

Dr.J.J.Magdum Trust's

Dr.J.J.Magdum College of Engineering,

◆ Department of Information Technology ◆



Student Information Manual (SIM)

Academic Year 2023-24 (Sem.-II)

Student Information Manual (SIM)

- Covering page
- Index
 1. Institute Information
 2. Vision of InstituteMission of Institute
Quality Policy
 3. Vision of Department
Mission of Department
Programme Educational Objectives (PEO's)
Programme Outcomes (PO's)
 4. Students role
Responsibilities:
Code-of-Conduct:
 5. Laboratory and Classroom Instructions
Laboratory instructions:
Classroom instructions:
 6. Department Academic Planner
 7. Departmental time table
 8. Structure of Syllabus
 9. Sub 1
Course details/syllabus
Recommended Books
Teaching Plan
List of Experiment
Assignments
 10. Project/Seminar Review Form
Rubrics for Project Work assessment
 11. Department Faculty
 12. Department Staff
 13. Activity Record
(Counseling, co/extracurricular, leave)

1.Institute Information

Dr J JMagdum College of Engineering was established by Dr J JMagdum Trust, Jaysingpur in the year 1992 with an objective to promote the cause of higher education. The institute is approved by All India Council of Technical Education (AICTE), New Delhi and Government of Maharashtra, affiliated to Shivaji University, Kolhapur. The college offers B. Tech program in Mechanical, Civil, Computer Science Engineering, Electronics & Tele-Communication, Information Technology and M. Tech program in Civil Engineering-Construction Management.

Our Management extends its fullest support in building the institution as a center of excellence with technically superior, ethically strong and competent engineers. The serene campus vibrant with aesthetic bliss in an exhilarating convenient location, well connected by road, rail and air is easily accessible. The eco-friendly ambience creates and bestows a healthy learning atmosphere.

The institution is meticulous with modern laboratory, workshop facilities and state of art computer center providing an excellent infrastructure.

The institution has spacious library with vast collection of Books, Newspapers, National & International Journals, Magazines, and Reference books, Encyclopedia, World of science, ASM hand books and course materials. E-learning through NPTEL Video course by NIT and IIT Professors are available.

The Teaching and Non-Teaching Staff of the institute is a blend of senior experienced and young dynamic faculty members devoted to the noble cause of education. Qualified, experienced, versatile and efficient faculty members could the students diligently in ethical, moral and academic aspects.

We imparts technology based experiential learning through industry visits, live projects, expert talks, MOOC's, workshops, case studies, upscale labs, and virtual classroom sessions.

Industry-Institute interaction and real-time projects nurture and craft the budding engineers to bloom and flourish in the field with the prowess guidance in the campus.

The college equips the students with the latest skills which make them employable and future ready.

Due to able and proper guidance and motivation, many of our students have topped at University. Our training and placement works meticulously to improve and develop life skills to the students and tries hard to seek good jobs for our students. In addition to the academics, the students are engaged in sports and cultural activities which help them to develop versatile personality. Various Club activities are conducted to encourage, motivate and inspire students from diverse culture to harness the talent through their perseverance.

The institute is having spacious ground and the modern facilities for both indoor and outdoor games and ultra-modern Gymnasium. Due to proper guidance and motivation, many of our students have grabbed prizes at University level and different sport events.

We are committed to stakeholders for best results and produced more than 10000+ engineers getting campus placements.

2. Institute Vision & Mission

VISION

To be a Leading academic organization, creating skilled and Ethical Human Resources by leveraging Technical Education for Sustainable Development of Society.

MISSION

- To produce Competent Technocrats to meet modern societal and industrial challenges.
- To create ethical and skilled human resources through quality education and various extension activities and outreach programs.
- To leverage technical expertise to solve societal issues for its sustainable development.

3. Department Vision & Mission

VISION

To lead in the IT discipline through value based education, innovation skills and industry oriented curriculum to prominent of professionals and societal concerns.

MISSION

- To inculcate teaching and learning process promoting industry practices in Information Technology engineering to address universal challenges
- To integrate research and entrepreneurship skills to address present and future challenges of the society and IT industry.
- To encourage co- and extra-curricular activities for over-all personality development of the students.
- To provide outcome based education relative recent technology.
 - Beyond syllabus
 - Training section
 - Expert lecture
 - webinars

Program Educational Objectives (PEO's)

1. To train students with good of knowledge in core areas of Information Technology and related engineering so as to analyze, design, and synthesize data and technical concepts.
2. To inculcate in students to maintain high professionalism and ethical standards, effective oral and written communication skills, to work as part of teams.
3. To provide our graduates with learning environment awareness of the life-long learning needed for a successful professional career and to introduce them to written ethical codes and guidelines, perform excellence, leadership and demonstrate good citizenship.
4. To provide students with academic environment that is aware of excellence, leadership, entrepreneurship, ethical responsibility and ability to work in multidisciplinary teams.
5. To train students with excellent scientific and engineering knowledge so as to understand, analyze, design and create products and solutions for Software engineering problems.

Program Outcomes (POs)

At the end of successful completion of program, the graduates will be able to,

1. **Engineering Knowledge:** Apply knowledge of mathematics, science, engineering Fundamentals and an engineering specialization to the solution of complex engineering problems.
2. **Problem Analysis:** Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
3. **Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.
4. **Conduct investigations** of complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.
5. **Modern Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The Engineer and Society:** Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.
7. **Environment and Sustainability:** Understand and the impact of professional engineering solutions in societal and environmental contexts and demonstrates knowledge of and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
9. **Individual and Teamwork:** Function effectively as in visual, and as a member or leader in diverse teams and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear

instructions.

11. **Project Management and Finance:** Demonstrate knowledge and understanding of engineering and management principles and apply these too noels on work, as a member and leader instead, to manage projects and in multidisciplinary environments.
12. **Lifelong Learning:** Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological

Program Specific Outcomes (PSO)

1. To design and implement solutions for network security, database security and software quality as per industry standards
2. To design and implement various services for operating systems, compiler libraries and programming applications
3. To enhance the management skills and organizational behavior in IT industry

4. Students role and Responsibilities

Code of Conduct:-

- Every student must carry his/her identity card while being present on the College Premises.
- Use of Cell phones is strictly prohibited during class/Labs hour.
- Without the permission of the Principal, Students are not allowed to circulate any printed materials within the college campus.
- Every student is expected to maintain the general cleanliness within the classrooms, laboratories and the campus in general.
- Students should handle the college properties with care. Damage to the furniture or any other materials may lead to penalty or suspension from the college.
- Intoxication or possession of narcotics and other dangerous material is strictly prohibited.
- Playing cards, spitting and loitering are strictly prohibited inside the college campus and shall invite severe punishment/disciplinary action
- Attempted or actual theft of and/or damage to property of the College, or property of a member of the College community, or other personal or public property, on or off campus will be considered as a punishable act.
- Every student will remain answerable to the college authority for his/her activity and conduct on the College Premises.
- Any act which obstructs teaching, research, administrative activity and other proceedings of the college is strictly prohibited.
- Indulging ragging, anti-institutional, anti-national, antisocial, communal, immoral or political expressions and activities within the Campus and hostel are strongly prohibited as well as punishable.
- Students are required to check the Notice Board and also website of the college for important announcements.

5.Laboratory and Classroom Instructions

Classroom Instructions:-

- Students should know and obey rules and regulations of department as well as college.
- Students strive to meet Academic Expectations
- Students are expected to take all tests at the scheduled times seriously.
- Maintain discipline in the class
- A student should maintain at least 75% attendance in the Lectures of every subject and 100% overall performance. Otherwise, he or she will be debarred from the University Examination.
- Latecomers will not be entertained to enter into the classroom.
- Participate in the activities organized in the Department as well as in the College.
- While discussion, students should conduct and express themselves in a way that is respectful of all persons.
- Develop positive attitudes;
- Be cooperative and considerate.
- Welcome challenges.
- Be helpful to others
- Be kind, polite, and courteous to others
- Do the assigned work on time
- Be prepared for classes with all necessary supplies.
- Be Respectful and Punctual
- Be in the best of behaviors

Computer Laboratory Instructions:

- Students must present a valid ID card before entering the computer lab.
- Remove your shoes/chapels/sandals outside the lab.
- Playing of games on computer in the lab is strictly prohibited.
- Before leaving the lab, students must close all programs positively and keep the desktop blank.
- Students are strictly prohibited from modifying or deleting any important files and install any software or settings in the computer without permission
- Based on the prime priority, users may be requested by the lab in-charge, to leave the workstation any time and the compliance is a must.
- Eating and/or drinking inside the computer lab is strictly prohibited.
- Internet facility is only for educational/ study purpose.
- Silence must be maintained in the lab at all times.
- The lab must be kept clean and tidy at all times.
- If any problem arises, please bring the same to the notice of lab in-charge.

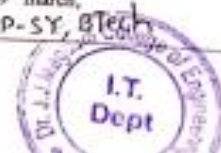
- No bags/ hand bags/ rain coats/ casual wears will be allowed inside the computer lab, however note book may be allowed.
- Lab timing will be as per the academic time table of different classes
- Every user must make an entry in the Computer Lab Register properly.
- Each student or visitor must take mobile phones in “Switched Off” mode while entering and or working in Computer Lab.
- Conversation, discussion, loud talking & sleeping are strictly prohibited.
- Users must turn-off the computer before leaving the computer lab.
- Maintain silence in lab.
- Computer Lab Assistants are available to assist with BASIC computer and software problems.
- Food and drink are not permitted in the computer lab.
- The use of cell phones is prohibited in the computer lab.
- Please take your calls outside. We also ask that you put your cell phone on vibrate mode.
- Unauthorized copying and/or installing of unauthorized software is not permitted
- Tampering with the hardware or software settings will not be tolerated.
- Students found Internet surfing or chatting for personal reasons may be asked to leave. Preference is given to students doing course work over those engaged in personal computer use.
- Personal files are not to be stored on the local drive C. Students are responsible for providing their own means of digital storage. All lab computers are set up to remove any data stored or any programs installed by users.

6.Department Academic Planner

Academic Planner 2023-24 (Semester II)

Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur
Department of Information Technology
Academic Planner for the A. Y. 2023-24 (Even Semester)

Week No.	Month	Weekdays							No of working days	Events
		MON	TUE	WED	THU	FRI	SAT	SUN		
1	December	25	26	27	28	29	30	31	5	Commencement of Semester II-TY & BTech
2	January	1	2	3	4	5	6	7	6	TPC monthly Activity 4 th Jan Project presentation Review B.Tech - 4 th and 5 th Jan
3	January	8	9	10	11	12	13	14	5	Gate Mock Test- 10 th Jan
4	January	15	16	17	18	19	20	21	6	Guest lecture TY & B.Tech-18 th Jan Career counseling session under higher studies-TY & BTech-19 th Jan
5	January	22	23	24	25	26	27	28	4	Annual Sports (Rann Bhoom) - 20 th to 27 th January Alumni Meet- 26 th Jan
6	January February	29	30	31	1	2	3	4	6	ITESA event (Fresher Party)-29 th Jan How to face Competitive Exam lecture for TY & BTech-30 th Jan Expert Lecture for TY students-31 st Jan CMC Meeting 1 (TY & B.Tech) - 29 th to 31 st Jan Guest Lecture under JDC for TY & BTech 2 nd Feb
7	February	5	6	7	8	9	10	11	5	Expert Lecture for BTech - 7 th Feb, Event under ITESA -9 th Feb
8	February	12	13	14	15	16	17	18	6	Industrial Visit- TY & BTech-15 th Feb to 17 th Feb Community activity by SY, TY, B.Tech -12 th Feb , project presentation-I B.Tech- 15 th Feb
9	February	19	20	21	22	23	24	25	4	Shiyajayanthi celebrations - 19 th February Annual Social Gathering - 20 th and 21 st February Alumni expert lecture- 22 nd Feb,
10	February March	26	27	28	29	1	2	3	6	Formative Feedback (TY&B.Tech) -29 th to 2 nd March CMC Meeting 2 (TY & B.Tech)-26 th to 28 th Feb, CMC Meeting 1 (SY) - 26 th to 28 th February TPC Monthly Activity TY- 26 th Feb , Gate preparation lecture TY- 27 th Feb , Expert Lecture for SY - 28 th Feb, Innovate 2K24 - 29 th February Technical Fest (Ashwamedh) - 1 st and 2 nd March FDC activity- 29 th Feb , VAP- TY .
11	March	4	5	6	7	8	9	10	4	CIE -I (SY, TY & B.Tech) - 5 th - 7 th March, Expert lecture S.Y. -4 th march
12	March	11	12	13	14	15	16	17	6	Parents Meet (TY & B.Tech) - 11 th to 16 th March, Expert lecture BTech- 11 th march, Augmentation Technical workshop- 15 th March
13	March	18	19	20	21	22	23	24	5	Formative Feedback (SY) - 18 th to 22 nd March TPC monthly activity- 19 th March Guest lecture under MoU (TY & BTech)- 20 th March Industrial Visit (SY)-22 nd March Final project presentation B.Tech-20 th March
14	March	25	26	27	28	29	30	31	4	Expert lecture TY- 27 th march, Guest lecture under MoU SY- 29 th march, DAB meeting-30 th March , VAP- SY, BTech



15	April	1	2	3	4	5	6	7	6	CIE - II (SY, TY & B.Tech) - 4 th - 6 th April, Summative Feedback (TY & B.Tech) - 1 st to 6 th April CMC Meeting 2 (SY) - 1 st to 3 rd April
16	April	8	9	10	11	12	13	14	3	CMC Meeting 3 (TY & B.Tech) - 8 th to 10 th April Augmentation Non-Technical event- 8 th April
17	April	15	16	17	18	19	20	21	5	
18	April	22	23	24	25	26	27	28	5	TPC monthly activity- 23 rd April
19	April May	29	30	1	2	3	4	5	5	
20	May	6	7	8	9	10	11	12	5	Summative Feedback (SY) - 6 th to 10 th May
21	May	13	14	15	16	17	18	19	6	CMC Meeting 3 (SY) - 13 th to 15 th May
22	May	20	21	22	23	24	25	26	4	
No. of Working Days		19	21	20	20	19	12			111

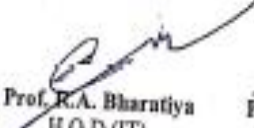
Important Dates:

Courses	Term Commencement	End of Term
S.Y. B.Tech. 2 nd Sem	19.01.2024	SY.BTech. 26.04.2024
T.Y. B.Tech. & B.Tech. 2 nd Sem	26.12.2023	T.Y. 19.04.2024 & B.Tech 15.04.2024

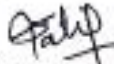
Holidays	CIE	Feedback

Proctor Report	In 1 st and 3 rd week of every month
Training and Placement Activity	Two lectures on working Saturday for S.Y. and T.Y. of all branches
Higher Studies Cell Activity	Per Semester two Sessions
Entrepreneurship Cell activity	One Lecture per month per department preferably on first or third Saturday (Max. two lectures per semester)
Competitive Examination Cell Activity	Two Sessions per month


Prof. J.T. Patil
Academic Coordinator


Prof. R.A. Bharatiya
H.O.D (IT)


Prof. A. S. Sajane
Dean, Academics



Dr. S.B. Patil
I/C Principal


Dr. U.B. Deshpande
Advisor



7. Department Time Table

Class: SY-IT




Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur
 Department of Information Technology

Academic Year: 2023-24
 Class: S.Y
 Class Teacher: Prof. A.G.Chendke


Semester: II
 Classroom No.: 201-207
 W.e.f.: 07-02-2024

Time	Monday	Tuesday	Wednesday	Thursday	Friday
09.30 am-10.30 am	S1- OOP (PRP) LX Lab S2- OOP (PRP) WT Lab S3- CN (AGC) NW Lab S4- OOP (RAB) PJ Lab	S1- NP(SBH) PJ Lab S2- MP (PAT) DB Lab S3- Placement Preparation WT Lab S4- CN(SIC) NW Lab	SE (RAB) (C-201)	DS (JTP) (C-201)	OOP (PRP) (C-201)
10.30 am-11.30 am			ES (PAC) (C-201)	SE (RAB) (C-201)	DS (JTP) (C-201)
11.30 am-11.40 am	BREAK				
11.40 am-12.40 pm	OOP (PRP) (C-201)	DS (JTP) (C-201)	COA (AGC) (C-201)	S1- OOP (RAB) WT Lab S2- OOP (RAB) LX Lab S3- MP (PAT) PJ Lab S4- Placement Preparation DB Lab	CN (PRD) (C-201)
12.40 pm-01.40 pm	ES (PAC) (C-201)	TOC (ASP) (C-201)	TOC (T) (ASP) (C-201)		TOC (ASP) (C-201)
01.40 pm-02.30 pm	LUNCH BREAK				
02.30 pm-03.30 pm	TOC (ASP) (C-201)	CN (PRD) (C-201)	S1- CN (AGC) NW Lab S2- Placement Preparation WT Lab S3- OOP (PRP) LX Lab S4- MP (SIC) DB Lab	COA (AGC) (C-201)	S1- Placement Preparation DB Lab S2- CN (PRD) NW Lab S3- OOP (RAB) LX Lab S4- OOP (PRP) WT Lab
03.30 pm-04.30 pm	COA (AGC) (C-201)	SE (RAB) (C-201)		CN (PRD) (C-201)	


Name of the Subject	Abb.	Name of the Faculty	Practical Venue
Computer Network	CN	Prof. P. R. Desai (PRD)	NW Lab
Computer Organization & Architecture	COA	Prof. A. G. Chendke (AGC)
Data Structure	DS	Prof. J. T. Patil (JTP)
Theory of compilation	TOC	Prof. A. S. Patil (ASP)
Software Engineering	SE	Prof. B. A. Bharatya (BAB)
Object Oriented Programming	OOP	Prof. P. R. Patil (PRP)
Mini Project	MP	Prof. P. A. Tangam, Prof. S. B. Helkar (SBH), Prof. S. J. Chougale (SJC)	WT Lab, LX Lab
Environmental Studies	ES	Prof. P. A. Chougale (PAC)	PJ Lab, DB Lab



Head of Dept.



Dean Academics



Principal



**Dr. J. J. Magdum Trust's
College of Engineering, Jaysingpur
Department of Information Technology**

Academic Year: 2023-24
Class: TY
Class Teacher: Prof. P.R. Patil

Semester: II
Classroom No.: 201-207
W.e.f: 31-01-2024

Time	Monday	Tuesday	Wednesday	Thursday	Friday
09.30 am-10.30 am	IT (ASP) (C-201)	ADT-II (JTP) (C-207)	T1- ADT-II (JTP) NW Lab T2- IT(ASP) WT Lab T3- IS (PAT) WT Lab T4- CG (AGC) PJ Lab	T1- CG (AGC) PJ Lab T2- Seminar(PRP) NW Lab T3- Seminar(PRD) PJ Lab T4- IT(ASP) WT Lab	CG (AGC) (C-207)
10.30 am-11.30 am	OEC-II (SJC) (C-201)	IT (ASP) (C-207)			OS-II (SBH) (C-207)
11.30 am-11.40 am	BREAK				
11.40 am-12.40 pm	T1- IT(ASP) WT Lab T2- CG (AGC) PJ Lab T3- ADT-II (JTP) LX Lab T4- IS (PAT) WT Lab	IS (PAT) (C-207)	IT (ASP) (C-207)	CG (AGC) (C-201)	T1- IS (PAT) DB Lab T2- ADT-II (JTP) NW Lab
12.40 pm-01.40 pm		CG (AGC) (C-207)	OEC-II (SJC) (C-207)	T1-T4(T) OS-II (SBH) (C-201)	T3- CG (AGC) LX Lab NW Lab T4- Seminar (RAB) LX Lab
01.40 pm-02.30 pm	LUNCH BREAK				
02.30 pm-03.30 pm	OS-II (SBH) (C-207)	T1- Seminar(AGC) PJ Lab T2- IS (PAT) DB Lab T3- IT(ASP) LX Lab T4- ADT-II (JTP) NW Lab	OS-II (SBH) (C-207)	IS (PAT) (C-201)	IS (PAT) (C-201)
03.30 pm-04.30 pm	IS (PAT) (C-207)		ADT-II (JTP) (C-207)	IT (ASP) (C-201)	OEC-II (SJC) (C-201)

Name of the Subject	Abb.	Name of the Faculty	Practical Venue
Computer Graphics	CG	Prof. A.G.Chendke (AGC)	PJ Lab
Information Security	IS	Prof. P.A.Tingave (PAT)	DB Lab, WT Lab
Internet Technology	IT	Prof. A. S.Patil (ASP)	WT Lab
Operating System II	OS-II	Prof. S.B.Holkar (SBH)	Classroom
Cyber Security	OEC-II	Prof. S.J.Chougale (SJC)	-----
Application Development Tool II	ADT-II	Prof. J. T.Patil (JTP)	NW Lab
Seminar	Seminar	Prof. A.G.Chendke (AGC), Prof. P. R. Patil (PRP), Prof. P. R. Desai (PRD), Prof. R. A. Bharatiya (RAB)	LX, PJ, NW Lab

[Signature]
Head of Dept.

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Dean Academics

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Principal







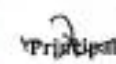

Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur
 Department of Information Technology

Academic Year: 2023-24
 Class: B.Tech
 Class Teacher: Prof. A.S. Patil

Semester: II
 Classroom No.: 207-206
 W.e.f.: 31-01-2024

Time	Monday	Tuesday	Wednesday	Thursday	Friday
09.30 am-10.30 am	EL.II (PAT) (C-207)	ML (PRD) (C-201)	CC (PRP) (C-207)	EL.II (SBH) (C-207)	B1- AWT (SJC) LX Lab B2- EL.II(T)(PAT) /CC (T) (PRP)PL Lab B3- ML(PRD) NW B4- EL.II (T) (JTP) / EL.II(T) (RAB) PJ Lab
10.30 am-11.30 am	EL.II (SBH) (C-207)	CC (PRP) (C-201)	B1,B2- EL.II(T) (SBH)WT/LX Lab B3,B4- CC(T)(PPR) (C-207)	EL.II (PAT) (C-207)	
11.30 am-11.40 am	BREAK				
11.40 am-12.40 pm	ML (PRD) (C-207)	B1- AWT (SJC) WT Lab B2- AWT(SBH) LX B3-Project (WT Lab) B4 - ML (PRD) NW Lab	B1- CC (T) (PRP)/ EL.II(T) (JTP) DB Lab B2- ML (PRD) NW Lab B3- EL.II (T)(JTP) PL Lab /EL.II(T) (RAB) PL Lab B4- AWT(SBH) LX	CC (PRP) (C-207)	AWT (SJC) (C-207)
12.40 pm-01.40pm	AWT (SJC) (C-207)			ML (PRD) (C-207)	CC (PRP) (C-207)
01.40 pm-02.30 pm	LUNCH BREAK				
02.30 pm-03.30 pm	B1 - ML (PRD)NW Lab B2 - AWT (SJC) WT Lab	AWT (SJC) (C-207)	EL.III (PAT) (C-201)	B1-Project (PJ Lab) B2- Project (DB Lab) B3-AWT(SBH) WT Lab B4- AWT (SJC) WT Lab	B1-Project (PJ Lab) B2-Project (DB Lab) B3- Project (WT Lab) B4- Project (PL Lab)
03.30 pm-04.30 pm	B3 - AWT (SJC) LX Lab B4- PJ	EL.II (SBH) (C-207)	ML (PRD) (C-201)		

Name of the Subject	Abb.	Name of the Faculty	Practical Venue
Machine Learning	ML	Prof. P. R. Desai (PRD)	Network Lab
Cloud Computing	CC	Prof.P.R.Patil (PRP)	WT,DB,PL Lab
Business Intelligence	EL.II	Prof.S. B. Holkar (SBH)/ Prof. R. A. Bharatiya(RAB)	(C-206),PL Lab
Software Testing	EL.III	Prof. P. A. Tangave (PAT) / Prof. J. T. Patil(JTP)	PL,DB,PJ Lab
Advance Web Technology	AWT	Prof. S. J. Chaudhale (SJC) / Prof. S. B. Holkar(SBH)	WT,LX Lab

 Head of Dept.
  Deah Academics
  Principal


8. Structure of Syllabus

Class: SY-IT

SECOND YEAR INFORMATION TECHNOLOGY – CBCS PATTERN																				
SEMESTER - III																				
Sr. No	Course (Subject Title)	TEACHING SCHEME									EXAMINATION SCHEME									
		THEORY			TUTORIAL			PRACTICAL			THEORY				PRACTICAL		TERM WORK			
		Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Hours	Mode	Marks	Total Marks	Min	Hours	Max	Min	Hours	Max
1	BSC-IT301	3	3	3	1	1	1	-	-	-	CIE 30	30	100	40	-	-	-	25	10	
2	PCC- IT302	4	4	4	-	-	-	1	2	2	ESE 70	70	100	40	50	20	-	25	10	
3	PCC- IT303	3	3	3	-	-	-	-	-	-	CIE 30	30	100	40	-	-	-	-	-	
4	PCC- IT 304	3	3	3	-	-	-	-	-	-	ESE 70	70	100	40	-	-	-	-	-	
5	PCC - IT 305	3	3	3	1	1	1	-	-	-	CIE 30	30	100	40	-	-	-	25	10	
6	PCC- IT 306	3	3	3	-	-	-	2	4	4	ESE 70	70	100	40	50	20	-	50	20	
7	PW- IT 307	-	-	-	-	-	-	1	2	2	CIE 30	30	100	40	50	20	-	25	10	
	TOTAL	19	19	19	2	2	2	4	8	8			500					150		150
SEMESTER - IV																				
1	PCC- IT 401	3	3	3				1	2	2	CIE 30	30	100	40	50	20	-	25	10	
2	PCC- IT402	3	3	3				-	-	-	ESE 70	70	100	40	-	-	-	-	-	
3	PCC- IT403	3	3	3	-	-	-				CIE 30	30	100	40	-	-	-	-	-	
4	PCC-IT404	3	3	3	1	1	1				ESE 70	70	100	40	-	-	-	25	10	
5	PCC- IT405	3	3	3	-	-	-				CIE 30	30	100	40	-	-	-	-	-	
6	PCC- IT406	2	2	2	-	-	-	2	4	4	ESE 70	70	-	-	50	20	-	50	20	
7	PW- IT407							1	2	2	CIE 30	30	-	-	50	20	-	50	20	
8	MC- IT408	2	2	2	-	-	-	1	2	2	ESE 70	70	100	25	-	-	-	-	-	
	TOTAL	19	19	19	1	1	1	5	10	10			600					150		150
	TOTAL	38	38	38	3	3	3	9	18	18			1100					300		300

Class: TY-IT

THIRD YEAR INFORMATION TECHNOLOGY - CBCS PATTERN																	
SEMESTER - V																	
Sr. No.	Course / Subject / Title	TEACHING SCHEME								EXAMINATION SCHEME							
		THEORY			TUTORIAL		PRACTICAL			THEORY				ORAL / PRACTICAL		TERMWORK	
		Credits	NO. Of Lectures	Hours	Credits	No. of Hours	Credits	No. of Hours	mode	marks	Total Marks	MIN.	MAX	MIN.	MAX	MIN.	
1	PCC-IT501 Operating System-I	3	3	3			1	2	CIE	30	100	40			50	20	
2	PCC- IT502 Database Engineering	3	3	3			1	2	ESE	70	100	40	25	10	50	20	
3	PCC- IT503 Computer Algorithms	3	3	3					CIE	30	100	40					
4	PCC- IT504 System Programming	4	4	4	1	1			ESE	70	100	40			25	10	
5	OEC- IT505 Human Computer Interaction	3	3	3					CIE	30	100	40					
	OEC- IT506 Internet of Things								ESE	70							
6	PCC- IT507 Application Development Tool I	3	3	3			2	4					50	20	50	20	
7	HM-IT508 Soft Skill				1	1							25	10	25	10	
	Total (SEM -V)	19	19	19	2	2	4	8			500			100		200	

THIRD YEAR INFORMATION TECHNOLOGY - CBCS PATTERN																
SEMESTER – VI																
Sr. No.	Course Subject / Title	TEACHING SCHEME						EXAMINATION SCHEME								
		THEORY			TUTORIAL		PRACTICAL	THEORY				ORAL / PRACTICAL		TERMWORK		
		Credits	No. Of Lectures	No. of Hours	Credits	No. of Hours	Credits	No. of Hours	mode	marks	Total Marks	MIN.	MAX	MIN.	MAX	MIN.
1	PCC-IT601 Computer Graphics	3	3	3			1	2	CIE	30	100	40			25	10
								ESE	70							
2	PCC- IT602 Information Security	4	4	4			1	2	CIE	30	100	40			25	10
								ESE	70							
3	PCC- IT603 Internet Technology	4	4	4			1	2	CIE	30	100	40	50	20	25	10
								ESE	70							
4	PCC- IT604 Operating System II	3	3	3	1	1			CIE	30	100	40			25	10
								ESE	70							
5	OEC- IT605 Cyber Security OEC- IT606 E- Commerce & Digital Marketing	3	3	3					CIE	30	100	40				
								ESE	70							
6	PCC- CS607 Application Development Tool II	2	2	2			1	2					50	20	25	10
7	PW- IT608 Seminar						1	2					50	20	25	10
Total (SEM –VI)		19	19	19	1	1	5	10			500		150		150	
Total (SEM - V+ SEM - VI)		38	38	38	3	4	9	18			1000		250		350	

Class: B.Tech.

FINAL YEAR INFORMATION TECHNOLOGY – CBCS PATTERN																			
SEMESTER – VII																			
Sr. No.	Course (Subject Title)	TEACHING SCHEME						EXAMINATION SCHEME											
		THEORY			TUTORIAL		PRACTICAL	THEORY				PRACTICAL			TERM WORK				
		Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Hours	Mode	Marks	Total Marks	Min	Hours	Max	Min	
1	PCC-IT701	4	4	4	-	-	-	1	2	2	CIE	30	100	40	As per BOS Guidelines	-	-	50	20
										ESE	70	100	40						50
2	PCC-IT702	3	3	3	1	1	1	-	-	-	CIE	30	100	40		-	-	50	20
											ESE	70	100	40				50	20
3	PCC-IT703	3	3	3	-	-	-	1	2	2	CIE	30	100	40		50	20	50	20
											ESE	70	100	40				50	20
4	PCE-IT704	3	3	3	1	1	1	-	-	-	CIE	30	100	40		-	-	25	10
											ESE	70	100	40				50	20
5	PCC-IT705	3	3	3	-	-	-	2	4	4						50	20	50	20
6	PW-IT706	-	-	-	-	-	-	2	4	4						50	20	25	10
7	WI-IT707	-	-	-	-	-	-	1	2	2						-	-	-	-
	TOTAL	16	16	16	2	2	2	7	14	14			400			150		250	
SEMESTER – VIII																			
1	PCC-IT801	4	4	4	-	-	-	1	2	2	CIE	30	100	40	As per BOS Guidelines	50	20	50	20
											ESE	70	100	40					25
2	PCC-IT802	4	4	4	1	1	1	-	-	-	CIE	30	100	40				25	10
											ESE	70	100	40				25	10
3	PCE-IT803	3	3	3	1	1	1	-	-	-	CIE	30	100	40				25	10
											ESE	70	100	40				25	10
4	PCE-IT804	3	3	3	1	1	1	-	-	-	CIE	30	100	40				25	10
											ESE	70	100	40				25	10
5	PCC-IT805	3	3	3	-	-	-	2	4	4						50	20	50	20
6	PW-IT806	-	-	-	-	-	-	2	4	4						50	20	25	10
7	WI-IT807	-	-	-	-	-	-	-	-	-						-	-	50	20
	TOTAL	17	17	17	3	3	3	5	10	10			400			150		250	
	TOTAL	33	33	33	5	5	5	12	24	24			800			300		500	

CIE- Continuous Internal Evaluation

SYIT
Subject Details

Subject: Computer Network

Chapter No	No. of Lecture	Topics to be covered in each Lecture
1	1	Goal of data link layer
	2	Design issues of DLL
	3	Services provided to network layer
	4	framing
	5	Error control Flow Control
	6	Error detection and Correction
2	7	Elementary Data link Protocols.
	8	Simplex
	9	Simple stop and wait
	10	Sliding window protocols
	11	Selective repeat algorithm
	12	Channel allocation
3	13	Network layer design issues
	14	Routing algorithms
	15	Distance vector ,
	16	Link state
	17	Flooding
4	18	IPv4 Addresses: Introduction
	19	Classful and Classless Addressing
	20	Special addresses
	21	Network, transaction from IPv4 to IPv6
	22	IPv6 Addresses,
	23	Packet format, ICMPv6
5	24	The transport service Primitives
	25	UDP: User Datagram format
	26	Operation and uses of UDP
	27	TCP Services and features, TCP: TCP Segment format
	28	Flow and error controls in TCP, TCP timers
	29	Socket system calls, Berkeley Sockets
	30	TCP and UDP client server programs
6	31	Application layer
	32	DNS

	33	Electronic mail
	34	Telnet
	35	FTP
	36	HTTP

Experiment List

Expt No.	Title	Nature of Experiment	CO's
1	Study and demo of LAN, WAN and various connecting devices and components. List out component and devices required for a std. LAN, WAN	Performing	CO1
2	Implementation of CRC.	Performing	CO2,3
3	Implementation of framing method byte stuffing.	Performing	CO2
4	Implementation of framing method bit stuffing.	Performing	CO2
5	Study of following connectivity test tools with all its options – <ul style="list-style-type: none"> • ifconfig, arp, route, traceroute • nmap, netstat, finger 	Performing	CO1
6	Program to understand IP addressing, classful & classless addressing.	Performing	CO6
7	File Transfer using Stop and wait Protocol.	Performing	CO6
8	Implementation of Hamming code.	Performing	CO6
9	Implementation of shortest path algorithm.	Performing	CO6
10	Programs for connection oriented (TCP) client-server using socket programming	Performing	CO6
11	Programs for connection less (UDP) client-server using	Performing	CO6

	socket programming		
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Recommended Books:

TEXT BOOKS:

1. Computer Networks ,A. S. Tenebaum.,3rdEdition,PHI.
2. TCP/IP protocol suite , B A Forouzan,TMGH.
3. Computer Networks: Principles ,Technologies and Protocols for Network Design by olifer, WileyIndia Ltd.

REFERENCE BOOKS:

1. Unix Network Programming , W Richard Stevens,PHI

Subject: COMPUTER ORGANIZATION AND ARCHITECTURE

Chapter No.	Lect No.	Details of syllabus planned
Ch.1	Computing and Computers	
	01	Elements of computers: The brain versus the computer
	02	Limitations of computers: unsolvable problems, Speed limitations
	03	The Evolution of computers: IAS Computers
	04	Stack Computers, IBM/360 computers
	05	Atypical personal computer system
Ch.2	Design Methodology	
	06	System Design: System Representation, Design Process
	07	The Gate level-Combinational logic—Full Adder, Four bit ripple carry adder
	08	Sequential logic: serial adder, 4- bit stream serial adder
	09	The Register level: Register level components- Word Gates
	10	Multiplexers to implement a full adder

	11	Arithmetic Elements: Design of 4-bit magnitude comparator
	12	Processor level design: prototype structure, performance measurement, Queuing models
Ch.3	Processor Basics	
	13	CPU Organization: Fundamentals
	14	Study of design and architecture of a small accumulator based CPU
	15	A typical CPU with general register organization, pipelining
	16	RISC&CISC Machines
	17	Data representation: Fixed-Point Numbers, Floating Point Numbers
	18	Instruction Set: Instruction Formats, Addressing Modes, Instruction Types

Recommended Books:

Text Books:

1. Computer Architecture & Organization, J. P. Hayes. McGraw-Hill.

Reference Books:

1. Computer Organization- HamacherZaky.McGraw-Hill.
2. Computer Architecture & Organization An Integrated Approach Miles Murdocca, VincentHeuring Wiley IndiaEdition
3. Computer Architecture and organization: An integrated Approach by Murdacca, WileyIndia Limited.
4. NPTEL Video Lectures<http://nptel.ac.in>

Subject: DATA STRUCTURE

Lect. No.	Unit No.	Details of syllabus planned
1.		Algorithm Basics and Recursion -Algorithms, Its Pseudo code Representation
2.		Abstract Data type, Data Structures
3.		Algorithm Efficiency, Recursion
4.		Towers of Hanoi

5.	1.	Ackermann's function, etc
6.	2.	Sequential Representation of Linear Data Structures-Stack, Operations on Stack
7.		Applications of Stack
8.		Queue
9.		Operations on Queue
10.		Applications of Queue
11.		Circular queue, Priority Queues
12.	3.	Linked Lists - Limitations of static memory allocation
13.		Dynamic memory allocation Definition
14.		Implementations of singly link list
15.		operations on singly link list
16.		Doubly linked list
17.		circular linked lists
18.		stack and queue implementation using linked list
19.	4.	Nonlinear Data Structures : (TREES) - Basic terminology
20.		binary tree, traversal methods
21.		binary search tree
22.		AVL search tree, B tree
23.		B+ tree ,Heaps and its operations
24.	5.	Non Linear Data Structures (Graphs)- Concepts and terminology of graph
25.		Representation of graph using adjacency matrix
26.		storage representation
27.		Graph traversal Techniques- Depth first
28.		Graph traversal Techniques d-Breath first search
29.	6.	Searching and Sorting Techniques - Need of sorting and searching
30.		Sequential Search, Binary Search
31.		Analysis of Searching Techniques (Best, Average and worst case
32.		Hashing Techniques
33.		pes of Hash Functions, Collision resolution techniques, open and closed hashing
34.		Bubble sort, insertion sort
35.		selection sort, heap sort

36.	Merge sort, Analysis of Sorting Techniques (Best, Average and worst case).
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Assignments

1. What is analysis of algorithm? Explain big O and Omega notations.
2. What is algorithm? Explain algorithm efficiency.
3. What is stack? Explain algorithm for pop and push.
4. What is Queue and explain the operations in detail.
5. Write applications of stack and queue.
6. What is linked lists? Explain the types of linked lists in details.
7. What is dynamic memory allocation?
8. Describe the breadth first search traversal of a graph.
9. Write limitations of static memory allocations.
10. What is Circular queue, Explain?
11. What is sorting and searching explain Quick sort and Binary search.
12. Explain the shortest path algorithms.
13. What is hashing? Explain different hash function with example.
14. What is doubly link list?
15. Describe preorder and post order Binary tree traversal algorithms.
16. Explain different tree traversal techniques in tree.
17. Explain graph terminologies.
18. Explain collision resolution techniques in hashing.

Recommended Books:

Text Books:

1. Data Structure using C- A. M. Tanenbaum, Y. Langsam, M. J. Augenstein(PHI)
2. Data Structures- A Pseudo code Approach with C – Richard F. Gilberg and Behrouz A. Forouzon, Cengage Learning, SecondEdition.
3. Schaum’s Outlines Data Structures – Seymour Lipschutz (MGH), TataMcGraw-Hill.

Reference Books:

1. Fundamentals of Data Structures – Horowitz, Sahni CBSIndia
2. An introduction to data structures with Applications- Jean-Paul Tremblay,Paul.G. Soresan, TataMc-Graw Hill International Editions, SecondEdition.

Subject: THEORY OF COMPUTATION

Chapter No.	Lect No.	Details of syllabus planned
Ch. 1	Regular Languages	
	01	Recursive Definitions,.
	02	Definitions & types of grammars & languages
	03	Regular expressions and corresponding regular languages,
	04	Examples and applications.
	05	Unions, intersection & complements of regular languages.
	06	Unions, intersection & complements of regular languages.
Ch. 2	Finite State Machine	
	07	Deterministic finite automata (DFA) definition and representation,
	08	Nondeterministic finite automata (NFA)
	09	NFA with ϵ transitions
	10	Equivalence of DFAs, NFAs and NFA- ϵ s
	11	Minimum state FA for a regular language
	12	Minimizing number of states in an FA.
Ch. 3	Grammars and Languages	
	13	Derivation and ambiguity
	14	BNF & CNF notations
	15	Union, Concatenation & *s of CFL's
	16	Eliminating ϵ production & unit productions from CFG
	17	Eliminating useless variables from a context free Grammar
	18	Eliminating useless variables from a context free Grammar
Ch. 4	Push Down Automata	

	19	Push Down Automata: Definition, The language of PDA
	20	Deterministic PDA and Non Deterministic PDA
	21	Acceptance by Final state and empty stack
	22	Equivalence of PDA's
	23	CFG-CFG to PDA
	24	PDA to CFG
Ch. 5	Parsing and Properties of CFL's	
	25	Parsing- Top-Down
	26	Recursive Descent
	27	Bottom-Up Parsing
	28	Pumping Lemma for Context free language
	29	Intersection and complements of Context free language
	30	Intersection and complements of Context free language
Ch. 6	Turing Machine	
	31	Models of computation
	32	Definition of TM as language acceptors
	33	Combining Turing Machines
	34	Computing a function with a TM
	35	TMs with doubly infinite tapes, more than one tape
	36	Non-deterministic TM and Universal TM

Recommended Books:

Text Books

1. Introduction to languages & theory of computations- John C. Martin (MGH)
2. Discrete Mathematical Structures with applications to Computer Science- J. P. Trembley & R. Manohar (MGH)

Reference Books:

1. Introduction to automata Theory, Languages and computation- John E. Hopcraft, Rajeev Motwani, Jeffrey D. Ullman
2. Introduction to theory of computations- Michael Sipser
3. Theory of Computation- VivekKulkarni, 1st edition OXFORD university Press

Subject: SOFTWARE ENGINEERING

Chapter No	No. of Lecture	Topics to be covered in each Lecture
1	The Software Problems	
	1	Introduction, cost, schedule & quality.
	2	Scale and change.
	3	Process & project.
	4	Component software processes.
	5	Software development process models.
	6	Project management process.
2	Requirements Analysis and Specification	
	7	Requirement gathering.
	8	Requirement analysis.
	9	Software requirement specification.
	10	Software requirement specification.
	11	Formal system development techniques
3	Software Planning and Scheduling	
	12	Responsibilities of software project manager.
	13	Project planning.
	14	Project scheduling.
	15	Project staffing.
	16	People CMM.
4	Design	
	17	Design concepts.
	18	Function oriented design.
	19	Object oriented design.
	20	Detail design.
	21	Verification.
5	Coding and Testing	
	22	Coding and code review.
	23	Testing.
	24	Unit testing.
	25	Black box testing.

	26	White box testing.
	27	Program analysis tools.
6	Software Reliability and Quality Assurance	
	28	Reliability and software quality.
	29	Software quality management system.
	30	ISO 9000.
	31	SEI capability maturity model.
	32	Six sigma, agile software development.
	33	Extreme programming, agile project management

Recommended Books:

Text Books :

1. Software Engineering : A precise Approach - PankajJalote (Wiley India) (Unit 1,4).
2. Fundamentals of Software Engineering - Rapi Mall (3rd Edition)(PHI) (Unit 2, 5,6).
3. Software Engineering by Jan Sommerville (9th Edition) Pearson (Unit 6, 7 &6.8).
4. Software Engineering Principles & Practices by RohitKhuranaITLES (2nd Edition) Vikas Publishing House Pvt. Ltd. (Unit3).

Reference Books:

1. Software Engineering - Concepts & Practices -- UgrasenSuman (CenageLearning)
2. Software Engineering Fundamentals -- Behforooz& Hudson (Oxford : Indian Edition 1st)

Subject- OBJECT ORIENTED PROGRAMMING

Chapter No	No. of Lecture	Topics to be covered in each Lecture
1	1	Introduction to procedural, object-oriented programming
	2	Limitations of procedural programming, Need of object-oriented programming
	3	fundamentals of object-oriented programming: objects, classes, data members, methods,
	4	messages, data encapsulation, data abstraction and information hiding
	5	inheritance, polymorphism
2	6	Variable declarations, global scope
	7	constvariables, reference variables, function prototypes

	8	functions with default arguments
	9	call by value, call by reference, returning by reference, call by pointer, inline functions, constant arguments, 'cin', 'cout'
	10	formatting and I/O manipulators, Classes and Objects defining Class, data members, member functions
	11	Access specifiers – public, private, protected, constructor, destructor
	12	array of objects, passing objects to functions, returning object
3	13	Need of Inheritance, Concept, public, private, protected inheritance
	14	Single inheritance, Multiple and multilevel inheritance,
	15	Hybrid Inheritance, Virtual base class
	16	overriding of member functions,
	17	static variable, static function
4	18	friend function, friend class
	19	Pointers basics of memory management, New and delete operators,
	20	Pointer to object, Pointer to data members, this pointer
	21	Need of Polymorphism, concept, Compile time polymorphism or early binding: function overloading and operator overloading
	22	operator overloading using member function and friend function
	23	overloading - unary, binary, arithmetic operators, relational operators
	24	Overloading new and delete operators, insertion and extraction operators
5	25	Run time polymorphism or late binding using Virtual function, pure virtual function, Abstract class, Type conversion
	26	Concept of Streams, concept of File, opening and closing a file
	27	detecting end-of-file, file modes,
	28	file pointer, reading and writing characters
	29	strings and objects to the file
6	30	operations to move file pointers i.e. seekg, seekp, tellg, tellp
	31	Introduction to Generic Programming using Templates: Function template and class template
	32	Introduction to Standard Template Library (STL),
	33	containers, iterators and algorithms, study of container template classes for vectors and stacks and related algorithms
	34	Exception handling: Introduction, syntax for exception handling code: try-catch-throw
	35	Multiple Exceptions, Exceptions with arguments
	36	Multiple Exceptions, Exceptions with arguments

Experiment List:

Sr. No.	Name of the Experiment	Nature of Experiment
1	Study of classes and objects and implement it.	
2	Implementation of Inline functions, functions with default arguments, reference parameters	Performing
3	Implementation of Class Objects, Constructor, destructor, constructor overloading	Performing
4	Implementation of Functions overloading	Performing
5	Implementation of Operator overloading	Performing
6	Implementation of Multiple and multilevel inheritance using virtual base class	Performing
7	Implementation of Virtual function	Performing
8	Implementation of Static variable, Static functions	Performing
9	Demonstration of Pointers- new, delete operators	Performing
10	Implementation of Friend function, friend class	Performing
11	Implementation of class and function Templates	Performing
12	Implementation of Exception Handling	Performing
13	Implementation of File Handling using OOP concepts	Performing
14	Demonstration of STL in C++	Performing

Text Books:

1. C++: The Complete Reference Fourth Edition -Herbert Schildt(McGraw-Hill)
2. C++ programming: From Problem Analysis to Program Design Fifth Edition - D.S. Malik(CengageLearning)
3. C++ Programming with language –BjarneStroustrup (AT &T)

Reference Books:

1. Object Oriented Programming with C++ Fourth Edition-E Balguruswamy(McGraw-Hill)

2. Object oriented Programming in C++ 3rd Edition-R.Lafore (GalgotiaPublications)
3. C++ programming –John Thomas Berry(PHI)
4. Object –Oriented Analysis & Design: Understanding System Development with UML 2.0 ,Docherty,WileyIndiaLtd.
5. <http://www.spoken-tutorial.org/NMEICT> Project of Govt. Of India. Computer Architecture and organization: An integrated Approach by Murdacca,Wiley India Limited.
- 6.

TYIT

Subject: Computer Graphics

Chapter No.	Lect No.	Details of syllabus planned
Ch.1	Basic Concepts and Graphics Devices	
		Introduction to computer graphics.
		Pixel, Frame Buffer, Resolution, aspect ratio.
		Applications of computer graphics, Input Devices
		Video display devices: CRT (Raster-Scan and Random-Scan displays), Flat-Panel Displays., Hard-Copy Devices
Ch.2	Geometric Transformations	
		Basic 2D & 3D transformations
		Translation and Scaling
		Rotation, Reflection
		Shearing, Multiple Transformations
		Rotation with arbitrary point
		Where to use Multimedia, Uses of multimedia :Multimedia in Business
		Multimedia in Schools, Multimedia in Home, Multimedia in Public Places
Ch.3	Windowing and Clipping	
		The viewing pipeline
		Window-to-Viewport Coordinate Transformation,
		Clipping Operations, Point Clipping,
		Line clipping
	Polygon Clipping	

	Filled-Area Primitives:
	Boundary-Fill Algorithm,
	Flood-Fill Algorithm.

Ch.4	Curves and Surfaces	
	21	Curved lines and surfaces
	22	Quadratic surfaces
	23	Spline Representation
	24	Bezier curves
	25	Bezier surfaces
	26	B- spline curves, Warnok Algorithm
Ch. 5	Introduction to OpenGL & GLUT Libraries.	
	27	Introduction to OpenGL
	28	OpenGL basic graphics primitives.
	29	establishing the coordinate systems,
	30	Line drawing in OpenGL
	31	Drawing poly-lines and polygons, Design & use of GLUT & GLUT menus
Ch. 6	Computer Animation	
	32	Design of Animation Sequences.
	33	General Computer-Animation Functions.
	34	Raster Animations
	35	Computer Animation Languages
	36	Introduction to Morphing, Wrapping techniques, Three dimensional morphing

Experiment List

Expt No.	Title	Nature of Experiment
1	Installation of computer graphics devices and adapter	Performing
2	Drawing of different Geometric objects by using C programming	Performing
3	Implementation of Bresenham's line drawing algorithm.	Performing
4	Implementation of Bresenham's Circle drawing algorithm	Performing

5	Implementation of 2D transformations: Translation, Rotation and Scaling	Performing
6	Implementation of 3D transformations: Translation, Rotation and Scaling	Performing
7	Implementation of clipping algorithm	Performing
8	Implementation of Filling algorithm	Performing
9	Implementation of B-Spline curves	Performing
10	Construction of simple pictures by drawing line, polylines, polygons using OpenGL	Performing

List of Recommended Books

Text books used:-

1. Mathematical elements for Computer Graphics - David F. Rogers, J. Alan Adams (MGH Int.) (For UNITS 1, 4)
2. Procedural elements for Computer Graphics - David F. Rogers (MGH International) (For UNITS 2, 3)
3. Computer Graphics- Rajesh Maurya (WILEY India) (For UNIT VI)
4. Computer Graphics C Version second edition –Donald D. Hearn, M. Pauline Baker (Pearson) (For UNIT I, 2, 3, 4, 6).

Reference books used:-

1. Principles of Computer Graphics Theory and Practice Using OpenGL and Maya, Saline Govil-Pai, (Springer).
2. Computer Graphics (second Edition) - Zhigang Xiang & Roy Plastock (Schaum's Outline Series, TMGH).
3. Computer Graphics Using OpenGL F.S. Hill Jr. Stephen M. Kelley, (Pearson Education).EducationInternational)

Subject: INFORMATION SECURITY

Lecture Plan

Chapter No	No. of Lecture	Topics to be covered in each Lecture
01	1	Computer Security Concepts, The OSI Security Architecture,

02	2	Security Attacks, Security Services, Security Mechanisms,
	3	A Model for Network Security Symmetric Cipher Model,
	4	Substitution Techniques, Transposition Techniques, Rotor Machine
	5	Block Cipher Principles,
	6	The Data Encryption Standard (DES),
	7	A DES Example, The Strength of DES,
	8	Differential and Linear Cryptanalysis, Block Cipher Design Principles
	03	9
10		The RSA Algorithm,
11		Diffie-Hellman Key Exchange,
12		ElGamal Cryptosystem
04	13	Applications of Cryptographic Hash Functions,
	14	Two Simple Hash Functions
	15	Requirements and Security, Hash Functions Based on Cipher Block Chaining,
	16	Secure Hash Algorithm (SHA), SHA-3
04	17	Message Authentication Requirements, Message Authentication Functions,
	18	Message Authentication Codes, and Security of MACs,
	19	MACs Based on Hash Functions: MAC,
	20	MACs Based on Block Ciphers: DAA and CMAC
	21	Digital Signatures, ElGamal Digital Signature Scheme,
	22	Schnorr Digital Signature Scheme,
	23	Digital Signature Standard (DSS)
05	24	Symmetric Key Distribution Using Symmetric Encryption,
	25	Symmetric Key Distribution Using Asymmetric Encryption,
	26	Distribution of Public Keys,
	27	X.509 Certificates, Public Key Infrastructure
06	28	Web Security Issues,
	29	Secure Sockets Layer (SSL),
	30	Transport Layer Security (TLS),
	31	HTTPS
	32	Pretty Good Privacy (PGP)
	33	Pretty Good Privacy (PGP)

	34	S/MIME
	35	IP Security Overview, IP Security Policy
	36	Encapsulating Security Payload

Experiment List

Expt No.	Title of Experiment	Nature of Experiment	COs
1	GCD Using Euclidean algorithm/Computing Multiplicative inverses/ Prime number and modular arithmetic operations.	Performing	CO1
2	Substitution/Transposition/ Product Cipher and their Analysis	Performing	CO1,CO2
3	Single round of DES algorithm/Double DES/ Triple DES and its analysis	Performing	CO1,CO2 CO4
4	RSA Algorithm to provide Confidentiality and Authentication services or any other Public-Key Algorithm.	Performing	CO1,CO2,CO 3,CO4
5	Diffie–Hellman or any other key exchange Algorithm.	Performing	CO1,CO2,CO 3,CO4
6	Implementation and use of any authentication functions / algorithm	Performing	CO1,CO2,CO 3,CO4
7	Generation and use of Digital Signature for real world situation.	Performing	CO1,CO2,CO 3,CO4,CO5
8	Usage of PGP security package and S/MIME features	Performing	CO1,CO2,CO 3,CO4,CO5
9	Set up a honey pot and monitor the honey pot on network (KF Sensor).	Performing	CO5
10	Implementation of computation of multiplicative inverse.	Performing	CO1,CO2

List of Recommended Books

Text Books:

1. Williams Stallings – Cryptography and Network security principles and practices. Pearson Education (LPE), Fifth Edition
2. Cyber Security, Nina Godbole , Wiley Publications.
3. Cryptography & Network Security B.A. ForouzanMcGrawHill.

Reference Books:

1. Cryptography and network security – AtulKahate (TMGH)
2. Handbook of Applied Cryptography - Menezes, A. J., P. C. Van Oorschot, and S. A.Vanstone

Subject: Internet Technology

Chapter No.	Lect No.	Details of syllabus planned
Ch.1	Client-Server paradigm, Socket Interfaces, Protocol analyzing	
	01	The client-server model and design
	02	concurrent processing, algorithms and issues
	03	Multi-protocol servers, multi-service servers
	04	Concurrency in clients, Unix Internet Super Server (inetd)
	05	The Socket Interface, Socket JavaAPI: connection oriented- Socket and ServerSocket
	06	Connectionless- DatagramSocket and DatagramPacket
	07	Utility classes- URL, URLConnection, InetAddress, InterfaceAddress
	08	tcpdump, wireshark
Ch.2	IPv6 and ICMPv6	
	09	Introduction
	10	IPv6 addressing
	11	IPv6 Packet format
	12	Transition from IPv4 to IPv6

	13	ICMPv6
	14	ICMPv6
Ch.3	DHCP, DNS, TELNET and SSH	
	15	DHCP: Introduction, Previous Protocols, DHCP operation, Packet Format, DHCP Configuration
	16	DNS: Need, Name Space, Domain Name Space
	17	Distribution of name space, and DNS in internet
	18	Resolution, DNS messages, Types of records, Compression examples, encapsulation
	19	TELNET and SSH: Concept, NVT, Embedding
	20	Options & options/sub-option negotiation, controlling the server
	21	Out-of-band signaling, Escape character, Mode of operation, user interface
	22	Security: SSH, format, packets
Ch. 4	FTP, TFTP, HTTP	
	23	FTP: Connections, Communication, Command processing, File transfer, User interface
	24	Anonymous FTP
	25	TFTP
	26	HTTP
	27	Persistent vs. non persistent HTTP
	28	Proxy Servers
Ch. 5	Electronic Mail and SNMP	
	29	Electronic mail architecture, User Agents
	30	Addresses, Delayed delivery
	31	Aliases, Mail transfer agent SMTP commands & responses
	32	Response messages - header and examples
	33	mail transfer phases, MIME, Mail Delivery, mail access protocols
	34	SNMP

Ch. 6	Multimedia in Internet	
	35	Introduction
	36	Streaming stored audio/video, streaming live audio/video
	37	Real-time interactive audio/video
	38	Real-time transport protocol (RTP)
	39	Real-time transport control protocol (RTCP)
	40	Voice over IP (VoIP): session initiation protocol (SIP) and H.323

Experiment List

Expt. No.	Title	Nature of Experiment
1	Implement Echo and Day Time Server using socket such as, TCP socket and UDP datagram socket	Performing
2	Capturing & analyzing operation of various application layer protocols using network Protocol analyzer. (Wireshark and Tcpdump)	Performing
3	Program to implement Iterative servers using UDP.	Performing
4	Program to implement concurrent multiservice servers using TCP.	Performing
5	To study the IPv6 address system.	Non-Performing
6	To study the working of DNS and implement it.	Performing
7	Program to implement trivial file transfer protocol using FTP messages.	Performing
8	Implement simple web server. Use browser as a client for your server	Performing
9	Program to implement the working of SMTP and POP3	Performing
10	Developing Personal Website with database connectivity.	Performing

List of Recommended Books

Text Books

1. TCP/IP Protocol Suite Edition 4 by Behrouz Forouzan (McGraw Hill)

Reference Books:

1. Internet and Web Technologies ,Raj Kamal McGraw Hill

Open Source Resources:

1. <http://docs.oracle.com/javase/7/docs/api/java/net/package-summary.html>
2. <http://nmap.org/ncat/guide/>

Subject: OPERATING SYSTEM-II

Chapter No	No. of Lecture	Topics to be covered in each Lecture
1	1	System structure
	2	user perspective, Operating System services
	3	assumption about H/W.
	4	Architecture of UNIX operating system
	5	Introduction to system concepts
	6	Kernel data structure.
	7	System administration
2	8	Buffer headers
	9	Structure of the buffer pool
	10	Scenarios for retrieval of a buffer
	11	Reading and writing disk blocks
	12	Advantages and disadvantages of cache
3	13	Inodes, structure of the regular file
	14	Directories
	15	Conversion of a path name to inode
	16	Superblock
	17	Inode assignment to a new file
	18	Allocation of disk blocks
	19	Other file types
	20	System Calls for the File System Open, Read, System Calls for Write, Close
	21	System Calls for File Creation, and Creation of special files

	22	ChangeditoryandchangeRoot
	23	Pipes
	24	Mountingand Un-mountingFileSystems
	25	Link,Unlink
4	26	Process stages and transitions.
	27	Layout of system memory.
	28	The context of a process.
	29	Saving context of a process
	30	Manipulation of the process addresses space.
5	31	Process creation, signals, process termination.
	32	Awaiting process termination
	33	Invoking other programs
	34	User id of a process and the shell
	35	System boot and init process
	36	Process scheduling
	37	System call for time and clock
6	38	Swapping, Demand paging,
	39	A Hybrid system with swapping and demand paging,
	40	Driver Interfaces,Disk Drivers, Streams

Recommended Books

Text books:-

1. The design of Unix Operating System - Maurice J. Bach (PHI) Second edition

Subject: Cyber Security

Chapter No	No. of Lecture	Topics to be covered in each Lecture
1	1	Introduction to Computer Security -
	2	Types of Threats
	3	Basic Security Terminology,
	4	Online Security Resources Networks
	5	Basic Network Utilities
	6	Network Communications Topics
2	7	Cyber Stalking, Fraud, and Abuse
	8	Denial of Service Attacks

	9	Illustrating an Attack,
	10	Malware: Introduction, Viruses
	11	Spyware
	12	Eliminating Viruses and Spyware
3	13	Techniques Used by Hackers
	14	Basic Terminology,
	15	The Reconnaissance Phase
	16	Actual Attacks
	17	MalwareCreation
	18	Penetration Testing
4	19	Computer Security Technology
	20	Virus Scanners
	21	Antispyware
	22	Digital Certificates
	23	Virtual Private Networks
	24	Wi-Fi Security
5	25	Introduction
	26	Cyber Security Regulations
	27	Roles of International Law,
	28	state and Private Sector in Cyberspace
	29	Cyber Security Standard
	30	The INDIAN Cyberspace
6	31	General Guidelines
	32	Finding Evidence on the PC
	33	Finding Evidence in System
	34	Getting Back Deleted File
	35	Operating System Utilities
	36	Mobile Forensics: Cell Phone Concepts

Assignment

1. Define Cyber security?
2. What is the difference between IDS and IPS?
3. What is a Botnet?
4. What is the difference between stored and reflected XSS?
5. What are HTTP response codes?
6. List the common types of cyber security attacks.

7. What is a cyber security risk assessment?
8. What is the use of Patch Management?
9. Which is more secure SSL or HTTPS?
10. How to protect data in transit Vs rest?
11. What is the difference between Threat, Vulnerability, and Risk?
12. What is Cross-Site Scripting and how it can be prevented?

List of Recommended Books

Text books used:-

1. Computer Security Fundamentals - Chuck Easttom, Pearson, third edition

Reference books used:-

1. Jason Luttgens, Matthew Pepe, Kevin Mandia, Incident Response & Computer Forensics, McGraw-Hill Osborne Media, 3rd edition, 2014.
2. Keith J. Jones, Richard Bejtlich, Curtis W. Rose, Real Digital Forensics: Computer Security and Incident Response, Paperback – Import, 2005

Subject: Application Development Tool – II

UNIT No.	Lect. No.	Details of syllabus planned
01	1	olution of .net, Benefits of .net.
	2	LR, CTS, MSIL, JIT, BCL.
	3	etadata and assemblies in detail
	4	AC and strong name assemblies, Security Manager.
02	5	ata types - Value types, Reference types, boxing and unboxing.
	6	rays, Pass by value and by reference and out parameters, params parameter
	7	mespaces, classes, objects, structs: definition and creation
03	8	reating and using delegates, multicasting with delegates.
	9	reating and using delegates, multicasting with delegates.
	10	ent sources, event handlers
	11	UI Programming: Introduction to GUI Application and their components

	12	indows forms – buttons, check boxes, radio buttons, panels, group boxes, list boxes, picture boxes, Menus, ToolStrips, StatusStrips and progress bars
	13	indows forms – buttons, check boxes, radio buttons, panels, group boxes, list boxes, picture boxes, Menus, ToolStrips, StatusStrips and progress bars.
	14	ents.
	15	reating and using MDI application
04	16	he abstract stream class, working with StreamWriters and StreamReaders,
	17	he abstract stream class, working with StreamWriters and StreamReaders,
	18	orking with StringWriters and StringReaders.
	19	orking with BinaryWriters and BinaryReaders.
05	20	exploring ADO.net Entity framework.
	21	nnected and disconnected architecture.
	22	ta access with ADO.net.
	23	ta access with ADO.net
06	24	llection classes in .net,.
	25	derstanding Generics.
	26	neric collection classes in .net.

Experiment List

Expt. No.	Name of Experiment	Nature of Experiment	COs
01	Evolution and Benefits of .net framework.	Non-Performing	C01
02	Implementation of simple console application, Namespaces & class. (Creation of Hello World Program).	Performing	C01
03	Study and implementation of different types of Constructors in C#.	Performing	C01, C02
04	Write a program to study use of Properties in C#.	Performing	C01, C02

05	Implement program for Multidimensional & Jagged array	Performing	C01, C02
06	Implement programs on Single, Multilevel, Hierarchical inheritance and Interfaces.	Performing	C01, C02
07	Implement a program for operator overloading	Performing	C01, C02
08	Implement program on how to create and use delegate.	Performing	C01, C02
09	Program to demonstrate the events handler in C#.	Performing	C01, C02
10	Create a small registration form layout using Windows Form Applications.	Performing	C01, C02
11	Study and Implementation of File Handling	Performing	C01, C02
12	Design any Windows Form based application with Database connectivity with all field validation(ADO .net framework)	Performing	C01, C02

List of Recommended Books

Text Books:

1. C# 4.0 The Complete Reference: Herbert Schildt, McGraw Hill.

Reference Books:

1. Microsoft Visual C# 2010 Step by Step: John sharp, Microsoft Press
- 2 .NET 4.5 Programming (6 – in -1) Black Book – Kogent – Dreamtech Press
- 3 CLR via C# :Jeffrey Richter, Microsoft Press, 3rd edition
- 4 ASP.Net 4.5 Black Book ,Dreamtech ,Wiley International.

B.TECH (IT)

Subject: MACHINE LEARNING

Lecture No.	Topic to be covered
01	Machine learning – Definition, Terminology.
02	Types of learning, Applications of machine learning.
03	Supervised v/s unsupervised learning, Machine learning problem

	categories
04	Machine learning architecture.
05	Process.
06	Lifecycle performance measures.
07	Tools and framework.
08	Data visualization techniques.
09	Simple regression – hypothesis, cost function.
10	Parameter learning with gradient descent, Learning rate.
11	Gradient descent for linear regression.
12	Simple regression in matrix form.
13	Multivariate linear regression, Multiple features.
14	Hypothesis functions, Gradient descent for multiple variables.
15	Feature scaling, Polynomial regression.
16	Linear regression, Non linear regression.
17	Model evaluation methods, Bias/Variance trade off.
18	Error analysis ensemble methods, Recall trade off.
19	Logistic regression – Definition, Hypothesis representation.
20	Decision boundary, Cost function.
21	Gradient descent for logistic regression, Multiclass classification.
22	Regularization – over fitting and under fitting, Cost function.
23	Regularized linear regression and logistic regression.
24	Conditional probability and Native Bayes classifier.
25	Instance based classifier, K-nearest neighbor classifier.
26	Bayesian network, Hidden Markov model
27	Decision tree - definition, terminology, the need, advantages and limitations.
28	Constructing and understanding decision tree.
29	Common problems with decision tree.
30	Decision tree algorithms, random forest.
31	Introduction to Support vector machine.
32	Kernel trick.
33	Cost function.

34	Decision tree v/s support vector machine.
35	Clustering.
36	K Means clustering.
37	K Means clustering.
38	Hierarchical clustering.
39	Hierarchical clustering.
40	Association rule mining.
41	Use cases based on supervised ML and unsupervised ML.
42	Reinforcement, Shopping mall.
43	Recommendation engine, IPL prediction.
44	Weather forecast prediction, House price prediction.
45	Market basket analysis.
46	Classifying emails as spam or not.
47	Sentiment analysis.
48	Forecast demand and inventory.

Experiment List

Expt. No.	Name of Experiment	Nature of Experiment	COs
01	Machine Learning and its types	Non Performing	CO1
02	Data Visualization Techniques	Performing	CO1,CO2
03	Linear Regression	Performing	CO2
04	Logistic Regression	Performing	CO2
05	Multi-class Classification	Performing	CO3
06	Over fitting and under fitting in machine learning	Non Performing	CO1,CO3
07	Decision Tree	Performing	CO4
08	KNN (k Nearest Neighbor) Classifier	Performing	CO4
09	k-means clustering	Performing	CO4

10	Mini Project	Performing	CO3,4,5
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List of Recommended Books

Text Books:

1. Machine Learning With Python by AbhishekVijayvargia,BPB Publications
2. AurelienGeron , “ Hands-On Machine Learning with Scikit-Learn, Keras and Tensor
3. Flow: Concepts, Tools and Techniques to Build Intelligent Systems”, O’Reilly, 2nd Edition, 2019

Reference Books:

1. Tom Mitchell, “Machine Learning”, McGraw-Hill, 2nd Edition, 1997
2. Machine Learning for dummies by John Paul Muller,Willey Publication

Subject: Cloud Computing

Chapter No	No. of Lecture	Topics to be covered in each Lecture
1	Introduction	
	1	Definition, Historical Developments
	2	Computing Platforms and Technologies
	3	Building cloud computing environments
	4	Principles of Parallel and Distributed Computing: Parallel versus Distributed Computing
	5	Elements of Parallel Computing, Elements of Distributed Computing
	6	Technologies for Distributed Computing

2	Virtualization	
	7	Characteristics
	8	Virtualization Techniques
	9	Virtualization
	10	Cloud Computing
	11	Pros and Cons of Virtualization
	12	Technology Examples
3	Cloud Computing Architecture	
	13	Cloud Reference Model
	14	Types of Clouds
	15	Economics of Clouds
	16	Open Challenges
	17	Cloud Platforms in Industry: Amazon Web Services
	18	Google App Engine
	19	Microsoft Azure
4	Cloud Applications	
	20	Scientific Applications in – Healthcare, Biology
	21	Geo-Science, Business
	22	Applications in– CRM and ERP
	23	Productivity
	24	Social Networking
	25	Media Applications
	26	Multiplayer Online Gaming
5	Advanced Topics in Cloud Computing	
	27	Energy Efficiency in Clouds and Green Cloud Computing
	28	Market Based Management of Clouds
	29	Federated Clouds / InterCloud
	30	Cloud Federation Stack
	31	Third Party Cloud Services
6	Understanding Cloud Security	
	32	Securing the Cloud, The security boundary, Security service boundary
	33	Security mapping, Securing Data
	34	Brokered cloud storage access, Storage location and tenancy
	35	Encryption
	36	Auditing and compliance
	37	Establishing Identity and Presence
	38	Identity protocol standards

Assignment

1. Define cloud and Explain cloud Reference Models
2. Explain different technology of cloud computing
3. What is difference between cluster, grid and cloud computing
4. Enlist different hardware architecture for parallel processing and explain any Two
5. Explain different computing platform
6. Explain software architecture style 5

List of Recommended Books

Text books:-

1. Mastering Cloud Computing, Buyya R, Vecchiola C, Selvi S T, McGraw Hill Education (India),2013.
2. Cloud Computing Bible, Barrie Sosinsky ,Wiley Publishing Inc. 2011(Unit,VI)

Reference books:-

1. Buyya R, Broberg J, Goscinski A, “Cloud Computing - Principles and Paradigms”, Wiley, 2011.

Subject: Business Intelligence

Chapter No	No. of Lecture	Topics to be covered in each Lecture
1	1	The value of architecture,
	2	Technical Architecture overview
	3	Back room Architecture
	4	Presentation Server Architecture
	5	Front room Architecture
	6	Infrastructure & Metadata
	7	Metadata and Security.
2	8	Making the Case for Dimensional Modeling
	9	Dimensional Modeling primer
	10	Enterprise Data Warehouse Bus Architecture
	11	Presentation Server Architecture
	12	Front room Architecture

	13	Infrastructure, Metadata, and Security
3	14	Modeling Process overview
	15	Getting Organized
	16	Four Step Modeling Process
	17	Design the Dimensional Model.
	18	Design the Dimensional Model.
4	19	Introducing Extract, Transformation & Load
	20	Round up the requirements
	21	the 34 subsystems of ETL
	22	Extracting Data, Cleaning
	23	Conforming data
	24	Delivering Data for Presentation.
5	25	Introducing Business Intelligence Applications:
	26	Importance of B.I. Applications,
	27	Analytical cycle for B.I.
	28	Types of B.I. Applications
	29	Navigating Applications via the B.I. portal.
	30	Navigating Applications via the B.I. portal.
6	31	BI Application Development & Big data analytics overview
	32	B.I. Application Development
	33	B.I. Application maintenance
	34	Big data overview
	35	Recommended best practices for Big Data.

Assignment

1. What do you understand by Business Intelligence?
2. What are the primary objectives of Business Intelligence?
3. What are the popular Business Intelligence (BI) tools used by Business Analysts?
4. How will you implement a BI system in your professional approach?
5. How will you define OLAP (Online Analytical Processing)?
6. How will you define OLTP (Online Transaction Processing)?
7. Define the term Data Warehousing?
8. Mentioned some characteristics of the Data warehouse
9. What are the key advantages of using BI systems?
10. Mention two disadvantages of Business Intelligence Systems.
11. What are aggregates?

12. Explain in one line the meaning of granularity.

List of Recommended Books

Text Books:

1. The Data Warehouse Lifecycle Toolkit, by Ralph Kimball, Margy Ross, Warren Thornthwaite, Joy Mundy, Bob Becker 2nd edition, Wiley Publication (Unit 1-6).
2. The Data Warehouse Toolkit, by Ralph Kimball, Margy Ross, 3rd edition, Wiley Publication (Unit-6).

Reference Books:

1. Fundamentals of Business Analytics by R.N. Prasad, Seema Acharya Wiley Publication
2. Data Warehousing in the Real World By Anahory & Murray, Pearson Education.
3. Data Warehousing Fundamentals By Ponniah Wiley Publication

Subject: SOFTWARE TESTING

Chapter No	No. of Lecture	Topics to be covered in each Lecture
1	Introduction	
	1	Testing as an Engineering Activity, Testing as a Process
	2	Testing axioms, Basic definitions
	3	Software Testing Principles
	4	Tester's Role in a Software Development Organization
	5	Origins of Defects, Cost of defects
	6	Defect Classes
2	Test Case Design Strategies	
	7	Test case Design Strategies, Using Black Box Approach to Test Case Design
	8	Boundary Value Analysis, Equivalence Class Partitioning
	9	State based testing, Cause-effect graphing
	10	Compatibility testing, user documentation testing
	11	Using White Box Approach to Test design, Test Adequacy Criteria, static testing vs. structural testing
	12	Code functional testing – Coverage and Control Flow Graphs
3	Types of Testing	
	14	White Box Testing, Black Box Testing
	15	Integration Testing
	16	System and Acceptance Testing

	17	Performance Testing
	18	Regression Testing, Internationalization Testing
	19	Ad hoc Testing, Testing of OO Systems
	20	Usability and Accessibility testing
4	Test Planning And Management	
	21	People and Organizational Issues in Testing
	22	Organization Structures for Testing Teams
	23	Testing Services
	24	Test Planning
	25	Test Management
	26	Test Process, Test Reporting
5	Test Metrics And Measurements	
	27	What are Test metrics and measurements?
	28	Types of Metrics
	29	project Metrics
	30	productivity metrics
6	Test Automation	
	31	Software test automation, skills needed for automation
	32	Scope of Automation
	33	Design and Architecture for Automation
	34	Requirements for a Test Tool
	35	Challenges in Automation
	36	Automation Testing Tools :Selenium, Cucumber, Zephyr, Silk test etc.

Recommended Books

TEXT BOOKS:

- 1 SrinivasanDesikan and Gopalaswamy Ramesh, —Software Testing – Principles and Practices,Pearson Education, 2006.
2. Ron Patton, —Software Testing, Second Edition, Sams Publishing, Pearson Education, 2007. AU Library.com

REFERENCE BOOKS:

3. Ilene Burnstein, —Practical Software Testing □, Springer International Edition, 2003.
4. Edward Kit Software Testing in the Real World – Improving the Process, Pearson Education, 1995.
5. Boris Beizer, Software Testing Techniques – 2nd Edition, Van Nostrand Reinhold, New York, 1990.

6. Aditya P. Mathur, —Foundations of Software Testing _ Fundamental Algorithms and Techniques, Dorling Kindersley (India) Pvt. Ltd., Pearson Education, 2008.
Ilene Burnstein, —Practical Software Testing □, Springer International Edition, 2003.

Subject Name: Advance Web Technology

Chapter No	No. of Lecture	Topics to be covered in each Lecture
01	1	AngularJS Introduction,
	2	AngularJS Expressions, AngularJS Modules,
	3	AngularJS Directives, AngularJSng-model Directive,
	4	AngularJS Data Binding, AngularJS Controllers,
	5	AngularJS Scope, AngularJS Filters,
	6	Form Validations, AJAX, Views, Services,
	7	Dependency Injection, Custom Directive
	8	Angular Introduction,
02	9	Difference AngularJs and Angular, Angular Versions,
	10	Angular - Web Application architecture,
	11	MVC and MVVM design pattern, Angular architecture, Angular building blocks, Forms implementation,
	12	Filters, Services, Consuming,
	13	REST Web Services, Modules: Built-in and custom,
	14	Directives: Built-in and custom, Routing and Navigation, Animations, Testing Angular application
	15	Bootstrap: Bootstrap - Overview Environment Setup,
	16	Grid System ,Typography ,Code ,
03	17	Tables ,Forms, Buttons , Badges and Labels , Progress Bars , List Groups , Panels , Dropdowns ,Images ,
	18	Helper Classes , Responsive utilities, navigation, modals, image carousels
	19	Node Node ,
	20	Difference between Angular Js and Node Js,

	21	NodeJs architecture ,Modules: Built-in and custom,
	22	Event loop, Asynchronous application ,
	23	Testing node application
05	24	Express Introduction to ExpressJs
	25	Routing, Template engines, Middleware
	26	Web Application, components
	27	, Error handling
06	28	Testing application
	29	Express application
	30	MongoDB Relational vsNoSQL DB,
	31	MongoDB fundamentals,
	32	Data modeling,
	33	Aggregation pipeline,
	34	Grid FS, Performance optimization

Experiment List

Expt No.	Title of Experiment	CO
1	Installation Node JS, Angular CLI, Visual Studio Code	CO1
2	Create Angular Hello World Application	CO1
3	Creating an Angular Component	CO1
4	Implement Interpolation Data Binding	CO2
5	Implement Property Data Binding	CO2
6	Implement Event Data Binding	CO2

7	Implement Two Way Data Binding.	CO2
8	Implement Injecting Services into components to display a list.	CO2
9	Binding to properties and expressions in an AngularJS template, creating views and controllers and how to test them	CO2
10	Implement Angular Bootstrap via CDN	CO2
11	Develop Website : Saving Time with Express	CO2
12	Write a program demonstrating NodeJs application	CO3
13	Implement Error Handling using Node JS	CO3
14	Implement Express.JS.	CO3
15	Installation of MangoDB	CO3
16	Implement simple MongoDB script with a native driver	CO3

Recommended List

TEXT BOOKS :

1. MEAN Web Development author Amos Q. Haviv published by PACKT PUBLISHING LTD
2. Pro MEAN Stack Development author Elrom, Elad published by Apress
3. Bootstrap: Responsive Web Development author Jake Spurlock published by O'REILLY

REFERENCE BOOKS :

1. Bootstrap in 24 hours, Sams Teach Yourself author Jennifer Kyrnin published by ByJennifer Kyrnin
2. Web Development withNode and Express author Ethan Brown Published by O'Reilly Media
3. Getting MEAN with Mongo, Express, Angular, and Node(Manning) author Simon Holmes, Clive Harber published by Simon Holmes

4. AngularJS in Action author Lukas Ruebelke published by Martin Gontovnikas
5. Practical Node.JS author AzatMardan published by Apress.

10-Project Review Form

RUBRICS B.TECH PROJECT EVALUATION

Course Outcomes in project work:

At the end of successful completion of the project work, students should be able to-		
No.	Course Outcomes	Relationship with PO
CO1	Independently carry out literature survey in identified domain, and consolidate it to formulate a problem statement	PO2, PO12
CO2	Apply identified knowledge to solve a complex engineering problem and design a solution, implement and test the proposed solution	PO1, PO3
CO3	Use synthesis/modeling to simulate and solve a problem or apply appropriate method of analysis to draw valid conclusions and present, demonstrate, execute final version of project	PO4, PO5
CO4	Incorporate the social, environmental and ethical issues effectively into solution of an engineering problem	PO6, PO7, PO8
CO5	Contribute effectively as a team member or leader to manage the project timeline	PO9, PO11
CO6	Write pertinent project reports and make effective project Presentations	PO10

CO-PO mapping of the project work:

The correlation between COs and POs/ PSOs for project work

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	–	3	–	–	–	–	–	–	–	–	–	3	3	3	3
CO2	3	–	3	–	–	–	–	–	–	–	–	–	3	3	3

CO3	-	-	-	3	3	-	-	-	-	-	-	-	3	3	3
CO4	-	-	-	-	-	3	3	3	-	-	-	-	-	-	3
CO5	-	-	-	-	-	-	-	-	3	-	3	-	-	-	3
CO6	-	-	-	-	-	-	-	-	-	3	-	-	-	-	3

Internal assessment process of project work:

Weightages of project work internal assessment (Throughout Academic Year)

Review #	Agenda	Assessment	Review Assessment Weightage	CO Covered
Review 1	Project Synopsis / Proposal Evaluation	Rubric PR1	20% (20)	CO1
Review 2	1 st Project Evaluation	Rubric PR2 & PR6	10% (10) & 5% (05)	CO2 & CO5
Review 3	2 nd Project Evaluation	Rubric PR3 & PR6	10% (10) & 5% (05)	CO2 & CO5
Review 4	3 rd Project Evaluation	Rubric PR4, PR5 & PR6	20% (20), 10% (10) & 5% (05)	CO3, CO4 & CO5
Review 5	Project Report Evaluation	Rubric PR7	15% (15)	CO6
Total			100% (100)	

Rubric #PR1: Project Synopsis/Proposal Evaluation

Maximum Marks*: 20

		Excellent (4)	Good (3)	Average (2)	Poor (1-0)
a	Topic selection	Complete Innovative and useful for society	Somewhat innovative and useful for society	Useful for society but not innovative	Useful for limited group and not innovative

b	Problem Definition	Exceeds expectation. Identification of the social, environmental and ethical issues of the project problem	Extend expectation in some manner Problem and its implications well understood and described both in viva	Meets expectation in some manner. Problem and its implications understood but not well described or presented.	Nearly meet expectations Steps to be followed to solve the defined problem are not specified properly
c	Literature Survey Purpose and need of the project	Outstanding investigation in all aspects. Detailed and extensive explanation of the purpose and need of the project	Well-researched project, good depth and thoroughness, sensible planning of research and well referenced throughout. Collects a great deal of information and good study of the existing systems	Research is clear and structured. Appropriate coverage is present and referenced. Moderate study of the existing systems; collects some basic information	Minimal research or cursory coverage , minimal referencing, Moderate explanation of the purpose and need of the project
d	Justification of Project Objectives	All objectives of the proposed work are well defined; Steps to be followed to solve the defined problem are clearly specified	Good justification to the objectives; Methodology to be followed is specified but detailing is not done	Incomplete justification to the objectives proposed; Steps are mentioned but unclear; without justification to objectives	Limited information Only Some objectives of the proposed work are defined;
e	Project Scheduling & Distribution of Work among Team members	Detailed and extensive Scheduling with timelines provided for each phase of project. Work breakdown structure well defined.	Good Scheduling of project. Work breakdown structure properly defined.	Moderate scheduling of project. Work breakdown insufficient	Poor / No Project scheduling done. No Work breakdown structure provided.

TOTAL MARKS= a+b+c+d+e

Rubric #PR2: First Project Evaluation

Maximum Marks*: 10

LEVELS OF ACHIEVEMENTS					
		Excellent (10-9)	Good (8-7)	Average (6-5)	Poor (4-0)
a.	Quality of Software Requirements Specification	Outstanding clarity of thought and documentation in the development of design from the specification using and adapting models appropriately. Excellent incisive analysis leading to well defined model/ requirements specification of high quality that is fully accurate.	Focus is on specification and the design follows from it, using most appropriate elements of chosen design technique. Analysis is well presented and leads to a sound well documented model/ requirements specification.	Design techniques used minimally though correctly on specification. Minimal model/ requirements specification is created	Very minimal analysis. Very Minimal model/ requirements specification is created
b.	Quality, appropriateness and accuracy of Design	Excellent design covering all aspects of the specification, fully appropriate to the project, showing clear thinking	Appropriate design, clear and accurate, satisfactory for the implementation of the project.	Limited design, or design not well related to specification or model	Very minimal design

TOTAL MARKS= (a+b)/2

Rubric #PR3: Second Project Evaluation

Maximum Marks*: 10

LEVELS OF ACHIEVEMENTS					
		Excellent (10-9)	Good (8-7)	Average (6-5)	Poor (4-0)
a.	Quality, appropriateness and accuracy of	Excellent use of software engineering principles and models both at higher and	Very well engineered solution, with evidence that the student has used proven	Appropriately engineered implementation which follows from design.	In sufficient implementation to show competent use of any problem

	project Implementation	lower levels in implementation from design cycle. Documented use of complex features in the language /package which show quantitatively and qualitatively the improvements gained. An excellent fully operating technically outstanding project. Project fulfils functional requirements specification exactly with no limitations or failures of any type	method in transforming design into implementation. Appropriate use of facilities to make implementation more efficient or effective. Effective and efficient implementation technically with only minor limitations. Project works well with only some minor functional limitations	Language/package facilities exploited to suggest a functional implementation. Project with some limitations, mostly technically sound. Project essentially works but with some severe functional limitations	solving methods. Minimal implementation. Poor technical quality with little use of development skills or knowledge in evidence. Project does not work in most parts to requirements specification
b	Quality, appropriateness and accuracy of Testing	A quality piece of work giving full coverage of the solution and full program of testing/evaluation undertaken	Extensive and well organized implementation and testing/evaluation documentation	Sufficient implementation documentation and testing/evaluation documentation	Minimal implementation documentation or testing/evaluation documentation

TOTAL MARKS= (a+b)/2

Rubric #PR4: Third Project Evaluation

Maximum Marks* : 20

LEVELS OF ACHIEVEMENTS					
		Excellent (20-16)	Good (15-11)	Average (10-6)	Poor (5-0)
a	Quality and accuracy of Software System/Model	<p>Excellent design covering all aspects of the specification, fully appropriate to the project, showing clear thinking. An excellent fully operating technically outstanding project. Outstanding clarity of thought and documentation in the development of design from the specification using and adapting models appropriately. A quality piece of work giving full coverage of the solution and full</p>	<p>Appropriate design, clear and accurate, satisfactory for the implementation of the project. Very well engineered solution, with evidence that the student has used proven method in transforming design into implementation. Effective and efficient implementation with only minor limitations. Extensive and well organized implementation and testing/evaluation documentation</p>	<p>Design not well related to specification or model. Language/package facilities exploited to suggest a functional implementation. Project with some limitations, mostly technically sound. Project essentially works but with some severe limitations. Sufficient implementation documentation and testing/evaluation documentation</p>	<p>Very minimal design. In sufficient implementation to show competent use of any problem solving methods. Poor technical quality with little use of development skills or knowledge in evidence. Project does not work in most parts to requirements specification. Minimal implementation documentation or testing/evaluation documentation</p>

		programme of testing/ evaluation undertaken			
b	Demonstration of software system /Module working and Functioning	All defined objectives are achieved. Each module working well and properly demonstrated. All modules of project are well integrated and system working is accurate	All defined objectives are achieved. Each module working well and properly demonstrated. Integration of all modules not done and system working is not Very satisfactory	All defined objectives are achieved. Modules are working well in isolation and properly demonstrate. Modules of project are not properly integrated	Only some of the defined objectives are achieved. Modules are not in proper working form that further leads to failure of integrated system

TOTAL MARKS= (a+b)/2

Rubric #PR5

Maximum Marks* : 10

LEVELS OF ACHIEVEMENTS					
		Excellent (10-9)	Good (8-7)	Average (6-5)	Poor (4)
a.	Identification of the social, environmental and ethical issues of the project problem	Identifying and solving social, environmental and ethical issues	Identifying and solving social, environmental or ethical issues	Identifying social, environmental or ethical issues	Not able to Identify any issues

Rubric #PR6 Individual Contribution Evaluation

Maximum Marks* : 5

LEVELS OF ACHIEVEMENTS					
		Excellent (5)	Good (4)	Average (3)	Poor (2-0)
a	Individual Presentation	<p>Excellently planned and executed presentation and demo leaving the listeners in no doubt of the value of the product. Contents of presentations are appropriate and well delivered. Proper eye contact with audience and clear voice with good spoken language</p>	<p>Quality presentation and demo. Clear and concise description leaving listeners with sound understanding of project and its problems. Contents of presentations are appropriate and well delivered. Clear voice with good spoken language but less eye contact with audience</p>	<p>Timed and prepared presentation, demo with student describing what has been learnt. Contents of presentations are appropriate but not well delivered. Eye contact with only few people and unclear voice</p>	<p>No presentation or no demo or student unable to articulate project development. Contents of presentations are not appropriate and not well delivered. Poor eye contact with audience and unclear voice</p>
b	Individual Contribution	<p>Excellent Contribution showing his/her dependency in project</p>	<p>Good contribution as reflected in overall work</p>	<p>Some contribution as reflected in overall work.</p>	<p>No Contribution</p>
c	To observe the completion of work referring to the original set plan	<p>Ahead of the proposed plan</p>	<p>In pace with the plan</p>	<p>Delayed but can cope up with the lag at their own</p>	<p>Interventional help is needed</p>

TOTAL MARKS= (a+b+c)/3

Rubric #PR7: Project Report Evaluation

Maximum Marks* : 15

LEVELS OF ACHIEVEMENTS					
		Excellent (15-12)	Good (11-8)	Average (7-4)	Poor (4-0)
a	Style, structure and form and the perceived clarity, 'readability of report	Outstanding, comprehensive and clear report, Fully referenced	Effective report using academic language accurately referenced.	Acceptable report structure, some referencing, no missing parts, clarity of language	Report is unbalanced or unclear, or it is difficult to follow ideas. Major sections missing, or no referencing
b	Effectiveness of the project report	Accurately referenced, very high standard of presentation aimed at the right level throughout. Fully referenced. Complete explanation of the key concepts and strong description of the technical requirements of the project	Effective technical /business report fully structured, accurately referenced. Complete explanation of the key concepts but in-sufficient description of the technical requirements of the project	Adequate report presentation references included. Incomplete explanation of the key concepts and in-sufficient description of the technical requirements of the project	Referencing is poor or inconsistent, or lack of illustrative content. Report is unreadable as an English report Inappropriate explanation of the key concepts and poor description of the technical requirements of the project
c	Results, Conclusion and Discussion	Results are presented in very appropriate manner. Project work is well summarized and concluded. Future extensions in the project are well specified	Results are presented in good manner. Project work summary and conclusion not very appropriate. Future extensions in the project are specified	Results presented are not much satisfactory. Project work summary and conclusion not very appropriate. Future extensions in the project are not specified	Results are not presented properly. Project work is not summarized and concluded. Future extensions in the project are not specified

TOTAL MARKS= (a+b+c)/3

B. TECH PROJECT EVALUATION FORMS

Weightages of project work internal assessment (Throughout Academic Year)

Review #	Agenda	Assessment	Review Assessment Weightage	CO Covered
Review 1	Project Synopsis / Proposal Evaluation	Rubric PR1	20% (20)	CO1
Review 2	1 st Project Evaluation	Rubric PR2 & PR6	10% (10) & 5% (05)	CO2 & CO5
Review 3	2 nd Project Evaluation	Rubric PR3 & PR6	10% (10) & 5% (05)	CO2 & CO5
Review 4	3 rd Project Evaluation	Rubric PR4, PR5 & PR6	20% (20), 10% (10) & 5% (05)	CO3, CO4 & CO5
Review 5	Project Report Evaluation	Rubric PR7	15% (15)	CO6
Total			100% (100)	

Academic Year:

Class:

Name of the Project Guide:

Name of the Student:

Group

Number:

Form #PR1: Project Synopsis/Proposal Evaluation

Maximum Marks*: 20

		Excellent (4)	Good (3)	Average (2)	Poor (1-0)
a	Topic selection				
b	Problem Definition				
c	Literature Survey Purpose and need of the project				
d	Justification of Project Objectives				
e	Project Scheduling & Distribution of Work among Team members				

TOTAL MARKS= a+b+c+d+e

Signature of Project Guide/Evaluator

Form #PR2: First Project Evaluation

Maximum Marks*: 10

LEVELS OF ACHIEVEMENTS					
		Excellent (10-9)	Good (8-7)	Average (6-5)	Poor (4-0)
a.	Quality of Software Requirements Specification				
b.	Quality, appropriateness and accuracy of Design				

TOTAL MARKS= (a+b)/2

Signature of Project Guide/Evaluator

Form#PR3: Second Project Evaluation

Maximum Marks*: 10

LEVELS OF ACHIEVEMENTS					
		Excellent (10-9)	Good (8-7)	Average (6-5)	Poor (4-0)
a	Quality, appropriateness and accuracy of project Implementation				
b	Quality, appropriateness and accuracy of Testing				

TOTAL MARKS= (a+b)/2

Signature of Project Guide/Evaluator

Form#PR4: Third Project Evaluation

Maximum Marks* : 20

LEVELS OF ACHIEVEMENTS					
		Excellent (20-16)	Good (15-11)	Average (10-6)	Poor (5-0)
a	Quality and accuracy of Software System/Model				
b	Demonstration of software system /Module working and Functioning				

TOTAL MARKS= (a+b)/2

Signature of Project Guide/Evaluator

Form#PR5

Maximum Marks* : 10

LEVELS OF ACHIEVEMENTS					
		Excellent (10-9)	Good (8-7)	Average (6-5)	Poor (4)
a.	Identification of the social, environmental and ethical issues of the project problem				

Signature of Project Guide/Evaluator

Form#PR6 Individual Contribution Evaluation

LEVELS OF ACHIEVEMENTS					
		Excellent (5)	Good (4)	Average (3)	Poor (2-0)
a	Individual Presentation				
b	Individual Contribution				
c	To observe the completion of work referring to the original set plan				

Maximum Marks* : 5

TOTAL MARKS= (a+b+c)/3

Signature of Project Guide/Evaluator

Sr. No	Name of the Faculty	Post	Qualification	Mail-id	Year of Experience (Year)	Mobile No
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Form #PR7: Project Report Evaluation

Maximum Marks* : 15

LEVELS OF ACHIEVEMENTS

		Excellent (15-12)	Good (11-8)	Average (7-4)	Poor (4-0)
a	Style, structure and form and the perceived clarity, 'readability of report				
b	Effectiveness of the project report				
c	Results, Conclusion and Discussion				

TOTAL MARKS= (a+b+c)/3

Signature of Project Guide/Evaluator

11-Department Faculty Details

Academic Year: 2023-24

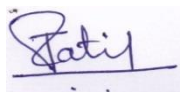
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Academic Year: 2023-24

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Prof. J. T. Patil
Academic Coordinator



Prof. R. A. Bharatiya
HOD-IT