Plot No.9, SEC.-19, AIROLI,
NAVI MUMBAI-400 708.



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DiwaliMaa Degree College of Science
MohanlalRaichand Mehta College of Commerce
Padmashree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, AiroliNavi Mumbai

Date: 02/12/2023


NOTICE

All departmental members are hereby informed that the departmental meeting is arranged on Dec 06, 2023 at 1:30 p.m. in CS lab.

Agenda

1. Conduction of Certificate Course of SYCS and TYCS students
2. Exam Conduction of Certificate Course




Asst. Prof. Janhavi Kshirsagar
Coordinator CS-IT DEPT



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Plot no.9, Sector -19, AiroliNavi Mumbai

Date: 02/12/2023

Minutes of Meeting

December 06, 2023

The departmental meeting was held on Dec 02,2023 at 01:30 p.m. in CS Lab.

Following matters were discussed and finalized as per agenda.

❖ Conduction of Certificate course of SYCS students

It was decided that the Certificate Course should be conducted from Dec 06, 2023 to Dec 12, 2023. Total 5 modules are included in the Certificate Course. And it was decided that it should be 30 hours separately for each class.

Syllabus compilation and preparation of time table for certificate course for SYCS was assigned to Dr. Sanjivani Nalkar for CS department.

❖ Exam conduction of certificate course

After completion of lectures of certificate course on Tuesday 12th Dec, 2023 exam will be conducted for students in online mode.

Class teacher completed work related to certificate course like preparation of flyer, syllabus, timetable, feedback form, exam conduction, certificate design and distribution to SYCS students.

Exam will be conducted on Google form at 5:30 pm on 12th Dec, 2023.

And finally the marksheet will be shared to the certificate committee for distribution of certificates.

Adjournment: Meeting was adjourned at 2:30 pm.





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Padmashree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, AiroliNavi Mumbai

Date: 06/12/2023

Following members were present:

Dr. B.R. Deshpande- I/c Principal

Asst.Prof Janhavi Kshirsagar - CS/IT Coordinator

Asst. Prof Sarita Sarang

Dr. Sanjivani Nalkar


Ms. Shakuntala Kulkarni

Mrs. Vinaya Mangnale

Signature



Flyer :



JNAN VIKAS MANDAL'S DEGREE COLLEGE
NAAC RE-ACCREDITED 'A' GRADE (CGPA 3.33)
Plot No. 9, Sector-19, Airoli, Navi Mumbai

**DEPARTMENT OF COMPUTER SCIENCE
ORGANIZES
CERTIFICATE COURSE
FOR
SECOND YEAR COMPUTER SCIENCE**

Mrs. Sarita Sarang
Dr. Sanjivani Nalkar
Ms. Shakuntala Kulkarni

Date:
06th December 2023-12th December 2023
Duration : 30 Hours

Mrs. Janhavi Kshirsagar
CS-IT Coordinator

Dr. B. E. Deshpande
Vc Principal and Chairperson





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MohanlalRaichand Mehta College of Commerce
Padmashree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, AiroliNavi Mumbai

Certificate Course for SYBsc(CS)

Duration: - 30 hours

OBJECTIVES: -

The data warehousing part of module aims

- to give students a good overview of the ideas and techniques which are behind recent development in the data warehousing and online analytical processing (OLAP) fields, inter ms of data models, query language, conceptual design methodologies and storage techniques.
- Data mining part of the model aims to motivate, define and characterize data mining &S process; to motivate, define and characterize data mining applications.

OUTCOME: -

Students will be able to

- 1) Equipped with the knowledge and confidence needed Current in Organization.
- 2) Understand how to build better relationships with customers and within the organization.
- 3) Understand the essence of knowledge gained beyond the curriculum.



Module	Contents	Number of hours
I	Module : Overview and Concepts: Need for data warehousing, The building blocks of a Data warehouse. Architecture an Infrastructure : Data Warehouse Architecture, Infrastructure and Metadata Management.	4 hours
	Assignment, Test and Group Discussion	1 hour
II	Module: Principles Of Dimension Modeling : Introduction to Dimensional Modeling, Advanced Concepts Extract Transform Load Cycle : ETL overview, Extraction, Loading, Transformation techniques.	4 hours
	Assignment, Test and Group Discussion	1 hour



III	<p>Module:</p> <p>Information Access and Delivery Matching information to classes of users, OLAP – the need, Design of the OLAP database, OLAP operations: slice, dice, rollup, drill-down etc. OLAP implementations</p>	4 hours
	Assignment, Test and Group Discussion	1 hour
IV	<p>Module:</p> <p>Implementation And Maintenance:</p> <p>Physical design process, Aggregates and Indexing. Data Warehouse</p> <p>Deployment</p>	4 hours
	Assignment, Test and Group Discussion	1 hour
V	<p>Module:</p> <p>The building blocks of a Data warehouse. Advanced Concepts Extract Transform Load Cycle, OLAP – the need, Design of the OLAP database, Physical design process,</p>	
	Assignment, Test and Group Discussion	1 hour



Time Table :



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AmritlalRaichand Mehta Degree College of Arts
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Plot no.9, Sector -19, Airoli Navi Mumbai
Permanently Unaided, Affiliated to Mumbai University
NAAC Re-accredited CGPA "A+" Grade (3rd cycle)

SYCS Certificate Course Sem-IV Time Dec2023

Date	6/12/2023	7/12/2023	8/12/2023	9/12/2023	11/12/2023	12/12/2023
7:50-8:40	Module 5	Module 2	Module 4	Module 3	Module 1	Module 4
8:40-9:30	Module 3	Module 4	Module 5	Module 1	Module 4	Module 3
9:30-9:50	BREAK					
9:30-9:50	Module 2	Module 5	Module 3	Module 2	Module 5	Module 2
9:50-10:40	Module 4	Module 1	Module 1	Module 5	Module 2	Module 1
10:40-11:30	Module 1	Module 3	Module 2	Module 4	Module 3	Module 5

Module 1: Mrs. Janhavi K

Module 2: Mrs. Sarita S

Module 3: Dr. Sanjivani N

Module 4: Ms. Shakuntala K

Module 5: Mrs. Vinava



Exam Paper :

Questions Responses Settings Total points: 20

Section 1 of 5

SYCS CERTIFICATE COURSE TEST

B Z U [] []

Data Warehouse Dec2022

Email *

data@smail

This form is collecting emails. [Change settings](#)

NAME OF THE STUDENT *

Short answer text

ROLL NUMBER *

Short answer text

After section 1 Continue to next section

Section 2 of 5

PLEASE ANSWER THE FOLLOWING QUESTIONS

Description (optional)

Where is data warehousing used? *

- Transaction system
- Logical system
- Decision support system
- None



A source program is usually in _____ *

2 points

- Assembly language
- Machine level language
- High-level language
- Natural language

The ALU makes use of _____ to store the intermediate results. *

2 points

- Accumulators
- Registers
- Heap
- Stack

The NOR gate output will be high if the two inputs are _____ *

2 points

- 00
- 01
- 10
- 11

Which input values will cause an AND logic gate to produce a HIGH output?

* 2 points

- At least one input is HIGH
- At least one input is LOW
- All inputs are HIGH
- All inputs are LOW

If the decimal number is a fraction then its binary equivalent is obtained by _____ the number continuously by 2.

* 2 points

- Dividing
- Multiplying
- Adding
- Subtracting



Which one is not the keyword of C language? *

2 points

- static
- void
- int
- data

C Program is converted into machine Language with the help of *

2 points

- Compiler
- Operating System
- Editor
- Interpreter

Process of inserting an element in stack is called _____ *

2 points

- Create
- Evaluation
- Push
- Pop

In linked list each node contains a minimum of two fields. One field is data field to store the data second field is?

* 2 points

- Pointer to node
- Pointer to character
- Pointer to integer
- Node

Format specifier for double data type is *

2 points

- %f
- %lf
- %d
- %a

Which of these is not a core data type? *

2 points

- Class
- Lists
- Dictionary
- Tuples



To add packages or module in the program _____ statement is used. * 2 points

- Use
- Add
- import
- AddModule

By default division operator(/) returns the result in _____ format. * 2 points

- integer
- int
- Boolean
- Floating point

The users must agree to the _____ terms and agreements when they use open-source software. * 2 points

- System
- License
- Community
- Programmer

FOSS stands for _____. * 2 points

- Free Open System Service
- Free Open Source Software
- Free Open Service Software
- Free Synchronized Software

What command is used to remove files? * 2 points

- dm
- rm
- delete
- erase



UNIX operating system . It is possible to run commands that are not located in a directory listed in the PATH if you know the full path and command name.

* 2 points

- can run on PC's and larger system
- is multitasking
- is multiuser
- all of these

Which of the following is not an operating system? *

2 points

- UNIX
- MS-DOS
- CP/M
- PASCAL

Which directory contains the system kernel? *

2 points

- /etc
- /
- /boot
- /proc

Which utility provides contact and name server information about the specified domain?

* 2 points

- nameserver
- whois
- finger
- host

In an E-R diagram an entity set is represent by a *

2 points

- rectangle
- diamond box
- ellipse.
- circle.



Data independence means _____ *

2 points

- data is defined separately and not included in programs.
- programs are not dependent on the physical attributes of data.
- programs are not dependent on the logical attributes of data.
- both (B) and (C).

Key to represent relationship between tables is called *

2 points

- Primary key
- Secondary key
- Foreign Key
- None of the Above

What is a relationship called when it is maintained between two entities? * 2 points

- Unary
- Binary
- Ternary
- Quaternary

The full form of DDL is *

2 points

- Dynamic Data Language
- Data Derivation Language
- Data Definition Language
- Detailed Data Language

Submit

Clear form





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Plot no.9, Sector -19, AiroliNavi Mumbai

List of Participants for Certificate Course (2023-24)

ROLL NUMBER	NAME OF THE STUDENT	Score
1701	Priyanka Gurnani	36
1702	Sofiya ansari	46
1703	Jaiwin Antson Franklin	42
1704	Virendra ramratan bandore	40
1705	Mamta belurkar	46
1706	Raj Ramesh Bengade	14
1707	Priti	30
1708	Shreya Sanjay Bodke	42
1709	Ayush Dhananjay Borade	12
1710	Anjali boudh	46
1711	Rahul charate	44
1712	Vanshika Chaudhary	44
1714	Kanchan Choudhary	34
1715	omeshwariben Sanjay desai	42
1716	Pranali bibhishan Deshmukh	40
1717	Sneha Sujit Deshmukh	44
1718	Aarti Guruprasad Gupta	40
1720	Prathamesh Gurav	44
1721	Tushar Rajaram jadhav	44
1723	Aryan Kadam	44



1724	Sneha Suresh Kamble	48
1725	Swapnil Santosh Khunte	44
1726	Vaishnavi Magadum	34
1727	Sujal M	26
1729	Mane Swapnil laxman	46
1730	Rakesh Kumar gajaram meghwal	44
1731	Arya mhatre	42
1732	HARISH MUDRAS	16
1733	Sameeruddin khan	42
1734	Devraj ramraj nishad	44
1735	Archita Pandey	48
1736	Pushkar Pandey	38
1737	Omkar Ramesh Patil.	38
1738	Azhar qureshi	40
1739	Aditya rai	40
1740	Anamika Rajesh Rajak	40
1741	Ajit Rajbhar	40
1742	Avani Rambhia	44
1743	Harhsad rawal	38
1745	Purav Ranjan Salla	42
1746	Siddhi	36
1748	Sneha Shinde	46
1750	Jatin singh	38
1751	Rahul sonawane	38
1752	Vaishnavi Tiwari	46
1753	Vinayak Vishwakarma	40
1754	Vinita Santosh Kumar Vishwakarma	36
1756	Anand Udayraj Yadav	38
1757	Chandrasen Melaram Yadav	44



1758	Dolly jaiprakash yadav	44
1759	Kshamata yadav	46
1761	Pranali Anil Yadav	46
1762	Santosh yadav	44
1764	Soni Yadav	46
1765	Surekha yadav	46



Feedback Form :

Questions Responses **40** Settings

SYCS Sem IV Certificate Course Feedback Form

B I U ↻ ✕

Form description

Email *

Valid email

This form is collecting emails. [Change settings](#)

Name of the Student *

Short answer text

Roll Number *

Short answer text



Were the objectives of the course clear to you? *

- Very Clear
- Moderately Clear
- Not at all Clear

The lectures were clear & easy to understand. *

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

The course was organized in a manner that helped you understand the underlying concepts. *

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

How useful to you was this course? *

- Very Useful
- Moderately useful
- Not at all useful



How much did you learn from this course? *

- A great deal
- A lot
- A moderate amount
- A little
- Nothing

Overall, how would you describe the quality of the instruction in this course? *

- Excellent
- Very good
- Good
- Fair
- Poor

What skills or knowledge did you learn or improve? *

Long answer text



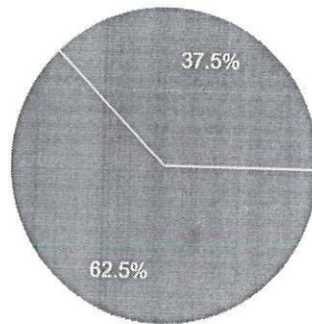


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Feedback Analysis :

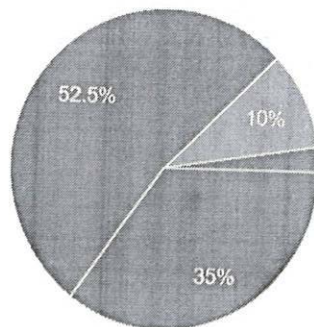
Certificate course Feedback Analysis SYCS Sem-III June 2022-23

Were the objectives of the course clear to you?
40 responses



- Very Clear
- Moderately Clear
- Not at all Clear

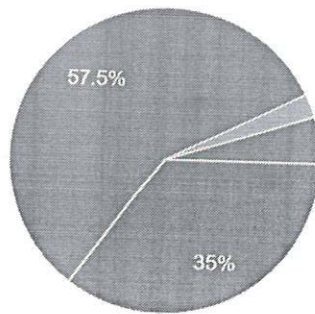
The lectures were clear & easy to understand.
40 responses



- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly disagree

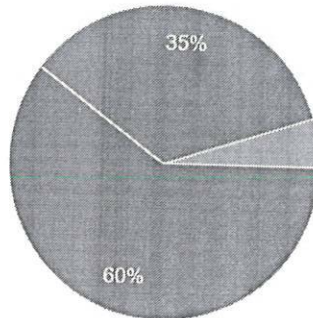


The course was organized in a manner that helped you understand the underlying concepts.
40 responses



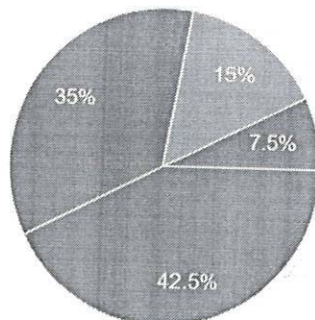
- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly disagree

How useful to you was this course?
40 responses



- Very Useful
- Moderately useful
- Not at all useful

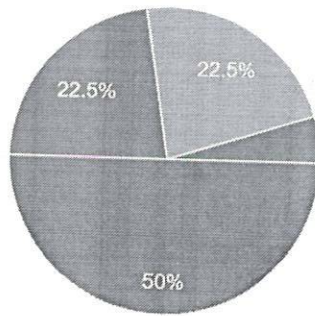
How much did you learn from this course?
40 responses



- A great deal
- A lot
- A moderate amount
- A little
- Nothing



Overall, how would you describe the quality of the instruction in this course?
40 responses



- Excellent
- Very good
- Good
- Fair
- Poor



Certificate :



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Plot no 9, Sector -19, AiroliNavi Mumbai

Certificate

This certificate is awarded to

<<NAME>>

of SYCS who has successfully completed Certificate Course
organized by Department of Computer Science of JVM's Degree
College from 06th December 2023 to 12th December 2023.

Janhavi Kshirsagar

Asst. Prof. Janhavi Kshirsagar
CS-IT Coordinator

Dr. B. R. Deshpande
I/c Principal





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Report on Certificate Course

The certificate course was conducted for Second Year computer science students from 06/12/2023 to 12/12/2023. The duration of the course was 30 hours. Total subjects were included in the course. The course was conducted by Computer Science department faculty members.

Mrs. Janhavi Kshirsagar	Module I
Dr. (Mrs.) Sanjivani Nalkar	Module II
Mrs. Sarita Sarang	Module III
Ms. Shakuntala Kulkarni	Module IV
Mrs. Vinaya Mangnale	Module V

The course benefitted 40 students.

The intention of this course was to conduct certificate course for SYCS students. The course contents were designed to give enough knowledge of the subject as well as its application in the industry. The course also aimed at laying a strong foundation for the students.

A test was conducted for all the students using Google Form. All subject teachers shared 5 questions of their respective subjects. Due to network issues some students had not submitted paper, so retest was conducted the following day. A student has to secure a minimum 40% in the test to qualify for the certificate.

Successful students were awarded certificates for the certificate course.

Mrs. Janhavi Kshirsagar
Co-ordinator CS-IT DEPT

Dr. B.R. Deshpande



I/c Principal
I/c. PRINCIPAL
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D.M. MEHTA COLLEGE OF SCIENCE
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Plot no.9, Sector -19, AiroliNavi Mumbai

Date: 29/04/2023

NOTICE

All departmental members are hereby informed that the department meeting is arranged on April 29, 2023 at 11:30 a.m. in CS lab.

Agenda

1. Conduction of Certificate Course for SYCS students from 13th June 2023.
2. Exam Conduction of ^{ertificate} Course

Mrs. Janhavi Kshirsagar
Co-ordinator CS-IT DEPT

Dr. B.R. Deshpande
Vice Principal

Dr. (Mrs.) Leena Sarkar
Principal

PRINCIPAL
JNAN VIKAS MANDAL'S
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D.M. COLLEGE OF SCIENCE
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Padmashree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, AiroliNavi Mumbai

Date: 13/06/2023

NOTICE (Student)

This is to inform all the students that the certificate course on "Project Management" is scheduled from 13th June 2023 to 20th June 2023 as per time table.

Agenda

1. Conduction of Certificate Course of SYCS students
2. Exam Conduction of Certificate Course

Mrs. Janhavi Kshirsagar
Co-ordinator CS-IT DEPT

Dr. B.R. Deshpande
Vice Principal

Dr. (Mrs.) Leena Sarkar
Principal

PRINCIPAL
JNAN VIKAS MANDAL'S
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D.M. COLLEGE OF SCIENCE
A.R. MEHTA COLLEGE OF ARTS
Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE
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Padmashree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, AiroliNavi Mumbai

Date: 13/06/2023

Minutes of Meeting

June 13, 2023

The offline departmental meeting was held on April 29, 2023 at 11:30 p.m. in CS Lab.

Following matters were discussed and finalized as per agenda.

❖ Conduction of Certificate course of SYCS students :

It was decided that the Certificate Course should be conducted from 13th June, 2023 to 20rd June, 2023. Total 04 modules are included in the Certificate Course. And it was decided that it should be 30 hrs separately for each class.

Syllabus compilation and preparation of time table for certificate course for SYCS is assigned to Dr. Sanjivani Nalkar for CS department.

❖ Exam conduction of Certificate course

After completion of lectures of certificate course on Tuesday 20th June, 2023 exam will be conducted for students in online mode.

Class teacher completed work related to bridge course like preparation of flyer, syllabus, timetable, feedback form, exam conduction, certificate design and distribution to SYCS students.

It will be conducted on google form and the exam will be conducted at 2 pm.

And finally the marksheet will be shared to the certificate committee for distribution of certificates.

Adjournment

Meeting was adjourned at 2:00 pm.





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Plot no.9, Sector -19, AiroliNavi Mumbai

Date: 19/06/2022

Following members were present:

Asst. Prof Sarita Sarang

Dr. Sanjivani Nalkar

Asst. Prof Shakuntala Kulkarni

Signature





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Padmashree(Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, AiroliNavi Mumbai

Date: 19/06/2022

Following members were present:

Asst. Prof Sarita Sarang

Dr. Sanjivani Nalkar

Asst. Prof Shakuntala Kulkarni

Signature

❖ Work Distribution

Work Distribution for the Certificate Course was as follows:-

Name of the teacher	Duties Assigned
Dr. Sanjivani Nalkar	Flyer Designing, Report of the ^{Certificate} Bridge Course
Dr. Sanjivani Nalkar	Conduction of Exam and Preparation of Result
Dr. Sanjivani Nalkar	Certificate Designing and Feedback form designing and analysis
Dr. Sanjivani Nalkar	Writing Minutes of Meeting, Syllabus Compilation, Timetable, Certificate Distribution

Adjournment

Meeting was adjourned at 2:30 p.m.



Following members were present:

Asst. Prof Sarita Sarang


Asst. Prof Dr. Sanjivani Nalkar

Asst. Prof Shakuntala Kulkarni

Signature



4) Flyer :



JNAN VIKAS MANDAL'S DEGREE COLLEGE
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Plot No. 9, Sector-19, Airoli, Navi Mumbai

**Department of Computer Science
Organizes
Certificate Course
on
Project Management
for
Second Year Computer Science**

Mrs. Sarita Sarang
Dr. Sanjivani Nalkar
Ms. Shakuntala Kulkarni

Mrs. Janhavi Kshirsagar
CS-IT Coordinator

Date : 13th June to 20th June 2023
Duration: 30 hours

Dr. Mrs. Leena Sarkar
Principal



5) Course Syllabus :



JNAN VIKAS MANDAL'S

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Diwali Maa Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli, Navi Mumbai

Certificate Course for SYBsc(CS)

Duration: - 30 hours

OBJECTIVES: -

- 1) To deal with the basics of project management
- 2) To learn different skill management regarding projects
- 3) To evaluate risk factors involved in a project and learn to manage it.
- 4) To demonstrate a depth of knowledge in the discipline of computer science.

OUTCOME: -

Students will be able to

- 1) Understand the tools and techniques used in project management..
- 2) Understand skills and abilities for effective project management.
- 3) Understand the essence of knowledge gaining beyond curriculum.

Module	Contents	Number of hours
I	Module I: Introduction to Software Project Management: Introduction, Why is Software Project Management Important? What is a Project? Software Projects versus Other Types of Project, Contract Management and Technical Project Management, Activities	6 hours



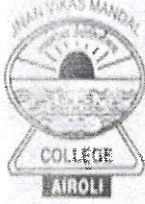
	Covered by Software Project Management, Plans, Methods and Methodologies, Some Ways of Categorizing Software Projects, Project Charter, Stakeholders, Setting Objectives, The Business Case, Project Success and Failure, What is Management? Management Control, Project Management Life Cycle, Traditional versus Modern Project Management Practices	
	Case study/Assignment and test	1 hour
II	Module II: Selection of an Appropriate Project Approach: Introduction, Build or Buy? Choosing Methodologies and Technologies, Software Processes and Process Models, Choice of Process Models, Structure versus Speed of Delivery, The Waterfall Model, The Spiral Model, Software Prototyping, Other Ways of Categorizing Prototypes, Incremental Delivery, Atern/Dynamic Systems Development Method, Rapid Application Development, Agile Methods, Extreme Programming (XP), Scrum, Lean Software Development, Managing Iterative Processes, Selecting the Most Appropriate Process Model.	6 hours
	Case study/Assignment and test	1 hour
III	Module III:. Activity Planning: Introduction, Objectives of Activity Planning, When to Plan, Project Schedules, Projects and Activities, Sequencing and Scheduling Activities, Network Planning Models, Formulating a Network Model, Adding the Time Dimension, The Forward Pass, Backward Pass, Identifying the Critical Path, Activity Float, Shortening the Project	6 hours



	Duration, Identifying Critical Activities, Activity-on-Arrow Networks. Risk Management: Introduction, Risk, Categories of Risk, Risk Management Approaches, A Framework for Dealing with Risk, Risk Identification, Risk Assessment, Risk Planning, Risk Management	
	Case study/Assignment and test	1 hour
IV	Module IV: Monitoring and Control: Introduction, Creating the Framework, Collecting the Data, Review, Visualizing Progress, Cost Monitoring, Earned Value Analysis, Prioritizing Monitoring, Getting the Project Back to Target, Change Control, Software Configuration Management (SCM). Managing Contracts: Introduction, Types of Contract, Stages in Contract Placement, Typical Terms of a Contract, Contract Management, Acceptance.	6 hours
	Case study/Assignment and test	1 hour



6) Time Table :



JNAN VIKAS MANDAL'S
 Amratlal Raichand Mehta Degree College of Arts
 Diyalibai Maa Degree College of Science
 Mohanlal Raichand Mehta College of Commerce
 Radmasiree (Dr.) R. T. Doshi Degree College of Computer Science
 Plot no.9, Sector -19, Airoli, Navi Mumbai

Class: S.Y.: B.Sc. (C.S)

Certificate Course Time Table

Academic year: 2023-2024

Time	Tuesday 13/06/2023	Wednesday 14/06/2023	Thursday 15/06/2023	Friday 16/06/2023	Saturday 17/06/2023	Monday 19/06/2023	Tuesday 20/06/2023
8:40am to 9:30am	Module II (Sarita)	Module III (Sanjivani)	Module II (Sarita)	Module IV (Shakuntala)	Module II (Sarita)	Module III (Sanjivani)	Module II (Sarita)
9:30am to 10:10am	Module I (Janhavi)	Module I (Janhavi)	Module I (Janhavi)	Module I (Janhavi)	Module I (Janhavi)	Module I (Janhavi)	Module I (Janhavi)
10:10am to 11:00am	Module IV (Shakuntala)	Module II (Sarita)	Module III (Sanjivani)	Module III (Sanjivani)	Module IV (Shakuntala)	Module II (Sarita)	Module III (Sanjivani)
11:00am to 11:50am	Module III (Sanjivani)	Module IV (Shakuntala)	Module IV (Shakuntala)	Module II (Sarita)	Module III (Sanjivani)	Module IV (Shakuntala)	Module IV (Shakuntala)

Module I: Mrs. Janhavi Kabiragar
 Module II: Mrs. Sarita Sarang
 Module III: Dr. Sanjivani Nalkar
 Module IV: Ms. Shakuntala Kulkarni

Co-ordinator of CS/IT dept

Vice Principal

Principal



PRINCIPAL
 JNAN VIKAS MANDAL'S
 M.R. MEHTA COLLEGE OF COMMERCE
 D.M. COLLEGE OF SCIENCE
 A.R. MEHTA COLLEGE OF ARTS
 Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE
 Plot No.9, SEC. - 19, AIROLI,
 NAVI MUMBAI-400 708

Exam Paper :

Section 1 of 3

SYCS CERTIFICATE COURSE TEST

PROJECT MANAGEMENT JUNE 2012

Email *

Your email

This form is collecting emails. [Change settings](#)

NAME OF THE STUDENT

Short answer

Short answer text

Answer key (0 points)

Required

ROLL NUMBER

Short answer text

Section 2 of 3

PLEASE ANSWER THE FOLLOWING QUESTIONS

Description (optional)

A _____ is a set of activities which are networked in an order and aimed towards achieving the goals of a project.

- Project
- Process
- Project management
- Project cycle

Developing a technology is an example of _____.

- Process
- Project
- Scope
- Goals

Project performance consists of _____.

- Time
- Cost
- Quality
- All of the above



Five dimensions that must be managed on a project _____*

- Constraint, Quality, Cost, Schedule, Staff
- Features, Quality, Cost, Schedule, Staff
- Features, priority, Cost, Schedule, Staff
- Features, Quality, Cost, Schedule, customer

What is the first step in project planning?*

- Determine the budget.
- Select the team/organizational model.
- Establish the objectives and scope.
- Determine project constraints.

Assembling project team and assigning their responsibilities are done during which phase of a project management?

- Initiation
- Planning



Which of the following is not a software development life cycle model?

- Agile Model
- RAD Model
- Prototype Model
- Automock Model

SDLC stands for _____

- Software Development Life Cycle
- Settle Development Life Cycle
- Secure Development Life Cycle
- None of the Above

Which of the following shows correct sequence of waterfall model?

- Feasibility study, Requirement analysis, Design, coding, testing, integration and system testing, Maintenance
- Requirement analysis, Feasibility study, Design, coding, testing, integration and system testing, Maintenance
- Requirement analysis, Design, Feasibility study, coding, testing, integration and system testing, Maintenance
- Feasibility study, Requirement analysis, Design, coding, testing, Maintenance, integration and system tes



Before actual software development begins, this model requires to build the toy implementation of it.

- Iterative waterfall model
- RAD model
- Agile model
- Prototype model

Which of the following is known as incremental model? *

- Evolutionary Model
- RAD Model
- Iterative waterfall model
- Agile model

When you build a product or system, it's important to go through a series of predictable steps. * the process which you follow to develop it is known as _____.

- Software design
- Software process
- Software schedule
- Framework



When you build a product or system, it's important to go through a series of preferable steps, the process which you follow to develop it is known as _____.

- Software design
- Software process
- Software schedule
- Framework

The PERT in project management means program evaluation and _____ technique.

- resource
- responsibility
- reconsideration
- review

Risk is usually _____ as the project progresses.

- increases
- reduces
- remains same
- becomes negligible



What is the first step in project planning? *

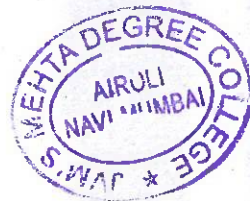
- Establish the objectives and scope.
- Determine the budget.
- Select the team organizational model.
- Determine project constraints.

What is the first step in developing a risk management plan? *

- Analyze the risks.
- Estimate the likelihood of the risks occurring.
- Identify potential project risks.
- Develop a risk mitigation plan.

The _____ also referred to as the project graph, shows the activities and events of the project and their logical relationships.

- Network diagram
- PERT diagram
- CRM diagram
- None



_____ is a discipline for dealing with the possibility that some future event will cause harm.

Risk mitigation

Risk identification

Risk management

Risk reduction

_____ is the central process around which others revolve.

Development Process

Analysis

Risk

Requirements

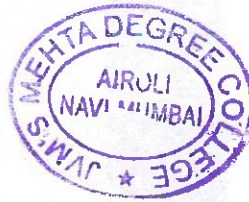
Methods for other processes often influenced by the _____ process.

Development

Risk

Analysis

Testing



Which of the following is not a phase in development process? *

- Inception
- Elaboration
- Construction
- Requirement analysis

Overall responsibility for the successful planning, execution, monitoring, control and closure of a project is of _____.

- Project Manager
- Tester
- Developer
- Risk Manager

_____ analysis is performed when the development process is over *

- Postmortem
- Requirement
- Development
- Process



_____ analysis is performed when the development process is over

- Postmortem
- Requirements
- Development
- Process

Postmortem analysis is also called _____ analysis *

- termination
- analysis
- requirement
- development

The pitch, tone, and inflections in the speaker's voice is called as _____ attribute *

- paralingual
- lingual
- necessary
- none





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MohanlalRaichand Mehta College of Commerce
Padmashree(Dr.) R. T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, AiroliNavi Mumbai

List of Participants
Student Participants List-Certificate Course(2023-24)

ROLL NUMBER	NAME OF THE STUDENT	Score
1701	Priyanka Gurnani	36
1702	Sofiya ansari	46
1703	Jaiwin Antson Franklin	42
1704	Virendra ramratan bandore	40
1705	Mamta belurkar	46
1706	Raj Ramesh Bengade	14
1707	Priti	30
1708	Shreya Sanjay Bodke	42
1709	Ayush Dhananjay Borade	12
1710	Anjali boudh	46
1711	Rahul charate	44
1712	Vanshika Chaudhary	44
1714	Kanchan Choudhary	34
1715	omeshwariben Sanjay desai	42
1716	Pranali bibhishan Deshmukh	40
1717	Sneha Sujit Deshmukh	44
1718	Aarti Guruprasad Gupta	40



1720	Prathamesh Gurav	44
1721	Tushar Rajaram jadhav	44
1723	Aryan Kadam	44
1724	Sneha Suresh Kamble	48
1725	Swapnil Santosh Khunte	44
1726	Vaishnavi Magadum	34
1727	Sujal M	26
1729	Mane Swapnil laxman	46
1730	Rakesh Kumar gajaram meghwal	44
1731	Arya mhatre	42
1732	HARISH MUDRAS	16
1733	Sameeruddin khan	42
1734	Devraj ramraj nishad	44
1735	Archita Pandey	48
1736	Pushkar Pandey	38
1737	Omkar Ramesh Patil.	38
1738	Azhar qureshi	40
1739	Aditya rai	40
1740	Anamika Rajesh Rajak	40
1741	Ajit Rajbhar	40
1742	Avani Rambhia	44
1743	Harhsad rawal	38
1745	Purav Ranjan Salla	42
1746	Siddhi	36
1748	Sneha Shinde	46
1750	Jatin singh	38
1751	Rahul sonawane	38
1752	Vaishnavi Tiwari	46
1753	Vinayak Vishwakarma	40
1754	Vinita Santosh Kumar Vishwakarma	36
1756	Anand Udayraj Yadav	38
1757	Chandrasen Melaram Yadav	44



Feedback Form :

Questions Responses **40** Settings

SYCS Sem IV Certificate Course Feedback Form

B *I* U ↻ ✕

Form description

Email *

Valid email

This form is collecting emails. [Change settings](#)

Name of the Student * ***

Short answer text

Roll Number *

Short answer text



Were the objectives of the course clear to you? *

- Very Clear
- Moderately Clear
- Not at all Clear

The lectures were clear & easy to understand. *

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

The course was organized in a manner that helped you understand the underlying concepts. *

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

How useful to you was this course? *

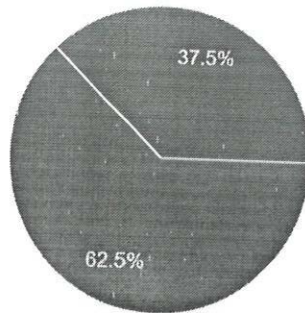
- Very Useful
- Moderately useful
- Not at all useful



Feedback Analysis :

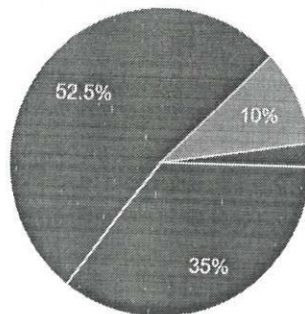
Bridge course Feedback Analysis SYCS Sem-III June 2022-23

Were the objectives of the course clear to you?
40 responses



- Very Clear
- Moderately Clear
- Not at all Clear

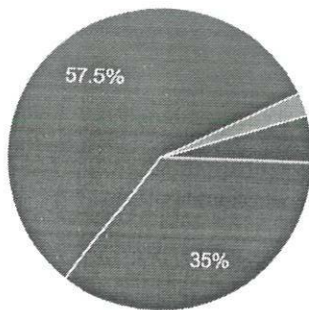
The lectures were clear & easy to understand.
40 responses



- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly disagree

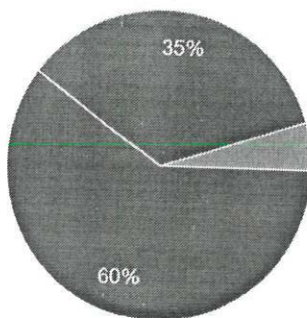


The course was organized in a manner that helped you understand the underlying concepts.
40 responses



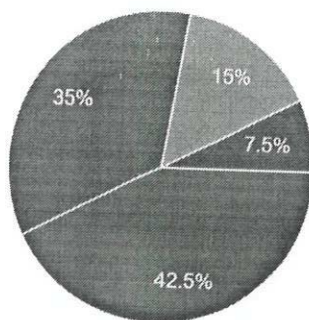
- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly disagree

How useful to you was this course?
40 responses



- Very Useful
- Moderately useful
- Not at all useful

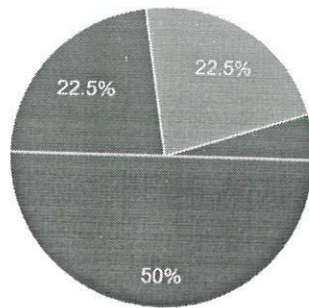
How much did you learn from this course?
40 responses



- A great deal
- A lot
- A moderate amount
- A little
- Nothing




Overall, how would you describe the quality of the instruction in this course?
40 responses



- Excellent
- Very good
- Good
- Fair
- Poor



11) Certificate :



Jnan Vikas Mandal's Degree College
NAAC Re-Accredited 'A' Grade (CGPA- 3.33)
Plot No. 9, Sector-19, Airoli, Navi Mumbai, Maharashtra - 400 708

Certificate

This certificate is awarded to

<<NAME>>

of S.Y.B.Sc (C.S) who has successfully completed Certificate Course on "Project Management" organized by Department of Computer Science of JVM's Degree College from 13th June 2023 to 20th June 2023.

Janhavi Kshirsagar
Asst. Prof. Janhavi Kshirsagar
CS-IT Coordinator

Leena Sarkar
Dr. (Mrs.) Leena Sarkar
Principal



12) Report :



JNAN VIKAS MANDAL'S
Mohanlal Raichand Mehta College of Commerce
Diwali Maa Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot no.9, Sector -19, Airoli, Navi Mumbai

Report on Certificate Course

The certificate course on "Project Management" was conducted for Second Year computer science students from 13/06/2023 to 20/06/2023. The duration of the course was 30 hours. The course was conducted by Computer Science depart

ment faculty members.

Mrs. Janhavi Kshirsagar	Module I
Dr. (Mrs.) Sanjivani Nalkar	Module III
Mrs. Sarita Sarang	Module II
Ms. Shakuntala Kulkarni	Module IV

The course benefitted 38 students.

The intention of this course was to introduce industry oriented subjects not covered in the regular curriculum. The course contents were designed to give enough knowledge of the subject as well as its application in the industry. The course was divided into four modules which covered all aspects of the subject and its application. The course also aimed at laying a strong foundation for the students to become successful in their careers.

A test was conducted for all the students using Google Form. All the teachers shared 5 questions based on the module taught in the course.

Due to network issues some students had not submitted paper, so retest was conducted the following day. A student has to secure a minimum 40% in the test to qualify for the certificate.

Successful students were awarded certificates for the certificate course.

Mrs. Janhavi Kshirsagar

Co-ordinator CS-IT DEPT

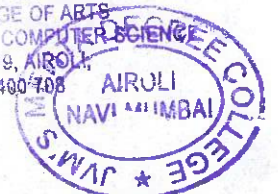
Dr. B.R. Deshpande

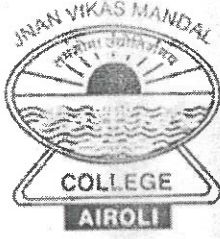
Vice Principal

Dr. (Mrs.) Leena Sarkar

Principal

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M.R. MEHTA COLLEGE OF COMMERCE
D.M. COLLEGE OF SCIENCE
A.R. MEHTA COLLEGE OF ARTS
Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE
Plot No.9, SEC.- 19, AIROLI,
NAVI MUMBAI-400708





JNAN VIKAS MANDAL'S

**Mohanlal Raichand Mehta College of Commerce
Diwali Maa Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot No.9, Sector -19, Airoli, Navi Mumbai
NAAC Re-Accredited CGPA-3.33 'A'-Grade**


Date: 28/04/2023


NOTICE

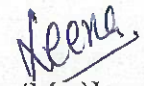
All departmental members are hereby informed that the department meeting is arranged on 29 April, 2023 at 11:30 a.m.

Agenda

1. Conduction of Certification course of TYCS students
2. Subject Distribution


Asst. Prof. Janhavi Kshirsagar
Coordinator CS-IT DEPT


Dr. B.R. Deshpande
Vice -Principal


Dr. (Mrs) Leena Sarkar
Principal

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Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE
Plot No.9, SEC.- 19, AIROLI,
NAVI MUMBAI-400 708





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Diwali Maa Degree College of Science
Amritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot No.9, Sector -19, Airoli, Navi Mumbai
NAAC Re-Accredited CGPA-3.33 'A'-Grade

Minutes of Meeting

The departmental meeting was held on April 29, 2023 at 11:30 am.

Following matters were discussed and finalized as per agenda.

❖ Conduction of Certification course of TYCS students

It was decided that the certification course should be conducted from 13th June, 2023 to 20th June, 2023. For TYCS Information Technology Service Management subject is decided. And it was decided that it should be 30 hrs separately for each class.

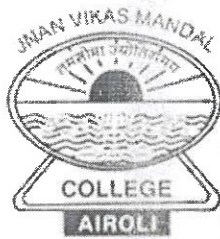
Following members were present:

Dr.(Mrs.) Leena Sarkar
Asst. Prof. Janhavi Kshirsagar
Asst. Prof Sarita Sarang
Asst. Prof Sanjivani Nalkar
Asst. Prof Shakuntala Kulkarni

Signature

Leena
JK
S
S
S





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 Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
 Plot No.9, Sector -19, Airoli, Navi Mumbai
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Course Syllabus

Duration: - 30 hours

OBJECTIVES: -

- To analyze and determine the present IT infrastructure, services and processes.
- To create management practices which are futuristic in nature.
- To formulate a roadmap to elevate the state of the business.

OUTCOME: -

Students will be able to

- 1) Equipped with the knowledge and confidence needed Current in Organization.
- 2) Understand how to build better relationships with customers and within the organization.
- 3) Understand the essence of knowledge gained beyond the curriculum.

Module	Contents	Number of hours
I	Introduction: The four perspectives (attributes) of IT service management, benefits of IT service management, business and IT alignment, What are services?, Service Management as a practice, The concept of Good Practice, Concept of a Service, Concept of Service Management, Functions and Processes, The process model and the characteristics of processes.	6 hours
	Service Strategy: Objectives, Creating Service Value, Service Packages and Service Level Packages, Service Strategy Processes, Service Portfolio Management, Financial Management, Demand Management	
	Case study/Assignment and test	1 hour
II	Service Design: Objectives, Major Concepts, Five	



	Major Aspects of Service Design, Service Design Packages, Service Design Processes, Service Level Management, Supplier Management, Service Catalog Management, Capacity Management, Availability Management, IT Service Continuity Management	6 hours
	Case study/Assignment and test	1 hour
III	Service Transition: Objectives, Service Transition Processes, Knowledge Management, Service Asset and Configuration Management, Change Management, Release and Deployment Management, Service Validation and Testing, Service Operation: Objectives, Major Concepts, Service Operation Functions	6 hours
	Case study/Assignment and test	1 hour
IV	The Service Desk, Technical Management, IT Operations Management, Application Management, Service Operation Processes Continual Service Improvement: Objectives, Major Concepts Continual Service Improvement Processes, Service Level Management, Service Measurement and Reporting , CSI (7 Step) Improvement Process	6 hours
	Case study/Assignment and test	1 hour





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Plot No.9, Sector -19, Airoli, Navi Mumbai
NAAC Re-Accredited CGPA-3.33 'A'-Grade

Certificate Course TimeTable

Academic Year: 2023-2024

Class : T.Y.B.Sc. (C.S)

Time	Tuesday 13/06/2023	Wednesday 14/06/2023	Thursday 15/06/2023	Friday 16/06/2023	Saturday 17/06/2023	Monday 19/06/2023	Tuesday 20/06/2023
8:40am to 9:30am	Module I (Janhavi)	Module I (Janhavi)	Module I (Janhavi)	Module I (Janhavi)	Module I (Janhavi)	Module I (Janhavi)	Module I (Janhavi)
9:30am to 10:10am	Module III (Sanjivani)	Module IV (Shakuntala)	Module IV (Shakuntala)	Module II (Sarita)	Module III (Sanjivani)	Module IV (Shakuntala)	Module IV (Shakuntala)
10:10am to 11:00am	Module II (Sarita)	Module III (Sanjivani)	Module II (Sarita)	Module IV (Shakuntala)	Module II (Sarita)	Module III (Sanjivani)	Module II (Sarita)
11:00am to 11:50am	Module IV (Shakuntala)	Module II (Sarita)	Module III (Sanjivani)	Module III (Sanjivani)	Module IV (Shakuntala)	Module II (Sarita)	Module III (Sanjivani)

Module I: Mrs. Janhavi Kshirsagar

Module II: Mrs. Sarita Sarang

Module III: Dr. Sanjivani Nalkar

Module IV: Ms. Shakuntala Kulkarni

Mrs. Janhavi Kshirsagar
Co-ordinator of CS/IT dept

Dr. B. R. Deshpande
Vice -Principal

Dr. Leena Sarkar
Principal

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D.M. COLLEGE OF SCIENCE
A.R. MEHTA COLLEGE OF ARTS
Dr. R.T. DOSHI COLLEGE OF COMPUTER SCIENCE
Plot No.9, SEC.- 19, AIROLI,
NAVI MUMBAI-400 708



Exam Paper

TYB.Sc(CS)CERTIFICATE COURSE TEST 2023-24 Term 1

Course name - ITSM
2023

Month - June

jvmcsitdeptofficial@gmail.com Switch account



* Indicates required question

Email *

Your email

NAME OF THE STUDENT *

Your answer



ROLL NUMBER *

Your answer

PLEASE ANSWER THE FOLLOWING QUESTIONS

Incident Management has a value to the business by? *

- Helping to control cost of fixing technology
- Enabling customers to resolve Problems
- Helping to maximise business impact
- Contributing to the reduction of impact

The BEST definition of an event is? *

- A situation where a capacity threshold has been exceeded and an agreed Service Level has already been impacted
- An occurrence that is significant for the management of the IT Infrastructure or delivery of services
- A problem that requires immediate attention
- A social gathering of IT staff to celebrate the release of a service

Which type of service change is BEST described as a pre-authorized change that is low risk, relatively common, and follows a procedure or work instruction? *

- Standard Change *
- Minor Change
- Normal Change
- Emergency Change

"A set of specialized organizational capabilities for providing value to customers in the form of services" is the official definition of: *

- ITIL
- ITSM
- RACI
- Service Quality



What is the result of carrying out an activity, following a process or delivering an IT service known as?

- Outcome
- Incident
- Change
- Problem

The RACI model is at the core of ensuring the integration of Processes and Functions. What does RACI abbreviation stand for?

- Responsive, Accountable, Coordinated, & Informed
- Responsible, Actionable, Coordinated, & Integrated
- Responsibility, Accountability, Consult, & Inform
- Reasonable, Accommodating, Cooperative, & Inquisitive

Which process or function is responsible for management of the Data centre facility?

- IT Operations Control
- Supplier Management
- Facilities Management
- Technical Function

What is the best definition of an Incident Model?

- Predicting the impact of incidents on the network
- A type of incident that is used as a best practice model
- A set of pre-defined steps to be followed when dealing with a known type of incident
- An incident that requires a separate system



Technical Management is NOT responsible for? *

- Maintenance of the local network
- Identifying technical skills required to manage and support the IT Infrastructure
- Defining the Service agreements for the technical infrastructure
- Response to the disruption to the technical infrastructure

What are the four perspectives or attributes of IT Service Management (ITSM)? *

- Protocols, People, Process, & Products/Technology
- Procurement, Policies, People, & Production Support
- Partners/Suppliers, Process, People, & Products/Technology
- Services Transition, Service Design, Service Strategy, & Service Operation

An outsourcer is considered a/an: *

- External Service Provider
- Internal Service Provider
- Shared Service Provider
- Matrix Driven Service Provider

What is the difference between a Known Error and a Problem? *

- The underlying cause of a Known Error is known. The underlying cause of a Problem is not known
- A Known Error involves an error in the IT infrastructure. A Problem does not involve such an error
- A Known Error always originates from an Incident. This is not always the case with a Problem.
- With a Problem, the relevant Configuration Items have been identified. This is not the case with a Known Error.



The 3 types of Service Level Agreements structures are: *

- Customer based, Service based, Corporate based
- Corporate level, customer level, service level
- Service based, customer based, user based
- Customer based, service base, multi-level based

Which statement best describes the role of the Service Desk? *

- The primary task of the Service Desk is to investigate problems
- The Service Desk functions as the first contact for the customer
- The Service Desk ensures that the telephone is always manned
- The Service Desk ensures that the agreed IT service is available

Which process or function is responsible for monitoring activities and events in the IT infrastructure?

- Service level management
- IT operations management
- Capacity management
- Incident management

The Service _____ volume provides guidance for the design and development of services and service management processes.

- Design
- Transition
- Operation
- Strategy



In which process are negotiations held with the customer about the availability and capacity levels to be provided?

- Availability Management
- Capacity Management
- Financial Management for IT Services
- Service Level Management

Which aspect of Availability is a measure of how long an IT service can perform its agreed function without interruption?

- Maintainability
- Reliability
- Availability
- Serviceability

As per outcome based service, it ensures that managers plan and execute all aspects of service management entirely from the perspective of what is valuable to the _____

- Company
- Board of Directors
- Colleagues
- Customer

Which of these statements best reflects the purpose of change management? *

- To deliver successful projects to operations
- To provide controlled change
- To provide success strategies for the business
- To deliver an accurate configuration management system



Who is responsible for ensuring the process fits the desired purpose? *

- Service Owner
- Process Manager
- Internal Service Provider
- Process Owner

Which of the following is an objective of business relationship management? *

- To identify patterns of business activity
- To ensure high levels of customer satisfaction
- To secure funding to manage the provision of services
- To ensure strategic plans for IT services exist

What is another term for Uptime? *

- Mean Time Between Failures (MTBF)
- Mean Time to Restore Service (MTRS)
- Mean Time Between System Incidents (MTBSI)
- Relationship between MTBF and MTBSI

A means of delivering value to Customers by facilitating outcomes customers want to achieve without the ownership of specific costs or risks is the definition for which of the following?

- Services
- Process
- Functions
- Utopia

Which of the following BEST describes the purpose of Event Management? *

- The ability to detect events, analyse them and determine the appropriate control action
- The ability to coordinate changes in events
- The ability to monitor and control projected service outages
- The ability to report on success of all batch processing jobs



Marksheet :

Score	NAME OF THE STUDENT
3 / 25	Aryan waghmare
18 / 25	Rishabh Dubey
19 / 25	Amit udaybhan Thakur
22 / 25	Smita Gavit



16 / 25	Khushboo Singh
21 / 25	Sakshi Ashok Naik
20 / 25	Shrejal Shreedhar Hande
20 / 25	Vinit Rambachan Gupta
19 / 25	MD Javed Khan
23 / 25	Aniruddh Suhas hatkar
23 / 25	Pranay shankar jadhav
23 / 25	Sahil Gupta
21 / 25	Sujal lodha
21 / 25	Pranil dhamal
	RAVISHANKAR DURGASHANKAR
18 / 25	GAUTAM
21 / 25	Anushka Chavan
20 / 25	Bhagyashree bhandari
21 / 25	Aryan Mahendra Mokashi
9 / 25	Dharmesh Patel
21 / 25	Jaswant Patel
22 / 25	Rahul kailash Gupta
12 / 25	Deepak Pal
18 / 25	Amisha Achari
20 / 25	ARPIT TIWARI
16 / 25	Mhetre Ganesh Vishwanath
17 / 25	Ketna Mhatre
21 / 25	Kumud Singh
15 / 25	Gaurav singh gobari
21 / 25	Vinita mandal
13 / 25	Atharva Santosh Shinde
15 / 25	Yash kadam
23 / 25	SHIVANI PANDEY

Feedback Form :



How useful to you was this course? *

- Very Useful
- Moderately useful
- Not at all useful

What skills or knowledge did you learn or improve? *

Your answer

How much did you learn from this course? *

- A great deal
- A lot
- A moderate amount
- A little
- Nothing

The lectures were clear & easy to understand. *

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Were the objectives of the course clear to you? *

- Very Clear
- Moderately Clear
- Not at all Clear



The course was organized in a manner that helped you understand the underlying concepts.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Overall, how would you describe the quality of the instruction in this course? *

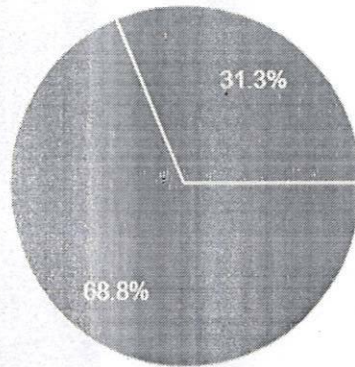
- Excellent
- Very good
- Good
- Fair
- Poor



Feedback Analysis

Were the objectives of the course clear to you?

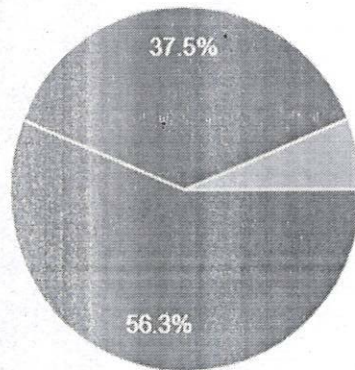
16 responses



- Very Clear
- Moderately Clear
- Not at all Clear

The lectures were clear & easy to understand.

16 responses

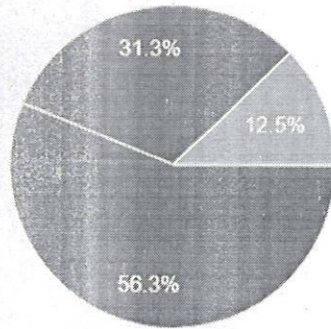


- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree



The course was organized in a manner that helped you understand the underlying concepts.

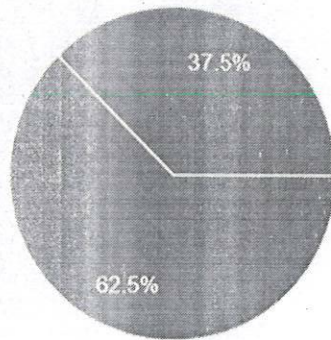
16 responses



- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

How useful to you was this course?

16 responses

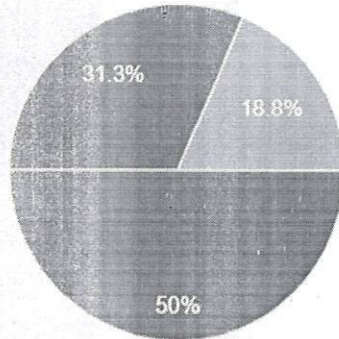


- Very Useful
- Moderately useful
- Not at all useful



How much did you learn from this course?

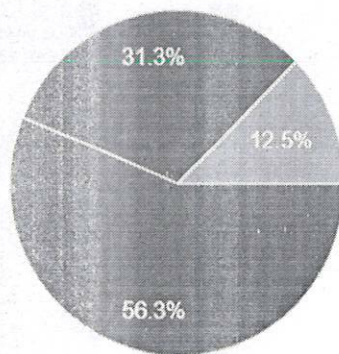
16 responses



- A great deal
- A lot
- A moderate amount
- A little
- Nothing

Overall, how would you describe the quality of the instruction in this course?

16 responses



- Excellent
- Very good
- Good
- Fair
- Poor



Flyer :



JNAN VIKAS MANDAL'S DEGREE COLLEGE

NAAC RE-ACCREDITED 'A' GRADE (CGPA 3.33)

Plot No. 9, Sector-19, Airoli, Navi Mumbai

Department of Computer Science

Organizes

Certificate Course

on

IT Service Management

for

Third Year Computer Science

Mrs. Sarita Sarang
Dr. Sanjivani Nalkar
Ms. Shakuntala Kulkarni

Date : 13th June to 20th June 2023

Duration: 30 hours

Mrs. Janhavi Kshirsagar
CS-IT Coordinator

Dr. B.R. Deshpande
Vice-Principal

Dr. Mrs. Leena Sarkar
Principal



Certificate :



JNAN VIKAS MANDAL'S DEGREE COLLEGE
NAAC RE-ACCREDITED 'A' GRADE (CGPA-3.33)
Plot No. 9, Sector - 19, Airoli, Navi Mumbai, Maharashtra - 400 703

CERTIFICATE

This certificate is awarded to

<<NAME>>

*Of T.Y.BSc(C.S) who has successfully completed
Certificate Course on "IT Service Management"
organized by Department of Computer Science of
JVM's Degree College from 13th June 2023 to 20th
June 2023 .*

*Mrs. Janhavi Kshirsagar
Coordinator CS-IT*

*Dr.B.R.Deshpande
Vice-Principal*

*Dr. Leena Sarkar
Principal*





JNAN VIKAS MANDAL'S

Mohanlal Raichand Mehta College of Commerce
Diwali Maa Degree College of Science
Anritlal Raichand Mehta Degree College of Arts
Padmashree (Dr.) R.T. Doshi Degree College of Computer Science
Plot No.9, Sector -19, Airoli, Navi Mumbai
NAAC Re-Accredited CGPA-3.33 'A'-Grade

Report on Certificate Course

The certificate course on "IT Service Management" was conducted for Third Year computer science students from 13/06/2023 to 20/06/2023. The duration of the course was 30 hours. The course was conducted by Computer Science department faculty members.

Mrs. Janhavi Kshirsagar	Module I
Mrs. Sarita Sarang	Module II
Dr. (Mrs.) Sanjivani Nalkar	Module III
Ms. Shakuntala Kulkarni	Module IV

The course benefitted 33 students. Some students were absent due to late admission or medical reason.

The intention of this course was to introduce industry oriented subjects not covered in the regular curriculum. The course contents were designed to give enough knowledge of the subject as well as its application in the industry. The course was divided into four modules which covered all aspects of the subject and its application. The course also aimed at laying a strong foundation for the students to become successful in their careers.

The course objectives were: To analyze and determine the present IT infrastructure, services and processes. To create management practices which are futuristic in nature. To formulate a roadmap to elevate the state of the business.

A test was conducted for all the students using Google Form. All the teachers shared 5 questions based on the module taught in the course.

Due to network issues some students had not submitted paper, so retest was conducted the following day. A student has to secure a minimum 40% in the test to qualify for the certificate.

Successful students were awarded certificates for the certificate course.

Keena



Asst. Prof. Janhavi Kshirsagar
Coordinator CS-IT DEPT

Dr. B.R. Deshpande
Vice-Principal

Dr. (Mrs) Leena Sarkar
Principal

PRINCIPAL
JNAN VIKAS MANDAL'S
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A.R. MEHTA COLLEGE OF ARTS
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