# RAJEEV GANDHI MEMORIAL COLLEGE OF ENGINEERING AND TECHNOLOGY AUTONOMOUS

NANDYAL-518501, KURNOOL DIST., A.P., INDIA

# **COMPUTER SCIENCE AND ENGINEERING**



ESTD: 1995

Applicable for students admitted intoB.Tech (Regular) from 2010-11 & B.Tech (Lateral Entry Scheme) from 2011-12

ACADEMIC REGULATIONS, COURSE STRUCTURE AND DETAILED SYLLABUS

#### RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG & TECHNOLOGY, NANDYAL AUTONOMOUS COMPUTER SCIENCE AND ENGINEERING NANDYAL-518501, KURNOOL DIST., A.P., INDIA (Affiliated to J.N.T.U.A, Anantapur)

# ACADEMIC REGULATIONS, COURSE STRUCTURE AND DETAILED SYLLABUS B.Tech (Regular) from 2010-11 and B.Tech (Lateral Entry Scheme) from 2011-12

For pursuing four year under graduate Bachelor Degree Programme of study in Engineering (B.Tech), Two year Master (post graduate) Degree of study in Engineering (M.Tech), Two year Master (post graduate) degree of study in Business Administration (MBA), Three year Master (post graduate) Degree of study in Computer Applications (MCA) offered by Rajeev Gandhi Memorial College of Engineering and Technology, Nandyal - 518501 under Autonomous status and herein referred to as RGMCET(Autonomous):

All the rules specified herein approved by the Academic Council will be in force and applicable to students admitted from the Academic Year 2010-11 onwards. Any reference to "Institute" or "College" in these rules and regulations stands for Rajeev Gandhi Memorial College of Engineering and Technology (Autonomous).

All the rules and regulations, specified here after shall be read as a whole for the purpose of interpretation as and when a doubt arises, the interpretation of the Chairman, Academic Council is final. As per the requirements of statutory bodies, the Principal, Rajeev Gandhi Memorial College of Engineering and Technology shall be the Chairman, Academic Council.

The candidate seeking admission into the first year of study of four year B.Tech degree Programme should have

- i) Passed either Intermediate Public Examination (IPE) conducted by the Board of Intermediate Education, Andhra Pradesh with Mathematics, Physics and Chemistry as optional subjects (or any equivalent examination certified by Board of Intermediate Examinations) or a Diploma in Engineering in the relevant branch conducted by the Board of Technical Education, Andhra Pradesh (or any equivalent certified by State Board of Technical Education) for admission.
- ii) Secured a rank in the EAMCET examination conducted by A.P. State Council for Higher Education (APSCHE) for allotment of a seat by the Convener, EAMCET, for admission.

#### Admission Procedure:

As per the norms of A.P. State Council of Higher Education (APSCHE), Government of Andhra Pradesh, admissions are made to the first year of Four year B.Tech. Degree programme as follows:-

- a) As per the norms of Government of Andhra Pradesh, A-Category (based on the rank obtained in EAMCET) seats will be filled by the Convener, EAMCET.
- b) As per the norms of Government of Andhra Pradesh, B-Category seats will be filled by the management.

#### Admission to the Second year of Four year B.Tech Degree Programme in Engineering:

- i) Candidates qualified in ECET and admitted by the Convener, ECET, in such cases for admission, when needed permission from the statutory bodies are to be obtained.
- ii) 10% of the sanctioned strength in each programme of study (of RGMCET) shall be filled by the Convener, ECET as lateral entry.

#### List of Programmes offered

- 1) B.Tech Regular ( & Lateral Entry)
- 2) M.Tech Regular
- 3) MBA Regular
- 4) MCA Regular

#### 1. Academic Regulations for 2010 B.Tech (Regular)

(Effective for the students admitted into the I year from the Academic Year 2010-2011)

The B.Tech Degree will be conferred by the Jawaharlal Nehru Technological University, Anantapur, to students who are admitted to the program and fulfil all the requirements for the award of the Degree as specified below.

#### 1.0 Award of B.Tech. Degree

The student will be declared eligible for the award of the B. Tech. degree if he fulfils the following academic regulations:

- 1.1) Pursued a course of study for not less than prescribed course work duration and not more than double the prescribed course work duration.
- 1.2) Registered for 240 credits and secured 232 credits with compulsory subjects as listed in Table-1 below.

#### Table 1: Compulsory Subjects

S.No	Subject Particulars
1.	All the first year subjects
2.	All practical subjects
3.	All audit courses/soft skills/open electives
4.	Mini project
5.	Seminar
6	Comprehensive viva voce
7.	Project work

#### 2.0 Forfeit of seat

Students, who fail to fulfil all the academic requirements for the award of the degree within <u>eight academic</u> <u>years</u> from the year of their admission, shall forfeit their seat in B.Tech course.

#### 3.0 Courses of study

The following courses of study are offered at present as specializations for the B.Tech. Course

- 1. Civil Engineering.
- 2. Computer Science and Engineering.
- 3. Electrical and Electronics Engineering.
- 4. Electronics and Communication Engineering.
- 5. Electronics and Instrumentation Engineering.
- 6. Information Technology.
- 7. Mechanical Engineering.

and any other course as approved by the authorities of the University from time to time.

#### Regulations, Course Structure & Syllabus

#### **Table 2: Credits**

	I Year				Semester				
	Periods /Week	Credits	Internal Marks	External Marks	Periods /Week	Credits	Internal Marks	External Marks	
	02	04	30	70	04	04	30	70	
	03	05	30	70					
Theory	03+1*	05							
	03+1*	06							
Practical	03	03	25	50	03	02	25	50	
	03+1*	02			06	04			
Practical / Drawing	06	06	30	70			30	70	
Open Electives/Audit courses /Soft skills courses	03					02**	100		
Mini Project						02		50	
Seminar						02	50		
Comprehensive Viva-voce						04		50	
Project	-	-				12	50	100	

[\*Tutorial,

\*\*Open Electives/Audit courses/Soft skills course credits will not be considered for the award of division. However all these courses have to be cleared through Internal evaluation by scoring minimum of 40%.The credits obtained in these courses will be taken in to account for award of degree.]

#### 4.0 Distribution and Weightage of Marks

- 4.1 The performance of the student in each semester / I year shall be evaluated subject wise with a maximum of 100 marks for theory and 75 marks for practical subject. In addition, mini-project, comprehensive viva, seminar shall be evaluated for 50 marks each and the project work shall be evaluated for 150 marks.
- 4.2 For theory subjects the distribution shall be 30 marks for Internal Evaluation (25 marks for internal test and 05 marks for assignments) and 70 marks for the End-Examination.
- 4.3 For the semester system, during the semester there shall be 2 tests for theory subjects. In each Internal test there shall be one compulsory (short answers) question and 3 descriptive questions. The duration of internal test will be for 2 hrs. First test to be conducted in 1 3 units and second test to be conducted in 4 6 units of each subject. For awarding of 25 Internal marks the performance of the student in two Internal examinations conducted one in the middle of the semester and the other towards the end of the semester giving a weightage of 0.75 for the better score and 0.25 for the other score will be considered.

There shall be two assignments (problem based) in each semester for award of 05 marks so that Internal component (marks) will be 30 marks (25 marks for Internal test+05 marks for assignments).

4.4 For the I year class which shall be on yearly basis, there shall be 3 tests. For awarding of 25 Internal marks the performance of the student in three Internal examinations conducted as per the schedule giving a weightage of 0.5 for the best score, 0.25 for better score and 0.25 for the other score will be considered. The distribution of syllabus for the conduct of Internal tests in the first year shall be as follows:

#### **Table 3: Units for Internal Tests**

	I Year	Semester
2 Units	First Internal test.	3 Units First Internal test.
3 Units	Second Internal test.	3 Units Second Internal test.
3 Units	Third Internal test.	

In a year there shall be at least three assignments and in each semester there shall be two assignments for the award of 5 marks.

- 4.5 In the case of open electives/Audit courses and soft skills subjects two Internal examinations shall be conducted one in the middle of the semester and the other at end of the semester for 70 marks and the marks scored by the student in these exams with a weightage of 0.75 for better score and 0.25 for the other score will be awarded as Internal marks for 70. The remaining 30 marks are based on the average marks scored in two assignments.
- 4.6 No makeup test for Internal examination or assignments will be conducted in any subject or practical.The student, who is absent for any test shall be deemed to have scored zero in that test.

#### 5.0 Question Paper Pattern:

- 5.1 Each Internal Test question paper shall contain 5 questions, of which the First question is compulsory and three questions are to be answered from the remaining four. Compulsory question carries 10 marks (It contains 5 questions of two marks no choice in first question). The remaining 3 questions carry 5 marks each.
- 5.2 The End Examination question paper will have 7 questions and students have to write 5 questions. However, the first question is compulsory and it consists of 7 short answer questions, each carrying 2 marks. The next 4 questions are to be answered from the remaining 6 questions and each carries 14 marks.
- 5.3 For practical subjects there shall be a continuous evaluation during the semester for 25 Internal marks and 50 End Examination marks. Of the 25 marks for Internal, 20 marks shall be awarded for day-to-day work and 5 marks to be awarded by conducting an Internal laboratory test. The End Examination shall be conducted by the teacher concerned and an external Examiner from other institutions.

- 5.4 For the subject having design and / or drawing, (such as Engineering Graphics, Machine Drawing etc ) and estimation, the distribution shall be 30 marks for Internal evaluation (15 marks for day-to-day work and 5 marks for Internal tests and 10 marks for assignments) and 70 marks for End Examination. There shall be two Internal tests in a Semester and the best of the two shall be considered for the award of marks for Internal tests. However in the I year class, there shall be three Internal tests and the average of best two will be taken into consideration for award of Internal marks.
- 5.5 The Engineering Drawing Practice Lab, wherever offered is to be treated as a theory subject. Evaluation method adopted for theory subjects shall be followed here as well.
- 5.6 There shall be mini-Project, in collaboration with an industry (wherever possible) of their specialization, to be taken up during the vacation(data collection, components etc) after III year II Semester examination and implementation/simulation shall be carried out in IV first semester during lab classes. Implementation or construction of mini project will be treated as laboratory. However, the mini project and its report shall be evaluated in IV year I Semester. The mini project shall be submitted in report form and should be presented before the committee, which shall be evaluated for 50 marks. The committee consists of an external Examiner, Head of the Department, the supervisor of mini project and a senior faculty member of the Department. There shall be 25 Internal marks for mini project which will be awarded based on the performance and involvement of the student during mini project period.
- 5.7 There shall be a seminar presentation in IV year II semester. For the seminar, the student shall collect the information on a specialized topic and prepare a technical report, showing his understanding over the topic, and submit to the Department, which shall be evaluated by the Departmental committee consisting of Head of the Department, seminar supervisor and a senior faculty member of the department. The seminar report shall be evaluated for 50 marks. There shall be no external examination for seminar.
- 5.8 There shall be a comprehensive viva voce examination at the end of IV year II semester for 50 marks which shall be conducted by HOD, senior faculty and external Examiner from other institute.
- 5.9 The project topic should be approved by Internal Department Committee (IDC). Out of total 150 marks for the project work, 50 marks shall be for Internal Evaluation and 100 marks for the End Semester Examination. The evaluation of project work shall be conducted at the end of the IV year II semester. The project viva voce examination will be conducted by committee consists of an external Examiner from other institute, Head of the Department and the supervisor of the project. The Internal evaluation for 50 marks shall be on the basis of two seminars given by each student on the topic of the project. The Internal evaluation of the project work for 50 marks shall be conducted by committee consists of an external evaluation for 50 marks shall be on the basis of two seminars given by each student on the topic of the project. The Internal evaluation of the project work for 50 marks shall be conducted by committee consists of an external evaluation of the project work for 50 marks shall be conducted by committee consists of head of the Department or his nominee, senior faculty member and the supervisor of project.

S.No	Nature of subject	Marks		Type of examination and mode of assessment Scheme of Examination			
		70	End (Ex	Examination ternal evaluation)	End Examination in theory subjects will be for 70 marks.		
1	Theory	30	25	Internal examinations (Internal evaluation)	These 25 marks are awarded to the students based on the performance in three(yearly) or two(semester) Internal examinations with a weightage of 0.5 for best score, 0.25 for better score, 0.25 for other score (yearly) and 0.75 for better score and 0.25 for the other score(semester) respectively.		
			05	Assignments (Internal evaluation)	Average of two assignments each of 05 marks		
		50	End eval	lab examination (External luation)	This End Examination in practical subjects will be for a maximum of 50 marks.		
2	practical	25	20	Internal evaluation	Day-to-day performance in lab experiments and record		
	25	05	Internal evaluation	Internal lab examination at the end of year/semester			
3	Mini Project	50	End (Ex	Examination ternal evaluation)	This End Examination in miniproject will be for a maximum of 50 marks.		
5	Willin Project	25	Inte	rnal evaluation	Day-to-day performance in executing mini project.		
4	Seminar	50	Inte	rnal evaluation	Based on the performance in two seminars during semester		
5	Comprehensive Viva	50	Exte	ernal evaluation	This end viva voce examinations in all the subjects for 50 marks		
6	Project work	100	Exte	ernal evaluation	This end viva voce in project work for 100 marks		
		50	Inte	rnal evaluation	These 50 marks are awarded based on the performance of the student which includes attendance and regularity		
7	Open electives/ Audit courses/ softskills	70	Inte	rnal evaluation	These 70 marks are awarded to the students based on the performance of two Internal examinations with a weightage of 0.75 for better score and 0.25 for the other score		
	STORING	30	Inte	rnal evaluation	Based on the two assignments		

#### Table4: Distribution of weightages for examination and evaluation:

#### 6.0 Attendance Requirements:

- 6.1 The student shall be eligible to appear for End Examinations of the semester/ year if he acquires a minimum of 75% of attendance in aggregate of all the subjects of that semester/year.
- 6.2 Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in a semester / year may be granted by the College Academic Committee.
- 6.3 The student will not be promoted to the next semester unless he satisfies the attendance requirement of the present semester / year, as applicable. They may seek re-admission for that semester / year when offered next.
- 6.4 Shortage of Attendance below 65% in aggregate shall in <u>NO</u> case be condoned.
- 6.5 Students whose shortage of attendance is not condoned in any semester / year are not eligible to take their End Examination of that class and their registration shall stand cancelled.
- 6.6 The stipulated fee shall be payable towards Condonation of shortage of attendance.

#### 7.0 Minimum Academic Requirements:

The following academic requirements have to be satisfied in addition to the attendance

requirements mentioned in item no.6

- 7.1 The student shall be deemed to have satisfied the minimum academic requirements and earned the credits allotted to each theory or practical or design or drawing subject or project if he secures not less than 35% of marks in the End Examination and he has to score minimum of 40% marks from Internal and external exam marks put together to clear the subject.
- 7.2 The student shall be promoted from II to III year only if he fulfils the academic requirement of securing 40 out of 80 credits from one regular and one supplementary examinations of I year, and one regular examinations of II year I semester irrespective of whether the candidate takes the examination or not.
- 7.3 The student shall be promoted from third year to fourth year only if he fulfils the academic requirements of securing total 72 out of 144 credits from the following examinations, whether the candidate takes the examinations or not.
  - a) Two regular and two supplementary examinations of I year.
  - b) Two regular and one supplementary examinations of II year I semester.
  - c) One regular and one supplementary examinations of II year II semester.
  - d) One regular examination of III year I semester.

7.4 The student shall register and put up minimum attendance in all 240 credits and earn the 232 credits. Marks obtained in the best 220 credits (excluding the credits obtained in audit courses/soft skills and open electives) shall be considered for the calculation of percentage of marks.

7.5 Students who fail to earn 232 credits as indicated in the course structure including compulsory subjects as indicated in Table-1 within eight academic years from the year of their admission shall forfeit their seat in B.Tech course and their admission shall stand cancelled.

#### **Table 5: Promotion rules**

Promotion from	Total credits to register	Total credits to be earned for promotion
II year to III year	80	40
III year to IV year	144	72

#### 8.0 Course pattern:

- 8.1 The entire course of study is of four academic years. The first year shall be on yearly pattern and the second, third and fourth years shall be on semester pattern.
- 8.2 The student is eligible to appear for the End Examination in a subject, but absent at it or has failed in the End Examination may appear for that subject at the supplementary examination.

Year	Semester	No.of Subjects	No.of Audit subjects	Number of Labs	Number of Labs Total creation	
First year		O7 {ENG-4,EP-5,EC-5,M1- 5, MM/EM-5,CDS- 6,ED-6}	00	04	1X4=04 4X5=20 2X6=12 4X3=12	48
Second year	First	06	01	03	6X4=24 1X2=02 3x2=06	32
	Second	06	01	03	6X4=24 1X2=02 3x2=06	32
	First	06	01	03	6X4=24 1X2=02 3x2=06	32
Third year	Second	06	01	03	6X4=24 1X2=02 3x2=06	32
	First	06	01	02 Mini project	6X4=24 1X2=02 3x2=06	32
Fourth year	Second 03		01	Seminar Comprehensive Viva Project Viva	3x4 =12 1X2=02 1X2=02 1X4=04 1X12=12	32
				GRA	AND TOTAL	240

#### Table: 6 Course pattern

#### 9.0 Award of Class:

After the student has satisfied the requirements prescribed for the completion of the programme and is eligible for the award of B.Tech. Degree he shall be placed in one of the following four classes:

#### Table 7: Award of Division

Class Awarded	% of marks to be secured	
First Class with Distinction	70% and above	From the aggregate marks secured
First Class	Below 70% but not less than 60%	audit courses/ open elective/soft
Second Class	Below 60% but not less than 50%	skills credits.
Pass Class	Below 50% but not less than 40%	

(The marks in Internal evaluation and End Examination shall be shown separately in the marks memorandum)

#### **10.0 Supplementary Examinations:**

Apart from the regular End Examinations the institute may also schedule and conduct supplementary examinations for all subjects for the benefit of students with backlogs. Such students writing supplementary examinations as supplementary candidates may have to write more than one examination per day.

#### 11.0 Transcripts:

After successful completion of prerequisite credits for the award of degree a Transcript containing performance of all academic years will be issued as a final record. Duplicate transcripts will also be issued if required after the payment of requisite fee and also as per norms in vogue.

#### 12.0 Rules of Discipline:

- 12.2 Any attempt by any student to influence the teachers, Examiners, faculty and staff of controller of Examination for undue favours in the exams, and bribing them either for marks or attendance will be treated as malpractice cases and the student can be debarred from the college.
- 12.3 When the student absents himself, he is treated as to have appeared and obtained zero marks in that subject(s) and grading is done accordingly.
- 12.4 When the performance of the student in any subject(s) is cancelled as a punishment for indiscipline, he is awarded zero marks in that subject(s).
- 12.4.1 When the student's answer book is confiscated for any kind of attempted or suspected malpractice the decision of the Examiner is final.

#### 13.0 Minimum Instruction Days:

The minimum instruction days for each semester / I year shall be 95/180 clear instruction days excluding the days allotted for tests/examinations and preparation holidays declared if any.

#### 14.0 Amendment of Regulations:

The college may, from time to time, revise, amend or change the regulations, scheme of examinations and syllabi. However the academic regulations of any student will be same throughout the course of study in which the student has been admitted.

#### 15.0 Transfers

There shall be no branch transfers after the completion of admission process.

#### 16.0 General:

- 16.2 The Academic Regulation should be read as a whole for the purpose of any interpretation.
- 16.3 In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Academic Council is final.
- 16.4 The Institute may change or amend the academic regulations or syllabi at any time and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the Institute.
- 16.5 Where the words "he", "him", "his", occur in the regulations, they include "she", "her", "hers".

#### ACADEMIC REGULATIONS FOR B.TECH (LATERAL ENTRY SCHEME)

(Effective for the students getting admitted into II year from the Academic Year 2011-2012 on wards)

- **1.0** The Students have to acquire 184 credits out of 192 from II to IV year of B.Tech. Program (Regular) for the award of the degree.
- **2.0** Students, who fail to fulfil the requirement for the award of the degree in 6 consecutive academic years from the year of admission, shall forfeit their seat.
- **3.0** The same attendance regulations are to be adopted as that of B.Tech. (Regular).

#### 4.0 **Promotion Rule:**

The student shall be promoted from third year to fourth year only if he fulfils the academic requirements of 48 out of 96 credits from the examinations.

- a) Two regular and one supplementary examinations of II year I semester.
- b) One regular and one supplementary examinations of II year II semester.
- c) One regular examination of III year I semester.

#### 5.0 Award of Class:

After the student has satisfied the requirements prescribed for the completion of the program and is eligible for the award of B.Tech. Degree he shall be placed in one of the following four classes: The marks obtained in the best 172 credits will be considered for the calculation of percentage and award of class.

#### Table 1: Award of Division

Class Awarded	% of marks to be secured	
First Class with Distinction	70% and above	From the aggregate marks
First Class	Below 70% but not less than 60%	(i.e. II year to IV year)
Second Class	Below 60% but not less than 50%	excluding audit/open electives/soft skills
Pass Class	Below 50% but not less than 40%	

(The marks in Internal evaluation and End Examination shall be shown separately in the marks memorandum)

# 6.0 All other regulations as applicable for B. Tech. Four-year degree course (Regular) will hold good for B.Tech. (Lateral Entry Scheme)

#### RGM-R-2010

#### RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG & TECHNOLOGY, NANDYAL AUTONOMOUS COMPUTER SCIENCE AND ENGINEERING

# **COURSE STRUCTURE**

# (Common to Branches: ECE, EEE, EIE, CSE & IT)

# I B.Tech

	G 11 4	Sche instr period	me of uction ls/week	Cradita	Scheme of Examination			
Code	Subject	Theory	Practical	Credits	Internal Marks	External Marks	Total Marks	
Theory								
A0001101	English	3+1*	-	4	30	70	100	
A0002101	Engineering Physics	3+1*	-	5	30	70	100	
A0003101	Engineering Chemistry	3+1*	-	5	30	70	100	
A0004101	Mathematics – I	3+1*	-	5	30	70	100	
A0005101	Mathematical Methods	3+1*	-	5	30	70	100	
A0501101	C Programming and Data Structures	3+1*	-	6	30	70	100	
A0301101	Engineering Drawing	3+1*	-	6	30	70	100	
Practical								
A0591101	C Programming and Data Structures Lab	-	3	3	25	50	75	
A0391101	Engineering and IT Workshop	-	3	3	25	50	75	
A0091101	Engineering Physics Lab and Engineering Chemistry Lab	-	3	3	25	50	75	
A0092101	English Language Communication Skills Lab	-	3	3	25	50	75	
	Total	28	12	48	310	690	1000	

II B.TECH, I-SEMESTER										
Subject		H	ours/ Week			Marks				
Code	Subject	Theory	Tutorial	Lab	Credits	Internal	External	Total		
A0001103	Probability and Statistics	3	1	-	4	30	70	100		
A0401103	Electronic Devices and Circuits	3	1	-	4	30	70	100		
A0502103	Mathematical Foundation of Computer Science	3	1	-	4	30	70	100		
A0503103	Advanced Data Structures through C++	3	1	-	4	30	70	100		
A0010103	Environmental Studies	3	1	-	4	30	70	100		
A0204103	Basic Electrical Engineering	3	1	-	4	30	70	100		
A0009103	Corporate Management Skills(Audit course)	3	-	-	2	30	70 (Internal Evaluation)	100		
A0592103	Advanced Data Structures through C++ lab	-	-	3	2	25	50	75		
A0491103	Electronic Devices and Circuits Lab	-	-	3	2	25	50	75		
A0292103	Basic Electrical Engineering Lab	-	-	3	2	25	50	75		
	Contact Periods / Week	21	6	9	32	285	640	925		

#### COURSE STRUCTURE II B.TECH, I-SEMESTER

#### **II B.TECH, II-SEMESTER**

Subject		H	ours/ Week		<b>O</b> 14	Marks		
Code	Subject	Theory	Tutorial	Lab	Credits	Internal	External	Total
A0504104	Digital Logic Design	3	1	-	4	30	70	100
A0505104	Computer Organization	3	1	-	4	30	70	100
A0506104	Object Oriented Programming	3	1	-	4	30	70	100
A0507104	Formal Languages and Automata Theory	3	1	-	4	30	70	100
A0508104	Database Management Systems	3	1	-	4	30	70	100
A0509104	Unix and Shell Programming	3	1	-	4	30	70	100
A0007103	Aptitude Arithmetic Reasoning & Comprehension (Audit course)	3	-	-	2	30	70 (Internal Evaluation)	100
A0593103	Unix and Shell Programming Lab	-	-	3	2	25	50	75
A0594104	Object Oriented Programming Lab	-	-	3	2	25	50	75
A0595104	DBMS Lab	-	-	3	2	25	50	75
	Contact Periods / Week	21	6	9	32	285	640	925

Subject		H	ours/ Week		Cara litta	Marks			
Code	Subject	Theory	Tutorial	Lab	Credits	Internal	External	Total	
A0510105	Operating Systems	3	1	-	4	30	70	100	
A0511105	Computer Networks	3	1	-	4	30	70	100	
A0013105	Managerial Economics & Financial Accounting	3	1	-	4	30	70	100	
A0512105	Compiler Design	3	1	-	4	30	70	100	
A0513105	Software Engineering	3	1	-	4	30	70	100	
A0514105	C# and .Net	3	1	-	4	30	70	100	
A0515105	Introduction to Oracle 9i-Part- 1(Audit course)	3	-		2	30	70 (Internal Evaluation)	100	
A0596105	Operating Systems Lab	-	-	3	2	25	50	75	
A0597105	C# and .Net Lab	-	-	3	2	25	50	75	
A0093105	Professional Communication and Soft Skills Lab	-	-	3	2	25	50	75	
	Contact Periods / Week	21	6	9	32	285	640	925	

#### COURSE STRUCTURE III B.TECH, I-SEMESTER

#### III B.TECH, II-SEMESTER

Subject Code	Subject	Hours/ Week			<b>a u</b>	Marks		
		Theory	Tutorial	Lab	Credits	Internal	External	Total
A0516106	Object Oriented Analysis And Design	3	1	-	4	30	70	100
A0517106	Computer Graphics	3	1	-	4	30	70	100
A0518106	Design And Analysis Of Algorithms	3	1	-	4	30	70	100
A0519106	Principles Of Programming Languages	3	1	-	4	30	70	100
A0520106	Software Testing Methodologies And Tools	3	1	-	4	30	70	100
A0421106	Microprocessors and Interfacing	3	1	-	4	30	70	100
A0521106	Introduction to Oracle 9i:SQL Part-2 (Audit course)	3	-	-	2	30	70 (Internal Evaluation)	100
A0598106	Software Testing Tools Lab	-	-	3	2	25	50	75
A0483106	Microprocessors and Interfacing Lab	-	-	3	2	25	50	75
A0599106	Design and Analysis of Algorithms Lab	-	-	3	2	25	50	75
	Contact Periods / Week	21	6	9	32	285	640	925

#### COURSE STRUCTURE IV B.TECH, I-SEMESTER

Subject Code	Subject	Hours/ Week				Marks		
		Theory	Tutorial	Lab	Credits	Internal	External	Total
A0522107	Advanced Computer Architecture	3	1	-	4	30	70	100
A0523107	Advanced JAVA Programming	3	1	-	4	30	70	100
A0524107	Data Warehousing & Mining	3	1	-	4	30	70	100
A0525107	SAP ABAP	3	1	-	4	30	70	100
	Elective-I	3	1	-	4	30	70	100
	Elective-II	3	1	-	4	30	70	100
A0533107	The Art of Computer Programming (Audit Course)	3	-		2	30	70 (Internal Evaluation)	100
A0581107	SAP ABAP Lab	-	-	3	2	25	50	75
A0582107	Advanced JAVA Programming Lab	-	-	3	2	25	50	75
A0583107	Industry Oriented Mini Project	-	-	3	2	25	50	75
	Contact Periods / Week	21	6	9	32	285	640	925

#### **IV B.TECH, II-SEMESTER**

Subject Code	Subject	Hours/ Week			<b>A 1</b> <sup>1</sup>	Marks		
		Theory	Tutorial	Lab	Credits	Internal	External	Total
A0012105	Management Science	3	1	-	4	30	70	100
	Elective-III	3	1	-	4	30	70	100
	Elective-IV	3	1	-	4	30	70	100
A1233107	Man Management (Audit Course)	3	-	-	2	30	70 (Internal Evaluation)	100
A0584108	Project Work	-	-	-	12	50	100	150
A0585108	Seminar	-	-	-	2	50	-	50
A0586108	Comprehensive Viva-Voce	-	-	-	4	-	50	50
	Contact Periods / Week	12	3	-	32	220	430	650

#### **ELECTIVES**

#### Elective-I

- 1. A0526107 Software Project Management
- 2. A0426107 Digital Image Processing
- 3. A0527107 Multimedia and Application Development
- 4. A0528107 Web Development using PHP

#### Elective-II

- 1. A0529107 Network Programming
- 2. A0530107 Mobile and Pervasive Computing
- 3. A0531107 Distributed Systems
- 4. A1232107 Cloud Computing

# Elective-III

- 1. A0534108 Design Patterns
- 2. A1219106 Embedded Computing
- 3. A0535108 Distributed Databases
- 4. A0536108 Web Services

#### Elective-IV

- 1. A1216105 E-Commerce
- 2. A0537108 Virtual Reality
- 3. A1225106 Human Computer Interaction
- 4. A0538108 Object Oriented Software Engineering

#### RGM-R-2010

#### RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG & TECHNOLOGY, NANDYAL AUTONOMOUS COMPUTER SCIENCE AND ENGINEERING I B.TECH. (REGULAR, 2010-11) (Common to all Branches)

# For Branches: E.C.E, E.E.E, E.I.E, C.S.E, I.T, M.E, C.E.

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#### (A0001101) ENGLISH

#### 1. INTRODUCTION :

The sweeping changes in the world have elevated English to the status of a tool of global communication and transformed it into e-English. The syllabus has been drafted to improve the competence of students in communication in general and language skills in particular. The books prescribed serve as students' handbooks.

The teacher should focus on the skills of reading, writing, listening and speaking while using the prescribed text and exercises. The classes should be interactive. The students should be encouraged to participate in the classroom proceedings and also to write short paragraphs and essays. The main aim is to encourage two way communications in place of the one-sided lecture.

The text for non-detailed study is meant for extensive reading by the students. They may be encouraged to read some select topics on their own, which could lead into a classroom discussion. In addition to the exercises from the texts done in the class, the teacher can bring variety by using authentic materials such as newspaper articles, advertisements etc.

#### 2. OBJECTIVES:

- a) To improve the language proficiency of the students in English with an emphasis on LSRW skills.
- b) To equip the students to study academic subjects with greater facility through theoretical and practical components of the syllabus.
- c) To develop study skills as well as communication skills in formal and informal situations.

#### 3. SYLLABUS:

#### Listening Skills:

#### Objectives

- 1. To enable students to develop their listening skills so that they may appreciate its role in the LSRW skills approach to language and improve their pronunciation.
- 2. To equip students with necessary training in listening so that they can comprehend the speech of people of different backgrounds and dialects.

Students should be given practice in listening and identifying the sounds of English language and to mark stress, right intonation in connected speech.

- Listening for general content.
- Intensive listening.
- Listening to fill up information.
- Listening for specific information .

#### **Speaking Skills:**

#### **Objectives**

- 1. To make students aware of the role of ability to speak fluent English and its contribution to their success.
- 2. To enable students to express themselves fluently and appropriately in social and professional contexts.
- Oral practice

Describing objects/situations/people

• Role play – Individual/Group activities

(Using exercises from all units of the prescribed text)

• Just A Minute (JAM) Sessions.

## COMPUTER SCIENCE AND ENGINEERING

#### **Reading Skills:**

#### Objectives

- 1. To develop an awareness in the students about the significance of silent reading and comprehension.
- To develop the ability to guess the meanings of words from context and grasp the overall message of 2. the text, draw inferences etc.
- Skimming the text
- Identifying the topic sentence
- Understanding the gist of an argument
- Understanding discourse features
- Inferring lexical and contextual meaning
- Recognizing coherence/sequencing of sentences

The students shall be trained in reading skills using the prescribed text for detailed study. They shall be examined in reading and answering questions using 'unseen' passages which may be taken from the nondetailed text or other authentic texts, such as magazines/newspaper articles.

#### Writing Skills:

#### Objectives

- 1. To develop an awareness in the students the skill to write exact and formal writing.
- 2. To equip them with the components of different forms of writing.
- Writing sentences • Use of appropriate vocabulary
- Paragraph writing · Coherence and cohesiveness
- Narration / description • Note Making
- Formal and informal letter writing • Editing a passage •

#### **TEXTBOOKS PRESCRIBED:** 4.

In order to improve the proficiency of the student in the acquisition of the four skills mentioned above, the following texts and course content, divided into Eight Units, are prescribed:

For Detailed study: ENJOYING EVERYDAY ENGLISH, Sangam Books (India) Pvt Ltd Hyderabad, 2009

For Non-detailed study: INSPIRING LIVES, Maruti Publications, Guntur, 2009

#### UNIT-I

- a) Heaven's Gate from ENJOYING EVERYDAY ENGLISH.
- b) Mokshagundam Visvesaraya from INSPIRING LIVES

#### UNIT -II

- a) Sir C.V.Raman from ENJOYING EVERYDAY ENGLISH.
- b) Mother Teresa from **INSPIRING LIVES.**

#### **UNIT -III**

- a) The Connoisseur from ENJOYING EVERYDAY ENGLISH.
- b) Dr. Amartya Kumar Sen from INSPIRING LIVES.

#### **UNIT-IV**

- a) The Cuddalore Experience from ENJOYING EVERYDAY ENGLISH.
- b) Gertrude Elion from INSPIRING LIVES.

#### UNIT -V

- a) Bubbling Well Road from ENJOYING EVERYDAY ENGLISH.
- b) Vishwanathan Anand from INSPIRING LIVES.

#### UNIT-VI

- a) Odds against Us from ENJOYING EVERYDAY ENGLISH.
- b) Charlie Chaplin from **INSPIRING LIVES.**

#### UNIT – VII

a) Exercises on Reading and Writing Skills, Reading Comprehension, Letter writing, Report writing

#### UNIT – VIII

Exercises on Remedial Grammar covering Common errors in English, Subject-Verb agreement, Use of Articles and Prepositions, Active/Passive Voice, Reported speech, Tenses Vocabulary development covering Synonyms & Antonyms, one-word substitutes, prefixes & suffixes, Idioms & phrases, words often confused.

**Evaluation**: The question paper shall contain two parts, Part A containing questions from Units I- VI and Part B containing questions from units VII & VIII. The student is required to answer five full questions choosing at least one from Part B.

#### **REFERENCES:**

- 1. Technical Communication, Principle and Practice, Meenakshi Raman and Sangita Sharma, OUP, 2009
- 2. Essential Grammar in Use, (with CD) 3<sup>rd</sup> edn, Cambridge University Press, 2009.
- 3. Resumes and Interviews, M.Ashraf Rizvi, Tata Mcgraw Hill, 2009.
- 4. Everyday Dialogues in English by Robert J. Dixson, Prentice-Hall of India Ltd., 2006.
- 5. Communication Skills for Technical Students, T.M.Farhathullah, Orient Blackswan, 2008.
- 6. Developing Communication Skills, 2<sup>nd</sup> edn. by Krishna Mohan & Meera Banerji, Macmillan, 2009.
- 7. English for Technical Communication, Vol. 1 & 2, by K. R. Lakshmi Narayanan, Sci tech. Publications.
- 8. Basic Communication Skills for Technology, Andrea J Ruthurford, Pearson Education, Asia.
- 9. Longman Dictionary of Contemporary English with DVD, Pearson Longman.

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# COMPUTER SCIENCE AND ENGINEERING

I B.TECH. (REGULAR, 2010-11) (Common to all Branches)

For Branches: E.C.E, E.E.E, E.I.E, C.S.E, I.T, M.E, C.E.

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#### (A0002101) ENGINEERING PHYSICS

UNIT I OPTICS:

Interference - Interference in thin films by reflection - Newton's rings - Diffraction - Fraunhofer diffraction at a single slit - Fraunhofer diffraction at a double slit - Diffraction grating - Grating spectrum - polarization - Nicol prism - Theory of circular and elliptical polarized light - Quarter and half wave plates.

**UNIT II CRYSTAL STRUCTURES AND X-RAY DIFFRACTION:** Introduction -Space lattice -Basis - Unit cell - Lattice parameter - Bravais lattices - Crystal systems - Structure Simple cubic - Body Centered Cubic - Face Centered Cubic crystals - Miller indices of planes and directions in crystals – Separation between successive (h k l) planes - X-ray diffraction by crystal planes - Bragg's law – Laue and Powder methods.

#### UNIT III PRINCIPLES OF QUANTUM MECHANICS & ELECTRON THEORY:

Waves and Particles - de- Broglie's hypothesis - Heisenberg's uncertainity principle - Schroedinger's one dimensional wave equation (Time Independent) - Particle in a one dimensional potential box - Energy levels - Fermi-Dirac distribution and effect of Temperature(qualitative treatment only) - Scattering - Source of electrical resistance - Kronig-Penney model (qualitative treatment only) - energy bands - metals, semi conductors & insulators.

#### UNIT IV SEMICONDUCTORS:

Intrinsic and extrinsic semiconductors - Law of mass action - Continuity equation - Drift & diffusion - Einstein's relation - Hall effect - Direct & indirect band gap semiconductors - p-n junction - Band diagram of p-n junction diode - Diode Equation-LED, LCD & Photo diode.

#### UNIT V MAGNETIC PROPERTIES:

Introduction - Origin of magnetic moment - Classification of magnetic materials - Dia, Para , Ferro, anti-Ferro and Ferri magnetism - Hysteresis - Soft and hard magnetic materials - Magnetic bubbles memory.

**DIELECTRIC PROPERTIES:** Introduction - Dielectric constant - Electronic, Ionic and Orientation polarizations (qualitative treatment only) - Local field – Clausius - Mossotti equation –Frequency dependence of polarisability (qualitative treatment only) - Ferro electricity- BaTio<sub>3</sub>.

#### UNIT VI SUPERCONDUCTIVITY:

General properties - Meissner effect - Penetration depth - Type I and Type II superconductors - Flux quantization - Josephson effects - BCS theory - Applications of superconductors.

**LASERS:** Introduction - Characteristics of laser - Spontaneous and stimulated emission of radiation - Einstein's coefficients - Population inversion - Ruby Laser - Helium-Neon Laser - GaAs Laser - Applications of Lasers in Industry, Scientific and Medical fields.

#### UNIT VII FIBER OPTICS:

- Principle of optical fiber - Acceptance angle and Acceptance cone - Numerical aperture - Types of Optical fibers and refractive index profiles - Optical fiber communication systems - Application of optical fibers.

#### UNIT VIII NANOMATERIALS:

Introduction - Basic principles of nano materials - Fabrication of nano materials - ball milling - plasma arching - Chemical vapour deposition method - sol-gel methods - properties of nano materials - carbon nano tubes - properties and applications of carbon nano tubes - Applications of nano materials.

#### **TEXT BOOKS:**

- 1. Engineering Physics by V. Rajendran & K.Thyagarajan, Tata McGraw-Hill Publishing Co. Ltd.
- 2. Engineering Physics by M.R.Srinivasan New Age Publications.
- 3. Engineering Physics by M.N.Avadhanulu, S.Chand Publications, New Delhi.

#### **REFERENCES:**

- 1. Physics Volume 2, by Halliday, Resnick and Krane; John Wiley India.
- 2. Solid State Physics by C.Kittel, Wiley India.
- 3. Engineering Physics by Mittal, I.K.International.
- 4. Introduction to Nanoscience & Nano Technology by K.K Chattopadhya A.N. Banarjee, Prentice Hall of India Pvt. Ltd.

# COMPUTER SCIENCE AND ENGINEERING

I B.TECH. (REGULAR, 2010-11)

(Common to all Branches) For Branches: E.C.E, E.E.E, E.I.E, C.S.E, I.T, M.E, C.E.

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#### (A0003101) ENGINEERING CHEMISTRY

#### UNIT I

**Water:** Sources of Water, Types of impurities in Water, Hardness of Water - Temporary and Permanent hardness, Units, Estimation of hardness by EDTA Method, Analysis of Water - Dissolved Oxygen, Disadvantages of Hard Water, Problems on hardness of water, Methods of Treatment of Water for Domestic Purpose - Sterilisation: Chlorination, Ozonisation.

**Water for Industrial purpose**: Water for Steam Making, Boiler Troubles - Carry Over (Priming and Foaming), Boiler Corrosion, Scales and Sludges, Caustic Embrittlement, Water Treatment - Internal Treatment - Colloidal, Phosphate, Calgon, Carbonate, Sodium aluminates Conditioning of Water. External Treatment - Ion- Exchange Process; Demineralization of Brakish Water - Reverse Osmosis.

#### UNIT II

**Science of Corrosion:** Definition, Types of corrosion: Dry Corrosion, (Direct Chemical attack), Wet Corrosion, Theories of Corrosion and Mechanism, Electro Chemical Theory of Corrosion, Galvanic Series, Galvanic Corrosion, Concentration Cell Corrosion, Oxygen absorption type, Factors Influencing Corrosion, Control of Corrosion - Cathodic Protection - Sacrificial anode and Impressed Current, Uses of Inhibitors, Electro Plating and Electro less plating (copper and nickel).

#### UNIT III

**Polymers:** Polymerization Reactions - Basic concepts, Types of Polymerization - Addition and Condensation Polymerization, Plastics - Thermosetting and Thermoplastics, Composition, Properties and Engineering Uses of the Following: Teflon, Bakelite, Nylon, Rubber - Processing of Natural Rubber and Compounding, Elastomers -Buna S, Buna N, Polyurethane Rubber; Silicone Rubber, Conducting Polymers, Synthesis and applications of Polyacetylene and Poly aniline Liquid Crystals definition, properties, suitable examples and Engineering Applications.

#### UNIT IV

Chemistry of nano materials: Nano materials definition, properties and applications.

**Explosives and Propellants**: Explosives, Classification, precautions during storage, blasting fuses, important explosives, Rocket propellants, classification of propellants.

**Lubricants :** Principles and function of lubricants - Classification and properties of lubricants - Viscosity, flash and fire points, cloud and pour points, aniline point, Neutralization Number and Mechanical Strength.

#### UNIT V

**Electro Chemistry:** Conductance - Equivalent Conductance - Molecular Conductance, Conductometric Titrations - Applications of Conductivity Measurements.

**Electrochemical Cells:** Measurement of EMF, Standard electrode potential, concentration cells, batteries (Ni–Cd cell), Lithium batteries, Fuel cell: hydrogen oxygen fuel cell and methanol fuel cell

Insulators – Definition, Properties and Characteristics of Insulating Materials, Engineering Applications.

#### **UNIT VI:**

Phase rule: Definition, Terms involved in Phase Rule and Phase rule equation. Phase diagrams - one component system (water system), two component system (lead- silver system) Eutectics, heat treatment based on iron-carbon phase diagram, hardening, annealing.

#### **UNIT VII:**

**Fuels and Combustion:** Definition and Classification of fuels, Solid, liquid & gaseous fuels, Characteristics of a good fuel, Metallurgical Coke - Characteristics & Manufacture (Otto-Halfmann),

Petroleum - Refining - Synthetic Petrol, Calorific Value & its determination (Bomb Calorimeter - Junker's Gas Calorimeter). Combustion: Flue gas analysis by Orsat's apparatus.

#### UNIT VIII:

#### **Building Materials:**

Cement: composition of Portland cement, analysis, setting & hardening of cement (reactions). **Refractories:** Definition, Classification With Examples; Criteria of a Good Refractory Material; Causes for the failure of a Refractory Material.

#### TEXT BOOKS

- 1. Chemistry for Engineers Prof. K.N.Jayaveera, Dr.G.V.Subba Reddy and Dr.C.Ramachandraiah, McGraw Hill Higher Education Hyd., 2009.
- 2. A text book of Engineering Chemistry by S.S. Dara, S.Chand & Co, New Delhi (2008).
- 3. Text book of Engineering Chemistry by Jain & Jain, Dhanpat Rai Publishing Company, 15<sup>th</sup> edition New Delhi (2008).

#### REFERENCE

- 1. Engineering Chemistry Dr. K. B. Chandrasekhar, Dr. U.N. Dash, Dr. Sujatha Mishra, Scitech Publications (India) Pvt. Limited, Hyderabad. 2009.
- 2. Fuel Cells principles and applications by B.Viswanath, M.Aulice Scibioh Universities press.
- 3. Chemistry of Engineering Materials by C.V. Agarwal, Tara Publication, Varanasi.2008.
- 4. Physical Chemistry Glasston & Lewis.
- 5. Engineering Chemistry (Vol.1&2) by J C Kuriacose and J. Rajaram, Tata McGraw-Hill Co, New Delhi (2004).
- 6. Applied Chemistry: A Text Book for chemistry for Engineers & Technologists, G.D. Gesser, Springer, 2000

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# COMPUTER SCIENCE AND ENGINEERING

I B.TECH. (REGULAR, 2010-11) (Common to all Branches)

For Branches: E.C.E, E.E.E, E.I.E, C.S.E, I.T, M.E, C.E.

#### (A0004101) MATHEMATICS – I

#### UNIT I

Differential equations of first order and first degree - Exact, linear and Bernoulli equations. Applications to Newton's law of cooling, law of natural growth and decay, orthogonal trajectories.

#### UNIT II

Non-homogeneous linear differential equations of second and higher order with constant coefficients with RHS term of the type  $e^{ax}$ , Sin ax, cos ax, polynomials in x,  $e^{ax} V(x)$ , xV(x), method of variation of parameters.

#### UNIT III

Rolle's Theorem - Lagrange's Mean Value Theorem - (excluding proof). Simple examples of Taylor's and Maclaurin's Series - Functions of several variables - Jacobian - Maxima and Minima of functions of two variables, Lagrangian method of Multipliers with three variables only.

#### UNIT IV

Raidus of Curvature - Curve tracing - Cartesian, polar and parametric curves. Applications of integration to lengths, volume and surface area of solids of revolution in Cartesian and polar coordinates

#### UNIT V

Multiple integral: Double and triple integrals - Change of Variables - Change of order of integration.

#### UNIT VI

Laplace transform of standard functions -Inverse transform - First shifting Theorem, Transforms of derivatives and integrals - Unit step function - Second shifting theorem - Dirac's delta function - Convolution theorem - Laplace transform of Periodic function.

#### UNIT VII

Differentiation and integration of Laplace transform - Application of Laplace transforms to ordinary differential equations of first and second order.

#### UNIT VIII

Vector Calculus: Gradient – Divergence - Curl and Their properties; Vector integration - Line integral - Potential function - Area, Surface and volume integrals, Vector integral theorems: Green's theorem - Stoke's and Gauss's Divergence Theorem (excluding their proof), Verification of Green's - Stoke's and Gauss's Theorems.

#### TEXT BOOKS

- 1. A Text Book of Engineering Mathematics, Vol 1, T.K.V. Iyengar, B. Krishna Gandhi and Others S. Chand & Company.
- 2. A Text Book of Engineering Mathematics, C. Sankaraiah, V.G.S. Book Links.
- 3. A Text Book of Engineering Mathematics-1,E. Rukmangadachari, E. Keshava Reddy, Pearson Education.

#### REFERENCES

- 1. A Text Book of Engineering Mathematics, B.V. Ramana, Tata Mc Graw Hill.
- 2. A Text Book of Engineering Mathematics, Thomson Book Collection.
- 3. A Text Book of Advanced Engineering Mathematics A Computer Approach, N.Bail, M.Goyal & C.Watkins.
- 4. Engineering Mathematics, Sarveswara Rao Koneru, Universities Press.

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#### COMPUTER SCIENCE AND ENGINEERING I B.TECH. (REGULAR, 2010-11)

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#### (A0302101) MATHEMATICAL METHODS

#### UNIT I

**Matrices:** Elementary row transformations – Rank – Echelon form, normal form – Solution of Linear System of Homogeneous and Non Homogeneous equations – Direct Methods – Gauss Elimination, Gauss Jordan methods.

Eigen Values, Eigen vectors – Properties. Cayley – Hamilton Theorem – Inverse and powers of a matrix by Cayley–Hamilton theorem – Diagonolization of matrix. Calculation of powers of matrix.

#### UNIT II

Real matrices – Symmetric, Skew – Symmetric, orthogonal matrices Linear Transformation – Orthogonal Transformation. Complex matrices: Hermitian, Skew-Hermitian and Unitary matrices – Eigen values and Eigen vectors and their properties. Quadratic forms – Reduction of quadratic form to canonical form and their nature.

#### UNIT III

Solution of Algebraic and Transcendental Equations: Introduction – The Bisection Method – The Method of False Position – The Iteration Method – Newton-Raphson Method.

**Interpolation:** Introduction – Finite differences – Forward Differences – backward Differences –Newton's forward and backward difference formulae for interpolation – Lagrange's Interpolation formula.

#### UNIT IV

Curve fitting: Fitting a straight line – Second degree curve – Exponential curve-Power curve by method of least squares. Numerical Differentiation and Integration – Trapezoidal rule – Simpson's 1/3 Rule – Simpson's 3/8 Rule.

#### UNIT V

Numerical solution of Ordinary Differential equations: Solution by Taylor's series-Picard's Method of successive Approximations-Euler's Method-Runge-Kutta Methods – Milne's Predictor-Corrector Method.

#### UNIT VI

Fourier Series: Determination of Fourier coefficients – Fourier series of Even and odd functions – Fourier series in an arbitrary interval – Even and odd periodic continuation – Half-range Fourier sine and cosine expansions. Fourier integral theorem (statement only) – Fourier sine and cosine integrals, Fourier transform – Fourier sine and cosine transforms – Properties – Inverse transforms – Finite Fourier transforms.

#### **UNIT VII**

Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions – Method of separation of variables – Solutions of one dimensional wave equation, heat equation and two-dimensional Laplace equation under initial and boundary conditions.

#### UNIT – VIII

z-transform – Inverse z-transform – Properties – Damping rule – Shifting rule – Initial and final value theorems. Convolution theorem – Solution of difference equations by z-transforms.

#### **TEXT BOOKS:**

- 1. Mathematical Methods, T.K.V. Iyengar, B. Krishna Gandhi and Others, S. Chand & Company.
- 2. Mathematical Methods, C. Sankaraiah, V.G.S. Book Links.
- 3. Mathematical Methods, G. Shanker Rao, E. Keshava Reddy, I. K. International Publishing House Pvt. Ltd.

#### **REFERENCES:**

- 1. Numerical Methods for Scientific and Engineering Computation , M.K. Jain, S.R.K. Iyengar & R.K. Jain, New Age international Publishers.
- 2. Mathematical Methods Pal Oxford.
- 3. Introduction to Numerical Analysis S.S. Sastry Printice Hall of India.
- 4. Mathematical Methods, S.K.V.S. Sri Ramachary, M. Bhujanga Rao, P.B. Bhaskar Rao & P.S. Subramanyam, BS Publications.

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COMPUTER SCIENCE AND ENGINEERING

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#### (A0501101) C PROGRAMMING AND DATA STRUCTURES

#### UNIT I

Overview of Computers and Programming - Electronic Computers then and Now, Computer Hardware, Computer Software, Algorithm, Flowcharts, Software Development Method, Applying the Software Development Method.

#### UNIT II

Introduction to C Language - C Language Elements, Variable Declarations and Data Types, Executable Statements, General Form of a C Program, Expressions, Precedence and Associativity, Expression Evaluation, Operators and Expressions, Type Conversions, Decision Statements - If and Switch Statements, Loop Control Statements - while, for, do-while Statements, Nested for Loops, Other Related Statements -break, continue, goto.

#### UNIT III

Functions - Library Functions, Top-Down Design and Structure Charts, Functions with and without Arguments, Communications Among Functions, Scope, Storage Classes - Auto, Register, Static, Extern, Scope rules, Type Qualifiers, Recursion - Recursive Functions, Preprocesso<u>r</u> Commands.

Arrays - Declaring and Referencing Arrays, Array Subscripts, Using for Loops for Sequential Access, Using Array Elements as Function Arguments, Arrays Arguments, Multidimensional Arrays.

#### UNIT IV

Pointers - Introduction, Features of Pointers, Pointer Declaration, Arithmetic Operations With Pointers, Pointers and Arrays, Pointers and Two-Dimensional Arrays, Array of Pointers, Pointers to Pointers, Void Pointers, Memory Allocation Functions, Programming Applications, Pointer to Functions, Command- Line Arguments.

Strings - String Basics, String Library Functions, Longer Strings, String Comparison, Arrays of Pointers, Character operations, String-To-Number and Number-To- String Conversions, Pointers and Strings.

#### UNIT V

Structure and Union – Introduction, Features of Structures. Declaration and Initialization of Structures, Structure within Structure, Array of Structures, Pointer to Structure, Structure and Functions, typedef, Bit Fields, Enumerated Data Type, Union, Union of Structures.

#### UNIT VI

Files - Introduction, Streams and File Types, Steps for File Operations, File I/O Structures, Read and Write, Other File function, Searching Errors in Reading/Writing of Files, Low Level Disk I/O, Command Line Arguments, Application of Command Line Arguments, File Status functions (error handling).

#### UNIT VII

Data Structures - Overview of Data Structure, Representation of a Stack, Stack Related Terms, Operation on a Stack, Implementation of a Stack, Representation of Arithmetic Expressions, Infix, Prefix, and Postfix Notations, Evaluation of Postfix Expression, Conversion of Expression from Infix to Postfix, Recursion, Queues - Various Positions of Queue, Representation of Queue, Insertion, Deletion, Searching Operations.

Linked List - Singly Linked List, Linked List with and without header, Insertion, Deletion and Searching Operations.

#### UNIT VIII

Searching and Sorting - Exchange (Bubble) Sort, Selection Sort, Quick Sort, Insertion Sort, Merge Sort. Searching- Linear and Binary Search Methods.

#### **TEXT BOOKS :**

1. Programming in C and Data Structures, J.R.Hanly, Ashok N. Kamthane and A. Ananda Rao, Pearson Education

2. C Programming & Data Structures, B.A.Forouzan and R.F. Gilberg, Third Edition, Cengage Learning.

#### **REFERENCES :**

- 1. Programming in C Stephen G. Kochan, III Edition, Pearson Eductaion.
- 2. C Programming with problem solving, J.A. Jones & K. Harrow, Dreamtech Press.
- 3. C and Data Structures, a snapshot oriented treatise with live engineering examples, Dr.N.B.Venkateswarlu, Dr. E.V.Prasad, S. Chand.
- 4. C and Data Structures, E.Balaguruswamy, Tata Mc Graw Hill.
- 5. Data Structures using C A.M.Tanenbaum, Y.Langsam, and M.J. Augenstein, Pearson Education / PHI, Eighth Edition.

# COMPUTER SCIENCE AND ENGINEERING

I B.TECH. (REGULAR, 2010-11) (Common to all Branches)

For Branches: E.C.E, E.E.E, E.I.E, C.S.E, I.T, M.E, C.E.

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#### (A0301101) ENGINEERING DRAWING

#### UNIT – I

INTRODUCTION TO ENGINEERING DRAWING: Principles of Engineering Graphics and their Significance – Drawing Instruments and their Use – Conventions in Drawing – Lettering – BIS Conventions.

Curves used in Engineering Practice:

a) Conic Sections including the Rectangular Hyperbola – General method only.

b) Cycloid, Epicycloids and Hypocycloid

c) Involutes.

d) Helices

#### UNIT – II

PROJECTION OF POINTS AND LINES: Principles of Orthographic Projection – Conventions – First and Third Angle Projections. Projections of Points, Lines inclined to one or both planes, Problems on projections, Finding True lengths & traces only.

#### UNIT – III

PROJECTIONS OF PLANES: Projections of regular Plane surfaces, Projection of lines and planes using auxiliary planes.

#### UNIT – IV

PROJECTIONS OF SOLIDS: Projections of Regular Solids inclined to one or both planes - Auxiliary Views.

#### UNIT – V

SECTIONS & DEVELOPMENTS OF SOLIDS: Section Planes and Sectional views of Right Regular Solids– Prism, Cylinder, Pyramid and Cone – True shapes of sections.

Development of Surfaces of Right Regular Solids - Prisms, Cylinder, Pyramid, Cone and their Sectional parts.

#### UNIT – VI

ISOMETRIC & ORTHOGRAPHIC PROJECTIONS: Principles of Isometric Projection – Isometric Scale – Isometric Views– Conventions – Isometric Views of Lines, Plane Figures, Simple and Compound Solids - Isometric Projection of objects having non- isometric lines. Isometric Projection of Spherical Parts.

Conversion of Isometric Views to Orthographic Views - Conventions.

#### UNIT – VII

INTERPENETRATION OF RIGHT REGULAR SOLIDS: Intersection of Cylinder Vs Cylinder, Cylinder Vs Prism, Cylinder Vs Cone, Square Prism Vs Square Prism.

#### UNIT – VIII

PERSPECTIVE PROJECTIONS: Perspective View: Plane Figures and Simple Solids, Vanishing Point Methods (General Method only).

#### **TEXT BOOKS:**

- 1. Engineering Drawing, N.D. Bhat / Charotar
- 2. Engineering Drawing, Johle /Tata McGraw-Hill
- 3. Engineering Drawing, Shah and Rana, 2/e Pearson education

#### **REFERENCES:**

- 1. Engineering Drawing and Graphics, Venugopal/ New age
- 2. Engineering Drawing, B.V.R. Guptha, J.K. Publishesrs
- 3. Engineering Drawing, K.L. Narayana, P. Khanniah, Scitech Pub
- 4. Engineering Drawing, Venkata Reddy, B.S.Publishers.

#### RGM-R-2010

#### RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG & TECHNOLOGY, NANDYAL

AUTONOMOUS

# COMPUTER SCIENCE AND ENGINEERING

I B.TECH. (REGULAR, 2010-11) (Common to all Branches)

For Branches: E.C.E, E.E.E, E.I.E, C.S.E, I.T, M.E, C.E.

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#### (A0591101) C PROGRAMMING AND DATA STRUCTURES LAB

#### **Objectives:**

- To make the student learn a programming language.
- To teach the student to write programs in C to solve the problems.
- To introduce the student to simple linear data structures such as lists, stacks, queues.

#### **Recommended Systems/Software Requirements:**

Intel based desktop PC with ANSI C Compiler and Supporting Editors

#### Exercise l

- a) Write a C program to find the sum of individual digits of a positive integer.
- b) A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of the sequence.
- c) Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.

#### Exercise 2

a) Write a C program to calculate the following Sum:

Sum= $1-x^{2}/2! + x^{4}/4! - x^{6}/6! + x^{8}/8! - x^{10}/10!$ 

b) Write a C program toe find the roots of a quadratic equation.

#### Exercise 3

Write C programs that use both recursive and non-recursive functions

- i) Find the factorial of a given integer.
- ii) To find the GCD (greatest common divisor) of two given integers.
- iii) To solve Towers of Hanoi problem.

#### Exercise 4

- a) The total distance travelled by vehicle in 't' seconds is given by distance  $S = ut+1/2at^2$  where 'u' and 'a' are the initial velocity (m/sec.) and acceleration (m/sec<sup>2</sup>) respectively. Write C program to find the distance travelled at regular intervals of time given the values of 'u' and 'a'. The program should provide the flexibility to the user to select his own time intervals and repeat the calculations for different values of 'u' and 'a'.
- b) Write a C program, which takes two integer operands and one operator from the user, performs the operation and then prints the result. (Consider the operators +,-,\*, /, % and use Switch Statement)

#### Exercise 5

- a) Write a C program to find both the largest and smallest number in a list of integers.
- b) Write a C program that uses functions to perform the following:
- i) Addition of Two Matrices
- ii) Multiplication of Two Matrices

#### Exercise 6

- a) Write a C program that uses functions to perform the following operations:
- i) To insert a sub-string in to a given main string from a given position.
- ii) To delete n Characters from a given position in a given string.
- b) Write a C program to determine if the given string is a palindrome or not

#### Exercise 7

- a) Write a C program that displays the position or index in the string S where the string T begins, or 1 if S doesn't contain T.
- b) Write a C program to count the lines, words and characters in a given text.

#### Exercise 8

- a) Write a C program to generate Pascal's triangle.
- b) Write a C program to construct a pyramid of numbers.

#### COMPUTER SCIENCE AND ENGINEERING

#### **Exercise 9**

Write a C program to read in two numbers, x and n, and then compute the sum of the geometric progression:

 $1+x+x^2+x^3+\ldots+x^n$ 

For example: if n is 3 and x is 5, then the program computes 1+5+25+125.

#### Print x, n, the sum

Perform error checking. For example, the formula does not make sense for negative exponents – if n is less than 0. Have your program print an error message if n<0, then go back and read in the next pair of numbers of without computing the sum. Find if any values of x are also illegal? If so, test for them too.

#### **Exercise 10**

- 1) 2's complement of a number is obtained by scanning it from right to left and complementing all the bits after the first appearance of a 1. Thus 2's complement of 11100 is 00100. Write a C program to find the 2's complement of a binary number.
- 2) Write a C program to convert a Roman numeral to its decimal equivalent.

#### Exercise 11

Write a C program that uses functions to perform the following operations:

- i) Reading a complex number
- ii) Writing a complex number
- iii) Addition of two complex numbers
- iv) Multiplication of two complex numbers

(Note: represent complex number using a structure.)

#### Exercise 12

- a) Write a C program which copies one file to another.
- b) Write a C program to reverse the first n characters in a file.

(Note: The file name and n are specified on the command line.)

#### **Exercise 13**

- a) Write a C programme to display the contents of a file.
- b) Write a C programme to merge two files into a third file (i.e., the contents of the first file followed by those of the second are put in the third file)

#### **Exercise 14**

Write a C program that uses functions to perform the following operations on singly linked list.:

- i) Creation
- ii) Insertion
- iii) Deletion
- iv) Traversal

#### **Exercise 15**

Write C programs that implement stack (its operations) using

- i) Arrays
- ii) Pointers

#### **Exercise 16**

Write C programs that implement Queue (its operations) using

- i) Arrays
- ii) Pointers

#### Exercise 17

Write a C program that uses Stack operations to perform the following:

- i) Converting infix expression into postfix expression
  - ii) Evaluating the postfix expression

#### Exercise 18

Write a C program that implements the following sorting methods to sort a given list of integers in ascending order

- i) Bubble sort
- ii) Selection sort

#### **Exercise 19**

Write C programs that use both recursive and non recursive functions to perform the following searching operations for a Key value in a given list of integers:

- i) Linear search
- ii) Binary search

#### Exercise 20

Write C program that implements the Quick sort method to sort a given list of integers in ascending order.

#### Exercise 21

Write C program that implement the Merge sort method to sort a given list of integers in ascending order.

#### Exercise 22

Write C programs to implement the Lagrange interpolation and Newton - Gregory forward interpolation.

#### Exercise 23

Write C programs to implement the linear regression and polynomial regression algorithms.

#### Exercise 24

Write C programs to implement Trapezoidal and Simpson methods.

#### **REFERENCE BOOKS**

- 1. The Spirit of C, an introduction to modern programming, M.Cooper, Jaico Publishing House.
- 2. Mastering C, K.R. Venugopal and S.R. Prasad, TMH Publications.
- 3. Computer Basics and C Programming, V. Rajaraman, PHI Publications.
- 4. Programming in C and Data Structures, J.R.Hanly, Ashok.N.K.Kamthane and A.Ananda Rao, Pearson Education.

# COMPUTER SCIENCE AND ENGINEERING

I B.TECH. (REGULAR, 2010-11) (Common to all Branches)

For Branches: E.C.E, E.E.E, E.I.E, C.S.E, I.T, M.E, C.E.

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#### (A0391101) ENGINEERING AND IT WORKSHOP

#### ENGINEERING WORKSHOP

**Objectives:** The budding Engineer may turn out to be a technologist, scientist, entrepreneur, practitioner, consultant etc. There is a need to equip the engineer with the knowledge of common and newer engineering materials as well as shop practices to fabricate, manufacture or work with materials. Essentially he should know the labour involved, machinery or equipment necessary, time required to fabricate and also should be able to estimate the cost of the product or job work. Hence engineering work shop practice is included to introduce some common shop practices and on hand experience to appreciate the use of skill, tools, equipment and general practices to all the engineering students.

#### 1. TRADES FOR EXERCISES:

- a) Carpentry shop- Two joints (exercises) involving tenon and mortising, groove and tongue: Making middle lap T joint, cross lap joint, mortise and tenon T joint, Bridle T joint from out of 300 x 40 x 25 mm soft wood stock.
- b) Fitting shop- Two joints (exercises) from: square joint, V joint, half round joint or dove tail joint out of 100 x 50 x 5 mm M.S. stock.
- c) Sheet metal shop- Two jobs (exercises) from: Tray, cylinder, hopper or funnel from out of 22 or 20 guage G.I. sheet.
- d) House-wiring- Two jobs (exercises) from: wiring for ceiling rose and two lamps (bulbs) with independent switch controls with or without looping, wiring for stair case lamp, wiring for a water pump with single phase starter.
- e) Foundry– Preparation of two moulds (exercises): for a single pattern and a double pattern.
- f) Welding Preparation of two welds (exercises): single V butt joint, lap joint, double V butt joint or T fillet joint.

#### 2. TRADES FOR DEMONSTRATION:

- a) Plumbing
- b) Machine Shop
- c) Metal Cutting

Apart from the above the shop rooms should display charts, layouts, figures, circuits, hand tools, hand machines, models of jobs, materials with names such as different woods, wood faults, Plastics, steels, meters, gauges, equipment, CD or DVD displays, First aid, shop safety etc. (though they may not be used for the exercises but they give valuable information to the student). In the class work or in the examination knowledge of all shop practices may be stressed upon rather than skill acquired in making the job.

#### **REFERENCE BOOKS:**

- 1. Engineering Work shop practice for JNTU, V. Ramesh Babu, VRB Publishers Pvt. Ltd., 2009.
- 2. Work shop Manual / P.Kannaiah/ K.L.Narayana/ SciTech Publishers.
- 3. Engineering Practices Lab Manual, Jeyapoovan, Saravana Pandian, 4/e Vikas.
- 4. Dictionary of Mechanical Engineering, GHF Nayler, Jaico Publishing House.

#### **IT WORKSHOP**

#### **Objectives:**

The IT Workshop for engineers is a training lab course. The modules include training on PC Hardware, Internet & World Wide Web and Productivity tools including Word, Excel, Power Point and Publisher.

**PC** Hardware introduces the students to a personal computer and its basic peripherals, the process of assembling a personal computer, installation of system software like MS Windows, Linux and the required device drivers. In addition hardware and software level troubleshooting process, tips and tricks would be covered. The students should work on a working PC (PIV or higher)to disassemble and assemble back to working condition and install Windows and Linux on the same PC. Students are suggested to work similar tasks in the Laptop scenario wherever possible.

**Internet & World Wide Web** module introduces the different ways of hooking the PC on to the internet from home and workplace for usage of the internet. Usage of web browsers, email, newsgroups and discussion forums would be covered. In addition, awareness of cyber hygiene, i.e., protecting the personal computer from getting infected with the viruses, worms and other cyber attacks would be introduced.

**Productivity tools** module would enable the students in crafting professional word documents, excel spread sheets, power point presentations and personal web sites using the Microsoft suite of office tools and LaTeX. (It is recommended to use Microsoft office 2007 in place of MS Office 2003)

#### PC Hardware

**Exercise 1 - Task 1:** Identify the peripherals of a computer, components in a CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral and submit to your instructor.

**Exercise 2 - Task 2:** Every student should disassemble and assemble the PC back to working condition. Lab instructors should verify the work and follow it up with a Viva. Also students need to go through the video which shows the process of assembling a PC. A video shall be given as part of the course content.

**Exercise 3 - Task 3:** Every student should individually install MS windows on the personal computer. Lab instructor should verify the installation and follow it up with a Viva.

**Exercise 4 - Task 4:** Every student should install Linux on the computer. This computer should have windows installed. The system should be configured as dual boot with both windows and Linux. Lab instructors should verify the installation and follow it up with a Viva

**Exercise 5 - Task 5: Hardware Troubleshooting:** Students have to be given a PC which does not boot due to improper assembly or defective peripherals. They should identify the problem and fix it to get the computer back to working condition. The work done should be verified by the instructor and followed up with a Viva

**Exercise 6 - Task 6: Software Troubleshooting:** Students have to be given a malfunctioning CPU due to system software problems. They should identify the problem and fix it to get the computer back to working condition. The work done should be verified by the instructor and followed up with a Viva.

#### **OFFICE TOOLS**

#### LaTeX and Word

**Exercise 7 - Word Orientation**: The mentor needs to give an overview of LaTeX and Microsoft (MS) office 2007/ equivalent (FOSS) tool word: Importance of LaTeX and MS office 2007/ equivalent (FOSS) tool Word as word Processors, Details of the four tasks and features that would be covered in each, Using LaTeX and word – Accessing, overview of toolbars, saving files, Using help and resources, rulers, format painter in word.

**Task 1: Using LaTeX and Word** to create project certificate. Features to be covered:-Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in both LaTeX and Word.

#### **EXCEL**

**Exercise 8 - Excel Orientation:** The mentor needs to tell the importance of MS office 2007/ equivalent (FOSS) tool Excel as a Spreadsheet tool, give the details of the four tasks and features that would be covered in each. Using Excel – Accessing, overview of toolbars, saving excel files, Using help and resources.

**Task 1: Creating a Scheduler -** Features to be covered:- Gridlines, Format Cells, Summation, auto fill, Formatting Text

#### LaTeX and MS/equivalent (FOSS) tool Power Point

**Exercise 9 - Task1:** Students will be working on basic power point utilities and tools which help them create basic power point presentation. Topic covered during this Exercise includes :- PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows in both LaTeX and Powerpoint. Students will be given model power point presentation which needs to be replicated (exactly how it's asked).

**Exercise 10 - Task 2 :** Second Exercise helps students in making their presentations interactive. Topic covered during this Exercise includes : Hyperlinks, Inserting –Images, Clip Art, Audio, Video, Objects, Tables and Charts

#### Internet & World Wide Web

#### 2 Exercises

**Exercise 11 - Task 1: Orientation & Connectivity Boot Camp:** Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally students should demonstrate, to the instructor, how to access the websites and email. If there is no internet connectivity preparations need to be made by the instructors to simulate the WWW on the LAN.

Web Browsers, Surfing the Web: Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop up blockers.

**Exercise 12 - Task 2**: **Search Engines & Netiquette:** Students should know what search engines are and how to use the search engines. A few topics would be given to the students for which they need to search on Google. This should be demonstrated by the student to the satisfaction of instructors.

**Cyber Hygiene:** Students would be exposed to the various threats on the internet and would be asked to configure their computer to be safe on the internet. They need to first install an anti virus software, configure their personal firewall and windows update on their computer.

#### **REFERENCES:**

- 1) Introduction to Information Technology, ITL Education Solutions limited, Pearson Education.
- 2) LaTeX Companion Leslie Lamport, PHI/Pearson.
- 3) Introduction to Computers, Peter Norton, 6/e Mc Graw Hill
- 4) Upgrading and Repairing, PC's 18<sup>th</sup> e, Scott Muller QUE, Pearson Education
- 5) Comdex Information Technology course tool kit, Vikas Gupta, WILEY Dreamtech
- 6) IT Essentials PC Hardware and Software Companion Guide, Third Edition by David Anfinson and
- 7) Ken Quamme. CISCO Press, Pearson Education.

#### RGM-R-2010

#### RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG & TECHNOLOGY, NANDYAL AUTONOMOUS COMPUTER SCIENCE AND ENGINEERING I B.TECH. (REGULAR, 2010-11) (Common to all Branches) For Branches: E.C.E, E.E.E, E.I.E, C.S.E, I.T, M.E, C.E.

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#### (A0091101) ENGINEERING PHYSICS & ENGINEERING CHEMISTRY LAB

#### **ENGINEERING PHYSICS LAB**

Any <u>TEN</u> of the following experiments are to be performed during the Academic year.

#### S.No

#### Name of the Experiment

- 1. Determination of wavelength of given source spectrometer normal incidence method
- 2. Dispersive power of the prism Spectrometer
- 3. Determination of wavelength of a laser source Diffraction Grating
- 4. Determination of particle size by using a laser source
- 5. Determination of thickness of a thin wire using parallel fringes
- 6. Newton's Rings
- 7. Magnetic field along the axis of a current carrying coil Stewart and Gee's method
- 8. Numerical aperture of an optical fiber
- 9. Hall Effect
- 10. B H Curve
- 11. Energy gap of a material of p-n junction
- 12. Determination of rigidity modulus of a wire material Torsional pendulum
- 13. Determination of dielectric constant
- 14. Verification of laws of stretched string Sonometer
- 15. Melde's experiment Transverse & Longitudinal modes

#### Equipment required:

Spectrometer, Grating, Prism, Mercury vapour lamp, Sodium vapour lamp, Travelling Microscope, Wedge arrangement, Newton rings setup, Stewart-Gee's apparatus, He-Ne laser source, Optical fiber, Hall effect kit, B-H loop kit, Energy gap kit (four probe method), Torsional pendulum, Dielectric constant kit, Sonometer, Melde's apparatus

# COMPUTER SCIENCE AND ENGINEERING ENGINEERING CHEMISTRY LAB

S.No	Name of the Experiment				
1)	Preparation of Standard Potassium Dichromate and Estimation of Ferrous Iron				
2)	Preparation of Standard Potassium Dichromate and Estimation of Copper, by Iodometry				
3)	Preparation of Standard EDTA solution and Estimation of Hardness of Water				
4)	Preparation of Standard EDTA and Estimation of Copper				
5)	Determination of Manganese in Steel and Iron in Cement				
6)	Determination of strength of the given Hydrochloric acid against standard sodium hydroxide solution by Conducto metric titration				
7)	Determination of viscosity of the oils through Redwood viscometer				
8)	Determination of calorific value of fuel using Bomb calorimeter				
9)	Estimation of dissolved oxygen				
10)	Determination of Eutectic Temperature of binary system (Urea – Benzoic Acid)				

#### **BOOKS:**

- 1. Chemistry-lab manual by Dr K.N.Jayaveera and K.B. Chandra Sekhar, S.M.Enterprizes Ltd.
- 2. Vogel's Book of Quantitative Inorganic Analysis, ELBS Edition.

#### **Equipment Required:**

- Glass ware: Pipettes, Burettes, Volumetric Flasks, Beakers, Standard flasks, Measuring jars, Boiling Test tubes, reagent bottles, (Borosil)
- Analytical balance (keroy) (15 Nos)
- Calorimeter
- Bomb Calorimeter
- Redwood viscometer No.1& No.2
- Conductometer/ Conductivity bridge
- Wash bottles, test tube stands, burette stands
- Gas cylinders with Bunsen burners
- Chemicals: Hydrochloric acid, sodiumhydroxide, EDTA, EBT indicator, fast sulfon black-f, urea, benzoic acid, methanol, Mohr's salt, copper sulphate, magnesium sulphate, ammonia, ammonium sulphate, calcium sulphate etc.,

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# COMPUTER SCIENCE AND ENGINEERING

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## (A0092101) ENGLISH LANGUAGE COMMUNICATION SKILLS LAB

The **Language Lab** focuses on the production and practice of sounds of language and equips students with the use of English in everyday situations and contexts.

#### **Objectives:**

- 1. To train students to use language effectively in everyday conversations, to participate in group discussions, to help them face interviews, and sharpen public speaking skills
- 2. To expose the students to a varied blend of self-instructional, learner-friendly modes of language learning
- 3. To enable them to learn better pronunciation through stress on word accent, intonation, and rhythm
- 4. To initiate them into greater use of the computer in resume preparation, report- writing, format-making etc.
- 5. To help the students cultivate the habit of reading passages from the computer monitor, thus providing them with the required ability to face computer-based competitive exams such GRE, TOEFL, GMAT etc.

#### **SYLLABUS:**

The following course content is prescribed for the English Language Laboratory sessions:

- Introduction to the Sounds of English Vowels, Diphthongs & Consonants.
- \* Introduction to Stress and Intonation.
- Situational Dialogues (giving directions etc.)
- Speaking on the mobiles and telephone conversation.
- Role Play.
- Oral Presentations- Prepared and Extempore.
- 'Just A Minute' Sessions (JAM).
- Describing Objects / Situations / People.
- Information Transfer.
- Debate

#### Minimum Requirement:

#### The English Language Lab shall have two parts:

- i) **The Computer aided Language Lab** for 60 students with 60 systems, one master console, LAN facility and English language software for self- study by learners.
- ii) **The Communication Skills Lab** with movable chairs and audio-visual aids with a P.A System, a T. V., a digital stereo –audio & video system and camcorder etc.

#### System Requirement (Hardware component):

Computer network with Lan with minimum 60 multimedia systems with the following specifications:

- ♣ P IV Processor
- ♣ Speed 2.8 GHZ
- RAM 512 MB Minimum
- ♣ Hard Disk 80 GB
- Headphones of High quality

## PRESCRIBED SOFTWARE: GLOBARENA

#### Suggested Software:

- Cambridge Advanced Learners' English Dictionary with CD.
- The Rosetta Stone English Library
- Clarity Pronunciation Power Part I

- Mastering English in Vocabulary, Grammar, Spellings, Composition
- Dorling Kindersley series of Grammar, Punctuation, Composition etc.
- Language in Use, Foundation Books Pvt Ltd with CD
- Learning to Speak English 4 CDs
- Microsoft Encarta with CD
- Murphy's English Grammar, Cambridge with CD
- English in Mind, Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge

# Books Suggested for English Language Lab Library (to be located within the lab in addition to the CDs of the text book which are loaded on the systems):

- 1. English Pronouncing Dictionary Daniel Jones Current Edition with CD.
- 2. Spoken English- R. K. Bansal and J. B. Harrison, Orient Longman 2006 Edn.
- 3. Speaking English Effectively by Krishna Mohan & NP Singh (Macmillan)
- 4. A Practical Course in English Pronunciation, (with two Audio cassettes) by J. Sethi, Kamlesh Sadanand & D.V. Jindal, Prentice-Hall of India Pvt. Ltd., New Delhi.
- 5. Body Language, Your Success Mantra, Dr Shalini Verma, S.Chand & Co, 2008
- 6. English Dictionary for Advanced Learners, (with CD) International edn. Macmillan 2009
- 7. A Handbook for Englsih language Laboratories, E.Sureshkumar, P.Sreehari, Foundation Books, 2009
- 8. DELTA's key to the Next Generation TOEFL Test, 6 audio CDS, New Age International Publishers, 2007

## **DISTRIBUTION AND WEIGHTAGE OF MARKS**

#### English Language Laboratory Practical Paper:

- The practical examinations for the English Language Laboratory shall be conducted as per the University norms prescribed for the core engineering practical sessions.
- For the Language lab sessions, there shall be a continuous evaluation during the year for 25 sessional marks and 50 year-end Examination marks. Of the 25 marks, 15 marks shall be awarded for day-to-day work and 10 marks to be awarded by conducting Internal Lab Test(s). The year- end Examination shall be conducted by the teacher concerned with the help of another member of the staff of the same department of the same institution.
## II B.Tech I-Sem (CSE)

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## (A0001103) PROBABILITY AND STATISTICS

### **OBJECTIVES**:

- Probability & Statistics is a necessary avenue to scientific knowledge which opens new vistas of mental activity.
- There was a great need for an associate knowledge on Probability & Statistics for the engineering students.
- It is accepted that a good mathematical studying is essential for all engineers; this will definitely boost the confidence of the student in writing "Competitive examinations".

### **OUTCOMES**:

By the end of module students will be expected to demonstrate knowledge of

- Probability, Conditional Probability, Baye's theorem and its applications
- Random variables, Discrete random variables, Continuous random variables
- Binomial Distribution, Poisson Distribution, Normal Distribution
- Population & Samples, Sampling Distribution of means
- Point Estimation, interval Estimation, Bayesian Estimation
- Tests of Hypothesis, Z Distribution, Student t test, F test, Chi square test
- Queuing theory, Basic Queuing process, Transient & Steady states, Pure birth & Death process

### UNIT – I

Probability: Sample Space and events – Probability – The axioms of Probability – Some Elementary theorems – Conditional Probability – Baye's theorem.

### UNIT – II

Random Variables: Discrete and continuous - Distribution – Distribution functions – Properties – Discrete Random variables – Probability mass function – Continuous Random variables – Probability density function.

## UNIT – III

Binomial, Poisson and Normal distributions - Related properties - Fitting distributions.

## UNIT – IV

Sampling distribution : Population and samples - Sampling distribution of mean (known and unknown)

Estimation: Point estimation - Interval estimation - Bayesian estimation.

### UNIT – V

Test of Hypothesis – Means – Proportions – Hypothesis concerning one and two means – One tail, two tail tests – Type I and Type II errors.

## UNIT – VI

Tests of significance – Student's t –test, F – test,  $\Psi^2$  test – Good ness of fit – Contigency test.

### **TEXT BOOKS:**

- 1) Probability and Statistics by T.K.V. Iyengar, B. Krishna Gandhi and others, S.Chand and company.
- 2) A Text book of Probability and Statistics by Dr. Shahnaz Bathul.
- 3) Engineering Mathematics by B.V. Ramana, Tata McGraw Hill .

- 1) Fundamental Mathematical Statistics by S.C. Guptha and V.K. Kapoor S. Chand Co
- 2) A text book of Engineering Mathematics by N.P. Bali, Iyengar Lakshmi Publications (Pvt ltd)
- 3) Engineering Mathematics III A by Dr.M.K. Venkat araman The National Publishing co.

## COMPUTER SCIENCE AND ENGINEERING

II B.Tech I-Sem (CSE)

## (A0401103) ELECTRONIC DEVICES AND CIRCUITS

## **OBJECTIVES**

- The purpose of the course is to give students strong foundations in the field of Electronic devices.
- The subject may enhance the students to have a through knowledge of the characteristics of electronic device.
- It helps them to analyze and design any real time applications

## **OUTCOMES**

- Ability to learn the semiconductor diode characteristics and its applications.
- Ability to learn the semiconductor transistor characteristics and its applications.
- Ability to learn the semiconductor special devices like SCR, Zenor diode characteristics and its applications.
- Ability to learn operating point, DC and AC load lines and importance of biasing.
- Ability to learn FET and Transistors design of amplifiers circuits and its various parameters

## UNIT- I

**SEMICONDUCTOR DIODE CHARACTERISTICS:** PN junction Diode equation, VI characteristics of p-n diode, Static and Dynamic Resistances, Temperature dependence of VI characteristic, Diode equivalent circuits, Diode capacitances, Breakdown Mechanisms in Semi Conductor Diodes, Zener diode characteristics, Principle of operation and Characteristics of Tunnel Diode with the help of energy band diagrams, Varactar Diode, Schottky Barrier Diode, Thermistor.

## UNIT- II

**RECTIFIERS, FILTERS AND REGULATORS:** PNjunction as Rectifier, Half wave rectifier, ripple factor, full wave rectifier, Bridge rectifier, Harmonic components in a rectifier circuit, Inductor filter, Capacitor filter, L- $\Box$ section filter,  $\Pi$ -section filter, comparison of various filter circuits $\Box$  in terms of ripple factors, Simple circuit of a regulator using Zener diode.

## UNIT- III

**BJT TRANSISTORS:** Operation of BJT, Transistor as an amplifier, Junction transistor, Detailed study of currents in a transistor, Input and Output characteristics of transistor in CB, CE, and CC configurations, Relation between Alpha, Beta and Gamma.BJT specification, Transistor as an Amplifier.Principle of operation and characteristics of SCR.

## UNIT-IV

**TRANSISTOR BIASING AND STABILISATION :** DC and AC Load lines, Operating point, Importance of Biasing, Fixed bias, Collector to Base, Voltage Divider bias, Bias stability, Stabilization factors, (S, S', S'), Compensation techniques, (Compensation against variation in  $V_{BE}$ ,  $I_{co}$ ,) Thermal run away, Thermal stability in CE configuration.

## UNIT- V

**FET TRANSISTORS**: operation and characteristics, Pinch-Off voltage, Small signal model of JFET, MOSFET characteristics (Enhancement and depletion mode), Symbols of MOSFET, Comparison of Transistors (BJT,FET, and MOSFET). Principle of operation and Characteristics of UJT.

### **UNIT-VI**

**BJT AND FET AMPLIFIERS:** Small signal low frequency transistor amplifier circuits, h-parameter representation of a transistor, Analysis of single stage transistor amplifier (CE, CB, and CC) using h-parameters: voltage gain, current gain, Input impedance and Output impedance. Comparison of transistor configurations in terms of  $A_I$ ,  $R_i$ ,  $A_v$ ,  $R_o$ , Small signal model of JFET, Analysis of single stage FET amplifier (CS, CG, and CD) using h-parameters.

## **TEXT BOOKS :**

- Electronic Devices and Circuits J.Millman, C.C.Halkias, and Satyabratha Jit Tata McGraw Hill, 2<sup>nd</sup> Ed., 2007.
- Electronic Devices and Circuits R.L. Boylestad and Louis Nashelsky, Pearson/Prentice Hall, 9<sup>th</sup> Edition, 2006.
- 3. Electronic Devices and Circuits- David A. Bell, 5<sup>th</sup> Edition, 2008, Oxford University Press.

- 1. Electronic Devices and Circuits T.F. Bogart Jr., J.S.Beasley and G.Rico, PearsonEducation, 6th edition, 2004.
- 2. Principles of Electronic Circuits S.G.Burns and P.R.Bond, Galgotia Publications, 2nd Edn., 1998.
- 3. Microelectronics Millman and Grabel, Tata McGraw Hill, 1988.
- 4. Electronic Devices and Circuits Dr. K. Lal Kishore, B.S. Publications, 2<sup>nd</sup> Edition, 2005.
- 5. Electronic Devices and Circuits- Prof GS N Raju I K International Publishing House Pvt. Ltd 2006

T C 3+1\* 4

## COMPUTER SCIENCE AND ENGINEERING

### II B.Tech I-Sem (CSE)

T C 3+1\* 4

### (A05002103) MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE

### **OBJECTIVES:**

- To teach students notations used in the discrete mathematics associated with computer science and engineering.
- To teach the rudiments of elementary mathematical reasoning (elementary proofs; proofs by induction).
- To prepare students for the theoretical parts of all further courses in CSE.
- To study logic and Boolean algebra from a mathematical perspective, but relating it to computer engineering applications.
- To introduce basic set-theoretical notions: relations, functions, graphs, equivalence relations and orderings.
- To relate these notions to applications in CSE.

#### **OUTCOMES:**

- Understand truth tables, the concept of logical equivalence and its relationship to equivalent logic circuits and Boolean functions. Know some Boolean laws of equivalence. Extend this to predicate calculus and in predicate calculus using quantifiers.
- Be able to express English assertions in propositional calculus and in predicate calculus using quantifiers.
- Understand and use the basics of set theory notation, Boolean operations on sets Be able to work with functions.
- Be able to carry out simple direct and indirect proofs about domains like the integers and the real numbers, using quantified statements about these domains. Be able to do simple proofs by mathematical induction.
- Be able to understand and write recursive definitions, in mathematical form.
- Understand binary and n-ary relations and their applications. Know the major types of binary relations on a set. Be able to use graphs as representing relations, algorithms for relations based on graphs or matrices (e.g. transitive closure).
- Know the properties of equivalence relations and partial orderings.
- Understand lattices and Boolean algebras as universal algebras.
- Know the fundamentals of counting

#### UNIT-I

**Mathematical Logic:** Statements and notations, Connectives, Well formed formulas, Truth Tables, tautology, equivalence, implication, Normal forms.

**Predicates:** Predicative logic, Free & Bound variables, Rules of inference, Consistency, proof of contradiction, Quantifiers, Universal Quantifiers, Existential Quantifiers, Automatic Theorem Proving.

#### UNIT-II

**Relations:** Properties of binary Relations, equivalence, transitive closure, compatibility and partial ordering relations, Hasse diagram. Lattices and its Properties.

Functions: Basic Concepts of function &its types, Composition of functions, Inverse Function, recursive Functions, Pigeon hole principles and its application.

### UNIT-III

Algebraic structures: Algebraic systems with examples and general properties, semi groups and monaids, groups & its types, Sub groups, homorphism, Isomorphism.

#### **UNIT-IV**

**Elementary Combinatory:** Basis of counting, Combinations & Permutations, with repetitions, Constrained repetitions, Binomial and Multinomial theorems, the principles of Inclusion –Exclusion.

## UNIT-V

**Recurrence Relation:** Generating Functions, Function of Sequences ,Calculating Coefficient of generating function, Recurrence relations, Solving recurrence relation by substitution and Generating functions. Characteristics roots solution of In homogeneous Recurrence Relation.

### UNIT-VI

**Graph Theory:** Representation of Graph, DFS, BFS, Spanning Trees, planar Graphs. Graph Theory and Applications, Basic Concepts of Isomorphism and Sub graphs, Multi graphs and Euler circuits, Hamiltonian graphs, Euler's formula &its applications, Chromatic Numbers, Four color problem.

## **TEXT BOOKS:**

- 1. Discrete Mathematical Structures with applications to computer science Trembly J.P. & Manohar .P, TMH.
- 2. Discrete Mathematics for Computer Scientists & Mathematicians, J.L. Mott, A. Kandel, T.P. Baker Prentice Hall.
- 3. Discrete and Combinational Mathematics- An Applied Introduction-5th Edition Ralph. P.Grimaldi. Pearson Education

- 1. Discrete Mathematics with Applications, Thomas Koshy, Elsevier
- 2. Discrete Mathematical Structures, Bernand Kolman, Roberty C. Busby, Sharn Cutter Ross, Pearson Education/PHI.
- 3. Discrete Mathematical structures Theory and application-Malik & Sen
- 4. Discrete Mathematics for Computer science, Garry Haggard and others, Thomson.
- 5. Mathematical foundations of computer science Dr D.S.Chandrasekharaiaha Prism books Pvt Ltd.
- 6. Logic and Discrete Mathematics, Grass Man & Trembley, Person Education.

## COMPUTER SCIENCE AND ENGINEERING

## II B.Tech I-Sem (CSE)

T C 3+1\* 4

## (A0503103) ADVANCED DATA STRUCTURES THROUGH C++

## **OBJECTIVES**:

• This course explores fundamental data structures, algorithms for manipulating them, and the practical problems of implementing those structures in real programming languages and environments

## **OUTCOMES**:

After the successful completion of this course, the students should:

- Be able to write well-structured object-oriented programs.
- Understand abstract data types and how they are implemented in an object-oriented language.
- Understand and implement the linear data structures and implement the Non-linear data structures.
- Understand and implement some Pattern matching algorithms.

### UNIT I

C++ Class Overview- Class Definition, Objects, Class Members, Access Control, Class Scope, Constructors and destructors, parameter passing methods, Inline functions, static class members, this pointer, friend functions, dynamic memory allocation and deallocation (new and delete).

### UNIT II

Function Over Loading, Operator Overloading, Generic Programming- Function and class templates, Inheritance basics, base and derived classes, inheritance types, base class access control, runtime polymorphism using virtual functions, abstract classes.

### UNIT III

Review of basic data structures- The list ADT, Stack ADT, Queue ADT, Implementation using template classes in C++. Priority Queues – Definition, ADT, Realizing a Priority Queue using Heaps, Definition, insertion, Deletion.

### UNIT IV

Dictionaries, linear list representation, hash table representation, hash functions, collision resolution-separate chaining, open addressing-linear probing, quadratic probing, double hashing, rehashing, extendible hashing.

### UNIT V

Binary Search Trees, Definition, ADT, Implementation, Operations- Searching, Insertion and Deletion, AVL Trees, Definition, Height of an AVL Tree, Operations – Insertion, Deletion and Searching

### UNIT VI

Introduction to Red –Black trees ,Operations – Searching, insertion and deletion, B-Trees, B-Tree of order m, height of a B-Tree, insertion, deletion and searching, Comparison of Search Trees. Standard Tries, Suffix Tries, Compressed Tries.

### **TEXT BOOKS:**

- 1. Data structures, Algorithms and Applications in C++, S.Sahni, University Press (India) pvt.Ltd, 2nd edition, Universities Press Orient Longman Pvt. Ltd.
- 2. Data structures and Algorithms in C++, Michael T.Goodrich, R.Tamassia and Mount, Wiley student edition, John Wiley and Sons.

- 1. Data structures and Algorithm Analysis in C++, Mark Allen Weiss, Pearson Education. Ltd., Second Edition.
- 2. Data structures and algorithms in C++, 3rd Edition, Adam Drozdek, Thomson.
- 3. Data structures using C and C++, Langsam, Augenstein and Tanenbaum, PHI.
- 4. Problem solving with C++, The OOP, Fourth edition, W.Savitch, Pearson education.

## COMPUTER SCIENCE AND ENGINEERING

T C 3+1\* 4

### (A0010103) ENVIRONMENTAL STUDIES

### **OBJECTIVES:**

II B.Tech I-Sem (CSE)

- This course provides students with a foundation of understanding, knowledge and skills to deal effectively with environmental problems such as global warming, acid rain, endangered species and invasive plants and animals.
- Students learn a variety of basic laboratory and field techniques including soil and water sampling.
- The structure and function of natural ecosystems, the history of the environmental movement, impact of legal, economic and political systems on environmental concerns is taught.
- Students also gain a broad awareness of environmental science and technological career opportunities.
- An emphasis is placed on students using critical thinking and analytical skills to make a positive impact on the environment.

### **OUTCOMES**:

- Upon successful completion of the courses in this discipline, the student will have acquired the following knowledge and skills:
- Recognize the major components of the earth's systems and how they function. Recognize the important effects of political, economic, social, and educational forces on environmental protection.
- Examine individual impacts on global resources and recognize the patterns of unequal distribution of resources worldwide.
- Demonstrate their understanding of the importance of natural resource policy, major natural resource and environmental regulations, and the current issues in private and public natural resource management.
- Apply scientific and environmental concepts in studying the environment. Recognize the link between healthy ecosystems (air, water, and land) and healthy human populations.
- Critically examine all sides of environmental issues and apply understanding of ecological principles to create informed opinions about how to live

### UNIT-I

**Introduction of Environmental Studies-Natural Resources**: Definition, The Global environment and its segments; Structure and composition of atmosphere, hydrosphere, lithosphere and biosphere Scope and Importance of Environmental Studies – Need for Public Awareness. Renewable and non-renewable resources – Natural resources and associated problems – Forest resources: Introduction – deforestation, case studies – Timber extraction – Mining, dams and other effects on forest and tribal people – Water resources: Introduction–Floods, drought, conflicts over water, dams – benefits and problems – Mineral resources: Introduction, environmental effects of extracting and using mineral resources, case studies. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. - Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

### UNIT – II

**Ecosystems:** Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. - Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of the following ecosystem:

- 1. Forest ecosystem.
- 2. Grassland ecosystem.
- 3. Desert ecosystem.
- 4. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

## UNIT – III

**Biodiversity and its conservation**: Introduction - Definition: genetic, species and ecosystem diversity. - Biogeographical classification of India - Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values - . Biodiversity at global, National and local levels. - . India as a mega diversity nation - Hot-sports of biodiversity - Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife

conflicts. - Endangered and endemic species of India - Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

## $\mathbf{UNIT} - \mathbf{IV}$

Environmental Pollution: Definition, Cause, effects and control measures of :

- 1. Air pollution.
- 2. Water pollution
- 3. Soil pollution
- 4. Marine pollution
- 5. Noise pollution
- 6. Thermal pollution
- 7. Nuclear hazards

Solid waste Management: Causes, effects and control measures of urban and industrial wastes. - Role of an individual in prevention of pollution. - Pollution case studies. - Disaster management: floods, earthquake, cyclone and landslides.

## UNIT-V

**Social Issues and the Environment**: From Unsustainable to Sustainable development -Urban problems related to energy -Water conservation, rain water harvesting, and watershed management –Resettlement and rehabilitation of people; its problems and concerns. Case Studies -Environmental ethics: Issues and possible solutions. -Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies. -Wasteland reclamation. –Consumerism and waste products. –Environment Protection Act. -Air (Prevention and Control of Pollution) Act. -Water (Prevention and control of Pollution) Act -Wildlife Protection Act -Forest Conservation Act -Issues involved in enforcement of environmental legislation. -Public awareness.

### UNIT-VI

**Human Population and the Environment**: Population growth, variation among nations. Population explosion - Family Welfare Programme. -Environment and human health. -Human Rights. -Value Education. -HIV/AIDS. ,Infectious deseases,-Tuber colossi,cancer,Water Borne Deseases-Malaria,Diheria -Women and Child Welfare. - Role of information Technology in Environment and human health. -Case Studies.

## **TEXT BOOKS:**

- 1. Textbook of Environmental Studies for Undergraduate Courses by ErachBharucha for University Grants commission.
- 2. Environmental Studies by R. Rajagopalan, Oxford University Press.
- 3. A Basic Course in environmental Studies by S.Deswal and A.Deswal ,Dhanpat Rai & Co

## COMPUTER SCIENCE AND ENGINEERING

T C 3+1\* 4

## (A0204103) BASIC ELECTRICAL ENGINEERING

## **OBJECTIVES**

II B.Tech I-Sem (CSE)

- In this course the different types of DC & AC machines which are widely used in industry are covered.
- Analysis of various electrical circuits
- It also concerns about the different types of measuring instruments which are having significant applications in house hold applications.

## **OUTCOMES:**

• At the end of the course the students knows about the principle, operation and characteristics of various stationary and rotating electrical machines.

### UNIT - I

**Introduction to Electrical Engineering:** Essence of electricity, Conductors, semiconductors and insulators (elementary treatment only); Electric field; electric current, potential and potential difference, electromotive force, electric power, ohm's law, basic circuit components, Kirchhoff's laws. Simple problems.

### UNIT-II

**Network Analysis:** Basic definitions, types of elements, types of sources, resistive networks, inductive networks, capacitive networks, series parallel circuits, star delta and delta star transformation, Network theorems- Superposition, Thevenins's theorems and simple problems.

Introduction to A.C: Principle of ac voltages, waveforms and basic definitions.

### UNIT-III

**D.C Generator:** Principle of operation of DC generator, types of D.C generators, e.m.f equation in a dc generator, O.C.C of a D.C Shunt generator and simple problems.

**D.C Motor:** Principle of operation of DC motors, types of DC motors, Torque production in a dc motor, losses and efficiency in D.C motor using Swinburne's test, speed control of dc shunt motor- armature control & field control (All the above topics are only elementary treatment) - simple problems.

### **UNIT-IV**

**Transformers:** Principle of operation, E.M.F equation, operation on No load and On load – Phasor diagrams, Equivalent circuit, Losses, OC & SC Test, Efficiency and Regulation Calculations & simple problems.

## UNIT V

**Three phase induction motors:** construction details of cage and wound rotor machines, production of rotating magnetic field, Principle of operation, slip and rotor frequency, torque (All the above topics are only elementary treatment)- simple problems.

### UNIT VI

**Basic Instruments:** Introduction, classification of instruments, operating principles, essential features of measuring instruments, Moving coil permanent magnet (PMMC) instruments, Moving Iron of Ammeters and Voltmeters (All the above topics are only elementary treatment).

## **TEXT BOOKS:**

- 1. Basic Electrical Engineering -By T.K.Nagasarkar and M.S. Sukhija Oxford University Press.
- 2. Principles of Electrical Engineering by V.K Mehta, S.Chand Publications.

- 1. Basic Electrical Engineering by U.A.Bakshi & V.U.Bakshi
- 2. Theory and Problems of Basic Electrical Engineering by D.P.Kothari& I.J. Nagrath PHI.

## COMPUTER SCIENCE AND ENGINEERING

II B.Tech I-Sem (CSE)

T C 3 2

## (A0009103) CORPORATE MANAGEMENT SKILLS (AUDIT COURSE)

## UNIT I

**Concept of Communication** – Significance, Scope and functions of Business Communication – Process and dimensions of communication – Essentials of good communication – Channels of communication – Formal, informal communication – Upward, Downward, Horizontal communication – Grapevine Phenomenon.

### UNIT II

**Types of communication**: **Verbal** – **Oral Communication**: Advantages and limitations of oral communication, written communication – Characteristics, significance, advantages & Limitations of written communication.

### UNIT III

**Non verbal Communication:** Sign language – Body language – Kinesics – Proxemics – Time language and Hap tics: Touch language.

### UNIT IV

**Interpersonal communication** – Interpersonal communication – Communication models: Exchange theory – Johari window – Transactional analysis, Communication styles.

### UNIT V

**Managing Motivation** to Influence Interpersonal communication – Inter-personal perception – Role of emotion in inter personal communication.

### UNIT VI

**Barriers to communication**: Types of barriers – Technological – Socio-Psychological barriers – Overcoming barriers. Listening – Types of listening – Tips for effective listening.

- 1. Business Communication, Meenakshi Raman, Oxford University Press.
- 2. Business Communication, Raymond V.Lesikar, Neeraja Pandit et al., TMH
- 3. English for Business Communication, Dr.T.M Farhatulla, Prism books Pvt. Ltd.
- 4. Business Communications, Hudson, 5/e, Jaico Publications
- 5. Business communication for managers, Penrose, Raspbery, Myers, Cengage
- 6. The Skills of Communication, Bills Scot, Gower publishing company Limited, London.
- 7. Effective Communication, Harward Business School, Harward Business Review No.1214.
- 8. Essentials of Business Communication, Rajendra Pal, JS.Korlahhi, S.Chand

## COMPUTER SCIENCE AND ENGINEERING

## II B.Tech I-Sem (CSE)

P C 3 2

## (A0592103) ADVANCED DATA STRUCTURES THROUGH C++ LAB

## **OBJECTIVES**:

- To make the student learn an object oriented way of solving problems.
- To make the student write ADTS for all data structures

### **OUTCOMES**:

- Basic ability to analyze algorithms and to determine algorithm correctness and time efficiency class.
- Describe and explain: (a) the concept of an abstract data type (ADT) and (b) different algorithmic strategies.
- Design, write, execute, and debug programs in C++.
- Apply measures of efficiency for algorithms and ADTs and interpret the results.
- Explain and describe the structure representation, and access procedures for ADTs including arrays, stacks, queues, linked lists, trees, graphs, and files.
- Explain and describe the applications of ADTs including arrays, stacks, queues, linked lists, trees, graphs, and files.
- Explain and describe different search and internal sorting algorithms.
- Explain and describe the structure, representation, and access procedures for static and dynamic tree tables and hash tables.
- Explain and describe the applications of static and dynamic tree tables and hash tables.
- Identify problems where advanced ADTs are appropriate and select or design the most suitable ADT for the given task.
- Design, implement, and use advanced ADTs.
- Identify and perform all phases of the software system development process.
- Write software documentation, including user and programmer manuals.

## List of Experiments: (Note: Use Class Templates in the Programs given below)

- Week 1: Write C++ programs to implement the following using an array representation.
   a) Stack ADT
   b) Queue ADT
- 2) Week 2: Write C++ programs to implement the following using a singly linked list.a) Stack ADTb) Queue ADT
- 3) Week 3: Write C++ programs to implement the deque (double ended queue) ADT using a doubly linked list.
- 4) Week 4: Write a C++ program to implement all the functions of a priority queue using linked list.
- 5) Week 5: Write a C++ program to implement all the functions of a dictionary (ADT) using linked list.
- 6) Week 6: Write C++ programs for implementing the following sorting methods:a) Quick sortb) Heap sort
- 7) Week 7: Write a C++ program to implement the following collision resolution techniques in hashing:
  a) Linear probing
  b) Quadratic probing
  c) Double hashing
- 8) Week 8: Write a C++ program to perform the following operations on the given binary search tree. a) Insertion an element into a binary search tree
  - b) Delete an element from a binary search tree
  - c) Search for a key element in a binary search tree.
- 9) Week 9: Write C++ program that implements the following traversal techniques of the given binary tree (Note: use non-recursive functions)
  - a) Pre-order b) In-order and c) Post-order.
- 10) Week 10: Write a C++ program to perform the following operations on the given B-tree.a) Insertion into a B-treeb) Deletion from a B-tree
- 11) Week 11: Write a C++ program to perform the following operations on the given AVL-treea) Insertion into an AVL-treeb) Deletion from an AVL-tree

## **TEXT BOOKS:**

- 1. Data Structures and Algorithms in C++, Third Edition, Adam Drozdek, Thomson.
- 2. Data Structures using C++, D.S. Malik, Thomson

## COMPUTER SCIENCE AND ENGINEERING

II B.Tech I-Sem (CSE)

P C 3 2

## (A0491103) ELECTRONIC DEVICES AND CIRCUITS LAB

ELECTRONIC WORKSHOP PRACTICE (in 3 lab sessions):

- 1. i) Identification, Specifications, Testing of R, L, C Components (Color Codes), Potentiometers, Switches (SPDT, DPDT, and DIP), Coils, Gang Condensers, Relays, Bread Boards.
  - ii) Identification, Specifications and Testing of Active Devices, Diodes, BJTs, Low power JFETs, MOSFETs, Power Transistors, LEDs, LCDs, SCR and UJT.
  - iii) Study and operation of Multi-meters (Analog and Digital) Function Generator- Regulated Power Supplies.
- 2. Study and Operation of CRO. Generating the Lissageous patterns and finding unknown frequency.
- 3. To study the V-I Characteristics of PN junction Diode and determine Static Resistance and Dynamic Resistance.
- 4. To study the Characteristics of Zener Diode and determine the Dynamic Resistance from the Characteristics.
- 5. To study and plot the Wave form of Half Wave Rectifier (HWR) and Full Wave Rectifier (FWR) with and without Filters.
- 6. To study and plot the Input and Output Characteristics of CE transistor configuration and calculate the Input and Output Resistance.
- 7. To study and plot the Input and Output Characteristics of CB Transistor and calculate the Input and Output Resistance.
- 8. To study the Characteristics of FET and calculate the drain Resistance  $(r_d)$ , Mutual Conductance  $(g_m)$ , and Amplification Factor  $(\mu)$ .
- 9. To Study the characteristics of UJT.
- 10. To study the Frequency Response of Single Stage CE Amplifier and hence calculate the Bandwidth (3dB BW).
- 11. To study the Frequency Response of Single Stage CC Amplifier and hence calculate the Bandwidth (3dB BW).
- 12. To study the Frequency Response of Single Stage CS FET Amplifier and hence calculate the Bandwidth (3dB BW).

## COMPUTER SCIENCE AND ENGINEERING

II B.Tech I-Sem (CSE)

P C 3 2

## (A0292103) BASIC ELECTRICAL ENGINEERING LAB

## **OBJECTIVES:**

• To provide basic laboratory exposure to DC & AC machines principles and applications.

## **OUTCOMES**:

- Students will gain practical experience while doing experiments in the laboratories.
  - 1. Verification of KVL & KCL
  - 2. Verification of Superposition theorem.
  - 3. Verification of Thevenin's theorem
  - 4. 4. Verification on AC with Resistive and Reactive loads.
  - 5. Magnetization characteristics of D.C. Shunt generator. Determination of critical field
  - 6. resistance& critical speed.
  - Swinburne's Test on DC shunt machine (Predetermination of efficiency of a given DC Shunt machine working as motor and generator).
  - 8. Brake test on DC shunt motor. Determination of performance Characteristics.
  - OC & SC tests on Single-phase transformer (Predetermination of efficiency and regulation at given power factors).
  - 10. Brake test on 3-phase Induction motor (performance characteristics).
  - 11. Speed control of DC shunt motor.

## COMPUTER SCIENCE AND ENGINEERING

## II B.Tech. II-Sem (CSE)

Т	С
3+1*	4

### (A0504104) DIGITAL LOGIC DESIGN

### **OBJECTIVES:**

- Understand the different number system, its conversions and binary arithmetic.
- Know the fundamentals of Boolean algebra and theorems, Karnaugh maps including the minimization of logic functions to SOP or POS form.
- Analysis of logic circuits and optimization techniques to minimize gate count, signals, IC count, or time delay.
- To strengthen the principles of logic design and use of simple memory devices, flip-flops, and sequential circuits.
- To fortify the documentation standards for logic designs, standard sequential devices, including counters and registers.
- To understand the logic design of programmable devices, including PLDs, RAMS, and ROMS including its sequencing and control.

## **OUTCOMES**:

- To examine the operation and use of various logic gates with different input patterns: AND, OR, and NOT, NAND, NOR, XOR and XNOR.
- To use Laws and Rules of Boolean algebra and DeMorgan's Theoerms for manipulating Boolean expressions.
- To evaluate the properties of Latches, Flip-Flops, and timers.
- To analyze the properties of fixed-function logic integrated circuits (IC): Complementary Metal Oxide Semiconductor (CMOS) and Transistor-Transistor Logic (TTL).
- To analyze the performance characteristics and parameters for logic gates and evaluate their significance in digital design.
- To analyze digital logic circuits using Boolean algebra.
- To evaluate combinational logic circuits for commonly used digital functionalities: Half adders and fulladders, parallel binary adders, comparators, BCD to decimal decodes, BCD to 7 segment decoders, encoders, multiplexers, and de-multiplexers.
- To design and study of counter applications using Flip-Flops.
- To design and study of various shift register applications.

## UNIT-I

**BINARY SYSTEMS:** Digital Systems, Binary Numbers, Number base conversions, Octal and Hexadecimal Numbers, Complements, Signed binary numbers, Binary codes, Error Detection and correction codes, Binary Storage and registers, Binary logic.

## UNIT-II

**BOOLEAN ALGEBRA AND LOGIC GATES:** Basic Definitions, Axiomatic definition of Boolean Algebra, Basic theorems and properties of Boolean algebra, Boolean functions, Canonical and standard forms, other logic operations, Digital Logic Gates, Integrated circuits.

### UNIT-III

**GATE – LEVEL MINIMIZATION:** The map method, Four-variable map, Five-Variable map, Product of sums, Simplification Don't-care conditions, NAND and NOR implementation, other Two-level implementations, Exclusive OR, X-NOR functions.

## UNIT - IV

**COMBINATIONAL LOGIC:** Combinational circuits, Analysis procedure, Design procedure, Binary Adder/Sub tractor, Decimal Adder, Binary multiplier, Magnitude comparator, Decoders, Encoders, Multiplexers, PLDs- Read-only memory, Programmable Logic Array, Programmable Array Logic.

### UNIT - V

**SYNCHRONOUS SEQUENTIAL LOGIC:** Sequential circuits, Latches, Flip-Flops, Analysis of clocked sequential circuits, Conversion of Flip-Flop, State reduction and assignment, Design procedure.

**ASYNCHRONOUS SEQUENTIAL LOGIC:** Introduction, Analysis procedure, Circuits with latches, Design procedure, Reduction of state and flow tables, Race-Free state assignment Hazards, Design example.

## UNIT - VI

Registers: shift Registers, Universal shift registers, Up/Down counters, Ripple counters, Synchronous counters, Johnson counters, Introduction of Random-Access Memory, Memory Decoding, Sequential Programmable Devices, Introduction of Hardware Description Language, Simple HDL Programmes of Combinational and sequential circuits.

## **TEXT BOOKS:**

- 1. DIGITAL DESIGN Third Edition, M.Morris Mano, Pearson Education/PHI.
- 2. FUNDAMENTALS OF LOGIC DESIGN, Roth, 5th Edition, Thomson.

- 1. Switching and Finite Automata Theory by Zvi. Kohavi, Tata McGraw Hill.
- 2. Switching and Logic Design, C.V.S. Rao, Pearson Education
- 3. Digital Principles and Design Donald D.Givone, Tata McGraw Hill, Edition.
- 4. Fundamentals of Digital Logic & Micro Computer Design , 5TH Edition, M. Rafiquzzaman John Wiley

## AUTONOMOUS

## COMPUTER SCIENCE AND ENGINEERING

## II B.Tech. II-Sem (CSE)

Т	С
3+1*	4

### (A0505104) COMPUTER ORGANIZATION

## **OBJECTIVES**:

- To understand the structure, function, characteristics and performance issues of computer systems.
- To understand the design of the various functional units of digital computers
- To understand I/O transfer mechanism, design of I/O circuit interfaces and example bus standards (like PCI, SCSI, USB)
- To understand the basic processing unit and how they are connected and how it generates control signals (using hardwired and micro programmed approaches)
- To understand the different types of memory and how they are related.
- To learn basics of Parallel Computing and Pipelining.

### **OUTCOMES**:

- Students will learn about computer performance, computer design, and tradeoffs between cost and performance as well as between hardware and software
- Students will formulate and solve problems, understand the performance requirements of systems
- Students will learn to communicate effectively and learn to think creatively and critically, both independently and with others.
- Students will learn about all the detailed design issues and circuits of each unit.

**UNIT I: BASIC STRUCTURE OF COMPUTERS:** Computer Types, Functional unit, Basic operational concepts, Bus structures, Software, Performance, multiprocessors and multi computers. **DATA REPRESENTATION:** Fixed Point Representation. Floating – Point Representation.

Error Detection codes.

**UNIT II: REGISTER TRANSFER LANGUAGE AND MICROOPERATIONS:** Register Transfer language, Register Transfer, Bus and memory transfers, Arithmetic Micro operations, logic micro operations, shift micro operations, Arithmetic logic shift unit. **BASIC COMPUTER ORGANIZATION AND DESIGN**: Instruction codes, Computer Registers, Computer instructions, Instruction cycle, Memory- reference instructions, Input – Output and Interrupt. **CENTRAL PROCESSING UNIT**: Stack organization, Instruction formats, Addressing modes, Data transfer and manipulation, Program control, Reduced Instruction set computer.

**UNIT III: MICRO PROGRAMMED CONTROL:** Control memory, Address sequencing, micro program example, design of control unit, Hard wired control, Micro programmed control. **COMPUTER ARITHMETIC :**Addition and subtraction, multiplication Algorithms, Division Algorithms, Floating – point Arithmetic operations, Decimal Arithmetic unit.

**UNIT IV: THE MEMORY SYSTEM:** Basic concepts, semiconductor RAM memories, Read-only memories, Cache memories, performance considerations, Virtual memories, secondary storage, Introduction to RAID.

**UNIT-V: PIPELINE AND VECTOR PROCESSING:** Parallel processing, Arithmetic pipeline, Instruction Pipeline, RISC Pipeline, Vector processing, Array Processors.

**UNIT VI: MULTI PROCESSORS:** Characteristics of Multi Processors, Inter Connection Structures, Inter Processor Arbitration, Inter Processor Communication & Synchronization, Cache Coherence

### **TEXT BOOKS:**

- 1. Computer Organization Carl Hamacher, Zvonks Vranesic, SafeaZaky, Vth Edition, McGraw Hill.
- 2. Computer Systems Architecture M. Moris Mano, IIIrd Edition, Pearson/PHI

- 1. Computer Organization and Architecture William Stallings Sixth Edition, Pearson/PHI
- 2. Structured Computer Organization Andrew S. Tanenbaum, 4th Edition PHI/Pearson
- 3. Fundamentals or Computer Organization and Design, Sivaraama Dandamudi Springer Int. Edition.
- 4. Computer Architecture a quantitative approach, John L. Hennessy and David A. Patterson, Fourth Edition Elsevier
- 5. Computer Architecture: Fundamentals and principles of Computer Design, Joseph D. Dumas II, BS Publication.

## AUTONOMOUS

## **COMPUTER SCIENCE AND ENGINEERING**

## II B.Tech. II-Sem (CSE)

T C 3+1\* 4

## (A0506104) OBJECT ORIENTED PROGRAMMING

## **OBJECTIVES:**

After taking this course, the student should be able to:

- Describe the Windows event-driven programming model
- Build simple JAVA applications according to the model
- Write fluent JAVA code for creating classes
- Use JAVA variables, data, expressions and arrays
- Design and create forms, menus and controls
- Write clear, elementary Java programs (applets and applications)
- Use a Java-enabled browser and/or the applet viewer to execute Java applets
- Use the Java interpreter to run Java applications
- Design and construct effective graphic user interfaces for application software.
- Use Java Beans, RMI to build complex business applications

## **OUTCOMES**:

- Understand the syntax and concepts of JAVA
- Write JAVA programs for processing data
- Write JAVA programs to interface with windows.
- Write JAVA programs that use data from flat files and databases.
- Develop programs with GUI features such as dialog boxes, menus etc.
- Write JAVA programs that form the GUI front-end for database applications.
- Write applications using distributed objects.
- A passing student shall demonstrate knowledge of GUI-based event-driven programming in a working.
- Program assignment utilizing Java GUI components, event listeners and event-handlers.

## UNIT I

**Java Basics -** History of Java, Java buzzwords, comments, data types, variables, constants, scope and life time of variables, operators, expressions, type conversion and casting, enumerated types, control flow- conditional statements, break and continue, simple java program, arrays.

OOP concepts, parameter passing, static fields and methods, access control, this, overloading methods and constructors, recursion, garbage collection, Strings, string functions.

## UNIT II

**Inheritance** –Inheritance concept, Super and Sub classes, Member access rules, types of Inheritance, super uses, final classes and methods, casting, polymorphism- dynamic binding, method overriding, abstract classes and methods, the Object class and its methods.

**Interfaces** – Interfaces vs. Abstract classes, defining an interface, implementing interfaces, accessing implementations through interface references, extending interface.

## UNIT III

Packages- Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages.

**Files** – streams, text Input/output, binary input/output, random access file operations, File management using File class, Using java.io.

**Networkingin Java** – Introduction, Manipulating URLs, Ex. Client/Server Interaction with Stream Socket Connections, Connectionless Client/Server Interaction with Datagrams, Using java.net.

## UNIT IV

**Exception handling** – benefits of exception handling, exception hierarchy, checked exceptions and unchecked exceptions, usage of try, catch, throw, throws and finally, rethrowing exceptions, built in exceptions, creating own exceptions.

**Multithreading** - Differences between multiple processes and multiple threads, thread states, creating threads, interrupting threads, thread priorities, synchronizing threads, interthread communication, thread groups, daemon threads.

## UNIT V

**Event Handling -** Events, Event sources, Event classes, Event Listeners, Relationship between Event sources and Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes.

## UNIT VI

**GUI Programming with Java** - The AWT class hierarchy, Introduction to Swing, Swing vs. AWT,MVC architecture, Hierarchy for Swing components, Containers – Top-level containers – JFrame, JApplet, JWindow, JDialog, JPanel, A simple swing application, swing components- Jbutton, JToggleButton, JCheckBox, JRadioButton, JLabel, JTextField, JTextArea, JList, JComboBox, JMenu, capabilities –color control, Font control, Drawing lines, rectangles and ovals, Drawing arcs, Layout management - Layout manager types – border, grid, flow, box.

## TEXT BOOKS

- 1. Java; the complete reference, 7<sup>th</sup> editon, Herbert schildt, TMH.
- 2. Understanding OOP with Java, updated edition, T. Budd, pearson eduction.

- 1. An Introduction to programming and OO design using Java, J.Nino and F.A. Hosch, John wiley & sons.
- 2. An Introduction to OOP, second edition, T. Budd, pearson education.
- 3. Introduction to Java programming  $6^{th}$  edition, Y. Daniel Liang, pearson education.
- 4. An introduction to Java programming and object oriented application development, R.A. Johnson-Thomson.
- 5. Core Java 2, Vol 1, Fundamentals, Cay.S.Horstmann and Gary Cornell, seventh Edition, Pearson Education.
- 6. Core Java 2, Vol 2, Advanced Features, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.

## COMPUTER SCIENCE AND ENGINEERING

## II B.Tech. II-Sem (CSE)

T C 3+1\* 4

## (A0507104) FORMAL LANGUAGES AND AUTOMATA THEORY

### **OBJECTIVES:**

The purpose of this course is to acquaint the student with an overview of the theoretical foundations of computer science from the perspective of formal languages.

- Classify machines by their power to recognize languages.
- Employ finite state machines to solve problems in computing.
- Explain deterministic and non-deterministic machines.
- Comprehend the hierarchy of problems arising in the computer sciences.

### **OUTCOMES**:

- To introduce the computer science students to the theoretical foundations of computer science.
- To study abstract models of information processing machines and limits of digital computation.
- To provide theoretical preparation for the study of programming languages and compilers.
- To develop the skills of formal and abstract reasoning as needed; for example, when designing, analyzing, and / or verifying complex software/hardware systems.

**UNIT I: Fundamentals:** Strings, Alphabet, Language, Operations, Finite state machine, definitions, finite automaton model, acceptance of strings, and languages, deterministic finite automaton and non deterministic finite automaton, transition diagrams and Language recognizers.

**Finite Automata:** NFA with  $\hat{I}$  transitions - Significance, acceptance of languages. Conversions and Equivalence: Equivalence between NFA with and without  $\hat{I}$  transitions, NFA to DFA conversion, minimisation of FSM, equivalence between two FSM's, Finite Automata with output- Moore and Melay machines.

**UNIT II: Regular Languages:** Regular sets, regular expressions, identity rules, Constructing finite Automata for a given regular expressions, Conversion of Finite Automata to Regular expressions. Pumping lemma of regular sets, closure properties of regular sets (proofs not required).

**UNIT III: Grammar Formalism:** Regular grammars-right linear and left linear grammars, equivalence between regular linear grammar and FA, inter conversion, Context free grammar, derivation trees, sentential forms. Right most and leftmost derivation of strings.

**Context Free Grammars:** Ambiguity in context free grammars. Minimisation of Context Free Grammars. Chomsky normal form, Greiback normal form, Pumping Lemma for Context Free Languages. Enumeration of properties of CFL (proofs omitted).

**UNIT IV: Push Down Automata:** Push down automata, definition, model, acceptance of CFL, Acceptance by final state and acceptance by empty state and its equivalence. Equivalence of CFL and PDA, interconversion. (Proofs not required). Introduction to DCFL and DPDA.

**UNIT V: Turing Machine:** Turing Machine, definition, model, design of TM, Computable functions, recursively enumerable languages. Church's hypothesis, counter machine, types of Turing machines (proofs not required).

**UNIT VI: Computability Theory:** Chomsky hierarchy of languages, linear bounded automata and context sensitive language, LR(0) grammar, decidability of, problems, Universal Turing Machine, undecidability of posts. Correspondence problem, Turing reducibility, Definition of P and NP problems, NP complete and NP hard problems.

### **TEXT BOOKS:**

- 1. "Introduction to Automata Theory Languages and Computation". Hopcroft H.E. and Ullman J. D.Pearson Education
- 2. Introduction to Theory of Computation –Sipser 2nd edition Thomson

- 1. Introduction to Computer Theory, Daniel I.A. Cohen, John Wiley.
- 2. Introduction to languages and the Theory of Computation ,John C Martin, TMH
- 3. "Elements of Theory of Computation", Lewis H.P. & Papadimition C.H. Pearson /PHI.
- 4. Theory of Computer Science Automata languages and computation -Mishra and Chandrashekaran, 2nd edition, PHI.

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## COMPUTER SCIENCE AND ENGINEERING

## II B.Tech. II-Sem (CSE)

T C 3+1\* 4

## (A0508104) DATABASE MANAGEMENT SYSTEMS

### **OBJECTIVES:**

- Advantages an applications of DBMS and Database system structure.
- Schema design: ER model and conceptual design.
- Relational model and SQL basics.
- Relational algebra and Query optimization.
- Storage and efficient retrieval of data: various indexing techniques.
- Schema refinement: normalization and redundancy removal and functional dependant.
- Transaction management: locking protocols, serializability concepts etc.
- Concurrency control and crash recovery: various mechanisms, ARIES algorithm and deadlock concepts.

### **OUTCOMES**:

- Students will learn about the need for DBMS, the largeness of the data and why it gives rise to steam oriented processing and strategies and are at higher level than general purpose programming language such as JAVA.
- Students will learn about storage and efficient retrieval of large Information via algebraic query optimization and the use of indexing.
- Students will also learn basics of SQL and about primary key concepts and foreign key concepts. They will also learn about data manipulation (insertions deletions & updation) and triggers.
- Students will learn about functional dependency and the need for schema refinement (normalization) to remove redundancy of data.
- Students will also learn about transaction management concurrencyControl and crash recovery.

## UNIT I

Database System Applications, database System VS file System – View of Data – Data Abstraction –Instances and Schemas – data Models – the ER Model – Relational Model – Database Languages – DDL – DML – Database Access for applications Programs – Database Users and Administrator – Transaction Management – Database System Structure – Storage Manager – the Query Processor-Application Architectures- History of Data base Systems. Data base design and ER diagrams – Beyond ER Design- Entities, Attributes and Entity sets – Relationships and Relationship sets – Additional features of ER Model – Conceptual Design with the ER Model.

## UNIT II

Introduction to the Relational Model – Integrity Constraint Over relations – Enforcing Integrity constraints – Querying relational data – Logical database Design – Introduction to Views – Destroying /altering Tables and Views. Relational Algebra – Selection and projection set operations – renaming – Joins – Division – Examples of Algebra queries – Relational calculus – Tuple relational Calculus – Domain relational calculus.

## UNIT III

The Form of a Basic SQL Query – Examples of Basic SQL Queries – Introduction to Nested Queries – Correlated Nested Queries, Set – Comparison Operators – Aggregate Operators – NULL values – Comparison using Null values – Logical connectivites – AND, OR and NOT – Impact on SQL Constructs – Outer Joins – Disallowing NULL values – Complex Integrity Constraints in SQL, Triggers and Active Data bases.

### UNIT IV

Schema refinement – Problems Caused by redundancy – Decompositions – Problems related to decomposition – Functional dependies-reasoning about FDS – FIRST, SECOND, THIRD Normal forms – BCNF – Lossless join Decomposition – Dependency preserving Decomposition – Schema refinement in Data base Design – Multi valued Dependencies – FORTH Normal Form.

## UNIT V

Overview Of Transaction Management : The ACID Properties, Transactions and Schedules, Concurrent Execution of transactions-Lock Based Concurrency Control, Performance of Locking, Transaction Support in SQL, Introduction to crash recovery, Concurrency Control: 2PL,serializabilityand recoverability, Introduction Lock Management, Lock Conversions, Dealing with Deadlocks, Concurrency control without locking.

## UNIT VI

Data on External Storage – File Organizations and Indexing – Cluster Indexes, Primary and Secondary Indexes – Index data Structures – Hash Based Indexing – Tree base Indexing – Comparison of File Organizations – The Memory Hierarchy, RAID, Disk Space Management, Buffer Manager, Files of Records, Page Formats, record Formats.

## **TEXT BOOKS:**

- 1. Data base Management Systems, Raghurama Krishnan, Johannes Gehrke, TATA McGrawHill 3rd Edition
- 2. Data base System Concepts, Silberschatz, Korth, McGraw hill, V edition.

- 1. Data base Systems design, Implementation, and Management, Peter Rob & CarlosCoronel 7th Edition.
- 2. Fundamentals of Database Systems, Elmasri Navrate Pearson Education.
- 3. Introduction to Database Systems, C.J.Date Pearson Education

## COMPUTER SCIENCE AND ENGINEERING

## II B.Tech. II-Sem (CSE)

T C 3+1\* 4

### (A0509104) UNIX AND SHELL PROGRAMMING

## **OBJECTIVES:**

Upon successful completion of this course, you should be able to:

- Define and redirect standard files.
- Use the pipe operator to connect two commands.
- Use wildcard met characters and the history command to recall commands.
- Use shell variables.
- Define and use foreground and background processes.
- Define and use processes and co-processes.
- Use directory information in scripts.
- Set and use positional parameters and escape sequences.
- Pass arguments to shell scripts and test arguments.
- Use conditions, control statements and the if command in a decision.
- Use while and for loops.
- Debug scripts using execute trace and verbose trace.
- Use command substitution and Group shell commands.
- Create and use aliases and functions.
- Identify and use signals and handle signals in a shell script.
- Use integer and floating-point arithmetic.
- Create and use variable arrays.
- Perform command evaluation using eval.
- Use Here documents, file I/O operators and command options processing.
- Use a lock file to synchronize access.

### **OUTCOMES**:

- Be familiar with Unix and Linux operating Systems.
- Master the techniques to use a Linux system.
- Be familiar with the Unix file system and its basic operations.
- Be familiar with the Unix command interpreters.
- Master the techniques of shell programming.

## UNIT I

Introduction: Why Unix?, Computer System, The Unix Environment, Unix structure, Accessing Unix, Common commands: date, cal, who, passwd, echo, man, lpr. Other useful commands: tty, clear, sty, script, uname, bc, tar, gzip, cpio,finger,arp,ftp,telnet,rlogin.

Vi editor: Editor concepts, The vi editor, Modes, Commands.

## UNIT II

File Systems: File Names, File Types, Regular Files, Directories, File System Implementation, Operations unique to regular files, Operations unique to directories, Operations common to both.

Security & File Permissions: users and groups, security levels, changing permissions, user masks, changing ownership and group.

## UNIT III

**Introduction to Shells:**Unix Session, Standard Streams, Redirection, Pipes, Tee Command, Command Execution, Command-Line Editing, Quotes, Command Substitution, Job Control, Aliases, Variables, Predefined Variables, Options, Shell/Environment Customization.

**Filters:**Filters and Pipes, Concatenating files, Display Beginning and End of files, Cut and Paste, Sorting, Translating Characters, Files with Duplicate Lines, Count characters, Words or Lines, Comparing Files.

## UNIT IV

Grep :Operation, grep Family, Searching for File Content.

**awk:** Execution, Fields and Records, Scripts, Operations, Patterns, Actions, Associative Arrays, String Functions, String Functions, Mathematical Functions, User – Defined Functions, Using System commands in awk, Applications, awk and grep.

## UNIT V

**Interactive Korn Shell:** Korn Shell Features, Two Special Files, Variables, Output, Input, Exit Status of a Command, eval command, Environmental Variables, Options, Startup Scripts, Command History, Command Execution Process.

**Korn Shell Programming:** Basic Script concepts, Expressions, Decisions: Making Selections, Repetition, special Parameters and Variables, changing Positional Parameters, Argument Validation, Debugging Scripts, Script Examples.

## UNIT VI

Korn shell Advanced Programming: Variable evaluation and substitution, string manipulation, here document, functions, arrays, signals, built-in commands, scripting techniques, shell environment and script, script examples.

## **TEXT BOOKS:**

- 1. Unix and shell Programming Behrouz A. Forouzan, Richard F. Gilberg. Thomson
- 2. Your Unix the ultimate guide, Sumitabha Das, TMH. 2nd Edition.

## II B.Tech. II-Sem (CSE)

T C 3 2

## (A0007103) APTITUDE ARITHMETIC REASONING & COMPREHENSION (AUDIT COURSE)

## UNIT I

Numbers, Number Systems Simple Equations, Ratio, Proportion, Variation Quadratic Equations, Progressions Percentages.

## UNIT II

Profit, Loss, Partnerships Averages, Mixtures & Allegations, Simple Interest, Compound Interest, Time and Work-Pipes, indices, surds, inequalities ,Cisterns Time and Distance Geometry and Menstruation.

## UNIT III

Permutations & Combinations and Probability Data Interpretation & Data Sufficiency.

## UNIT IV

Number & Letter Series, Analogies, Coding Decoding, Odd Man Out Blood Relations.

## UNIT V

Direction Sense, Symbols and Notations Deductions & Connectives Clocks, Calendars Analytical

## UNIT VI

Reasoning (Distribution+ Binary Logic + Puzzles) Cubes, Venn Diagrams Analytical Puzzles (Linear + Circular + Selections + Sequencing + Routes & Networks + Comparisons) and Non Verbal Reasoning

- 1. R.S.Agarwal "Quantitative Techniques" S.Chand Series
- 2. Shankuntala Devi "Techniques of Reasoning" S.Chand Series

## COMPUTER SCIENCE AND ENGINEERING

## II B.Tech. II-Sem (CSE)

P C 3 2

## (A0593103) UNIX AND SHELL PROGRAMMING LAB

### **OBJECTIVES:**

• To teach students various unix utilities and shell scripting.

### **OUTCOMES**

- Mastery of the basic UNIX process structure and the UNIX file system.
- Mastery of simple UNIX filters.
- Familiarity with pipes and redirection. the UNIX environment, traps.
- Signals, filter parameters, filter options, UNIX contentions, and Regular Expressions.

### **Recommended Systems/Software Requirements:**

- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space LAN Connected
- Any flavour of Unix / Linux

### Week1

- SESSION-1
  - a. Log into the system.
  - b. Use vi editor to create a file called myfile.txt which contains some text.
  - c. correct typing errors during creation.
  - d. Save the file e)logout of the system

### **SESSION-2**

- a. Log into the system
- b. open the file created in session 1
- c. Add some text
- d. Change some text
- e. Delete some text
- f. Save the Changes
- g. Logout of the system

### Week2

- a) Log into the system
- b) Use the cat command to create a file containing the following data. Call it mytable use tabs to separate the fields.

Ravi	15.65
Ramu	26.27
Sita	36.15
Raju	21.86
	Ravi Ramu Sita Raju

- c) Use the cat command to display the file, mytable.
- d) Use the vi command to correct any errors in the file, mytable.
- e) Use the sort command to sort the file mytable according to the first field. Call the sorted file my table (same name)
- f) Print the file mytable
- g) Use the cut and paste commands to swap fields 2 and 3 of mytable. Call it my table (same name)
- h) Print the new file, mytable
- i) Logout of the system.

## COMPUTER SCIENCE AND ENGINEERING

## Week3

- 1. a) Login to the system
  - b) Use the appropriate command to determine your login shell
  - c) Use the /etc/passwd file to verify the result of step b.
  - d) Use the who command and redirect the result to a file called myfile1. Use the more command to see the contents of myfile1.
  - d) Use the date and who commands in sequence (in one line) such that the output of date will display on the screen and the output of who will be redirected to a file called myfile2. Use the more command to check the contents of myfile2.
- 2. a) Write a sed command that deletes the first character in each line in a file.
  - b) Write a sed command that deletes the character before the last character in each line in a file.
  - c) Write a sed command that swaps the first and second words in each line in a file.

## Week4

- a) Pipe your /etc/passwd file to awk, and print out the home directory of each user.
- b) Develop an interactive grep script that asks for a word and a file name and then tells how many lines contain that word.
- c) Repeat
- d) Part using awk

## Week5

- a) Write a shell script that takes a command –line argument and reports on whether it is directory, a file, or something else.
- b) Write a shell script that accepts one or more file name as arguments and converts all of them to uppercase, provided they exist in the current directory.
- c) Write a shell script that determines the period for which a specified user is working on the system.

## Week6

- a) Write a shell script that accepts a file name starting and ending line numbers as arguments and displays all the lines between the given line numbers.
- b) Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.

## Week7

- a) Write a shell script that computes the gross salary of a employee according to the following rules:
  - i) If basic salary is < 1500 then HRA =10% of the basic and DA =90% of the basic.
  - ii) If basic salary is >=1500 then HRA =Rs500 and DA=98% of the basic The basic salary is entered interactively through the key board.
- b) Write a shell script that accepts two integers as its arguments and computers the value of first number raised to the power of the second number.

## Week8

- a) Write an interactive file-handling shell program. Let it offer the user the choice of copying, removing, renaming, or linking files. Once the user has made a choice, have the program ask the user for the necessary information, such as the file name, new name and so on.
- b) Write shell script that takes a login name as command line argument and reports when that person logs in
- c) Write a shell script which receives two file names as arguments. It should check whether the two file contents are same or not. If they are same then second file should be deleted.

## Week9

- a) Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.
- b) Develop an interactive script that ask for a word and a file name and then tells how many times that word occurred in the file.
- c) Write a shell script to perform the following string operations:i)To extract a sub-string from a given string.ii)To find the length of a given string.

### Week10

Write a C program that takes one or more file or directory names as command line input and reports the following information on the file:

- i) File type
- ii) Number of links
- iii) Read, write and execute permissions
- iv) Time of last access

(Note : Use stat/fstat system calls)

## Week11

Write C programs that simulate the following unix commands:

- a) mv
- b) cp (Use system calls)

## Week12

Write a C program that simulates ls Command (Use system calls / directory API)

## **TEXT BOOKS**

- 1. Introduction to UNIX & SHELL programming, M.G. Venkatesh Murthy, Pearson Education.
- 2. Unix concepts and applications, Fourth Edition, Sumitabha Das, TMH.
- 3. Unix for programmers and users, 3<sup>rd</sup> edition, Gaham Glass & K. Ables, pearson education.
- 4. Unix and shell Programming -A text book, B.A. Forouzan & R.F. Giberg, Thomson.
- 5. Beginning shell scripting, E. Foster Johnson & other, Wile Y- India.

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## COMPUTER SCIENCE AND ENGINEERING

## II B.Tech. II-Sem (CSE)

P C 3 2

## (A0594104) OBJECT ORIENTED PROGRAMMING LAB

### **OBJECTIVES**:

- To make the student operating systems.
- Learn a object oriented way of solving problems.
- To teach the student to write programs in Java to solve the problems

## **OUTCOMES**:

### After Completion of the Lab Course student should be able:

- To make the student learn a object oriented way of solving problems.
- To teach the student to write programs in Java to solve the problems

### **Recommended Systems/Software Requirements:**

- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space
- JDK Kit. Recommended
- a) Write a Java program that prints all real solutions to the quadratic equation ax2 + bx + c = 0. Read in a, b, c and use the quadratic formula. If the discriminant b2 -4ac is negative, display a message stating that there are no real solutions.
  - b) The Fibonacci sequence is defined by the following rule:

The fist two values in the sequence are 1 and 1. Every subsequent value is the sum of the two values preceding it. Write a Java program that uses both recursive and non recursive functions to print the nth value in the Fibonacci sequence.

- 2) a) Write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.
  - b) Write a Java program to multiply two given matrices.
- 3) Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers (Use StringTokenizer class of java.util)
- 4) Write a Java program to find both the largest and smallest number in a list of integers.
- 5) Write a Java program to illustrate method overloading.
- 6) Write a Java program that implements the Sieve of Eratosthenes to find prime numbers.
- 7) Write a Java program to sort a list of names in ascending order.
- 8) Write a Java program to implement the matrix ADT using a class. The operations supported by this ADT are:
  - a) Reading a matrix. c) Addition of matrices.
  - b) Printing a matrix. d) Subtraction of matrices.
  - e) Multiplication of matrices.

Write a Java Program to solve Tower's of Hanoi problem .

- 9) Write a Java Program that uses a recursive function to compute ncr. (Note: n and r values are given)
- 10) Write a Java program to perform the following operations:
  - a) Concatenation of two strings.
  - b) Comparison of two strings.

## RGM-R-2010

#### RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG & TECHNOLOGY, NANDYAL AUTONOMOUS COMPUTER SCIENCE AND ENGINEERING

- 11) Implement the complex number ADT in Java using a class. The complex ADT is used to represent complex numbers of the form c=a+ib, where a and b are real numbers. The operations supported by this ADT are:
  - a) Reading a complex number.
    - umber. d) Subtraction of complex numbers.
  - b) Writing a complex number. e) Multiplication of complex numbers.
  - c) Addition of Complex numbers. f) Division of complex numbers.
- 12) Write a Java program that makes frequency count of letters in a given text.
- 13) Write a Java program that uses functions to perform the following operations :
  - a) Inserting a sub-string in to the given main string from a given position.
  - b) Deleting n characters from a given position in a given string.
- 14) a) Write a Java program that checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome.
  - b) Write a Java program to make frequency count of words in a given text.
- a) Write a Java program that reads a file name from the user, then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes.
  - b) Write a Java program that reads a file and displays the file on the screen, with a line number before each line.
  - c) Write a Java program that displays the number of characters, lines and words in a text file.
  - d) Write a Java program to change a specific character in a file.

Note: Filename, number of the byte in the file to be changed and the new character are specified on the command line.

- 16) Write a Java program that:
  - i) Implements stack ADT.
  - ii) Converts infix expression into Postfix form
  - iii) Evaluates the postfix expression.
- 17) a) Develop an applet in Java that displays a simple message.
  - b) Develop an applet in Java that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named "Compute" is clicked.
- 18) Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -,\*, % operations. Add a text field to display the result.
- 19) Write a Java program for handling mouse events.
- 20) a) Write a Java program that creates three threads. First thread displays "Good Morning" every one second, the second thread displays "Hello" every two seconds and the third thread displays Welcome" every three seconds.
  - b) Write a Java program that correctly implements producer consumerproblem using the concept of inter thread communication.
- 21) Write a Java program that creates a user interface to perform integer divisions. The user enters two numbers in the text fields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a Number Format Exception. If Num2 were Zero, the program would throw an Arithmetic Exception Display the exception in a message dialog box.

- 22) Write a Java program that implements a simple client/server application. The client sends data to a server. The server receives the data, uses it to produce a result, and then sends the result back to the client. The client displays the result on the console. For ex: The data sent from the client is the radius of a circle, and the result produced by the server is the area of the circle. (Use java.net)
- 23) a) Write a Java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow, or green. When a radio button is selected, the light is turned on, and only one light can be on at a time No light is on when the program starts.
  - b) Write a Java program that allows the user to draw lines, rectangles and ovals.
- 24) a) Write a Java program to create an abstract class named Shape that contains an empty Method named number of Sides ().Provide three classes named Trapezoid, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method number of Sides () that shows the number of sides in the given geometrical figures.
  - b) Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header.
  - c) And the remaining lines correspond to rows in the table. The elements are separated by commas. Write a java program to display the table using Jtable component.

## **TEXT BOOKS:**

- 1. Java How to Program, Sixth Edition, H.M.Dietel and P.J.Dietel, Pearson Education/PHI
- 2. Introduction to Java programming, Sixth edition, Y.Daniel Liang, Pearson Education
- 3. Big Java, 2<sup>nd</sup>edition, Cay Horstmann, Wiley Student Edition, Wiley India Private Limited.

## AUTONOMOUS

## COMPUTER SCIENCE AND ENGINEERING

## II B.Tech. II-Sem (CSE)

P C 3 2

## (A0595104)DATABASE MANAGEMENT SYSTEMS LAB

## **OBJECTIVES**

- Student will be able to:
- Create and delete database schemas and execute SQL queries
- Inserting data, Altering and dropping the tables.
- Various types of data conversions using the functions.
- Make Use of PL/SQL Language Components.
- Make Use of PL/SQL Variables.
- Handle PL/SQL Reserved Words.
- Make Use of Identifiers in PL/SQL.
- Make Use of Anchored Data type

## **OUTCOMES**

Upon completion of the lab, the student should be able to:

- Map the model into a relational database system.
- Implement the given schema on a relational DBMS.
- Design, develop, and maintain Oracle Database Objects.
- Use a database language for manipulating and querying data.
- Develop advanced packages, stored procedures, and triggers and functions using PL/SQL

### **Recommended Systems/Software Requirements:**

- Intel based desktop PC
- Mysql /Oracle latest version Recommended
- 1) Creation, altering and droping of tables and inserting rows into a table (use constraints while creating tables) examples using SELECT command.
- 2) Queries (along with sub Queries) using ANY, ALL, IN, EXISTS, NOTEXISTS, UNION, INTERSET, Constraints.

Example:- Select the roll number and name of the student who secured fourth rank in the class.

- 3) Queries using Aggregate functions (COUNT, SUM, AVG, MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.
- 4) Nested Queries and correlated nested queries
- 5) Table alterations
- 6) Queries using Conversion functions (to\_char, to\_number and to\_date), string functions (Concatenation, lpad, rpad, ltrim, rtrim, lower, upper, initcap, length, substr and instr), date functions (Sysdate, next\_day, add\_months, last\_day, months\_between, least, greatest, trunc, round, to\_char, to\_date)
- 7) Creating procedures
- 8) Creating functions and packages
- Develop Programs using BEFORE and AFTER Triggers, Row and Statement Triggers and INSTEAD OF Triggers.
- 10) Introduction to ORACLE reports

## **TEXT BOOKS :**

- ORACLE PL/SQL by example. Benjamin Rosenzweig, Elena Silvestrova, Pearson Education 3<sup>rd</sup> Edition
- 2. ORACLE DATA BASE LOG PL/SQL Programming SCOTT URMAN, Tata Mc-Graw Hill.
- 3. SQL & PL/SQL for Oracle 10g, Black Book, Dr.P.S. Deshpande.

## COMPUTER SCIENCE AND ENGINEERING

### III B.Tech. I-Sem (CSE)

Т	С
3+1*	4

### (A0510105) OPERATING SYSTEMS

## **OBJECTIVES**:

- This course deals with functions, structures and history of operating systems.
- To understand the design issues associated with operating systems.
- To understand various process management concepts including scheduling, synchronization, deadlocks.
- To be familiar with multithreading and the concepts of memory management including virtual memory.
- To understand the issues related to file system interface and implementation, disk management with protection and security mechanisms.
- Some example operating systems (Unix, Windows, Solaris etc)

## **OUTCOMES:**

- At the end of the course the students knows the need and requirement of an interface between Man and Machine.
- To enable them to identify the difference between the system software and the application software and their design requirements.
- Students will be able to relate the features of operating systems and the fundamental theory associated with process, memory and file managements components of different operating systems.
- Students will learn about and understand theoretical concepts and programming constructs used for the operation of modern operating systems.
- Students will gain practical experience with software tools available in modern operating systems such assemaphores, system calls, sockets and threads

UNIT I: Introduction - what operating systems do, Operating systems structure, process management, memory management, protection and security, distributed systems, special purpose systems

System structure - operating system services, systems calls, types of system calls, system programs, operating system structure, operating systems generation, system boot.

UNIT II: Process concepts – overview, process scheduling, operations on process, inter-process communication Multithread Programming – overview, multithreading models, thread libraries

Process scheduling – basic concepts, scheduling criteria, scheduling algorithms, algorithm evaluation

UNIT III: Concurrency - Process synchronization, the critical-section problem, Peterson's Solution, synchronization Hardware, semaphores, classic problems of synchronization, monitors

Principles of deadlock: system model, deadlock characterization, deadlock prevention, detection and avoidance, recovery form deadlock.

UNIT IV: Memory Management Strategies - Swapping, contiguous memory allocation, paging, structure of the page table, segmentation, Virtual memory management – background, demand paging, copy-on-write, page-replacement algorithms, Thrashing.

UNIT V: File system – file concept, Access Methods, Directory structure, File system mounting, protection. File System implementation - File system structure, file system implementation, directory implementation, allocation methods, free-space management, Recovery.

UNIT VI: Secondary-storage structure - overview of Mass-storage structure, Disk structure, disk attachment, disk scheduling, swap-space management, RAID structure, stable-storage implementation, Tertiary storage devices-removable disks, tapes, future technology, performance issues.

### TEXT BOOKS:

1. Operating System Concepts, Abraham Silberchatz, Peter B. Galvin, Greg Gagne, Eighth edition, John Wiley.

- 1. Operating Systems: Internals and Design Principles, Stallings, Sixth Edition-2009, Pearson Education.
- 2. Modern Operating Systems, Andrew S Tanenbaum, Second Edition, PHI.
- 3. Operating Systems, S.Haldar, A.A.Aravind, Pearson Education.
- 4. Principles of Operating Systems, B.L.Stuart, Cengage learning, India Edition.
- 5. Operating Systems, A.S.Godbole, Second Edition, TMH.
- 6. An Introduction to Operating Systems, P.C.P. Bhatt, PHI.
- 7. Operating Systems, G.Nutt, N.Chaki and S.Neogy, Third Edition, Pearson Education.
- 8. Operating Systems, R.Elmasri, A,G.Carrick and D.Levine, Mc Graw Hill.

### COMPUTER SCIENCE AND ENGINEERING

## III B.Tech. I-Sem (CSE)

T C 3+1\* 4

## (A0511105) COMPUTER NETWORKS (Comon to CSE & ECE)

#### **OBJECTIVES:**

- An understanding of the overriding principles of computer networking, including protocol design, protocol layering, algorithm design, and performance evaluation.
- An understanding of computer networking theory, including principles embodied in the protocols designed for the application layer, transport layer, network layer, and link layer of a networking stack.
- An understanding of specific implemented protocols covering the application layer, transport layer, network layer, and link layer of the Internet (TCP/IP) stack.
- An understanding of security issues.

### **OUTCOMES**:

- Students will learn to list and classify network services, protocols and architectures, explain why they are layered.
- Student will learn to explain key Internet applications and their protocols.
- Students will learn to explain security issues in computer networks.
- To master the terminology and concepts of the OSI reference model and the TCP-IP reference model.
- To master the concepts of protocols, network interfaces, and Design/performance issues in local area networks and wide area networks.
- To be familiar with wireless networking concepts.
- To be familiar with contemporary issues in networking technologies.
- To be familiar with network tools and network programming.

**UNIT I:** Introduction: Network Hardware, Network Software, References Models. The Physical Layer: Guided Transmission Media, Communication Satellites, The public Switched Telephone Network- The Local Loop: Modern ADSL, and wireless, Trunks and Multiplexing, Switching

**UNIT II:** The Data Link Layer: Data link Layer Design Issues, Elementary Data Link Protocols, Sliding Window Protocols.

**UNIT III:** The Medium Access Control Sublayer: Multiple Access protocols, Ethernet- Ethernet Cabling, Manchester Encoding, The Ethernet MAC Sublayer Protocol. The Binary Exponential Backoff Algorithm, Ethernet Performance, Switched Ethernet, Fast Ethernet. Wireless LANs- The 802.11 Protocol Stack, The 802.11 Physical Layer, The 802.11 MAC SubLayer Protocol, The 802.11 Frame Structure .

**UNIT IV:** The Network Layer: Network Layer Design Issues, Routing Algorithms(Shortest path, Flooding, Distance Vector, Link state and Hierarchical routing, Broad cast routing, Multicast routing), Congestion Control Algorithms, Internetworking.

**UNIT V:** The Transport Layer: The Transport Service, Elements of Transport Protocols, The Internet Transport Protocols: UDP, The Internet Transport Protocols: TCP.

**UNTI VI:** The Application Layer: DNS-The Domain Name System, Electronic Mail, The World Wide Web. Network Security: Cryptography, Symmetric-Key Algorithms, Public-Key Algorithms, Digital Signatures.

### TEXT BOOKS:

1. Computer Networks, Andrew S. Tanenbaum, Fouth Edition, Pearson Education.

- 1. Computer Communications and Networking Technologies, Michael A. Gallo, William M. Hancock, Cengage Learning.
- 2. Computer Networks: Principles, Technologies and Protocols for Network Design, Natalia Olifer, Victor Olifer, Wiley India.
- 3. Data Communications and Networking, Behrouz A. Forouzan, Fourth Edition, Tata McGraw Hill.
- 4. Understanding Communications and Networks, Third Edition, W.A.Shay, Cengage Learning.
- 5. Computer and Communication Networks, Nader F. Mir, Pearson Education
- 6. Computer Networking: A Top-Down Approach Featuring the Internet, James F.Kurose, K.W.Ross, Third Edition, Pearson Education.
- 7. Data and Computer Communications, G.S.Hura and M.Singhal, CRC Press, Taylor and Francis Group.

## AUTONOMOUS

## COMPUTER SCIENCE AND ENGINEERING

### III B.Tech. I-Sem (CSE)

 $\begin{array}{ccc} T & C \\ 3+1^* & 4 \end{array}$ 

## (A0013105) MANAGERIAL ECONOMICS & FINANCIAL ACCOUNTING

## **OBJECTIVES**

- To understand the principles of and techniques of managerial economics.
- To understand the business organizations.
- To understand the financial accounting and analysis.
- To understand maintain a particular product at the lowest cost while meeting the specifications of the customer

## **OUTCOMES:**

- Students will able to analyze the demand in the present market.
- Students will able to how to precise the production cost.
- Students will able to know the price output decisions are made in markets.
- Students will able to maintain the books by using the financial accounting

### UNIT I

**Introduction to Managerial Economics:** Definition, Nature and Scope of Managerial Economics–Demand Analysis: Demand determinants, Law of Demand and its exceptions.

### UNIT II

**Elasticity of Demand:** Definition, Types, Measurement and Significance of Elasticity of Demand. Demand Forecasting, Factors governing demand forecasting, methods of demand forecasting (survey methods, statistical methods, expert opinion method, test marketing, controlled experiments, judgmental approach to demand forecasting)

### UNIT III

**Business & New Economic Environment:** Characteristic features of Business, Features and evaluation of Sole Proprietorship, Partnership, Joint Stock Company, Public Enterprises and their types, Changing Business Environment in Post-liberalization scenario.

### UNIT IV

**Capital and Capital Budgeting:** Capital and its significance, Types of Capital, Estimation of Fixed and Working capital requirements, Methods and sources of raising finance. Nature and scope of capital budgeting, features of capital budgeting proposals, Methods of Capital Budgeting: Payback Method, Accounting Rate of Return (ARR) and Net Present Value Method (simple problems)

## UNIT V

**Introduction to Financial Accounting:** Double-Entry Book Keeping, Journal, Ledger, Trial Balance-Final Accounts (Trading Account, Profit and Loss Account and Balance Sheet with simple adjustments).

## UNIT VI

**Financial Analysis through ratios:** Computation, Analysis and Interpretation of Liquidity Ratios (Current Ratio and quick ratio), Activity Ratios (Inventory turnover ratio and Debtor Turnover ratio), Capital structure Ratios (Debt- Equity ratio, Interest Coverage ratio), and Profitability ratios (Gross Profit Ratio, Net Profit ratio, Operating Ratio, P/E Ratio and EPS).

### **TEXT BOOKS:**

- 1. Aryasri: Managerial Economics and Financial Analysis, 2/e, TMH, 2005.
- 2. Varshney & Maheswari: Managerial Economics, Sultan Chand, 2003.

## **REFERENCES:**

- 1. Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi.
- 2. H. Craig Peterson & W. Cris Lewis, Managerial Economics, PHI, 4th Ed.
- 3. Suma Damodaran, Managerial Economics, Oxford University Press.
- 4. Lipsey & Chrystel, Economics, Oxford University Press.
- 5. S. A. Siddiqui & A. S. Siddiqui, Managerial Economics & Financial Analysis, New age International Space Publications.
- 6. Domnick Salvatore: Managerial Economics In a Global Economy, 4th Edition, Thomson.
- 7. Narayanaswamy: Financial Accounting-A Managerial Perspective, PHI.
- 8. Raghunatha Reddy & Narasimhachary: Managerial Economics& Financial Analysis, Scitech.
- 9. S.N.Maheswari & S.K. Maheswari, Financial Accounting, Vikas.
- 10. Truet and Truet: Managerial Economics: Analysis, Problems and Cases, Wiley. Dwivedi: Managerial Economics, 6th Ed., Vikas.

Codes/Tables: Present Value Tables need to be permitted into the examinations Hall.

## COMPUTER SCIENCE AND ENGINEERING

## III B.Tech. I-Sem (CSE)

Т	С
3+1*	4

### (A0512105) COMPILER DESIGN

### **OBJECTIVES:**

- Thorough understanding of the overall architecture of a modern compiler.
- Being familiar with both top-down and bottom-up parsing paradigms.
- Fluent with syntax-directed translation scheme and different compiler-compilers.
- Knowledgeable with assembly language and code-block based code generation scheme.
- Knowing the inner details of compilers, libraries, operating systems/platforms, and how they interact with each other to form modern computing environments.

### **OUTCOMES**:

- After the completion of this course, the students will be able to: describe the theory and practice of compilation.
- Generally applying the top down ad bottom approaches of parsing, and the lexical analysis.
- Student will be able to generate code generation and optimization phases of compilation, and design a compiler for a concise programming language.
- Student can have the experience and confidence of having developed a major software system with thousands of lines of code and apply all the learnt techniques.

### UNIT-I

Overview of compilation: Phases of compilation, Lexical analysis, regular Grammar & regular Expressions for common Programming language features, Pass & Phases translation, interpretation, bootstrapping, data structures in compilation, LEX

## UNIT-II

Parsing: CFG, Top down parsing , backtracking, recursive descent parsing ,Preprocessing steps required for predictive parsing, , Predictive parsing, LL(1).

## UNIT-III

Bottom up Parsing : Shift Reduce parsing, LR and LALR parsing, Error recovery in parsing, handling ambiguous grammar, YACC.

## UNIT-IV

Semantic analysis: Intermediate forms of source Programs-abstract syntax tree, polish notation and Three address code. Attributed grammars, Syntax directed translation, Conversion of popular Programming language Constructs into Intermediate code forms, Type checker.

### **UNIT-V**

Symbol Tables: Symbol table format, organization for block structures languages, hashing, tree structures representation of space information. Block structures and non block structure storage allocation: static, Runtime stack and heap storage allocation, storage allocation for arrays, strings and records.

## UNIT-VI

Code optimization : Consideration for Optimization, Scope of Optimization, local Optimization, loop Optimization, global Optimization, machine dependent code Optimization .

Object code forms, register allocation and assignment generic code generation algorithms, DAG for register allocation. Data flow analysis.

## **TEXT BOOKS:**

- 1. Principles of complier design -A.V.Aho.J.D.Ullman; Person Education.
- 2. Modern Compiler Implementation in C-Andrew N.Appel, Cambridge University Press.

- 1. Lex&yacc-John R.Levine, Tony Mason, Doug Brown, O'reilly
- 2. Modern Complier Degin-Dick Grune, Henry E.Bal, Cariel T.H.Jacobs, Wiley dreamtech.
- 3. Engineering a Complier –Cooper & Linda, Elsevier.
- 4. Compiler Construction , Louden, Thomson.

## AUTONOMOUS

## COMPUTER SCIENCE AND ENGINEERING

## III B.Tech. I-Sem (CSE)

T C 3+1\* 4

### (A0513105) SOFTWARE ENGINEERING

## **OBJECTIVES**:

- To understand Software development as a process.
- Various software process models and system models.
- Various software designs: Architectural, object oriented, user interface etc.
- Software testing methodologies overview: various testing techniques including white box testing black box testing regression testing etc.
- Software quality: metrics, risk management quality assurance etc.

### **OUTCOMES:**

- Students will learn to work as a team and to focus on getting working project done on time with each student being held accountable for their part of the project.
- Student will learn about risk management and quick prototyping de-risk project management.
- Students will learn about and go through the software life cycle with emphasis on different process requirements design and implementation phases.
- Students will learn about software process models and hoe to choose an Appropriate model for their project will learn about risk management and quick prototyping to de-risk projects.
- Students will gain confidence and conceptualized.

### UNIT I

**Introduction to Software Engineering:** The evolving role of software, Changing Nature of Software, Software myths. **A Generic view of process:** Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

### UNIT II

**Process models:** The waterfall model, Incremental process models, Evolutionary process models, The Unified process. **Software Requirements:** Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

### UNIT III

**Requirements engineering process:** Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management. **System models:** Context Models, Behavioral models, Data models, Object models.

### UNIT IV

Design Engineering: Design process and Design quality, Design concepts, the design model.

Creating an architectural design: Software architecture, Data design, Architectural styles and patterns.

### UNIT V

**Performing User interface design:** Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation. **Testing Strategies:** A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.

### UNIT VI

**Metrics for Process and Products:** Software Quality, Software Measurement, Metrics for software quality. **Quality Management :** Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software quality Assurance, The ISO 9000 quality standards.

### **TEXT BOOKS:**

- 1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition.McGrawHill International Edition.
- 2. Software Engineering- Sommerville, 7th edition, Pearson education.

- 1. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
- 2. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
- 3. Systems Analysis and Design- Shely Cashman Rosenblatt, Thomson Publications.
- 4. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies.

## COMPUTER SCIENCE AND ENGINEERING

## III B.Tech. I-Sem (CSE)

T C 3+1\* 4

### (A0514105) C# AND .NET

### **OBJECTIVES:**

• To cover the fundamental concepts of the C# language and the .NET framework

### **OUTCOMES**:

- The student will gain knowledge in the concepts of the .NET framework as a whole and the technologies that constitute the Framework.
- The student will gain programming skills in C# both in basic and advanced levels.
- By building sample applications, the student will get experience and be ready for large-scale projects

### UNIT I

**INTRODUCTION TO C#:** Introducing C#, Understanding .NET, Overview of C#, Literals, Variables, Data Types, Operators, Expressions, Branching, Looping, Methods, Arrays, Strings, Structures, Enumerations.

### UNIT II

**OBJECT ORIENTED ASPECTS OF C#:** Classes, Objects, Inheritance, Polymorphism, Interfaces, Operator Overloading, Delegates, Events, Errors and Exceptions.

### **UNIT III**

**APPLICATION DEVELOPMENT ON .NET:** Building Windows Applications, Accessing Data with ADO.NET.

## UNIT IV

**ASP.NET:** Web applications and web servers, HTML form Development, Client side Scripting, GET and POST, ASP.NET application, ASP.NET namespaces, creating sample C# web Applications, architecture, Debugging and Tracing of ASP.NET

## UNIT V

**WEB DEVELOPMENT:** Introduction to web Form controls. Building Web Services- web service namespaces, building simple web Service, WSDL, web service wire protocols, WSDL into C#.

### UNIT VI

**THE CLR AND THE .NET FRAMEWORK:** Assemblies, Versioning, Attributes, Reflection, Viewing MetaData, Type Discovery, Reflecting on a Type, Marshaling, Remoting, Understanding Server Object Types, Specifying a Server with an Interface, Building a Server, Building the Client, Using Single Call, Threads.

### **TEXT BOOKS**

- 1. E. Balagurusamy, "Programming in C#", Tata McGraw-Hill, 2004.
- 2. J. Liberty, "Programming C#", 2<sup>nd</sup> ed., O'Reilly, 2002.

- 1. Andrew Trolesen C# and the .NET Platform, Dreamtech Press, Second Edition
- 2. Bradley L Jones, 'Sams Teach Yourself the C# Language in 21 Days', Sams, 1<sup>st</sup>edition, 2001.
- 3. Andy Harris, 'Microsoft C# Programming for the Absolute Beginner', PTR publications, 2002.
- 4. Herbert Schildt, "The Complete Reference: C#", Tata McGraw-Hill, 2004.
- 5. Robinson et al, "Professional C#", 2<sup>nd</sup>ed., Wrox Press, 2002.
## COMPUTER SCIENCE AND ENGINEERING

III B.Tech. I-Sem (CSE)

T C 3 2

# (A0515105) INTRODUCTION TO ORACLE 9i-PART-1 (AUDIT COURSE)

UNIT –I

Introduction, Writing Basic SQL SELECT statements

**UNIT –II** Restricting and Sorting Data, Single row functions

**UNIT –III** Displaying Data From Multiple Tables, Aggregating Data Using Group Functions

**UNIT-IV** Subqueries, Manupulating Data

**UNIT-V** Creating and Managing Tables

UNIT –VI Including Constraints

**REFERENCES:** 

1. Oracle University Press

# COMPUTER SCIENCE AND ENGINEERING

#### III B.Tech. I-Sem (CSE)

(A0596105) OPERATING SYSTEMS LAB

P C 3 2

# **OBJECTIVES:**

A student will be able to:

- Prepare students for easy transfer from academia into practical life.
- Get an Insight into the Computer Technologies.
- Obtain Basic Knowledge of Operating Systems.

#### **OUTCOMES:**

The main learning outcomes are:

- Master functions, structures and history of operating systems
- Master understanding of design issues associated with operating systems
- Master various process management concepts including scheduling, synchronization,
- deadlocks
- Be familiar with multithreading
- Master concepts of memory management including virtual memory
- Master system resources sharing among the users
- Master issues related to file system interface and implementation, disk management
- Be familiar with protection and security mechanisms
- Be familiar with various types of operating systems including Unix
  - 1. Simulate the following CPU scheduling algorithms
    - a) Round Robin b) SJF c) FCFS d) Priority
  - 2. Simulate sequential file allocation strategies
  - 3. Simulate MVT architecture.
  - 4. Simulate following File Organization Techniques
    - a) Single level directory b) Two level
  - 5. Simulate Bankers Algorithm for Dead Lock Avoidance
  - 6. Simulate Bankers Algorithm for Dead Lock Detection
  - 7. Simulate all page replacement algorithms
    - a) FIFO b) LRU c) Optimal
  - 8. Simulate Paging Technique of memory management.

# AUTONOMOUS

# COMPUTER SCIENCE AND ENGINEERING

#### III B.Tech. I-Sem (CSE)

P C 3 2

#### (A0597105) C# AND .NET LAB

## LAB-1

- 1. Write a program to demonstrate how unary operators are used.
- 2. Write a program in C# to demonstrate how binary operators work

### LAB-2

- 3. Write a program in C# to find out the range of number from 1-10 or 11-20 or 21-30 or less than 1.
- 4. Write a program in C# to find out the number entered between 1 -3

### LAB-3

- 5. Write a program in C# to override a method which calculates pay of an employees to take bonus into account.
- 6. Write a program in C# to ask a user to enter a choice to add, delete, modify or view address using methods for each functionality.

### LAB-4

- 7. Write a program in C# to show that when a <u>struct</u> is passed to a method, a copy of the struct is passed, but when a <u>class</u> instance is passed, a reference is passed.
- 8. Write a Program to implement an Interface

### LAB-5

- 9. Write a program in C# to to perform conversions between enums and their base types.
- 10. Write a program to string manipulations

### LAB-6

11. Write a program in C# to create a base class shape and derived classes i.e., Rectangle, Circle, and Triangle. Invoke the method from base class shape using polymorphism

# <u>LAB-7</u>

12. Write a program in C# to open a file to write and read and handle the exception.

# LAB-8

13. Create a Basic Web Page in Visual Web Developer

# <u>LAB-9</u>

14. Creating a Basic Web Page in Visual Web Developer and add a button control on it.

# LAB-10

- 15. Create User profile Application which allow user to select the Material Status and Hobbies.
- 16. Implement the calculator with the help of the Command argument and command nameproperties of the button control.

# COMPUTER SCIENCE AND ENGINEERING

#### III B.Tech. I-Sem (CSE)

P C 3 2

# (A0093105) PROFESSIONAL COMMUNICATION AND SOFT SKILLS LAB (PROS LAB)

# **INTRODUCTION:**

• The **Professional Communication and Soft Skills Lab** has been introduced at the III B. Tech level to navigate the students towards the appropriate career orientation. At this stage it is imperative for the student to prepare for the ever growing competition in the job market. In this scenario, the student needs to improve his/her Communication and soft skills in an effective manner to cope up the global trends.

# **OBJECTIVE**:

• Keeping in mind the previous exposure of the student to English, this lab focuses on improving the student's proficiency in English at all levels. The lab intends to train students to use language effectively, to participate in group discussions, to help them face interviews, and sharpen public speaking skills and enhance the confidence of the student by exposing him/her to various situations and contexts which he/she would face in his/her career.

#### Syllabus

The following modules are prescribed for the Professional Communication and Soft Skills Lab.

#### Week – I Professional Spirit

- Motivation & Self Esteem Questionnaire on self analysis
- Activity- G.D on Personal goals and career objectives
- Case Study Profile of a successful person

#### Week –II Concept of Communication -I

- Principles barriers Strategies Analysis through video clipping
- Activity- Elevator pitch (Tell me about yourself)
- Reading Comprehension- 1
- Case study : news reviews

#### Week –III Concept of Communication -II

- Non verbal communication kinesics paralinguistic elements Analysis through video clipping
- Activity- Elevator pitch (Tell me about yourself)
- Vocabulary: idioms & phrases

#### Week –IV Concept of Communication -III

- Listening Skills ROAR Technique Chinese Pictograph
- Activity- Debate with analysis on Non verbal cues, Gestures & postures
- Reading Comprehension-2
- Case study : TV Interviews/ Movie

#### Week -V Professional Communication -I

- Group Discussion- Modalities, Process and evaluation
- Activity- Group Discussion
- Vocabulary Foreign –Derived words

#### Week –VI Professional Communication -II

- Writing Skills –Letters, Emails & Resume Writing
- Activity- Letter writing and Resume Writing practice
- Reading Comprehension-3
- Analysis of Sample Letters / Memos/ Resume s

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### Week –VII Job Skills I

- HR Interview Strategies, Questions with analysis Analysis through video clippings(Typical HR interviews)
- Vocabulary: Technical Jargon
- Activity- Group Discussion / Debate

#### Week –VIII Job Skills II

- Telephone Interview Strategies On line interview Tips Activity- Mock Interview
- Reading Comprehension-4

# Week -IX Job Skills III

- Technical Presentation skills
- Activity- Group Discussion Practice

# Week –X Soft skills I

- Reading Skills SQR3 technique Bloom's Taxonomy
- Technical Presentation Practice PPTs
- Week –XI Soft skills II
  - Job Etiquettes
  - Communication Project Reviews
  - Activity- Group Discussion Practice

#### Week –XII Soft skills III

- Team communication
- Mock CAT/ GRE Test
- Activity -Mock Interview

#### **Minimum Requirements**

The English Language Lab shall have two parts:

The Computer aided Language lab for 60 students with 60 systems, one master console. LAN facility and English Language Skills Lab with movable Chairs and audio aids with a P.A system, a TV, A digital stereo-audio and video system, Camcorder etc.

Prescribed software: Department in-built data, K-Van Solutions and Globarena Ltd.

# **BOOKS PRESCRIBED:**

- 1. Cornerstone: Developing Soft Skills by Robert M. Sherfield, Rhonda J. Montgomery and Patricia G. Moody, published by Pearson Education.
- 2. Resume's and Interviews by M.Ashraf Rizvi, Tata Mc Graw-Hill, 2008

# **BOOKS SUGGESTED FOR REFERENCE:**

- 1. The ACE of Soft Skills by Gopal Ramesh and Mahadevan REamesh, Pearson Education,
- 2. How to Do Well in GDs and Interviews by Dorling Kindersdley (India) Pvt. Ltd., Licencees of Pearson Education in South Asia.
- 3. Technical Writing by Sharon J.Gerson and Steven M.Gerson , published by Pearson Education
- 4. Professesional Presentations by Malcolm Goodale , published by Cambridge University Press.

# AUTONOMOUS

# COMPUTER SCIENCE AND ENGINEERING

#### III B.Tech. II-Sem (CSE)

T C 3+1\* 4

### (A0516106) OBJECT ORIENTED ANALYSIS AND DESIGN

#### **OBJECTIVES:**

- Building block of UML: things, relationships and diagrams.
- Contents and common modeling techniques to model static aspects of any system using.
- Class diagrams, object diagrams, deployment diagram, use case diagram.
- Contents and common modeling techniques to model dynamic aspects of any system using.
- Sequence diagram, collaboration diagram, activity diagram, state chart diagram.
- Contents and common modeling techniques to model any system using component diagram to implement physically.

#### **OUTCOMES**:

- Analyze system requirements and model problem domains.
- Evaluate quality of analysis.
- Design and build object oriented systems.
- Explain and justify designs based on design principles patterns and heuristics.
- Write object-oriented code to correctly implement a design.
- Be able to read and write analysis and design documentation the Unified Modeling language.
- Be able to read and write object-oriented code.

### UNIT – I

**Introduction to UML:** Importance of modeling, principles of modeling, object oriented modeling, Conceptual model of the UML, Architecture, Software Development Life Cycle.

### UNIT - II

Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams.

Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.

#### UNIT - III

**Class & Object Diagrams:** Terms, concepts, modeling techniques for Class & Object Diagrams. **Basic Behavioral Modeling-:** Interactions, Interaction diagrams. Use cases, Use case Diagrams, Activity Diagrams.

Ose case Diagrams, 7 lea

# UNIT - IV

Advanced Behavioral Modeling: Events and signals, state machines, processes and Threads, time and space, state chart diagrams.

# UNIT-V

Architectural Modeling: Component, Deployment, Component diagrams and Deployment diagrams.

# UNIT - VI

Case Study: The Unified Library application, ATM application.

# TEXT BOOKS:

1. Grady Booch, James Rumbaugh, Ivar Jacobson : The Unified Modeling Language User Guide, Pearson Education.

# **REFERENCE BOOKS:**

- 1. Meilir Page-Jones: Fundamentals of Object Oriented Design in UML, Pearson Education.
- 2. Pascal Roques: Modeling Software Systems Using UML2, WILEYDreamtech India Pvt. Ltd.
- 3. AtulKahate: Object Oriented Analysis & Design, The McGraw Hill Companies.
- 4. Mark Priestley: Practical Object-Oriented Design with UML, TATAMcGrawHill
- 5. Appling UML and Patterns: An introduction to Object Oriented Analysis and Design and Unified Process, Craig Larman, Pearson Education.
- 6. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado: UML 2 Toolkit, WILEY-Dreamtech India Pvt. Ltd.

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# COMPUTER SCIENCE AND ENGINEERING

# III B.Tech. II-Sem (CSE)

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3+1*	4

#### (A0517106) COMPUTER GRAPHICS

#### **OBJECTIVES:**

This course is designed to provide a comprehensive introduction to computer graphics leading to the ability to understand contemporary terminology, progress, issues, and trends.

- The interdisciplinary nature of computer graphics is emphasized in the wide variety of examples and applications.
- Course material is structured to meet the needs of both designers and users of interactive computer graphics systems
- Provide an understanding of how a computer draws the fundamental graphics primitives lines and filled polygons in both 2-D and 3-D.
- Understand the fundamental mathematics involved in generating a 3-D scene. Includes coordinate systems, transformations, and vector operations.
- Understand the 3-D graphics pipeline, i.,e. the steps taken to transform and draw an object. This includes 3-D transformations, lighting and shading, rasterization and texture mapping. Programmable shaders will be introduced.
- A thorough introduction to computer graphics techniques, focusing on 3D modeling, image synthesis, and rendering. Topics cover: geometric transformations, geometric algorithms, software systems (OpenGL), 3D object models (surface, volume and implicit), visible surface algorithms, image synthesis, shading and mapping, ray tracing, radiosity, global illumination, photon mapping, and anti-aliasing.
- Apply knowledge gained in a series of exercises using OpenGL that demonstrate the fundamental principles of computer graphics. A functional scene graph will be developed to render 3-D scenes with lighting, texture mapping, and a variety of 3-D objects

#### **OUTCOMES**:

- Be familiar with drawing primitive objects (lines, circles, polygons) on a display.
- Be exposed to graphical input and output devices
- Master two dimensional modeling and 2-D transformations.
- Be familiar with master-instance structure.
- Master three dimensional modeling and 3-D transformations.
- Be familiar with projection of 3-D objects on a 2-D plane.
- Master clipping, fill, and rendering techniques.
- Be exposed to color and shading models.
- Be familiar with the visible surface detection methods.
- Animation techniques and languages

#### UNIT I

A Survey of Computer Graphics:Overview of graphics systems: Video-Display Devices, Raster-scan Systems, Random-scan Systems, Graphics Monitors and Work stations, Input devices, Hardcopy Devices and Graphics Software.

#### UNIT II

**Output Primitives:** Points and lines, Line drawing algorithms, Loading the Frame Buffer, Line Function, Circle Generating algorithms and Ellipse Generating algorithms, Filled area primitives: Scan line polygon fill algorithm, inside-outside boundary-fill and flood-fill algorithms.

#### UNIT III

**2-D Geometrical transforms:** Basic Transformations, Matrix representations and Homogeneous coordinates, Composite transforms, Other Transformations, Transformations between coordinate systems, Transformation Functions, Raster method for Transformation.

# UNIT IV

**2-D Viewing:** The Viewing Pipeline, Viewing coordinate reference frame, Window to View-port coordinate transformation, 2D Viewing functions, Clipping Operation, Point Clipping, Line Clipping: Cohen-Sutherland and Liang - Barsky line clipping algorithms, Polygon Clipping: Sutherland – Hodgeman polygon clipping algorithm, Curve Clipping, Text Clipping, Exterior Clipping.

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## UNIT V

**3-D Geometric and Modeling Transformations:** Translation, Rotation, Scaling, other Transformations, Composite Transformations.

3-D viewing: Viewing Pipeline, Viewing coordinates, Projections.

#### UNIT VI

3-D viewing: View volume and General projection transforms, Clipping.

**Computer Animation:** Design of Animation Sequence, General Computer Animation functions, Raster Animation, Computer Animation Languages, Key-Frame systems, Motion Specifications.

# **TEXT BOOKS:**

1. "Computer Graphics C version", Donald Hearn and M. Pauline Baker, Pearson education.

- 1. "Computer Graphics Principles & practice", second edition in C, Foley, VanDam, Feiner and Hughes, Pearson Education.
- 2. "Computer Graphics Second edition", Zhigand xiang, Roy Plastock, Schaum's outlines, Tata Mc Graw hill edition.
- 3. "Procedural elements for Computer Graphics", David F Rogers, Tata Mc Graw hill, 2nd edition.
- 4. "Principles of Interactive Computer Graphics", Neuman and Sproul, TMH.
- 5. "Principles of Computer Graphics", Shalini, Govil-Pai, Springer.
- 6. "Computer Graphics", Steven Harrington, TMH
- 7. Computer Graphics, F.S. Hill, S.M. Kelley, PHI.
- 8. Computer Graphics, P.Shirley, Steve Marschner & Others, Cengage Learning.
- 9. Computer Graphics & Animation, M.C. Trivedi, Jaico Publishing House.

# COMPUTER SCIENCE AND ENGINEERING

#### III B.Tech. II-Sem (CSE)

T C 3+1\* 4

### (A0518106) DESIGN AND ANALYSIS OF ALGORITHMS

# **OBJECTIVES:**

- Significance of algorithms in the computer field.
- Various aspects of algorithm development.
- Qualities of a good solution.
- Significance and importance of program correctness.
- Various fields that constitute the subject of algorithms.
- Relationship between algorithms and other fields in the computer realm.
- How the field of algorithms are developed.
- Significance of algorithm efficiency.

#### **OUTCOMES:**

- Explain the basic concepts of time and space complexity, divide-and-conquer strategy, dynamic programming, greedy algorithms, amortized analysis.
- Describe the methodologies of how to analyze an algorithm.
- Identify the complexity of problems.
- Solve a problem using an algorithm and evaluate its correctness.
- Formulate the time-complexity analysis for an algorithm.
- Design a better algorithm to solve the problems.
- Build up analyzing, designing and programming skills

### UNIT I

Introduction: Algorithm, Pseudo code for expressing algorithms, Performance Analysis-Space complexity, Time complexity, Asymptotic Notation- Big oh notation, Omega notation, Theta notation and Little oh notation, Probabilistic analysis, Amortized analysis.

#### UNIT II

Disjoint Sets- disjoint set operations, union and find algorithms, spanning trees, connected components and bi connected components.

#### UNIT III

Divide and conquer: General method , applications-Binary search, Quick sort, Merge sort, Strassen's matrix multiplication.

#### UNIT IV

Greedy method: General method, applications-Job sequencing with dead lines, 0/1 knapsack problem, Minimum cost spanning trees, Single source shortest path problem.

#### UNIT V

Dynamic Programming: General method, applications- 0/1 knapsack problem, All pairs shortest path problem, Travelling sales person problem, Reliability design.

#### UNIT VI

Backtracking: General method, applications-n-queen problem, sum of subsets problem, graph coloring. Branch and Bound: General method, applications - Travelling sales person problem, LC Branch and Bound solution, FIFO Branch and Bound solution.

# **TEXT BOOKS:**

- 1. Fundamentals of Computer Algorithms, Ellis Horowitz, Satraj Sahni and Rjasekharam, Galgotia publications pvt. Ltd.
- 2. Algorithm Design: Foundations, Analysis and Internet examples, M.T.Goodrich and R.Tomassia, John wiley and sons.

- 1. Introduction to Algorithms, second edition, T.H.Cormen, C.E.Leiserson, R.L.Rivest, and C.Stein, PHI Pvt. Ltd./ Pearson Education.
- 2. Introduction to Design and Analysis of Algorithms A strategic approach, R.C.T.Lee, S.S.Tseng, R.C.Chang and T.Tsai, Mc Graw Hill.
- 3. Data structures and Algorithm Analysis in C++, Allen Weiss, Second edition, Pearson education.
- 4. Design and Analysis of algorithms, Aho, Ullman and Hopcroft, Pearson education.
- 5. Algorithms Richard Johnson baugh and Marcus Schaefer, Pearson Education.

## COMPUTER SCIENCE AND ENGINEERING

#### III B.Tech. II-Sem (CSE)

T C 3+1\* 4

#### (A0519106) PRINCIPLES OF PROGRAMMING LANGUAGES

#### **OBJECTIVES:**

• The main objective is that students will have a deep, working knowledge of the functional paradigm and the key ideas used in modern programming languages. It provides an exposure to core concepts and principles in contemporary programming languages

# **OUTCOMES**:

- After the completion of this course, students should be able to:
- Write and modify programs using a mostly-functional style.
- Write and modify programs that make effective use of data abstraction.
- Modify interpreters to change or enhance their behavior so as to implement various features of programming languages.
- Write programs using such features, and explain, using appropriate terminology.

#### UNIT I

Preliminary Concepts: Reasons for studying concepts of programming languages, Programming domains, Language Evaluation Criteria Influences on language design ,Language categories, Language Design Trades-Offs, Implementation Methods, Programming Environments Syntax and Semantics: general Problem of describing Syntax and Semantics, Formal Methods of Describing Syntax-BNF,EBNF, Describe the meaning of a Programs: Dynamic Semantics.

#### UNIT II

Data types: Introduction, primitive, character, user defined, array, associative, record, union, pointer and reference types, design and implementation uses related to these types. Names, Variable, concept of binding, type checking, strong typing, type compatibility.

#### UNIT III

Expressions and Statements: Arithmetic relational and Boolean expressions, Short circuit evaluation mixed mode assignment, Assignment Statements, Control Structures: Statement Level, Compound Statements, Selection, Iteration, Unconditional Statements, guarded commands.

#### UNIT IV

Subprograms and Blocks: Fundamentals of sub-programs, Scope and lifetime of variable, static and dynamic scope, Design issues of subprograms and operations, local referencing environments, parameter passing methods, generic sub-programs, parameters that are sub-program names, user defined overloaded operators, co routines.

#### UNIT V

Abstract Data types: Abstractions and encapsulation, introductions to data abstraction, design issues, language examples, C++ parameterized ADT, object oriented programming in small talk, C++, Java, C#, Ada 95. Exception handling: Exceptions, exception Propagation, Exception handlr in Ada.

#### UNIT VI

Logic Programming Language: Introduction and overview of logic programming, basic elements of prolog, application of logic programming. Functional Programming Languages: Introduction, fundamentals of FPL, LISP, ML, Haskell, application of Functional Programming Languages and comparison of functional and imperative Languages.

#### **TEXT BOOKS:**

- 1. Concepts of Programming Languages Robert W. Sebesta, Eighth Edition, Pearson Education, 2008.
- 2. Programming Language Design Concepts, D. A. Watt, Wiley Dreamtech, rp-2007.

- 1. Programming Languages, Second Edition, A.B. Tucker, R.E. Noonan, TMH.
- 2. Programming Languages, K. C.Louden, Second Edition, Thomson, 2003.
- 3. LISP, Patric Henry Winston and Paul Horn, Pearson Education.
- 4. Programming in Prolog, W.F. Clocksin and C.S.Mellish, Fifth Edition, Springer.
- 5. Programming Python, M.Lutz, Third Edition, O'reilly, SPD, rp-2007.
- 6. Core Python Programming, Chun, Second Edition, Pearson Education, 2007.
- 7. Guide to Programming with Python, Michael Dawson, Thomson, 2008.

#### COMPUTER SCIENCE AND ENGINEERING

#### III B.Tech. II-Sem (CSE)

T C 3+1\* 4

# (A0520106) SOFTWARE TESTING METHODOLOGIES AND TOOLS

#### **Background:**

Software testing is an integral and important activity in every software development environment. Software seems to have has permeated almost every equipment that we use in our daily lives.

This course is designed to enable a clear understanding and knowledge of the foundations, techniques, and tools in the area of software testing and its practice in the industry. The course will prepare students to be leaders in software testing. Whether you are a developer or a tester, you must test software. This course is a unique opportunity to learn strengths and weaknesses of a variety of software testing techniques.

Course Objectives: Upon successful completion of this course students will be able to:

- Understand the basic concepts of software testing.
- Understand the various techniques and strategies of software testing and inspection and pointing out the importance of testing in achieving high-quality software.
- Perform effective and efficient structural testing of software.
- Integrate and test the various units and components of a software system.
- Perform effective and efficient functional testing of software.
- Select the appropriate tests to regression test your software after changes have been made.
- Plan, track and control the software testing effort.
- Understand the need of automated testing tools and various kinds of automated testing tools.

#### UNIT - I

Testing Methodology: Introduction to software Testing, Evolution of Software Testing, Goals of Software Testing, Software testing as a Process. Software Testing Terminology, Software Testing Life Cycle. Verification & Validation: Verification and Validation Activities, Verification and its requirements, Validation.

#### UNIT -II

Purpose of testing, Dichotomies, model for testing, consequences of bugs, taxonomy of bugs.

#### UNIT- III

Flow graphs and Path testing: Basics concepts of path testing, predicates, path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing.

#### UNIT - IV

Dataflow testing:-Basics of dataflow testing, strategies in dataflow testing, application of dataflow testing.

#### UNIT - V

Logic Based testing:Overview, decision tables, path expressions, kv charts, and specifications. Graph Matrices and Application: Motivational overview, matrix of graph, relations, power of a matrix, node reduction algorithm.

#### UNIT - VI

Test Automation: Need for Automation, Categorization of Testing Tools, Selection of Testing Tools, Cost Incurred in Testing Tools, Guidelines for Automated Testing, Overview of Some Commercial Testing Tools.

#### **TEXT BOOKS:**

- 1. Software testing techniques Boris Beizer, Dreamtech, second edition.
- 2. Software Testing Principles and Practices by NARESH CHAUHAN, OXFORD HIGHER EDUCATION, university Press.

- 1. Software Testing in the Real World Edward Kit, Pearson.
- 2. Effective methods of Software Testing, Perry, John Wiley.
- 3. Art of Software Testing Meyers, John Wiley.
- 4. Software testing Tools Dr.K.V.K.K.Prasad, Dreamtech.

# COMPUTER SCIENCE AND ENGINEERING

#### III B.Tech. II-Sem (CSE)

T C 3+1\* 4

#### (A0421106) MICROPROCESSORS AND INTERFACING

### **OBJECTIVES:**

- To provide a practical introduction to microprocessors, assembly language programming techniques, interface hardware design, and microprocessor system design considerations.
- This course provides a foundation in microprocessor architecture and microcomputer basics including numbering systems and codes, computer arithmetic and programming, interfacing with RAM and various input/output devices.
- Enable students to acquire knowledge in the areas of the purpose and operation of the functional blocks of a microprocessor and microcontroller.

#### **OUTCOMES**:

- Describe the history and structure of Microprocessors
- Describe basic microprocessor architecture, physical configuration of memory
- Determine the basic operation of a microprocessor system.
- Understand the fetch and execute cycle.
- Explain some 16, 24, 32-bit micro-processors and their features.
- Determine features of the 8086 family.
- Study a typical 8086 micro-processor based system.
- Analyze the Instruction Set and Assembly Language Programming.
- Describe the assembly language format.
- Illustrate the Interfacing examples.
- Describe the history and structure of 8051 Micro Controller
- Study the organization and the interrupt system of Micro Controller.

#### UNIT-I

**8085:** Bus Structure, pin diagram, architecture, generating control signals, instruction format, addressing modes **8086:** Register organization, 8086 flag register and function of 8086 Flags, Architecture, physical memory organization, i/o addressing, special processor activities.

#### UNIT-II

Pin diagram of 8086, Minimum mode and maximum mode of operation & Timing diagram, Addressing modes of 8086, Instruction set of 8086, Assembler directives, procedures and macros.

Assembly language programs involving logical, Branch & Call instructions, sorting, evaluation of arithmetic expressions, string manipulation.

#### UNIT-III

Memory interfacing to 8086 (Static RAM & EPROM).Need for DMA. DMA data transfer Method. DMA controller 8237/8257.

8255 PPI – various modes of operation, 8279 Stepper Motor, D/A and A/D converter interfacing.

# UNIT-IV

Interrupt structure of 8086. Vector interrupt table. Interrupt service routines. Introduction to DOS and BIOS interrupts. 8259 PIC Architecture and interfacing.

Serial data transfer schemes, Asynchronous and Synchronous data transfer schemes. 8251 USART architecture and interfacing.TTL to RS 232C and RS232C to TTL conversion.

#### UNIT-V

Advanced Micro Processors - 80286- salient features, register organization, operating modes, addressing modes. 80386 - Salient Features, organization, operating modes, addressing modes, data types, Segmentation & Paging. Salient Features of Pentium, Branch Prediction. RISC Processors – History, advantages, features . **UNIT-VI** 

**Microcontroller** - 8051 Architecture, Registers in 8051, pin description, 8051 connections, memory organization, addressing modes, interrupts, timers and counters, Serial communication

#### **TEXT BOOKS:**

- 1. Microprocessor Architecture, programming and applications with 8085 Ramesh Gaonkar, PRI,2007.
- 2. Advanced microprocessor and Peripherals A.K.Ray and K.M.Bhurchandi, TMH, 2000.
- 3. Micro Controllers Deshmukh, Tata McGraw Hill Edition.

- 1. Micro Processors & Interfacing Douglas U. Hall, 2007.
- 2. The 8088 and 8086 Micro Processors PHI, 4<sup>th</sup> Edition, 2003.
- Micro Computer System 8086/8088 Family Architecture, Programming and Design By Liu and GA Gibson, PHI, 2<sup>nd</sup> Ed.

# COMPUTER SCIENCE AND ENGINEERING

# III B.Tech. II-Sem (CSE)

T C 3 2

# (A0521106) INTRODUCTION TO ORACLE 9i:SQL PART-2 (AUDIT COURSE)

# UNIT –I

Creating Views, Other Database Objects

UNIT –II Controlling user Access,

UNIT –III Using SET Operators

UNIT –IV Enhancements to the GROUP BY clause

UNIT-V Advanced Sub Queries

**UNIT-VI** Hierarchical Retrieval, Oracle 9i Extensions to DML and DDL statements

# **REFERENCES**:

1. Oracle University Press

#### **COMPUTER SCIENCE AND ENGINEERING**

#### III B.Tech. II-Sem (CSE)

P C 3 2

#### (A0598106) SOFTWARE TESTING TOOLS LAB

- 1. Write programs in 'C' Language to demonstrate the working of the following constructs: i) do...while ii) while...do iii) if...else iv) switch v) for
- 2. "A program written in 'C' language for Matrix Multiplication fails" Introspect the causes for its failure and write down the possible reasons for its failure.
- 3. Take any system (e.g. ATM system) and study its system specifications and report the various bugs.
- 4. Write the test cases for any known application (e.g. Banking application)
- 5. Create a test plan document for any application (e.g. Library Management System)
- 6. Study of any two of the following testing tools:
  - a) Study of any testing tool (e.g. Win runner)
  - b) Study of any web testing tool (e.g. Selenium)
  - c) Study of any bug tracking tool (e.g. Bugzilla, bugbit)
  - d) Study of any test management tool (e.g. Test Director)
  - e) Study of any open source-testing tool (e.g. Test Link)
- 7. Take a mini project (e.g. University admission, Placement Portal) and execute it. During the Life cycle of the mini project create the various testing documents\* and final test report document.

\*<u>Note</u>: To create the various testing related documents refer to the text "Effective Software Testing Methodologies by William E. Perry"

#### CASE TOOLS

Students are divided into batches of 5 each and each batch has to draw the following diagrams using UML for an ATM system whose description is given below. UML diagrams to be developed are:

- 1. Use Case Diagram.
- 2. Class Diagram.
- 3. Sequence Diagram.
- 4. Collaboration Diagram.
- 5. State Diagram
- 6. Activity Diagram.
- 7. Component Diagram
- 8. Deployment Diagram.
- 9. Test Design.

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#### DESCRIPTION FOR AN ATM SYSTEM

The software to be designed will control a simulated automated teller machine (ATM) having a magnetic stripe reader for reading an ATM card, a customer console (keyboard and display) for interaction with the customer, a slot for depositing envelopes, a dispenser for cash (in multiples of Rs. 100, Rs. 500 and Rs. 1000), a printer for printing customer receipts, and a key-operated switch to allow an operator to start or stop the machine. The ATM will communicate with the bank's computer over an appropriate communication link. (The software on the latter is not part of the requirements for this problem.)

The ATM will service one customer at a time. A customer will be required to insert an ATM card and enter a personal identification number (PIN) - both of which will be sent to the bank for validation as part of each transaction. The customer will then be able to perform one or more transactions. The card will be retained in the machine until the customer indicates that he/she desires no further transactions, at which point it will be returned - except as noted below.

The ATM must be able to provide the following services to the customer:

- 1. A customer must be able to make a cash withdrawal from any suitable account linked to the card, in multiples of Rs. 100 or Rs. 500 or Rs. 1000. Approval must be obtained from the bank before cash is dispensed.
- 2. A customer must be able to make a deposit to any account linked to the card, consisting of cash and/or checks in an envelope. The customer will enter the amount of the deposit into the ATM, subject to manual verification when the envelope is removed from the machine by an operator. Approval must be obtained from the bank before physically accepting the envelope.
- 3. A customer must be able to make a transfer of money between any two accounts linked to the card.
- 4. A customer must be able to make a balance inquiry of any account linked to the card.
- 5. A customer must be able to abort a transaction in progress by pressing the Cancel key instead of responding to a request from the machine.

The ATM will communicate each transaction to the bank and obtain verification that it was allowed by the bank. Ordinarily, a transaction will be considered complete by the bank once it has been approved. In the case of a deposit, a second message will be sent to the bank indicating that the customer has deposited the envelope. (If the customer fails to deposit the envelope within the timeout period, or presses cancel instead, no second message will be sent to the bank and the deposit will not be credited to the customer.)

If the bank determines that the customer's PIN is invalid, the customer will be required to re-enter the PIN before a transaction can proceed. If the customer is unable to successfully enter the PIN after three tries, the card will be permanently retained by the machine, and the customer will have to contact the bank to get it back.

If a transaction fails for any reason other than an invalid PIN, the ATM will display an explanation of the problem, and will then ask the customer whether he/she wants to do another transaction.

The ATM will provide the customer with a printed receipt for each successful transaction

The ATM will have a key-operated switch that will allow an operator to start and stop the servicing of customers. After turning the switch to the "on" position, the operator will be required to verify and enter the total cash on hand. The machine can only be turned off when it is not servicing a customer. When the switch is moved to the "off" position, the machine will shut down, so that the operator may remove deposit envelopes and reload the machine with cash, blank receipts, etc.

# COMPUTER SCIENCE AND ENGINEERING

#### III B.Tech. II-Sem (CSE)

P C 3 2

#### (A0483106) MICROPROCESSORS AND INTERFACING LAB

#### I. Microprocessor 8086:

- 1. Introduction to MASM/TASM.
- 2. Introduction to 8086 µP Kit.
- 3. Arithmetic operation Multi byte Addition and Subtraction, Multiplication and Division Signed and unsigned Arithmetic operation, ASCII arithmetic operation.
- 4. Logic operations Shift and rotate Converting packed BCD to unpacked BCD, BCD to ASCII conversion.
- 5. By using string operation and Instruction prefix: Move Block, Reverse string, Length of the string, String comparison, String scan,
- 6. Factorial of a number using MACROS. Sum of "n" numbers and sum of squares of "n" numbers and sum of cubes of "n" numbers using loops and without using loops.

#### **II. Interfacing:**

- 1) 8255 PPI: Write ALP to connect the ports as input and output
- 2) 8279 Stepper Motor : Write a program to run stepper motor.
- 3) 8279 Display: Write a small program to display a string of characters.
- 4) 8259 Interrupt Controller: Generate an interrupt using 8259 timer.
- 5) 8251 USART: Write a program in ALP to establish Communication between two processors.

#### Equipment required for Laboratories:

- 1. 8086 µP Kits
- 2. Interfaces/peripheral subsystems
  - i) 8259 PIC
  - ii) 8279-Display
  - iii) 8255 PPI
  - iv) 8251 USART
  - v) Stepper motor

## COMPUTER SCIENCE AND ENGINEERING

## III B.Tech. II-Sem (CSE)

P C 3 2

# (A0599106) DESIGN AND ANALYSIS OF ALGORITHMS LAB

- 1. Write a program to perform Heap sort for any given list of numbers.
- 2. Write a Program that takes input as list of integer values and displays corresponding Binary Search Tree.
- 3. Write a program that takes input as adjacency matrix and displays corresponding graph on the user screen.
- 4. Write a program to implement DFS and BFS of a given graph.
- 5. Write a program to perform Quick Sort for the given list of integer values.
- 6. Write a program to perform Binary Search for the given list of integer values.
- 7. Write a program to find Maximum and Minimum of the given set of integer values.
- 8. Write a Program to perform Merge Sort on the given two lists of integer values.
- 9. Write a program to find minimum cost spanning tree using Prim's Algorithm.
- 10. Write a program to solve 8-QUEENS problem.

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# COMPUTER SCIENCE AND ENGINEERING

#### IV B.Tech. I-Sem (CSE)

T C 3+1\* 4

#### (A0522107) ADVANCED COMPUTER ARCHITECTURE

#### **OBJECTIVES:**

- A broad understanding of computer architecture.
- To the extent possible, an understanding of the current state-of-the-art in uni-processor computer architecture.
- Study how to use technology to build the best computer/processor.
- To know different levels of parallelism.
- Issues in interconnection of networks and cluster design.

#### **OUTCOMES:**

Upon completion of this course, a student should have developed:

- Broad understanding of the design of computer systems, including modern architectures and alternatives.
- Understanding of the interaction amongst architecture, applications and technology.
- Understanding of a framework for evaluating design decisions in terms of application requirements and performance measurements.
- A historical perspective on computer system design.

#### UNIT -I

**Fundamentals of computer design-**Technology Trends, Cost , Measuring and reporting performance, Quantitative principles of computer design.

#### UNIT -II

**Instruction set principle and examples-**Classifying instruction set, Memory addressing, Addressing modes for signal processing, Operations in the instruction set, Instructions for control flow, Encoding an instruction set, The role of the compiler.

# UNIT –III

**Instruction level parallelism-**Over coming data hazards, Reducing branch costs, High performance instruction delivery, Hardware based speculation, Compiler techniques, Static branch prediction ,H.W. vs S.W solutions, Limitations of ILP

#### UNIT –IV

**Memory hierarchy design-**Cache performance ,Reducing cache miss penalty and miss rate, Virtual memory ,Protection and examples of virtual memory .

#### UNIT –V

**Multi processors and thread-level parallelism-**symmetric shared memory architectures, Distributed -shared memory architectures, Synchronization, Multi threading.

#### UNIT –VI

Storage systems Types of Storage Devices, RAID, Errors and failures in real time systems,

**Interconnection Networks-:** Interconnection network media, Practical issues for commercial interconnection of networks, Clusters, Designing a cluster.

#### **TEXT BOOK:**

1. Computer Architecture A quantitative approach 3rd edition John L. Hennessy & David A. Patterson Morgan Kufmann (An Imprint of Elsevier)

- 1. "Computer Architecture and parallel Processing" Kai Hwang and A.Briggs International Edition McGraw-Hill.
- 2. Advanced Computer Architectures, Dezso Sima, Terence Fountain, Peter Kacsuk, Pearson.

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#### COMPUTER SCIENCE AND ENGINEERING

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#### (A0523107) ADVANCED JAVA PROGRAMMING

#### **OBJECTIVES**:

• This course demonstrates an in-depth understanding of the tools and Web technologies necessary for business application design and development. The course covers client side scripting like HTML, JavaScript and server side scripting like servlets, JSPs. And also XML and web servers and database interfacing.

#### OUTCOMES:

- The main learning outcomes are:
- Development of a business application.
- Implementation of given client side and server side technologies.
- Design and develop static and dynamic web pages.
- Validate web page data with database data.

#### UNIT-I:

**HTML Common tags And JavaScript**- List, Tables, images, forms, Frames; Cascading Style sheets; Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script

#### UNIT-II:

XML: Document type definition, XML Schemas, Document Object model, Presenting XML, Using XML Processors: DOM and SAX

#### UNIT-III:

**Java Beans**: Introduction to Java Beans, Advantages of Java Beans, Bean Development Kit, JAR Files, BDK Introspection, Using Bound properties, Bean Info Interface, Constrained properties, Persistence, Introduction to EJB's.

#### UNIT-IV:

**Web Servers and Servlets:** Introduction to Servlets: Lifecycle of a Serverlet, JSDK, Installing the Java Software Development Kit, Tomcat Server & Testing Tomcat, The Servelet API, The javax.servelet Package, Reading Servelet parameters, Reading Initialization parameters. The javax.servelet HTTP package, Handling Http Request & Responses, Using Cookies-Session Tracking, Security Issues.

#### UNIT-V:

**Introduction to JSP**: The Problem with Servelet. The Anatomy of a JSP Page, JSP Processing. JSP Application Design with MVC Setting Up and JSP Environment.

**JSP Application Development:** Generating Dynamic Content, Using Scripting Elements Implicit JSP Objects, Conditional Processing – Displaying Values Using an Expression to Set an Attribute, Declaring Variables and Methods Sharing Data Between JSP pages, Sharing Session and Application Data

#### UNIT VI:

**Database Access :** Database Programming using JDBC, Studying Javax.sql.\* package,Accessing a Database from a JSP Page, Application – Specific Database Actions, Deploying JAVA Beans in a JSP Page, Introduction to struts framework.

#### **TEXT BOOKS:**

- 1. Web Programming, building internet applications, Chris Bates 2<sup>nd</sup> edition, WILEY Dreamtech (UNIT s 1,2).
- 2. The complete Reference Java 2 Fifth Edition by Patrick Naughton and Herbert Schildt. TMH (Chapters: 25) (UNIT 3,4).
- 3. Java Server Pages Hans Bergsten, SPD O'Reilly (UNITs 5,6)

#### **REFERENCE BOOKS:**

- 1. Programming world wide web-Sebesta, Pearson.
- 2. Core SERVLETS ANDJAVASERVER PAGES VOLUME 1: CORE TECHNOLOGIES By Marty Hall and Larry Brown Pearson.
- 3. Internet and World Wide Web How to program by Dietel and Nieto PHI/Pearson Education Asia.
- 4. Jakarta Struts Cookbook, Bill Siggelkow, S P D O'Reilly for chap 8.
- 5. Murach's beginning JAVA JDK 5, Murach, SPD.
- 6. An Introduction to web Design and Programming –Wang-Thomson.
- 7. Web Applications Technologies Concepts-Knuckles, John Wiley.

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### COMPUTER SCIENCE AND ENGINEERING

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### (A0524107) DATA WAREHOUSING & MINING

# **OBJECTIVES:**

The main objective of this course is to provide students

- With the basic data warehousing and data mining concepts
- To learn mining rules in large databases
- To get idea on clustering analysis
- Applications that can enable them to set up and manage an industrial data warehousing and data mining system.
- To learn about OLTP and OLAP systems

### **OUTCOMES**:

Upon completion of the course students should:

- Ability to do Conceptual, Logical, and Physical design of Data Warehouses
- Familiarity with Requirements Engineering for Data Warehouses
- OLAP applications and OLAP deployment
- Have a good knowledge of the fundamental concepts that provide the foundation of data mining.
- Learn broad classes of data mining technologies
- Understand how theses concepts are engineered to use some of the basic data mining tools.

# UNIT – I

**Introduction:** What Motivated Data Mining? Why is it Important?; What is Data Mining?; Data Mining-On What Kind of Data?; Data Mining Functionalities: What kinds of Data Can be Mined?; Are all of Patterns Interesting?; Classification of Data Mining Systems; Data Mining task primitives;

**Data Warehouse and OLAP Technology:**What is a Data Warehouse?; A Multidimensional Data Model: From Tables and Spreadsheet to Data Cubes,Stars,Snowflakes and Fact constellation schemas for Multidimensional Databases, Measures: Their Categorization and Computation, Concept Hierarchies, OLAP operations in the Multidimensional Data Model; Data Warehouse Architecture: Steps for the Design and Construction of Data Warehouses, A three-tier Architecture.

## UNIT-II

**Data Preprocessing:** Why preprocess the data; Descriptive Data Summarization: Measuring the Central Tendency, Measuring the Dispersion of Data, Graphic Displays of Basic Descriptive Data Summaries; Data Cleaning: Missing values, Noisy Data Cleaning as a process; Data Integration and Transformation: Data Integration, Data Transformation, Data Reduction: Data Cube aggregation, attribute subset selection; Dimensionality Reduction, Numerosity Reduction;

#### UNIT-III

Mining Frequent patterns, Associations, and Correlations: Basic Concepts; Efficient and Scalable Frequent Itemset Mining methods: The Apriori Algorithm, Generating Association Rules from Frequent Itemsets, Improving Efficiency of Apriori, Mining Frequent Itemsets without Candidate Generation; Mining various kinds of Association Rules: Mining multilevel & multi-dimensional association rules; From Association Mining to Correlation Analysis: Strong Rules are not necessarily Interesting, From Association analysis to Correlation analysis;

# UNIT-IV

**Classification I:**Overview of Classification and Prediction: What is Classification, What is prediction?; Issues Regarding Classification and Prediction: Preparing data for Classification and Prediction, Comparing Classification and Prediction Methods; Bayesian Classification: Bayes'theorem, Naïve Bayesian Classification; Classification by Decision Tree Induction: Decision Tree Induction, Attribute Selection Measures, Tree Pruning, Scalability and Decision Tree Induction; Rule-Based Classification: Using IF-THEN rules for Classification, Rule Extraction from Decision Tree, Rule Induction using a Sequntial Covering Algorithm; Classification by Back propagation: A Multilayer Feed-Forward Neural Network, Defining Network Topology, Backpropagation;

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# UNIT-V

**Classification II and Prediction:**Support Vector Machines: The Case when the Data are Linearly Separable, The Case when the Data are Linearly Inseparable; Lazy Learners: k-Nearest-Neighbor Classifiers, Case-Based Reasoning; Prediction:Linear Regression, Nonlinear Regression; Accuracy and Error Measures: Classifier Accuracy Measures, Predictor Error Measures; Evaluating the Accuracy of a Classifier or Predictor: Holdout Method and Random subsampling, Cross validation, Bootstrap;

#### UNIT-VI

**Cluster Analysis:**Overview of Cluster Analysis; Types of data in Cluster Analysis: Interval-Scaled Variables, Binary Variables, Categorical, Ordinal, and Ratio-Scaled variables, Variables of Mixed Types; A Categorization of Major Clustering Methods; Partitioning Methods: Classical Partitioning Methods: k-Means and k-Medoids, Partitioning Methods in Large Databases: From k-Medoids to CLARANS; Hierarchical Methods: Agglomerative and Divisive Hierarchical Clustering, BIRCH, ROCK; Density-Based Methods: DBSCAN; Grid-Based Methods: STING; Model-Based Clustering Methods: Expectation-Maximization;

### **TEXT BOOKS:**

1. Data Mining – Concepts and Techniques - JIAWEI HAN & MICHELINE KAMBER Harcourt India, second Edition.

- 1. Data Mining Introductory and advanced topics-MARGARET H DUNHAM, PEARSON EDUCATION
- 2. Data Mining Techniques ARUN K PUJARI, University Press.
- 3. Data Warehousing in the Real World SAM ANAHORY & DENNIS MURRAY. Pearson Edn Asia.
- 4. Data Warehousing Fundamentals PAULRAJ PONNAIAH WILEY STUDENT EDITION
- 5. The Data Warehouse Life cycle Tool kit RALPH KIMBALL WILEY STUDENT EDITION.

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#### (A0525107) SAP ABAP

#### UNIT - I

What is ERP?, Why we need ERP?, Advantages of ERP, Major ERP Packages, What is SAP?, History & Features of SAP, SAP R/2 Architecture (Limitations of R/2 Architecture), SAP R/3 Architecture (Types of work processes), SAP R/3 Application Modules, SAP Landscape, What is ABAP?, Logon to SAP Environment, Transaction Codes, Multitasking Commands, Comments, Errors, ABAP/4 Editor (SE38), Steps for Creating a Program, Elements in R/3 Screen,Out put Statements, Operators in ABAP,Data, Parameter & Constant Statements,Data Types & Classification, Data Objects & Classification,Text Elements,String Operations, Control Statements, Field strings

#### UNIT - II

**ABAP Dictionary:** ABAP Dictionary Introduction, Data Dictionary Functions,**Data Dictionary Objects**: Data Base Tables,Structures, Views, Data Elements,Type Groups, Domains, Search helps, Lock objects. Primary Key and Foreign Key, Table Maintenance Generator, **Packages**: Creating a package,Difference between local objects & packages, Transferring local objects to packages, **Variants**: Variants Introduction, Creating variants in ABAP Editor & Data Dictionary, **Message Classes**: Message Class Introduction, Message types,Calling message class in Report & Dialog programs.

#### UNIT - III

Selection Screens: Selection screen Introduction, Parameter Statement, Select-options Statement, Selectionscreen Statement, Screen table and its fields, Dynamic screen modification by using Modify Id key, **Open SQL Statements:** Select, Insert, Modify, Update, Delete, **Internal Tables:** Internal Tables Introduction, Declaring Internal Table, Populating Internal Table, Processing Internal Table, Initializing Internal Tables, Inner Joins And For All Entries, Control Break Statements. **Debugging Techniques:** Debugging Techniques Introduction, Breakpoints (Static & Dynamic), Watch points, Dynamically changing internal tables contents in Debugging Editor, Options to step through the program in Debugging Editor. **Modularization Techniques:** Modularization Techniques Introduction, Includes, Subroutines, Passing Parameters to Subroutines, Passing Tables to Subroutines, Function Groups & Function Modules.

#### UNIT - IV

Batch Data Communication, SAP Scripts, Smart Forms, ALV Reports

#### UNIT - V

Runtime Analysis & SQL Tracing, Cross Applications, RFC, ALE, IDocs, EDI, BAPIs,

#### UNIT - VI

Workflow, User Exits, BADIs, OOPS Concept, Miscellaneous Topics

#### **TEXT BOOKS:**

- 1. The complete Guide to developing in the SAP R/3 Environment (Introduction to ABAP/4 Programming for SAP) Revised and Expanded Edition .Prima Tech
- 2. "Introduction to ABAP/4 programming for SAP" by Gareth <u>M.de</u>.Bruyn & Robert Lyfareff; Publisher: Prima Tech.

#### COMPUTER SCIENCE AND ENGINEERING

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# (A0526107) SOFTWARE PROJECT MANAGEMENT (ELECTIVE-I)

#### **OBJECTIVES**:

- A basic knowledge of software project management principles.
- The ability to come up with a project schedule and assign resources. Choose an appropriate project development methodology (e.g. waterfall, spiral ...).
- Identify project risks, monitor and track project deadlines.
- The capability to work in a team environment and be aware of different modes of communications.
- Apply the software project management principles to the real life scenarios.
- Able to independently evaluate a particular topic of research interest and critically analyse the issues.

# **OUTCOMES**:

At the end of the course, the student shall be able to:

- Describe and determine the purpose and importance of project management from the perspectives of planning, tracking and completion of project.
- Compare and differentiate organization structures and project structures.
- Implement a project to manage project schedule, expenses and resources with the application of suitable project management tools.

#### UNIT I

Conventional Software Management: The Waterfall Model, Conventional software Management Performance. Evolution of Software Economics: Software Economics, Pragmatic Software Cost Estimation.

#### UNIT II

Improving Software Economics: Reducing Software Product Size, Improving software Processes, Improving Team Effectiveness, Improving Automation, Achieving Required Quality, Peer Inspections.

#### UNIT III

Conventional and Modern Software Management: Principles of Conventional Software Engineering, Principles of Modern Software Management, Transitioning to an Iterative Process. Life Cycle Phases: Engineering and Production Stages, Inception. Elaboration, Construction, Transition Phases.

Artifacts of the Process: The Artifact Sets. Management Artifacts, Engineering Artifacts, Programmatic Artifacts. Model Based Software Architectures: A Management Perspective and Technical Perspective.

#### UNIT IV

Workflows of The Process:Software Process Workflows. Iteration Workflows. Checkpoints of the Process: Major Milestones, Minor Milestones, Periodic Status Assessments. Iterative Process Planning: Work Breakdown Structures, Planning Guidelines, Cost and Schedule Estimating. Iteration Planning Process.Pragmatic Planning. Project Organizations and Responsibilities: Line-of-Business Organizations, Project Organizations, and Evolution of Organizations. Process Automation: Automation Building Blocks, The Project Environment.

#### UNIT V

Project Control and Process Instrumentation: Seven Core Metrics, Management Indicators, Quality Indicators, Life Cycle Expectations Pragmatic Software Metrics, Metrics Automation.

Tailoring the process: Process Discriminates, Example of Small-scale project versus Large-scale project.

#### UNIT VI

Modern Project Profiles Next, Generation Software economics, Modern Process Transitions.

#### **TEXT BOOKS:**

1. Software Project Management, Walker Royce, 1998, PEA.

- 1. Software Engineering Project Management, Richard H. Thayer, 1997, IEEE Computer Society.
- 2. Software Engineering and Management, Shere K. D, 1998, PHI.
- 3. Software Project Management: A Concise Study, S. A. Kelkar, PHI.
- 4. Software Project Management, Second Edition, Hughes Cotterell, TMH.
- 5. Software Project Management from Concept to Development, Kaeron Conway, Dream Tech.

# COMPUTER SCIENCE AND ENGINEERING

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# (A0426107) DIGITAL IMAGE PROCESSING (ELECTIVE I)

# **OBJECTIVES:**

- To know the fundamentals of Image Processing
- To know sampling and reconstruction procedures.
- To know various transforms used in image Processing.
- To know about various techniques of image enhancement, reconstruction and image compression.
- To design image processing systems.

### **OUTCOMES:**

- Develops ability to identify, formulate &solve problems involving images.
- Develops ability to design &conduct experiments, analyze &interpret image data.
- To design a software, Component or process as per needs & specifications.
- It will demonstrate the skills to use modern engineering tools, software's &equipment to analyze problems.
- Develop confidence for self education &ability for life-long learning.
- It will show the ability to participate &try to succeed in competitive Exams

### UNIT I

**DIGITAL IMAGE FUNDAMENTALS**: Introduction, Digital Image through scanner, digital camera. Concept of gray levels.Gray level to binary image conversion.Sampling and quantization.Relationship between pixels.Imaging Geometry.

### UNIT II

**IMAGE TRANSFORMS**: 2-D FFT, Properties. Walsh transform, Hadamard Transform, Discrete cosine Transform, Haar transform, Slant transform, Hotelling transform.

# UNIT III

**IMAGE ENHANCEMENT**: Enhancement in Spatial Domain: Point processing. Histogram processing.Spatial filtering. Enhancement in frequency domain: Image smoothing, Image sharpening, Basics of color image processing.

# UNIT IV

**IMAGE RESTORATION**: Degradation model, Algebraic approach to restoration, Inverse filtering, Least mean square filters, Constrained Least Squares Restoration, Interactive Restoration.

# UNIT V

**IMAGE SEGMENTATION**: Introduction, Detection of discontinuities. Edge linking and boundary detection, Thresholding, Region oriented segmentation.

# UNIT VI

**IMAGE COMPRESSION**: Redundancies and their removal methods, Fidelity criteria, Image compression models, Source encoder and decoder, Error free compression, Lossy compression.

#### **TEXT BOOK :**

1. Digital Image processing – R.C. Gonzalez & R.E. Woods, Addison Wesley/ Pearson education, 2nd Education, 2002.

- 1. Fundamentals of Digital Image processing A.K.Jain, PHI.
- 2. Digital Image processing using MAT LAB Rafael C. Gonzalez, Richard E Woods and Steven L. Edition, PEA, 2004.
- 3. Digital Image Processing William K. Pratt, John Wilely, 3rd Edition, 2004.
- 4. Fundamentals of Electronic Image Processing Weeks Jr., SPIC/IEEE Series, PHI.
- 5. Digital image processing by S.Jayaraman, S.Esakkirajan & T.Veera Kumar, Tata McGraw Hill, 2010.

# COMPUTER SCIENCE AND ENGINEERING

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# (A0527107) MULTIMEDIA AND APPLICATION DEVELOPMENT (ELECTIVE I)

# **OBJECTIVES**:

- Understand the characteristics of multimedia systems
- Aware of the differences among multimedia authoring systems
- Introduction to scripting Language of Multimedia
- Knowing of compression methods
- Details about MPEG
- Knowing basics of Multimedia communication networks

#### **OUTCOMES**

Upon successful completion of this course, the student will:

- Understand the characteristics of multimedia systems and how to address issues
- Aware of the differences among multimedia authoring systems.
- able to write sample scripting programs
- To create simple animations.
- Introductory knowledge of compression standards.

#### UNIT – I

**Fundamental concepts in Text and Image:** Multimedia and hypermedia, world wide web, overview of multimedia software tools. Graphics and image data representation graphics/image data types, file formats, Color Models in images.

#### UNIT – II

**Fundamental concepts in video and digital audio:** Types of video signals, analog video, digitization of sound, quantization and transmission of audio.

#### UNIT – III

Action Script I: ActionScript Features, Object-Oriented ActionScript, Datatypes and Type Checking, Action Script Classes:Defining classes, Constructor functions, Properties, Methods, Constructors, Completing Box Class.

#### UNIT - IV

Action Script II :Inheritance, Interfaces, Packages, Exceptions.

#### UNIT - V

Application Development: An OOP Application Frame work, Using Components with ActionScript 2.0.

#### UNIT - VI

#### Fundamentals of Multimedia data compression:

Lossless compression algorithm: introduction,Basics of Information Theory, Run-Length Coding, Variable Length Coding, Dictionary Based Coding, Arithmetic Coding, Lossless Image Compression

Lossy compression algorithm: Introduction, Distortion Measures, The rate distortion Theory, Quantization.

# **TEXT BOOKS:**

- 1. Fudamentals of Multimedia by Ze-Nian Li and Mark S. Drew PHI/Pearson Education.
- 2. Essentials ActionScript 2.0, Colin Moock, SPD O, REILLY.

- 1. Digital Multimedia, Nigel chapman and jenny chapman, Wiley-Dreamtech
- 2. Macromedia Flash MX Professional 2004 Unleashed, Pearson.
- 3. Multimedia and communications Technology, Steve Heath, Elsevier(Focal Press).
- 4. Multimedia Applications, Steinmetz, Nahrstedt, Springer.
- 5. Multimedia Basics by Weixel Thomson
- 6. Multimedia Technology and Applications, David Hilman, Galgotia

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# (A0528107) WEB DEVELOPMENT USING PHP (ELECTIVE – I)

#### **OBJECTIVES**:

Learn How to:

- Write PHP programs that access form data.
- Use the "echo" and "print" to send output to the browser.
- Learn how to create and use PHP variables.
- Learn how to show PHP errors on web pages.

# OUTCOMES:

The main learning outcomes are:

- Implementation of PHP for creation of fully functional website.
- Creation of web pages & XML files.
- Working with web servers like Apache 1.1, IIS XAMPP etc.
- Using PHP for retrieval of database data and validate web page data with that data.

#### UNIT I

**INTRODUCTION TO WEB TECHNOLOGIES**: Introduction to Web servers like Apache 1.1,IIS XAMPP(Bundle Server), WAMP(Bundle Server), Handling HTTP Request and Response, installations of above servers.

#### UNIT II

**INTRODUCTION TO PHP**: The problem with other Technologies (Servelets and JSP), Downloading, installing, configuring PHP, Programming in a Web environment and The anatomy of a PHP Page.

#### UNIT III

Overview of PHP Data types and Concepts: Variables and data types, Operators, Expressions and Statements, Strings, Arrays and Functions.

#### UNIT IV

Overview of Classes, Objects, and Interfaces: Creating instances using Constructors, Controlling access to class members, Extending classes, Abstract classes and methods, using interfaces, Using class destructors, File Handling and Using Exceptions.

#### UNIT V

PHP Advanced Concepts: Using Cookies, Using HTTP Headers, Using Sessions, Authenticating users, Using Environment and Configuration variables, Working with Date and Time.

Creating and Using Forms: Understanding Common Form Issues, GET vs. POST, Validating form input, Working with multiple forms, and Preventing Multiple Submissions of a form.

#### UNIT VI

PHP and Database Access: Basic Database Concepts, Connecting to a MYSQL database, Retrieving and Displaying results, Modifying, Updating and Deleting data. MVC architecture.

PHP and Other Web Technologies: PHP and XML, PHP and AJAX

#### **TEXT BOOKS:**

- 1. Beginning PHP and MySQL, 3<sup>rd</sup>Edition, Jason Gilmore, Apress Publications (Dream tech.).
- 2. PHP 5 Recipes A problem Solution Approach Lee Babin, Nathan A Good, Frank M.Kromann and Jon Stephens.

- 1. Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHP, J.Lee and B.Ware(Addison Wesley) Pearson Education.
- 2. PHP 6 Fast and Easy Web Development, Julie Meloni and Matt Telles, CengageLearning Publications.
- 3. PHP 5.1, I. Bayross and S.Shah, The X Team, SPD.
- 4. PHP and MySQL by Example, E.Quigley, Prentice Hall(Pearson).
- 5. PHP Programming solutions, V.Vaswani, TMH.

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# (A0529107) NETWORK PROGRAMMING (ELECTIVE - II)

# **OBJECTIVES:**

- Understand fundamental concepts of computer communication
- Understand sockets and ports
- To provide an opportunity to do network programming using TCP/IP.
- Create comprehensive network applications using sockets

### **OUTCOMES**:

- On completion of this course, Student should:
- Understand the key protocols that support the Internet;
- Be familiar with several common programming interfaces for network communication;
- Have a detailed knowledge of the TCP/UDP Sockets
- Create applications using techniques such as multiplexing, forking, multithreading;
- I/O, non-blocking I/O and event driven I/O.
- Apply knowledge of Unix/Linux operating systems to build robust client and server software for this environment;
- Learn advanced programming techniques such as IPv6 Socket Programming, Broadcasting, Multicasting

### UNIT-I

**Introduction to Network Programming:** OSI model, Unix standards, TCP and UDP & TCP connection establishment and Format, Buffer sizes and limitation, standard internet services, Protocol usage by common internet application.

### UNIT-II

**Sockets:** Address structures, value – result arguments, Byte ordering and manipulation function and related functions Elementary TCP sockets – Socket, connect, bind, listen, accept, fork and exec function, concurrent servers. Close function and related function.

# UNIT-III

**TCP client server:** Introduction, TCP Echo server functions, Normal startup, terminate and signal handling server process termination, Crashing and Rebooting of server host shutdown of server host.

#### UNIT-IV

**I/O Multiplexing and socket options:** I/O Models, select function, Batch input, shutdown function, poll function, TCP Echo server, getsockopt and setsockopt functions. Socket states, Generic socket option IPV6 socket option IPV6 socket option and TCP socket options.

#### UNIT-V

**Elementary UDP sockets**: Introduction UDP Echo server function, lost datagram, summary of UDP example, Lack of flow control with UDP, determining outgoing interface with UDP.

**Elementary name and Address conversions:** DNS, gethost by Name function, Resolver option, Function and IPV6 support, uname function, other networking information.

#### UNIT-VI

**IPC**: Introduction, File and record locking, Pipes, FIFOs streams and messages, Name spaces, system V IPC, Message queues, Semaphores.

#### **TEXT BOOKS:**

- 1. UNIX Network Programming, Vol. I, Sockets API, 2<sup>nd</sup> Edition. W.Richard Stevens, Pearson Edn. Asia.
- 2. UNIX Network Programming, 1<sup>st</sup> Edition, W.Richard Stevens. PHI.

- 1. UNIX Systems Programming using C++ T CHAN, PHI.
- 2. UNIX for Programmers and Users, 3<sup>rd</sup> Edition Graham GLASS, King abls, Pearson Education
- 3. Advanced UNIX Programming 2<sup>nd</sup> Edition M. J. ROCHKIND, Pearson Education.

### COMPUTER SCIENCE AND ENGINEERING

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# (A0530107) MOBILE AND PERVASIVE COMPUTING (ELECTIVE - II)

### **OBJECTIVES:**

- To impart fundamental concepts in the area of mobile computing.
- To provide a computer systems perspective on the converging areas of wireless networking.
- To introduce the basics of Mobile Adhoc Networks and WAP.
- To introduce selected topics of current research interest in the field

#### **OUTCOMES**

- At the end of the course, students will have acquired the following knowledge and skills.
- Understanding of the issues and techniques used in the design of Medium Access Control protocols for wireless Networks.
- Understanding of the systems, protocols and mechanisms to support mobility
- Understanding of MANETS and WAP.

#### UNIT - I

**Introduction to Mobile Communications and Computing :** Mobile Computing (MC) : Introduction to MC, novel applications, limitations, architecture, Mobile Devices, Mobile System Networks, Data Dissemination Mobility Management and Security. (Chapter I from Text Book 2, Raj Kamal).

#### UNIT - II

**GSM** :Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover, Security, and New data services.

(Chapter 4 from Text Book 1, Jochen Schiller).

#### UNIT - III

(Wireless) Medium Access Control: Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA.

(Chapter 3 from Text Book 1, Jochen Schiller).

#### UNIT - IV

**Mobile Network Layer:** Mobile IP (Goals, assumption and requirements, Emtities and Terminology, IP packet delivery, Agent discovery, Registration, Tunneling and encapsulation).

# (Chapter 8 from Text Book 1, Jochen Schiller).

#### UNIT - V

**Mobile Transport Layer :** Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission /time-out freezing, Selective retransmission, Transaction oriented TCP. (Chapter 9 from Text Book 1, Jochen Schiller).

#### UNIT - VI

#### PERVASIVECOMPUTING

Pervasive computing infrastructure-applications- Device Technology - Hardware, Human-machine Interfaces, Biometrics, and Operating systems– Device Connectivity – Protocols, Security, and Device Management-Pervasive Web Application architecture-Access from PCs and PDAs - Access via WAP

#### **TEXT BOOKS:**

- 1. Jochen Schiller, "Mobile Communications". (Units 2,3,4,5 second edition,2004).
- 2. Raj Kamal, "Mobile Computing" (Units 1)
- 3. Jochen Burkhardt, Pervasive Computing: Technology and Architecture of MobileInternet Applications, Addison-Wesley Professional; 3rd edition, 2007

- 1. Reza Behravanfar, "Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML", ISBN: 0521817331, Cambridge University Press, October 2004.
- 2. Adelstein, Frank, Gupta, Sandeep KS, Richard III, Golden , Schwiebert, Loren, "Fundamentals of Mobile and Pervasive Computing", ISBN: 0071412379, McGraw-Hill Professional, 2005.
- 3. Hansmann, Merk, Nicklous, Stober, "Principles of Mobile Computing", *Springer*, second edition, 2003.
- 4. Martyn Mallick, "Mobile and Wireless Design Essentials", Wiley DreamTech, 2003.

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# COMPUTER SCIENCE AND ENGINEERING

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# (A0531107) DISTRIBUTED SYSTEMS (ELECTIVE-II)

#### **OBJECTIVES:**

- Present the principles underlying the functioning of distributed systems;
- Create an awareness of the major technical challenges in distributed systems design and implementation;
- Expose students to modern and classic technology used in distributed systems and their software;
- Provide experience in the implementation of typical algorithms used in distributed systems

#### **OUTCOMES:**

After completing this course the student will be able to:

- Explain what a distributed system is, why you would design a system as a distributed system, and what the desired properties of such systems are;
- List the principles underlying the functioning of distributed systems, describe the problems and challenges associated with these principles, and evaluate the effectiveness and shortcomings of their solutions;
- Recognise how the principles are applied in contemporary distributed systems, explain how they affect the software design, and be able to identify features and design decisions that may cause problems;
- Design a distributed system that fulfills requirements with regards to key distributed systems properties (such as scalability, transparency, etc.), be able to recognise when this is not possible, and explain why;

#### UNIT I

**INTRODUCTION:** What is Distributed System? Goals: Advantages of Distributed Systems over Centralized Systems, Advantages of Distributed Systems over Independent PCs, Disadvantages of Distributed Systems, Hardware Concepts, Design Issues: Transparency, Flexibility, Reliability, Performance, Scalability.

Communication in Distributed Systems I: Layered Protocols, Asynchronous transfer mode networks. UNIT II

**Communication in Distributed Systems II:** The Client Server Model: Clients and servers, an example Client and Server, Addressing, Blocking Versus Nonblocking Primitives, Buffered versus Unbuffered Primitives, Reliable versus Unreliable Primitives, Implementing the Client-Server Model, Remote Procedure call, Group Communication.

#### UNIT III

**Synchronization in Distributed Systems:** Clock synchronization, Mutual Exclusion: A centralized Algorithm, A Distributed Algorithm, A Token Ring Algorithm, A comparison of three algorithms, Election Algorithms: The Bully Algorithm, A Ring Algorithm, Atomic Transactions, Deadlocks in Distributed systems.

#### UNIT IV

**Processes and Processors in Distributed Systems:** Threads, System Models, Processor Allocation, Scheduling in Distributed Systems, Fault Tolerance, Real-Time Distributed Systems: What is a Real-Time System? Design Issues, Real-Time Communication, Real-Time Scheduling.

# UNIT V

**Distributed File Systems and Shared Memory:** Distributed File System Design: The File Service Interface, The Directory Service Interface, Semantics of File Sharing, Distributed File System Implementation: File Usage, System Structure, Caching, Replication, What is Shared Memory? Page-Based Distributed Shared Memory.

#### UNIT VI

**CASE STUDY 1 AMOEBA**: Introduction to AMOEBA, Objects and Capabilities, Process Management, Memory Management, Communication.

**CASE STUDY 2 MACH:** Introduction to MACH, Process management, Memory Management, Communication.

#### **TEXT BOOKS:**

1. Distributed Operating Systems, A.S.Tanenbaum, Pearson Education.

- 1. Distributed Systems Concepts and Design, G Coulouris, J Dollimore and T Kindberg, Fourth Edition, Pearson Education
- 2. Distributed Operating Systems Concepts and Design, Pradeep K.Sinha, PHI.
- 3. Advanced Concepts in Operating Systems, M Singhal, N G Shivarathri, Tata McGraw-Hill Edition.
- 4. Reliable Distributed Systems, K.P.Birman, Springer.
- 5. Distributed Operating Systems and Algorithm Analysis, R.Chow, T.Johnson, Pearson.

## COMPUTER SCIENCE AND ENGINEERING

#### IV B.Tech. I-Sem (CSE)

Т	С
3+1*	4

# (A1232107) CLOUD COMPUTING (ELECTIVE - II)

#### **OBJECTIVES**:

• The objective focuses on technologies specific to the networked, distributed dimension of software and access to services and data. It will support long-term research on new principles, methods, tools and techniques enabling software developers in the EU to easily create interoperable services based on open standards, with sufficient flexibility and at a reasonable cost.

#### **OUTCOMES:**

- Intelligent and autonomic management of cloud resources, ensuring agile elasticscalability. Scalable data management strategies, addressing the issues of heterogeneity, consistency, availability, privacy and supporting security.
- Technologies for infrastructure virtualisation, cross platforms execution as needed forservice composition across multiple, heterogeneous environments, autonomous
- Management of hardware and software resources.
- Interoperability amongst different clouds, portability, protection of data in cloudenvironments, control of data distribution and latency.
- Seamless support of mobile, context-aware applications.

#### UNIT-I

**Introduction:** What Is the Cloud? The Emergence of Cloud Computing, The Global Nature of the Cloud, Cloud-Based Service Offerings, Grid Computing or Cloud Computing?, Is the Cloud Model Reliable?, Benefits of Using a Cloud Model, What About Legal Issues When Using Cloud Models?, What Are the Key Characteristics of Cloud Computing?, Challenges for the Cloud.

The Evolution of Cloud Computing : Hardware Evolution, Internet Software Evolution, Server Virtualization. UNIT-II

Web Services Delivered from the Cloud: Communication-as-a-Service (CaaS), Infrastructure-as-a-Service (IaaS), Monitoring-as-a-Service (MaaS), Platform-as-a-Service (PaaS), Software-as-a-Service (SaaS), Building Cloud Networks: The Evolution from the MSP Model to Cloud.

Computing and Software-as-a-Service, The Cloud Data Center, Collaboration, Service-Oriented Architectures as a Step Toward Cloud Computing, Basic Approach to a Data Center-Based SOA.

#### UNIT III

**Federation, Presence, Identity, and Privacy in the Cloud:** Federation in the cloud, Presence in the Cloud, Privacy and Its Relation to Cloud-Based Information Systems, Security in the Cloud: Cloud security challenges - Software- as-a-service security

#### UNIT IV

**Common Standards in Cloud Computing:** The open cloud consortium- The distributed management task force - standards for application developers - standards for messaging - standards for security **UNIT V** 

**End-User Access to Cloud Computing:** YouTube, YouTube API Overview, Zimbra, Facebook, Zoho, DimDim Collaboration, **Mobile Internet Devices and the Cloud:** Smartphone, Mobile Operating Systems for Smartphones - Mobile Platform virtualization – Collaboration applications for mobile platforms - Future trends **UNIT VI** 

**Cloud Computing case studies**: Google App Engine, Google Web Toolkit, Microsoft Azure Services Platform ,Windows Live, Exchange Online, SharePoint Services, Microsoft Dynamics CRM, Amazon EC2, Amazon Simple DB, Amazon S3, Amazon Cloud Front, Amazon SQS

#### **TEXTBOOKS:**

- 1) Cloud Computing implementation, management and security by Joh n W.Ruttinghouse, James F. Ransome. CRC Press, Taylor & Franc is group, 2010.
- 2) Cloud Computing a practical approach by Anthony T.velte, Toby J.velte Robert Elsenpeter. Tata Me Graw Hill edition , 2010

- 1) Cloud Application Architectures by George Reese. Oreilly publishers
- 2) Cloud computing and SOA convergence in your enterprise, by David S. Linthicum, Addison-Wesley

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IV B.Tech. I-Sem (CSE)	P 3	C 2
(A0581107) SAP ABAP LAB	5	2
1.How to define types and data objects A Few Simple Examples Working with database tables and internal tables Designing a report		
<ul> <li>2. The Syntax of ABAP/4 Programs</li> <li>a). Three approaches to define data objects</li> <li>b). Types, data, constants c). Character types d). Numbers, e). Date and time</li> <li>f). Hexadecimal (or binary) data, g) Records and internal tables</li> <li>h). Complex Non-Elementary Types and Data Objects i) Using system fields</li> </ul>		
<ul> <li>3. Working with tables from the Dictionary</li> <li>Copying fields</li> <li>Simple examples of field conversion</li> <li>Converting character fields</li> <li>Converting number fields</li> <li>Converting date fields</li> <li>Copying structured objects</li> <li>Arithmetic Expressions and Mathematical Functions ,String Operations</li> </ul>		
4 Special conversions		
Using the Basic Layout Formats Customizing pages Skipping lines Setting the layout position of fields Using symbols and icons Using colors Type-Specific Output Options Multi-Language Support		
5.External flow of control (events)		
Internal flow of control (if, case, do, while) Simple form (local subroutine of a program) Local data in a form Using static variables Using interface parameters of a form Classifying parameters Using table parameters Type check for form parameters Form parameters without type reference Form parameters with generic types Calling a function Recursive calls		
6. A simple query		
Using an alternative work area Using internal tables as snapshots of database tables Using where clauses Reading single entries Selecting single fields Getting statistical information Ordering query results		

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Using Select-Options Using a dynamic table name Obtaining data with nested select loops Using Internal Tables for Selection Criteria

#### 7. A simple internal table

Internal tables with header lines Filling an internal table from a database table Appending single lines Appending multiple lines Inserting lines at a specified position Inserting lines at a specified position

#### 8. Inserting single entries in a database table

Inserting multiple lines in a database table Updating single entries in a database table Updating multiple entries in a database table Modifying single entries in a database table Modifying multiple entries in a database table Deleting single entries from a database table Deleting multiple entries from a database table Exporting to the ABAP/4 Memory Importing from the ABAP/4 Memory

#### 9. Using select statements

Using a Logical Database Using the events start-of-selection and end-of-selection Working with get events Parameters on the selection screen Working with Select-Options Selection screen events

#### 10. Double-clicking

Clicking on a hotspot area Pop-up Screens Working with the hide command Tabular lists Sample report with selection criteria Running a report Displaying the selection screen

#### **11** Sample dialog program (flight reservation)

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#### IV B.Tech. I-Sem (CSE)

P C 3 2

#### (A0582107) ADVANCED JAVA PROGRAMMING LAB

#### **Objective :**

To create a fully functional website with mvc architecture. To Develop an online Book store using we can sell books (Ex amazon .com).

#### Hardware and Software required :

- 1. A working computer system with either Windows or Linux
- 2. A web browser either IE or firefox
- 3. Tomcat web server and Apache web server
- 4. XML editor like Altova Xml-spy [www.Altova.com/XMLSpy free ], Stylusstudio, etc.,
- 5. A database either Mysql or Oracle
- 6. JVM(Java virtual machine) must be installed on your system
- 7. BDK(Bean development kit) must be also be installed

#### Week-1:

Design the following static web pages required for an online book store web site.

#### 1) HOME PAGE:

The static home page must contain three **frames**.

Top frame : Logo and the college name and links to Home page, Login page, Registration page,

Catalogue page and Cart page (the description of these pages will be given below).

Left frame : At least four links for navigation, which will display the catalogue of respective links.

For e.g.: When you click the link "CSE" the catalogue for CSE Books should be displayed in the Right frame.

Right frame: The *pages to the links in the left frame must be loaded here*. Initially this page contains description of the web site.

Logo	Web Site Name				
Home	Login	Registration	Catalogue	Cart	
CSE ECE EEE CIVIL		Description o	f the Web Site		

#### Fig 1.1

#### 2) LOGIN PAGE:

This page looks like below:

Logo	Web Site Name					
Home	Login Registration			Catalogue	9	Cart
CSE						
ECE		Login :				
EEE	Password:					
CIVIL						
		Submit		Reset		

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# 3) CATOLOGUE PAGE:

The catalogue page should contain the details of all the books available in the web site in a table. The details should contain the following:

- 1. Snap shot of Cover Page.
- 2. Author Name.
- 3. Publisher.
- 4. Price.
- 5. Add to cart button.

Logo	Web Site Name				
Home	Login	Registration Catalogue		Cart	
CSE	LOOM A Constant The Constant	Book : XML Bible Author : Winston Publication : Wiely	\$ 40.5	Add to cart	
ECE	XML				
EEE	Artificial Intelligence A Modern Approach	Book : AI	¢ 62		
CIVIL		Publication : Princeton hall	\$ 05	Add to cart	
	例释Java2 企业版(J2EE)程序设计 CHINA-RUB.COM	Book : Java 2 Author : Watson Publication : BPB publications	\$ 35.5	Add to cart	
	HTML 4	Book : HTML in 24 hours Author : Sam Peter Publication : Sam publication	\$ 50	Add to cart	

Note: Week 2 contains the remaining pages and their description.

# Week-2:

#### 4) CART PAGE:

The cart page contains the details about the books which are added to the cart. The cart page should look like this:

Logo	Web Site Name				
Home	Login	Registration		Catalogue	Cart
CSE	Book name	Price	Quantity	Amount	
ECE	Java 2	\$35.5	2	\$70	
EEE	XML bible	\$40.5	1	\$40.5	
CIVIL					
	<b>Total amount</b> - \$13	30.5			

### RGM-R-2010

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#### **5) REGISTRATION PAGE:**

Create a *"registration form* "with the following fields"

1) Name (Text field)

2) Password (password field)

3) E-mail id (text field)

4) Phone number (text field)

5) Sex (radio button)

6) Date of birth (3 select boxes)

7) Languages known (check boxes - English, Telugu, Hindi, Tamil)

8) Address (text area)

#### <u>WEEK 3:</u>

# VALIDATION:

Write JavaScript to validate the following fields of the above registration page.

- 1. Name (Name should contains alphabets and the length should not be less than 6 characters).
- 2. Password (Password should not be less than 6 characters length).

3. E-mail id (should not contain any invalid and must follow the standard pattern

name@domain.com)

4. Phone number (Phone number should contain 10 digits only).

Note : You can also validate the login page with these parameters.

#### Week-4:

Design a web page using **CSS** (Cascading Style Sheets) which includes the following: 1) Use different font, styles:

In the style definition you define how each selector should work (font, color etc.). Then, in the body of your pages, you refer to these selectors to activate the styles.

For	example:	
-----	----------	--

<html></html>
<head></head>
<style type="text/css"></th></tr><tr><th>B.headline {color:red; font-size:22px; font-family:arial; text-</th></tr><tr><th>decoration:underline}</th></tr><tr><th></style>
<body></body>
<b>This is normal bold</b>
Selector {cursor:value}
For example:
<html></html>
<head></head>
<style type="text/css"></th></tr><tr><th>.xlink {cursor:crosshair}</th></tr><tr><th>.hlink{cursor:help}</th></tr><tr><th></style>
<body></body>
<b></b>
<a class="xlink" href="mypage.htm">CROSS LINK</a>

<br></br></br></br></br></br></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box></box>

2) Set a background image for both the page and single elements on the page. You can define the background image for the page like this:

BODY {background-image:url(myimage.gif);}

3) Control the repetition of the image with the background-repeat property. As background-repeat: repeat

Tiles the image until the entire page is filled, just like an ordinary background image in plain HTML.

4) Define styles for links as

A:link A:visited A:active A:hover

Example:

<style type="text/css"> A:link {text-decoration: none} A:visited {text-decoration: none} A:active {text-decoration: none} A:hover {text-decoration: underline; color: red;} </style>

#### Week-5:

Write an XML file which will display the Book information which includes the following:

- 1) Title of the book
- 2) Author Name
- 3) ISBN number
- 4) Publisher name
- 5) Edition
- 6) Price

Write a Document Type Definition (DTD) to validate the above XML file.

Display the XML file as follows.

The contents should be displayed in a table. The header of the table should be in color GREY. And the Author names column should be displayed in one color and should be capitalized and in bold. Use your own colors for remaining columns.

Use XML schemas XSL and CSS for the above purpose.

Note: Give at least for 4 books. It should be valid syntactically.

Hint: You can use some xml editors like XML-spy

### Week-6:

#### **VISUAL BEANS:**

Create a simple visual bean with a area filled with a color.

The shape of the area depends on the property shape. If it is set to true then the shape of the area is Square and it is Circle, if it is false.
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The color of the area should be changed dynamically for every mouse click. The color should also be changed if we change the color in the "property window ".

## Week-7:

1) Install TOMCAT web server and APACHE.

While installation assign port number 4040 to TOMCAT and 8080 to APACHE. Make sure that these ports are available i.e., no other process is using this port.

2) Access the above developed static web pages for books web site, using these servers by putting the web pages developed in week-1 and week-2 in the document root.

Access the pages by using the urls : <u>http://localhost:4040/rama/books.html</u> (for tomcat) <u>http://localhost:8080/books.html</u> (for Apache)

## Week-8:

## User Authentication:

Write a Servlet which does the following job: Insert the details of the 3 or 4 users who register with the web site (week9) by using registration form. Authenticate the user when he submits the login form using the user name and password from the database

## Week-9:

Install a database(Mysql or Oracle).

Create a table which should contain at least the following fields: name, password, email-id, phone number(these should hold the data from the registration form).

Practice 'JDBC' connectivity.

Write a java program/servlet/JSP to connect to that database and extract data from the tables and display them. Experiment with various SQL queries.

Insert the details of the users who register with the web site, whenever a new user clicks the submit button in the registration page (week2).

## Week-10:

Write a JSP which does the following job: Insert the details of the 3 or 4 users who register with the web site (week9) by using registration form. Authenticate the user when he submits the login form using the user name and password from the database

## Week-11:

Assume four users user1, user2, user3 and user4 having the passwords, pwd2, pwd3 and pwd4 respectively. Write a servlet for doing the following.

Create a Cookie and add these four user id's and passwords to this Cookie

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## COMPUTER SCIENCE AND ENGINEERING

## IV B.Tech. II-Sem (CSE)

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#### (A0021105) MANAGEMENT SCIENCE

## **OUTCOMES:**

- Students will able to know how to design the plant layout and location.
- Students will able to know importance of human resource department in organization.
- Students will able to know how the SWOT analysis helps to generate alternative corporate strategies.
- Students will able by using the contemporary practices how to survive in competitive global market.

## **OUTCOMES:**

- Students will able to know how to design the plant layout and location.
- Students will able to know importance of human resource department in organization.
- Students will able to know how the SWOT analysis helps to generate alternative corporate strategies.
- Students will able by using the contemporary practices how to survive in competitive global market

#### UNIT-I

**INTRODUCTION TO MANAGEMENT:** Concepts of Management – Nature, Importance and Functions of Management, Taylor's Scientific Management Theory, Fayol's Principles of Management, Mayo's Hawthorne Experiment, Maslow's Theory of Human Needs, Douglas McGregor's Theory X and Theory Y, Herzberg's Two-Factor Theory of Motivation

#### **UNIT-II**

**BASIC ISSUES IN ORGANIZATION:** Designing Organic Structures of Organization (Line organization, Line and staff organization, Functional organization, Committee organization, Matrix organization, Virtual organization, Cellular organization, Team structure, Boundary less organization and Departmentation, Leadership Styles, Social responsibilities of Management

#### UNIT-III

**OPERATIONS MANAGEMENT:** Principles and Types of Plant Layout-Methods of production (Job, batchand Mass Production), Materials Management: Objectives, Need for Inventory control, EOQ, ABC Analysis, Purchase Procedure, Stores Management and Stores Records - Supply Chain Management, Marketing: Functions of Marketing, Marketing Mix, Marketing Strategies based on ProductLife Cycle., Channels of distribution.

## UNIT-IV

**HUMAN RESOURCES MANAGEMENT:** Concepts of HRM, HRD and Personnel Management and Industrial Relations (PMIR), HRM vs. PMIR, Basic functions of HR Manager: Manpower planning, Recruitment, Selection, Training and Development, Placement, Wage and Salary Administration, Promotion, Transfer, Separation, Performance Appraisal, Grievance Handling and Welfare Administration, Job Evaluation and Merit Rating.

#### UNIT-V

**PROJECT MANAGEMENT (PERT/CPM)**: Network Analysis, Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), identifying critical path, Probability of Completing the project within given time, Project Cost Analysis, Project Crashing (simple problems).

## UNIT-VI

**WOMEN ENTREPRENEURSHIP**: Scope of Entrepreneurship among women- Promotional efforts supporting Women Entrepreneurs in India – Opportunities for women entrepreneurs – Challenges/Problems of Women Entrepreneurs – Successful cases of Women Entrepreneurs.

#### **TEXT BOOK:**

1. Aryasri: Management Science, TMH, New Delhi.

## **REFERENCE BOOKS:**

- 1. Kotler Philip & Keller Kevin Lane: Marketing Management 12/e, PHI, 2007
- 2. Koontz & Weihrich: Essentials of Management, 6/e, TMH, 2007
- 3. Thomas N.Duening & John M.Ivancevich Management—Principles and Guidelines, Biztantra, 2007.
- 4. Kanishka Bedi, Production and Operations Management, Oxford University Press, 2007.
- 5. Memoria & S.V.Ganker, Personnel Management, Himalaya, 25/e, 2007
- 6. Schermerhorn: Management, Wiley, 2007.

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## IV B.Tech. II-Sem (CSE)

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## (A0534108) DESIGN PATTERNS (ELECTIVE-III)

#### **OBJECTIVES:**

By the end of this course, you will:

- Have a deeper knowledge of the principles of object-oriented design
- Understand the design patterns that are common in software applications
- Understand how these patterns related to object-oriented design

## **OUTCOMES:**

Upon completion of course the students will be able to How to add functionality to designs while minimizing complexity What design patterns really are, and are not About 12 specific design patterns

- What code qualities you need to maintain to keep code flexible.
- How to use design patterns to keep code quality high without overdesign.

#### UNIT-I:

Review Of Formal Notations & Foundation Classes In C++ : Class diagram, Object diagram, Interaction diagram Examples. List, Iterator, ListIterator, Point, Rect.

#### UNIT II

Introduction : What Is a Design Pattern?, Design Patterns in Smalltalk MVC, Describing Design Patterns, The Catalog of Design Patterns, Organizing the Catalog, How Design Patterns Solve Design Problems, How to Select a Design Pattern, How to Use a Design Pattern.

## UNIT III

A Case Study : Designing a Document Editor : Design Problems, Document Structure, Formatting, Embellishing the User Interface, Supporting Multiple Look-and-Feel Standards, Supporting Multiple Window Systems, User Operations Spelling Checking and Hyphenation

## UNIT IV

Creational Patterns : Abstract Factory, Builder, Singleton, Discussion of Creational Patterns.

## UNIT V

Structural Patterns : Adapter, Bridge, Composite, decorator.

## UNIT VI

Behavioral Patterns : Observer, State, Strategy, Template Method , Discussion of Behavioral Patterns.

## **TEXT BOOKS:**

1. Design Patterns By Erich Gamma, Pearson Education

- 1. Pattern's in JAVA Vol-I By Mark Grand , Wiley DreamTech.
- 2. Pattern's in JAVA Vol-II By Mark Grand , Wiley DreamTech.
- 3. JAVA Enterprise Design Patterns Vol-III By Mark Grand, Wiley DreamTech.
- 4. Head First Design Patterns By Eric Freeman-Oreilly-spd
- 5. Design Patterns Explained By Alan Shalloway, Pearson Education.
- 6. Pattern Oriented Software Architecture, F.Buschmann & others, John Wiley & Sons.

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## (A1219106) EMBEDDED SYSTEMS (ELECTIVE-III)

## **OBJECTIVES**:

- Know basics of embedded systems
- Review of writing Assembly Language programs
- Interfacing through keyboards.
- Giving introduction to RTOS.
- How embedded system behaves in RTOS.

#### **OUTCOMES**:

Upon completion of the course, students should possess the following skills:

- Able to design the hardware and software required to implement an embedded processing system.
- Able to take a problem statement and implement a solution using a combination of hardware and software while using a microprocessor/microcontroller.
- Able to use the standard ports and interface devices on a typical microcontroller.
- Able to write simple assembly language programs which utilize microcontroller resources

## UNIT - I

**Embedded Computing:** Introduction, Complex Systems and Microprocessor, The Embedded System Design Process, Formalisms for System Design, Design Examples.(Chapter I from Text Book 1, Wolf).

#### UNIT - II

The 8051 Architecture: Introduction, 8051 Micro controller Hardware, Input/output Ports and Circuits, External Memory, Counter and Timers, Serial data Input/output, Interrupts. (Chapter 3 from Text Book 2, Ayala).

## UNIT - III

**Basic Assembly Language Programming Concepts :**The Assembly Language Programming Process, Programming Tools and Techniques, Data Transfer and Logical Instructions. (Chapters 4,5 and 6 from Text Book 2, Ayala).

#### UNIT - IV

#### Introduction to Real - Time Operating Systems:

Tasks and Task States, Tasks and Data, Semaphores, and Shared Data.

(Chapter 6 from Text Book 3, Simon).

#### UNIT - V

**More Operating System Services:** Message Queues, Mailboxes and Pipes, Timer Functions, Events, Memory Management, Interrupt Routines in an RTOS Environment.

## (Chapter 7 from Text Book 3, Simon).

UNIT - VI

**Introduction to advanced architectures:** ARM Processor SHARC Processor, Networked embedded systems: Bus protocols, I2C bus and CAN bus;

Internet-Enabled Systems, Design Example-Elevator Controller.

## (Chapter 2 and 8 from Text Book 1, Wolf).

## **TEXT BOOKS :**

- 1. Computers as Components-principles of Embedded computer system design, Wayne Wolf.
- 2. The 8051 Microcontroller, Third Edition, Kenneth J.Ayala , Thomson.
- 3. An Embedded Software Primer, David E. Simon, Pearson Education.

- 1. Embedding system building blocks, Labrosse, via CMP publishers.
- 2. Embedded Systems, Raj Kamal, TMH.
- 3. Micro Controllers, Ajay V Deshmukhi, TMH.
- 4. Embedded System Design, Frank Vahid, Tony Givargis, John Wiley.
- 5. Microcontrollers, Raj kamal, Pearson Education.

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## (A0535108) DISTRIBUTED DATABASES (ELECTIVE - III)

#### **OBJECTIVES**:

The first is study of the classical distributed database management

- Issues in Distribution design, distributed query processing, and distributed transaction management.
- To learn about Optimization in DDB
- Architectural Issues in DDB

#### **OUTCOMES**:

Upon completion of the course students are able to

- Understand distributed database management;
- Good knowledge of complex topics like Distribution design, distributed query processing
- Solution to the some of the Architectural issues.
- Examples of DDB's

## UNIT I

**Introduction to Distributed Databases:** Features of Distributed versus Centralized Databases, why distributed databases?, Distributed Database Management Systems, Review of databases, Review of computer networks.

#### UNIT II

**Levels Of Distribution Transparency**: Reference Architecture for Distributed Databases, Types of Data Fragmentation, Distribution transparency for read only applications, Distribution transparency for update applications, distributed database access primitives, Integrity Constraints in Distributed Databases.

#### UNIT III

**Distributed Database Design:** A Framework for Distributed database Design, The Design of database Fragmentation

#### UNIT IV

**Translation of Global Queries to Fragment Queries**: Equivalence Transformations for Queries, Transforming Global Queries into Fragment Queries, Distributed Grouping and aggregate Function Evaluation, Parametric Queries.

#### UNIT V

**The Management of Distributed Transactions:** A Framework for Transaction Management Supporting Atomicity of Distributed Transactions, Concurrency Control for Distributed Transactions, Architectural Aspects of Distributed Transactions.

#### UNIT VI

**Concurrency Control**: Foundation of Distributed Concurrency Control, Distributed Deadlocks, Concurrency Control based on Timestamps, Optimistic Methods for Distributed Concurrency Control.

## **TEXT BOOKS :**

1. Distributed Database Principles & Systems, Stefano Ceri, Giuseppe Pelagatti McGraw-Hill

#### **REFERENCES:**

1. Principles of Distributed Database Systems, M.Tamer Ozsu, Patrick Valduriez – Pearson Education.

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## COMPUTER SCIENCE AND ENGINEERING

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## (A0536108) WEB SERVICES (ELECTIVE - III)

## **OBJECTIVES:**

To provide students with conceptual and practical knowledge and skills required to develop web applications and web services.

## **OUTCOMES**

- Perform analysis modelling and design modelling for web applications
- Identify candidate tools and technologies for developing web applications
- Develop user interfaces for web applications
- Develop web applications and web services

#### UNIT I

Evolution and Emergence of Web Services: Evolution of distributed computing, Core distributed computing technologies, client/server, CORBA, JAVA RMI, Micro Soft DCOM, MOM, Challenges in Distributed Computing, role of J2EE and XML in distributed computing, emergence of Web Services and Service Oriented Architecture (SOA).

## UNIT II

Introduction to Web Services: The definition of web services, basic operational model of web services, tools and technologies enabling web services, benefits and challenges of using web services.

#### UNIT III

Web Services Architecture, core building blocks of web services, standards and technologies available for implementing web services, web services communication, basic steps of implementing web services, developing web services enabled applications.

#### UNIT IV

Core fundamentals of SOAP: SOAP Message Structure, SOAP Encoding, SOAP message exchange models, SOAP communication and messaging, SOAP security, developing SOAP Web Services using Java, limitations of SOAP.

#### UNIT V

Describing Web Services: WSDL, WSDL in the world of Web Services, Web Services life cycle, anatomy of WSDL definition document, WSDL bindings, WSDL Tools, limitations of WSDL.

## UNIT VI

UDDI: UDDI Registries, uses of UDDI Registry, Programming with UDDI, UDDI data structures, support for categorization in UDDI Registries, Publishing information to a UDDI Registry, limitations of UDDI. Web Services Security: XML security frame work, XML encryption, XML digital signature.

#### **TEXT BOOKS:**

- 1. Developing Java Web Services, R. Nagappan, R. Skoczylas, R.P. Sriganesh, Wiley India, rp 2008.
- 2. Developing Enterprise Web Services, S. Chatterjee, J. Webber, Pearson Education, 2008.
- 3. XML, Web Services, and the Data Revolution, F.P.Coyle, Pearson Education.

- 1. Building Web Services with Java, Second Edition, S. Graham and others, Pearson Edn., 2008.
- 2. Java Web Services, D.A. Chappell and T. Jewell, O'Reilly, SPD.
- 3. Java Web Services Architecture, McGovern, et al., Morgan Kaufmann Publishers, 2005.
- 4. J2EE Web Services, Richard Monson-Haefel, Pearson Education.
- 5. Web Services, G. Alonso, F. Casati and others, Springer, 2005.

# RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG & TECHNOLOGY, NANDYAL AUTONOMOUS

## COMPUTER SCIENCE AND ENGINEERING

## IV B.Tech. II-Sem (CSE)

T C 3+1\* 4

## (A0536108) E – COMMERCE (ELECTIVE-IV)

## **OBJECTIVES:**

- Have a general understanding of the Internet and related technologies
- Understanding of policy issues related to privacy, content selection, intellectual property rights, and establishing identity that are germane to electronic commerce.
- Capability to analyze the impact that electronic commerce is having and will likely have on key sectors of the economy and assess the strategic implications this analysis holds for an organization.
- Be able to analyze the organizational fit between strategy and technology
- Recognize and understand ways of using electronic commerce technologies to improve intra and interorganizational processes.
- Be able to specify the development of electronic commerce capabilities in a company

## **OUTCOMES**

- Identify the organizational requirements of eCommerce systems on data protection;
- Demonstrate knowledge of the factors which have impacts upon the security of eCommerce systems;
- Make realistic assessment on the security of eCommerce systems;
- Design and analyze security measures to protect organizational data against various attacks;
- Describe relevant regulations governing electronic transactions, data privacy protection, and web access.

## UNIT - I

Electronic Commerce:-Frame work, Anatomy of E-Commerce applications, E-Commerce Consumer Applications, E-Commerce Organization Applications, Consumer Oriented Electronic Commerce: - Consumer Oriented Applications, Mercantile Process models.

## UNIT - II

Electronic Payment Systems: - Types of Electronic Payment System, Digital Token-Based, Smart Cards, Credit Cards, Risks and Electronic Payment Systems.

#### UNIT-III

Inter Organizational Commerce and EDI:- Electronic Data Interchange, EDI in Application Business, EDI: Legal, Security and Privacy Issues, EDI and Electronic Commerce.

EDI Implementation, MIME and Value Added Networks:- Standardization and EDI, EDI Software Implementation, EDI Envelope for Message Transport, Value added networks, Internet Based EDI.

### UNIT - IV

Corporate Digital Library – Dimensions of Internal EC Systems, Making a Business Case for a Document Library, Types of Digital Document, Issues behind Document Infrastructure, Corporate Data Warehouses. Advertising and Marketing - Information Based Marketing, Advertising on Internet, On-line Marketing Process, Market Research.

#### UNIT - V

Consumer Search and Resource Discovery - Information search and Retrieval, Commerce Catalogues, Information Filtering.

#### UNIT - VI

Multimedia - Key Multimedia Concepts, Digital Video and Electronic Commerce, Desktop Video Processing's, Desktop Video Conferencing.

#### **TEXT BOOK :**

1. Frontiers of electronic commerce - Kalakata, Whinston, Pearson.

- 1. E-Commerce fundamentals and applications Hendry Chan, Raymond Lee, Tharam Dillon, Ellizabeth Chang, John Wiley.
- 2. E-Commerce, S.Jaiswal Galgotia.

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## **COMPUTER SCIENCE AND ENGINEERING**

## IV B.Tech. II-Sem (CSE)

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## (A1216105) VIRTUAL REALITY (ELECTIVE-IV)

#### **OBJECTIVES:**

The course objective is to promote the understanding of this technology, underlying principles, its potential and limits and to learn about the criteria for defining useful applications. Furthermore, students will be exposed to the process of creating virtual environments, by developing a complete VR application as members of a small team. Project teams will include students from different disciplines, thereby, complementing technical skills with imagination, creativity, and innovative ideas

#### UNIT-I

**Introduction :**The three I's of virtual reality, commercial VR technology and the five classic components of a VR system.

#### UNIT - II

**Input Devices :**(Trackers, Navigation, and Gesture Interfaces): Three-dimensional position trackers, navigation and manipulation, interfaces and gesture interfaces.

#### UNIT - III

Output Devices: Graphics displays, sound displays & haptic feedback.

#### UNIT - IV

**Modeling** :Geometric modeling, kinematics modeling, physical modeling, behaviour modeling, model management.

## UNIT - V

Human Factors: Methodology and terminology, user performance studies, VR health and safety issues.

#### UNIT - VI

Applications: Medical applications, military applications, robotics applications.

#### **TEXT BOOKS :**

- 1. Virtual Reality Technology, Second Edition, Gregory C. Burdea & Philippe Coiffet, John Wiley & Sons, Inc.,
- 2. Killer Game Programming in Java, Andrew Davison, Oreilly-SPD, 2005.

- 1. Understanding Virtual Reality, interface, Application and Design, William R.Sherman, Alan Craig, Elsevier(Morgan Kaufmann).
- 2. 3D Modeling and surfacing, Bill Fleming, Elsevier(Morgan Kauffman).
- 3. 3D Game Engine Design, David H.Eberly, Elsevier.
- 4. Virtual Reality Systems, John Vince, Pearson Education.

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## AUTONOMOUS

## COMPUTER SCIENCE AND ENGINEERING

## IV B.Tech. II-Sem (CSE)

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## (A1225106) HUMAN COMPUTER INTERACTION (ELECTIVE - IV)

## **OBJECTIVES**:

- To expose students to the central concepts of Human-Computer Interaction.
- Establish target users, functional requirements, and interface requirements for a given computer application
- Describe and explain user interface design principles, and apply them to designing an
- Interface.
- Develop quick-and-dirty interface designs using rapid prototyping methods
- Evaluate user interface designs through usability inspection and user models
- Develop user studies and analyze study data to gain information about users, tasks, and interface designs
- Choose appropriate HCI methods for specified goals and justify the choice.

## **OUTCOMES**:

Upon successful completion of this course, students should be able to:

- Design, implement and evaluate effective and usable graphical computer interfaces.
- Describe and apply core theories, concepts, models and methodologies from the field of HCI.
- Describe and discuss current research in the field of HCI.
- Implement simple graphical user interfaces using appropriate software tools.
- Describe special considerations in designing user interfaces for different types of users i.e.older generation, younger generation, disabled user.

## UNIT - I

Introduction: Importance of user Interface – definition, Importance of good design. Benefits of good design. A brief history of Screen design.

#### UNIT – II

The graphical user interface – popularity of graphics, the concept of direct manipulation, graphical system, Characteristics, Web user – Interface popularity, characteristics- Principles of user interface.

## UNIT - III

Design process – Understanding Human interaction with computers, Importance of human characteristics in design, Human consideration in Design, Human interaction speeds.

## UNIT - IV

Screen Designing: Human Considerations in Screen Design – Interface Design Goals, Screen Meaning and purpose, organizing screen elements clearly and Meaningfully, Ordering of screen data and content – Screen navigation and flow – Visually pleasing composition – Amount of information – Focus and Emphasis – Presenting information simply and meaningfully – statistical graphics – Technological consideration in interface design.

## UNIT - V

Windows: Select the Proper Kinds of Windows: Window Characteristics, Components of a Window, Window Presentation Styles, Types of Windows, Window Management, Window Operations. Select the Proper Device-Based Controls: Characteristics of Device-Based Controls, Selecting the Proper Device Based Controls.

## UNIT - VI

Components: Choose the Proper Screen-Based Controls – Operable Controls, Text Entry, Selection Controls, Combination Entry/selection controls, Other Operable Controls, Custom Controls, and Presentation Controls. Write Clear Text and Messages – Words, Sentences, Messages and Text, Text for Web Pages. Icons, Multimedia, Color-What Is It? Color Uses, possible problems with colors, choosing colors.

#### **TEXT BOOKS:**

1. The essential guide to user interface design, Wilbert O Galitz, Wiley India.

- 1. Human Computer Interaction. ALAN DIX, JANET FINCAY, GRE GORYD, ABOWD, RUSSELL BEALG, PEARSON.
- 2. Interaction Design PRECE, ROGERS, SHARPS. Wiley Dreamtech,
- 3. User Interface Design, Soren Lauesen, Pearson Education.

#### RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG & TECHNOLOGY, NANDYAL AUTONOMOUS

## COMPUTER SCIENCE AND ENGINEERING

#### IV B.Tech. II-Sem (CSE)

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## (A0538108) OBJECT ORIENTED SOFTWARE ENGINEERING (ELECTIVE-IV)

## **OBJECTIVES**:

Upon completion of the course, the student should be able to:

- Describe and explain concepts and principles of object oriented software development
- Describe and explain fundamental theories, techniques and methods in software engineering
- Master basic object oriented modelling principles
- Describe and explain basic concepts and constructs in the Java programming language
- Implement programs in the Java programming language
- Individually, or in teams, perform specific software development task; collecting and analyzing requirements; develop and evaluate a design; test and document an implementation
- Individually, or in teams, perform a software development project using object oriented technology

## **OUTCOMES:**

- Analyze and model requirements and develop software using object-oriented analysis and design .
- Express object models in UML
- Use CASE tools for software design .
- Work as a member of a software development team.

**UNIT I:** Introduction to Classical software Engineering : Historical, Economic and Maintenance aspects. Introduction to OO Paradigm.Different phases in structured paradigm and OO Paradigm. Software Process and different life cycle models and corresponding strengths and weaknesses.

**UNIT II:** Planning and Estimation : Estimation of Duration and Cost , COCOMO components of software. Project Management plan

**UNIT III:** Requirements phase: Rapid Prototyping method, Formal methods of developing specification document, Examples of other semi - formal methods of using Finite-State- Machines, Petri nets.

UNIT IV: Analysis phase: Use case Modeling, Class Modeling , Dynamic Modeling, Testing during OO Analysis

UNIT V: Design phase: Data oriented design, Object Oriented design, Formal techniques for detailed design.

UNIT VI: IIM Phases: Implementation , Integration and maintenance phases, OOSE aspects in these phases

## TEXT BOOKS

- 1. Object oriented and Classical Software Engineering, 7/e, Stephen R. Schach, TMH
- 2. Object oriented and classical software Engineering, Timothy Lethbridge, Robert Laganiere, TMH

## **REFERENCE BOOKS**

1. Component-based software engineering: 7th international symposium, CBSE 2004, Ivica Crnkovic,Springer

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## RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG & TECHNOLOGY, NANDYAL AUTONOMOUS COMPUTER SCIENCE AND ENGINEERING

## IV B.Tech. II-Sem (CSE)

(A1233107) MAN MANAGEMENT (Audit Course)

## UNIT I

The Ideal: Ideal profile of a Manager, Leader. Manager & Self-management.

## UNIT-2:

**Management the Indian Way**: Ancient Indian management; Indian ethos and values; Spirituality: Life's undercurrent; Selflessness for success; The life breaths of business.

#### UNIT-3

**Human Business:** Personality development; Effect of culture on management; Work culture and Indian culture; Business is between human being; management is awareness and limits.

## UNIT-4

**Business and quality:** Quality in Indian perspective; Total quality management; Marketing's Indian perspective; Climbing the corporate ladder; Values and statistics.

## UNIT-5

**Business and Society:** Integrated rural development management; The socially conscious business; perspectives in national and rural development.

#### UNIT-6

The Human aspect: Human system; Human relations.

#### **TEXT BOOK:**

1. Man Management: Divine Pearls on Management. A compilation from Bhagavan Sri Sathya Sai Baba discourses on management. Compiled by Management students of SSSIHL.