

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

INFORMATION TECHNOLOGY



II, III & IV B.Tech SYLLABUS

Applicable for students admitted into B.Tech (Regular) from 2012-13 & B.Tech (Lateral Entry Scheme) from 2013-14

REGULATIONS, COURSE STRUCTURE & DETAILED SYLLABUS

RAJEEV GANDHI MEMORIAL COLLEGE OF ENGINEERING AND TECHNOLOGY, NANDYAL-518501, KURNOOL (DIST), A.P., INDIA

AUTONOMOUS INSTITUTE

(Affiliated to J.N.T.U.A, Anantapur)

ACADEMIC REGULATIONS, COURSE STRUCTURE AND DETAILED SYLLABI

B.Tech (Regular) from 2012-13 and B.Tech (Lateral Entry Scheme) from 2013-14

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 2012-13 onwards. Any reference to "Institute" or "College" in these rules and regulations shall stand for Rajeev Gandhi Memorial College of Engineering and Technology (Autonomous).

All the rules and regulations, specified hereafter 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 AP 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 is to be obtained.
- ii) 20% of the sanctioned strength in each programme of study (of RGMCET) shall be filled by the Convener, ECET as lateral entry.

List of Programs offered

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

Academic Regulations

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

Academic Regulations for 2012 B. Tech (Regular)

(Effective for the students admitted into the I year from the Academic Year 2012-2013)

The B.Tech degree will be conferred by the Jawaharlal Nehru Technological University, Anantapur, to those 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

- 1.1 The student will be declared eligible for the award of the B. Tech. degree if he fulfils the following academic regulations:
- 1.2 Pursued a course of study for not less than prescribed course work duration and not more than double the prescribed course work duration.
- 1.3 Registered for 196 credits and secured 190 credits with compulsory subjects as listed in Table-1 below.

S.NO	SUBJECT PARTICULARS				
1.	All the first year subjects				
2.	All practical subjects				
3.	Skill Development Courses				
4.	Mini project				
5.	Seminar				
6	Comprehensive viva voce				
7.	Project work				

Table 1: Compulsory Subjects

2.0 Forfeit of seat

Students, who fail to fulfil all the academic requirements for the award of the degree within *eight academic years* 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.

			Table 2: C	redits				
		I	Year			Sen	nester	
	Periods /Week	Credits	Internal Marks	External Marks	Periods / Week	Credits	Internal Marks	External Marks
	02	02	30	70	04	03	30	70
	03	03	30	70				
Theory	03+1*	03	30	70				
	03+1*	04 or 05	30	70				
Practical	03	03	25	50	03	02	25	50
Practical / Drawing	3+1*	02			06	03		
Tractical / Drawing	06	04	30	70			30	70
Skill Development Courses	03					02**	100	
Mini Project						02	<u>25</u>	50
Seminar						02	50	
Comprehensive Viva- voce						03		50
Project						10	50	100

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

[*Tutorial

******Skill Development Courses 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, miniproject, 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 are to be answered. The duration of Internal test will be for 2hrs. First test to be conducted in 3 units and second test to be conducted in remaining 3 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:

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY Table 3: Units for Internal Tests

I Year	Semester
2 Units First Internal test.	3 Units First Internal test.
2 Units Second Internal test.	3 Units Second Internal test.
2 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 Skill Development Coursestwo Internal examinations shall be conducted one in the middle of the semester and the other at the 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 assignment. No external exam for these courses.
- 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 year 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

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

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 the 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 the committee consists of an external be conducted by the committee consists of the project work for 50 marks shall be conducted by the committee consists of head of the Department or his nominee, senior faculty member and the supervisor of project.

RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG.& TECH., NANDYAL-518 501

S.No	Nature of subject	Marks	Type of examination and mode of assessment		Scheme of Examination
	-	70	End I Doub (Inter	Examination ble Evaluation rnal + External 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 Three/two assignments in a year/ semester each of 05 marks.
		50	End l (Exte	ab examination ernal evaluation)	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
		50	End l (Exte	Examination ernal evaluation)	This End Examination in miniproject will be for a maximum of 50 marks.
3	Mini Project	25	Inter	nal evaluation	Day-to-day performance in executing mini project .
4	Seminar	50	Intern	nal evaluation	Based on the performance in two seminars during semester
5	Comprehensive Viva	50	Exter	rnal evaluation	This end viva voce examinations in all the subjects for 50 marks
6	Project work	100	Exter	rnal evaluation	This end viva voce in project work for 100 marks
		50	Intern	nal evaluation	These 50 marks will be based on the performance of the student in the project reviews apart from attendance and regularity
7	Skill Development Courses	70	Internal 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
		30	Intern	nal evaluation	Based on the two assignments

SCHOOL OF INFORMATION TECHNOLOGY 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.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

- 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.6.0.

- 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 Skill Development Courses 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 46 out of 92 credits from all the exams conducted upto and including II year II semester regular examinations (Two regular and one supplementary examinations of I year; one regular and one supplementary examinations of II year I semester; one regular examination of II year II 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 all the exams conducted upto and including III year II semester regular examinations ,whether the candidate takes the examinations or not. (Three regular and two supplementary examinations of I year; Two regular and two supplementary examinations of II year I semester ; Two regular and one supplementary examinations of II year I semester ; One regular and one supplementary examination of III year I semester ; One regular and one supplementary examination of III year I semester ; One regular and one supplementary examination of III year I semester ; One regular and one supplementary examination of III year I semester ; One regular and one supplementary examination of III year I semester ; One regular and one supplementary examination of III year I semester ; One regular and one supplementary examination of III year I semester ; One regular and one supplementary examination of III year I semester ; One regular and one supplementary examination of III year I semester ; One regular and one supplementary examination of III year I semester ; One regular examination of III year I semester)

Table 5: Promotion rules

Promotion from	Total credits to register	Total credits to obtain for promotion
II yr to III yr	92	46
III yr to IV yr	144	72

- 7.4 The student shall register and put up minimum attendance in all 196 credits and earn the 190credits. Marks obtained in the best 178 credits (excluding the credits obtained in Skill Development Courses) shall be considered for the calculation of percentage of marks.
- 7.5 Students who fail to earn 190 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.

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.

Table: 6: Course pattern							
Year	Semester	No. of Subjects	No. of Skill Development Number of Labs Courses		Total cre	Total credits	
First year		O7 {ENG-3 EP-4, EC-4, M1-4, MM/EM-4, CP-5,ED-4}	00	04	1X3=03 4X5=20 5X1=05 4X3=12	40	
Second year	First	06	01	03	6X3=18 1X2=02 3x2=06	26	
	Second	06	01	03	6X3=18 1X2=02 3x2=06	26	
Third year	First	06	01	03	6X3=18 1X2=02 3x2=06	26	
	Second	06	01	03	6X3=18 1X2=02 3x2=06	26	
Fourth year	First	06	01	02 Mini project	6X3=18 1X2=02 3x2=06	26	
	Second	03	01	Subjects Open elective Seminar Comprehensive Viva Project Viva	3x3 =09 1X2=02 1X2=02 1X3=03 1X10=10	26	
		GRAN	ND TOTAL			196	

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

9.0 Transitory Regulations:

Candidates who have been detained for want of attendance or not fulfilled academic requirements or who have failed after having undergone this course in earlier regulations or have discontinued and wish to continue the course are eligible for admission into the unfinished semester from the date of commencement of class work with the same or equivalent subjects as and when subjects are offered subject to section 2.0 and they continues to be in the academic regulations they were first admitted.

10.0 With-holding of results:

If the candidate has any dues not paid to the Institute or if any case of indiscipline of malpractice is pending against him, the result of the candidate shall be withheld and he will not be allowed/promoted into the next higher semester. The issue of degree is liable to be withheld in such cases.

11.0 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:

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

Class Awarded	% of marks to be secured	
First Class with Distinction	70% and above	
First Class	Below 70% but not less than 60%	From the aggregate marks secured for the best 178 Credits (excluding
Second Class	Below 60% but not less than 50%	Skill Development Courses)
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)

11.0 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.

12.0 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.

13.0 Rules of Discipline:

- 12.1 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.
- 12.2 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.
- 12.3 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 When the student's answer book is confiscated for any kind of attempted or suspected malpractice the decision of the Examiner is final.

14.0 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.

15.0 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.

16.0 Transfers

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

17. 0 General:

- 16.1 The Academic Regulation should be read as a whole for the purpose of any interpretation.
- 16.2 In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Academic Council is final.
- 16.3 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.
- 16.4 Where the words "he", "him", "his", occur in the regulations, they include "she", "her", "hers".

SCHOOL OF INFORMATION TECHNOLOGY Academic Regulations for B. Tech. (Lateral Entry Scheme)

(Effective for the students getting admitted into II year from the Academic Year 2013-2014 on wards)1.0 The Students have to acquire 150 credits out of 156 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 52 out of 104 credits from all the exams conducted upto and including III year II semester regular examinations, whether the candidate takes the examinations or not. (Two regular and Two supplementary examinations of II year I semester; Two regular and one supplementary examination of II year II semester; One regular and one supplementary examination of III year I semester; One regular and one supplementary examination of III year I semester; One regular and one supplementary examination of III year I semester; One regular and one supplementary examination of III year I semester; One regular examination of III year II 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 138 credits will be considered for the calculation of percentage and award of class.

Class Awarded	% of marks to be secured		
First Class with Distinction	70% and above	From the aggregate marks secured for	
First Class	Below 70% but not less than 60%	best 138 Credits.	
Second Class	Below 60% but not less than 50%	Development Courses	
Pass Class	Below 50% but not less than 40%		

Table 1: Award of Division

(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)

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY I B.Tech COURSE STRUCTURE (Common to Branches: ECE, EEE, EIE, CSE & IT) Scheme of instruction Scheme of Examination periods/week Code Subject Credits Internal External Total Theory Practical Marks Marks Marks Theory A0001121 Professional English 3+1* 3 30 70 100 _ A0002121 4 70 Engineering Physics 3+1* 30 100 _ Engineering A0003121 4 30 70 100 3+1* _ Chemistry A0004121 Mathematics - I 3+1* 4 30 70 100 -Mathematical A0005121 3+1* _ 4 30 70 100 Methods Fundamentals of A0501121 Computers & C 3+1* 5 30 70 100 Programming Engineering A0301121 4 70 100 6 30 -Drawing Practical Computer A0591121 _ 3 3 25 50 75 Programming Lab Engineering and IT A0391121 3 3 25 50 75 _ Workshop Engineering Physics Lab and A0091121 3 3 25 50 75 _ Engineering Chemistry Lab English Language A0092121 3 3 Communication _ 25 50 75 Skills Lab Total 30 12 40 310 690 1000

RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG.& TECH., NANDYAL-518 501

	II B.TECH, I-SEMESTER COURSE STRUCTURE								
C Ma	Subject	6 1 • 4	Н	ours/week		Cuadita	Marks		
5.10	Code	Subject	Theory	Tutorial	Lab	Creans	Int.	Ext.	Total
1.	A1201123	Information Technology Fundamentals	3	1	0	3	30	70	100
2.	A0010123	Environmental Studies	3	1	0	3	30	70	100
3.	A1202123	Fundamentals of Object- Oriented Design	3	1	0	3	30	70	100
4.	A0502123	Digital Logic Design	3	1	0	3	30	70	100
5.	A1203123	Mathematical Foundations of IT	3	1	0	3	30	70	100
6.	A1204123	Algorithms and Data Structures	3	1	0	3	30	70	100
7.	A1291123	Fundamentals of Object Oriented Design Lab	0	0	3	2	25	50	75
8.	A0593123	Digital Logic Design Lab	0	0	3	2	25	50	75
9.	A1292123	Algorithms and Data Structures Lab Using C	0	0	3	2	25	50	75
10.	A0009123	Corporate Management Skills (Skill Development Course-1*)	3	0	0	2	30+70	-	100
	Cantas	•	21	6	9	26			025
	Contact periods/week			Fotal : 36	26			925	

SCHOOL OF INFORMATION TECHNOLOGY

II B.TECH, II-SEMESTER COURSE STRUCTURE

S No	Subject Subject			Hours/week				Mark	s
3.140	Code	Subject	Theory	Tutorial	Lab	Creans	Int	Ext	Total
1	A1205124	Computer Organization and Design	3	1	0	3	30	70	100
2	A1206124	Foundations of Software Engineering	3	1	0	3	30	70	100
3	A1207124	Relational Database Design and Development	3	1	0	3	30	70	100
4	A0012123	Probability and Statistics	3	1	0	3	30	70	100
5	A1208124	Data Communications and Networking – 1	3	1	0	3	30	70	100
6	A1209124	Java Programming	3	1	0	3	30	70	100
7	A1293124	Relational Database Systems Lab	0	0	3	2	25	50	75
8	A1294124	Unix and Shell Programming Lab	0	0	3	2	25	50	75
9	A1295124	Java Programming Lab	0	0	3	2	25	50	75
10	A0007123	Aptitude, Arithmetic, Reasoning and Comprehension(Skill Development Course-2*)	3	0	0	2	30+70	-	100
	Corter	t namoda/waala	21	6	9	26			025
Contact periods/week]	Fotal : 36		26			925

* - Skill Development Course credits will not be considered for the award of Division. However, all these courses have to be cleared through Internal Evaluation by scoring a minimum of 40%.

RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG.& TECH., NANDYAL-518 501

	Subject		Hours/week			<i>a</i>	Marks		
S.No	Code	Subject	Theory	Tutorial	La b	Credits	Int	Ext	Total
1.	A1211125	Modern Operating System	3	1	0	3	30	70	100
2.	A1212125	Data Communication and Networking - 2	3	1	0	3	30	70	100
3.	A1213125	Web Application Development	3	1	0	3	30	70	100
4.	A1214125	Database Management Concepts	3	1	0	3	30	70	100
5.	A0515125	C# and .NET Framework	3	1	0	3	30	70	100
6.		Elective – 1**	3	1	0	3	30	70	100
7.	A1296125	Modern Operating System Lab	0	0	3	2	25	50	75
8.	A1297125	Web Application Development Lab	0	0	3	2	25	50	75
9.	A0598125	C# & .NET Framework Lab	0	0	3	2	25	50	75
10.	A0015125	Man Management(Skill Development Course-3*)	3	0	0	2	30+70	-	100
			21	6	9	26			025
Contact periods/week		1	Fotal : 36		26			923	

SCHOOL OF INFORMATION TECHNOLOGY

III B.TECH, I-SEMESTER COURSE STRUCTURE

* - Skill Development Course credits will not be considered for the award of Division. However, all these courses have to be cleared through Internal Evaluation by scoring a minimum of 40%.

Subject Code	Choices for Elective-1 (Group-1)	Subject
A1215125	G1.1	Artificial Intelligence
A1216125	G1.2	Computer Graphics: Principles & Practices
A1217125	G1.3	Software Architecture
A1218125	G1.4	E-Commerce
A1219125	G1.5	Theory of Computation

RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG.& TECH., NANDYAL-518 501

GN	Subject	Subject	Hours/week			a 11	Marks		
S.No	Code		Theor y	Tutorial	Lab	Credits	Int.	Ext.	Tota l
1	A0011123	Managerial Economics & Financial Analysis	3	1	0	3	30	70	100
2	A1220126	Embedded Computing	3	1	0	3	30	70	100
3	A1221126	System Programming	3	1	0	3	30	70	100
4	A0520126	Software Testing Methodologies and Tools	3	1	0	3	30	70	100
5		Elective –2**	3	1	0	3	30	70	100
6		Elective – 3**	3	1	0	3	30	70	100
7	A1298126	Embedded Computing Lab	0	0	3	2	25	50	75
8	A1299126	System Programming Lab	0	0	3	2	25	50	75
9	A0581126	Software Testing Tools Lab	0	0	3	2	25	50	75
10	A0013125	Professional Ethics and Soft Skills (Skill Development Course-4*)	3	0	0	2	30+70	-	100
			21	6	9	26			025
Contact periods/week		Total: 36		26			925		

SCHOOL OF INFORMATION TECHNOLOGY

III B.TECH, II-SEMESTER COURSE STRUCTURE

** GROUP – 2: List of electives for Elective – 2 & Elective – 3 [Choose ANY TWO from the following]

Subject Code	Choices for Elective-2 & 3 (Group-2)	Subject			
A1222126	G2.1	Basics of Image Processing			
A1223126	G2.2	Data Warehousing and Data Mining concepts			
A1224126	G2.3	Information Storage and Management			
A1225126	G2.4	Multimedia and Application Development			
A1226126	G2.5	Network Management Systems			
A1227126	G2.6	Human Computer Interaction			

RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG.& TECH., NANDYAL-518 501

GN	Subject		Hours/week			a 14	Marks		
S.No	Code	Subject	Theory	Tutorial	Lab	Credits	Int	Ex t	Total
1	A1228127	Middleware Technologies and Service Oriented Architecture	3	1	0	4	30	70	100
2	A1229126	Information Security	3	1	0	4	30	70	100
3	A0517126	Mobile Computing	3	1	0	4	30	70	100
4	A1230127	Introduction to High Performance Computing	3	1	0	4	30	70	100
5		Elective – 4**	3	1	0	4	30	70	100
6		Elective – 5**	3	1	0	4	30	70	100
7	A1281127	Mobile Application Development Lab	0	0	3	2	25	50	75
8	A1282127	High Performance Computing Lab	0	0	3	2	25	50	75
9	A1283127	Mini Project	0	0	3	2	25	50	75
10	A1243127	Free/Open Source Software (Skill Development Course- 5*)	3	0	0	2	30+7	_	100
10	A0544127	SAP-ABAP and basic applications Lab (Skill Development Course-5*)	5		Ŭ	2	0		100
Contact periods/week		21	6	9	26			025	
		Total : 36			26			925	

SCHOOL OF INFORMATION TECHNOLOGY IV B.TECH. I-SEMESTER COURSE STRUCTURE

** GROUP – 3: List of electives for Elective – 4 & Elective – 5 [Choose ANY TWO from the following]

Subject Code	Choices for Elective-4 & 5 (Group-3)	Subject
A1231127	G3.1	Machine Learning
A1232127	G3.2	Design Patterns: Concepts and Applications
A1233127	G3.3	Cloud Infrastructure and Services
A1234127	G3.4	Principles of Compiler Design
A0530127	G3.5	Software Project Management
A0531127	G3.6	SAP-ABAP and basic applications SAP – ABAP LAB will replace Skill Development Course-5 if this elective chosen

RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG.& TECH., NANDYAL-518 501

S.No	Subject Code	Subject	Hours/week				Marks		
			Theory	Tutorial	Lab	Credits	Int.	Ext.	Tota l
1	A0014125	Management Science	3	1	0	3	30	70	100
2		Elective – 6**	3	1	0	3	30	70	100
3		Elective – 7**	3	1	0	3	30	70	100
4	A1285128	Seminar	0	0	0	2	50	-	50
5	A1286128	Comprehensive Viva-Voce	0	0	0	3	-	50	50
6	A1287128	Project	0	0	0	10	50	100	150
	A0537127	CCNA (Skill Development Course-6*)							
7	A1242128	SCJP (Skill Development Course-6*)	3	0	0	2	30+70	-	100
	A1243128	Other (Skill Development Course-6*)							
Contact periods/week		12	3	0	26			(50)	
		Total : 15			26			030	

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

** GROUP – 4: List of electives for Elective-6 & Elective-7 [Choose ANY TWO from the following]

Subject Code	Choices for Elective-6 & 7 (Group-4)	Subject	
A1235128	G4.1	Programming Massively Parallel Processors	
A1236128	G4.2	Information Retrieval Systems	
A1237128	G4.3	Data Science and Big Data Analytics	
A1238128	G4.4	Backup Recovery Systems and Architecture	
A1239128	G4.5	Soft Computing	
A1240128	G4.6	Natural Language Processing	

I B.Tech (IT)

SCHOOL OF INFORMATION TECHNOLOGY

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

(A0001121) PROFESSIONAL ENGLISH

(Common to all Branches)

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

OBJECTIVES:

The recent two decades have witnessed a great upsurge of job opportunities for student holding Engineering Graduate degree, in ever increasing number of Engineering and Management Colleges, in outsourcing sector, in Marketing jobs and of course, in the colleges and universities. A student, able to communicate in fluent English is liable to achieve success in every walk of life – be it professional, social or economical. The syllabus has been designed keeping in view of the track record, needs and goals of the generation next undergraduates. It comprises essentials of language development along with technical, social, environmental & spiritual aspects which in turn mould students as dynamic professionals. The course of Professional English has been designed with the following objectives.

- To ignite the spark of professionalism among students with the purpose to acquire success in every walk of life.
- To enable them to accomplish effective Technical writing
- To focus on complete language basics through LSRW skills
- To develop critical thinking skills and emotions of students through inspiring and literary texts.
- To eliminate the errors of language by practical English usage patterns and to improve the performance
 of students in English. This will facilitate students to be more articulate and confident. By this, new
 vistas of better job opportunities can be opened up for them.
- The greatest contribution of this course shall be to chisel Communicative skills of students at the global level.

OUTCOMES:

- Be able to acquire basic vocabulary.
- Be able to use mechanics of writing.
- Be able to develop language proficiency & Grammar usage.
- Considerable improvement in LSRW skills and communicative ability.
- Increase in motivational level and Professional attitudes.
- Be able to possess wide range of relevant knowledge.

UNIT I

A.Reading: i) Developing Personality - Principles & Strategies- by J.R.Bhatti

ii) Inspiring Lives – Mokshagundam Visvesvaraya

B.Writing: Mechanics of Writing- Paragraph writing

C.Vocabulary -synonyms and antonyms

- D. Language Development Basics of Grammar Naming Words- Concord
- Student Tasks: Self analysis through questionnaires Case Study on Successful Profiles.

UNIT II

- A. Reading: i) Heaven's Gate by Pico Iyer
- ii) Fish Philosophy Enjoy Your Work by Harry Paul
- B. Language Development: Tenses Question Tags
- C. Soft skills 1: The Art of Time Management by Gopala Swamy Ramesh & Mahadevan Ramash

UNIT III

- A. Reading: i) Sir C.V. Raman A Biography
- ii) Inspiring Lives Mother Theresa Case Study Joy of Giving.com
- **B. Writing**: Letter Writing Sample Analysis
- C. Language Development: Discourse Markers

UNIT IV

- A. Reading: i)Disaster Management The Cuddalore Experience Case study: Disaster
 - Management Japan Tsunami 2011.
 - ii) Neil Chambers' Green Living.
 - iii) Immortal Speeches Mahatma Gandhi by Harsha Vardhan Datta
- **B. Writing**: Report Writing
- C. Language Development: Active & Passive Voice

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

UNIT V

- A. Reading: i) Inspiring Lives - Viswanath Anand. ii) Human Interest - The Connoisseur
- B. Vocabulary Idioms
- C. Language Development Direct & Indirect Speech

UNIT VI

- A. Reading: i) Corporate Woman
 - ii) The Law of Pure. Potentiality by Deepak Chopra
- **B. Writing** Instruction Manuals Checklists Preventive Measures
- C. Soft skills 2: Cross Cultural Communication-Profile of an Interculturally Effective Person (IEP).

TEXT BOOKS PRESCRIBED:

- 1. Enjoying EveryDay English by A.Ramakrishna Rao published by Sangam Books
- 2. Inspiring Lives published by Maruthi Publications

SUGGESTED READING:

- Practical English Usage (New Edition) by Michael Swan Oxford University Press
- Murphy's English Grammar (Third Edition) by Raymond Murphy Cambridge University Press 2004
- Technical writing 3rd edition by Sharon J. Gerson & Steven M. Gerson Pearson Education 2001
- The Dynamics of Successful Personality and projection (Second Edition) by-J.R. Bhatti, Pearson • 2011

SCHOOL OF INFORMATION TECHNOLOGY

I B.Tech (IT)

(A0002121) ENGINEERING PHYSICS

(Common to all Branches)

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

COURSE OBJECTIVES

- To understand fundamental principles of engineering physics specifically concern to optics, crystal structures, quantum mechanics & electron theory of metals, semiconductors, nano materials, magnetic materials, dielectric properties, superconductivity, Laser, and optical fiber.
- To provide problem solving experience and learning of concepts through it in engineering physics, in both the classroom and the laboratory learning environment.

OUTCOMES:

By the end of the course students will be able to

- Acquire fundamental understanding of concepts specifically concern to quantum physics, crystallography, superconductivity, lasers and optical fibers and their engineering applications.
- Develop the ability to recognize the appropriate physics that applies to experiments based on the Engineering Physics
- To develop a systematic, logical approach to problem-solving that can be applied to problems in physics and to problems in general.

UNIT- I

WAVE 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: Introduction -Space lattice - Basis - Unit cell - Lattice parameter - Bravais lattices - Crystal systems - Structure Simple cubic - Body Centered Cubic – Face Centered Cubic crystals- Crystal structure of diamond-Miller indices of planes and directions in crystals – Separation between successive (h k l) planes – X-ray diffraction technique – Powder method.

UNIT- III

PRINCIPLES OF QUANTUM MECHANICS & ELECTRON THEORY: Waves and Particles - de-Broglie's hypothesis – Heisenberg's uncertainty principle - Schroedinger's one dimensional time independent wave equation (qualitative treatment) - Particle in a one dimensional potential box – Energy levels - Fermi-Dirac distribution and effect of Temperature (qualitative treatment only) –Source of electrical resistance – Kronig-Penney model (qualitative treatment only - energy bands – metals, semi conductors & insulators.

UNIT- IV

PHYSICS OF SEMICONDUCTORS: Intrinsic and extrinsic semiconductors – Law of mass action –Drift & diffusion - Einstein's relation – Hall Effect – p-n junction - Band diagram of p-n junction diode – Diode Equation- Solar cell and its applications.

NANO MATERIALS: Introduction - Basic principles of nano materials – properties of nano materials – Synthesis of Nanomaterials by Ball Mill method and Sol-Gel method - carbon nanotubes – properties and applications of carbon nano tubes - Applications of nano materials.

UNIT- V

MAGNETIC MATERIALS: Introduction - Origin of magnetic moment – Classification of magnetic materials - Dia, Para , Ferro, anti-Ferro and Ferri magnetism - Hysteresis - Soft and hard magnetic materials

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).

I B.Tech, Syllabus

С

4

T 3+1

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

SUPERCONDUCTIVITY: General properties - Meissner effect - Penetration depth- Type I and Type II superconductors– Flux quantization- Josephson effects – Applications of superconductors.

UNIT- VI

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.

FIBER OPTICS: Introduction - Principle of optical fiber - Acceptance angle and Acceptance cone - Numerical aperture – Types of Optical fibers and refractive index profiles – Attenuation in optical fibers – Applications of optical fibers.

TEXT BOOKS:

- 1. Avadhanulu M N and Kshirsagar P G, "A Textbook of Engineering Physics", S. Chand & Company Ltd, New Delhi, 2005 (Unit I, IV, VI).
- 2. S.P. Basavaraju, "Applied Physics", Subhas Stores, Books Corner, Bengaluru, 2008 (Unit II-VI).

REFERENCES:

- 1. R. K. Gaur and S.C. Gupta, 'Engineering Physics' Dhanpat Rai Publications, New Delhi (2003).
- 2. A Text Book of Optics by S.L. Kakani and K.C. Bhandari, Sultan Chand & Sons, Educational Publishers, New Delhi.
- 3. Physics Volume 2, by Halliday, Resnick and Krane; John Wiley India
- 4. Solid State Physics by C.Kittel, Wiley India
- Introduction to Nanoscience & Nano Technology by K.K Chattopadhyay & A.N. Banarjee, Prentice – Hall of India Pvt. Ltd.

SCHOOL OF INFORMATION TECHNOLOGY

I B.Tech (IT)

(A0003121) ENGINEERING CHEMISTRY

(Common to all Branches)

Т

3+1

С

4

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

OBJECTIVES:

Chemistry is concerned with the changes of matter with its environment. The introduction of Engineering Chemistry to I B.Tech students to know the basic principles, concepts and familiarize the materials used in industries and software technologies. This will help the students to cope up with the continuous flow of new technology.

The importance of water and sustainable utilization of water resources and alternative methods for freshwaters like Reverse osmosis and the problems raised in the production of steam by using the boilers are included in Water technology.

The present syllabus aims to impart in-depth knowledge of the subject and highlight the role of chemistry in the field of engineering. The lucid explanation of the topics will help students understand the fundamental concepts and apply them to design engineering materials and solve problems related to them. An attempt has been made to logically correlate the topic with its application. The extension of fundamentals of electrochemistry to energy storage devices such as commercial batteries and fuel cells is one such example. The also include a comprehensive coverage of topics of applied chemistry including polymers, engineering materials, corrosion its control.

UNIT I:

Water Chemistry: Introduction- Impurities in Water, Water Quality Parameters and Standards, Water Analysis-Determination of different Constituents in water – Hardness, Alkalinity, Dissolved Oxygen, TDS. Numerical Problems on hardnes, Boiler Troubles-Scales and Sludges, Carry over, Boiler Corrosion, Caustic Embrittlement.

Water Treatment: Municipal Water treatment for domestical purpose, Desalination of Water –Reverse Osmosis.

UNIT II:

Electrochemistry: Conductance - Specific Conductance, Equivalent Conductance Molar Conductance - Effect of Dilution.

Electrochemical Cells: Reference Electrodes–Standard Hydrogen Electrode, Calomel electrode, Measurement of EMF, Standard electrode potential, Galvanic cells, concentration cells.

Ion Selective Electrodes-Principle, Chemistry and working of Electrodes - Applications for the determination of Fluorides, Chloride and nitrate.

Batteries: definition, Classification, Examples: Ni-Cd cell, Lithium Ion batteries.

Surface Chemistry: Adsorption-Definition, types, Langmuir Adsorption theorem, applications of adsorption. **Fuel cells:** hydrogen oxygen fuel cell and methanol-Oxygen fuel cell.

UNIT III:

Chemistry of Corrosion and its Control: Definition, Types of corrosion: Dry Corrosion, (Direct Chemical attack type of Corrosion), Wet Corrosion, Mechanisms, Galvanic Series, Galvanic Corrosion, Concentration Cell Corrosion, Pitting Corrosion.

Corrosion Control: Cathodic and Anodic Protection Methods, Electroplating-Principles and Mechanism, Electro plating of Chromium, Electro less plating of Copper and Nickel.

UNIT IV:

Polymers and Ceramics:

Polymers-Definitions of the terms involved, Types and mechanisms of Polymerization, Physical, mechanical and electrical properties of polymers. Preparation, properties and applications of Commercially important polymers Poly ethelene, PVC, Poly esters, Teflon, Bakelite and Nylon.

Natural Rubber - Processing of Natural Rubber and Vulcanization process.

Liquid Crystal polymers: Definition, Synthesis and applications of Kevlar, Electro Optic effect in Liquid Crystals, applications of Liquid Crystals.

Electro Ceramics: Introduction, Fabrication of ceramics, types of electro ceramics like conductors, dielectrics, and Insulators, non linear dielectrics, electro optic magnetic ceramics, properties and applications.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

UNIT V:

Chemical Fuels & Lubricants: Introduction, Classification of chemical fuels Calorific value - High and Low calorific values, Determination of calorific value - solid or liquid fuel using Bomb calorimeter - numerical problems, Flue gas analysis by Orsat's analysis apparatus and Combustion Calculations.

Petroleum – Refining, Cracking, Knocking, Octane and Cetane numbers, synthesis of Unleaded petrol, Power alcohol and Biodiesel,

Lubricants: Definition, Lubrication mechanisms, Properties of Lubricants.

UNIT VI:

Modern Engineering materials :

Storage devices: materials used and working of Solid state drives, CD's ,pen drive

Photo &light responsive compounds: Sensors, biosensors-principle-few applications

Refractories: definition, classification with examples; criteria of a good refractory material; Properties, causes for the failure of a refractory material.

TEXT BOOKS:

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

REFERENCES:

- 1. Chemistry of Engineering Materials by C.V. Agarwal, Tara Publication, Varanasi.2008
- 2. Physical Chemistry Glasston & Lewis.
- 3. Principles of Physical chemistry by B.R.Puri, L.R.Sharma and M.S.Pathania, S.Nagin, Chand and co.
- 4. Engineering Chemistry Dr. K. B. Chandrasekhar, Dr. U.N. Dash, Dr. Sujatha Mishra, Scitech Publications(India) Pvt. Limted, Hyderabad. 2009.

SCHOOL OF INFORMATION TECHNOLOGY

I B.Tech (IT)

(A0004121) MATHEMATICS – I

(Common to all Branches)

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

COURSE OBJECTIVES:

• To make aware students about the importance and symbiosis between mathematics and engineering. Achieve confidence with mathematical tools which an essential weapon in modern Graduate Engineer's Armory. Balance between the development of understanding and mastering of solution techniques with emphasis being on the development of student's ability to use Mathematics with understanding to solve engineering problems by retaining the philosophy learning by doing.

OUTCOMES:

• By the end of module students will be expected to demonstrate. The knowledge of Differential equations, Laplace Transformations, Real analysis, Curve tracing, Curvature, Multiple integrals and Vector calculus. By using the concept curve tracing we can draw the graph of any type of curves in Cartesian and Polar coordinates. The concept vector calculus has applications in fluid dynamics, heat flow in stars, study of satellites and Design of underwater transmission cables.

UNIT – I

Differential equations of first order and first degree – Exact, linear and Bernoulli equations. Applications L-C-R circuits, 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.

Raidus of Curvature – Curve tracing – Cartesian, polar and parametric curves.

UNIT – IV

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 – V

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

$\mathbf{UNIT} - \mathbf{VI}$

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

С

4

T 3+1

SCHOOL OF INFORMATION TECHNOLOGY

I B.Tech (IT)

(A0005121) MATHEMATICAL METHODS

Т

3+1

С

4

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

COURSE OBJECTIVES:

• To make aware students about the importance and symbiosis between mathematics and engineering. Achieve confidence with mathematical tools which an essential weapon in modern Graduate Engineer's Armory. Balance between the development of understanding and mastering of solution techniques with emphasis being on the development of student's ability to use Mathematics with understanding to solve engineering problems by retaining the philosophy learning by doing.

OUTCOMES:

• By the end of module students will be expected to demonstrate The concept Matrices can be used to solve system of linear equations and also used in Spectral Expansion, Finite Element analysis etc. The concept numerical analysis is used in computing system and in all simulation research work. Fourier series and Fourier Transforms can be used to solve partial differential equations and they have lot of applications in circuit analysis. Z-Transforms are used to study the analysis of the waves in communication systems which deals discrete.

UNIT – I

Matrices: Elementary row transformations – Rank – Echelon form, normal form – Solution of Linear System of Homogeneous and Non Homogeneous equations.

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

UNIT – II

Real matrices - Symmetric, skew - Symmetric, orthogonal matrices.

Complex matrices: Hermitian, Skew-Hermitian and Unitary matrices – Eigen values and Eigen vectors and their properties. Quadratic forms – Linear Transformation – Reduction of quadratic form to canonical form and their nature(Signature and Index).

UNIT – III

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

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

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

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

$\mathbf{UNIT} - \mathbf{V}$

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 .

UNIT - VI

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.

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.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

I B.Tech (IT)

3+1* (A0501121) FUNDAMENTALS OF COMPUTERS & C PROGRAMMING

(Common to all Branches)

Т

С

5

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

OBJECTIVES:

- To make students aware about fundamentals of computer programming.
- To provide exposure on C programming language.
- To provide exposure on various C programming concepts like arrays, functions, pointers, structures, etc.
- To develop solutions for various problems by using C Programming Language by students.
- To provide exposure on various sorting and searching techniques

OUTCOMES:

By the end of this course, students should be able

- To understand about the various techniques for problem solving.
- To understand the fundamental concepts of C language like data types, keywords, operators, Input/Output functions and control statements.
- To understand how to develop C programs to solve various kinds of problems by using different C programming concepts like arrays, functions, pointers and structures.
- To develop programs by performing I/O operations through Files.
- To implement various searching and sorting techniques.

UNIT I:

Overview of Computer Programming: Fundamentals of computers - Evolution of computer systems, Basic anatomy of computer system, Components of computer. Introduction to Computer Programming languages. Problem solving techniques - Algorithms and Flowcharts. How to trace an algorithm. Simple examples on how to write and trace an effective algorithms and how to draw an effective flow charts. Program control structures – sequence, selection and iteration. Software Development Method.

UNIT II:

Introduction to C Language: History of C language, Importance of C language, Definition of a C Program, General Form of a C Program, Steps to execute C program. Various Data Types supported by the C language. C tokens – Identifiers, Key words, Variables, Constants, Operators. Operator precedence and Associativity. Expressions and their evaluation process. Type Conversions- Automatic and type casting. Managing Input/Output operations. Control Statements- Non iterative statement- if, if else, Nested if else, lf else ladder and switch statements. Loop Constructs - while, for, do-while. break, continue, return and go to statements. Example Programs on the topics covered in this unit.

UNIT III:

Arrays and Functions:

Arrays – Definition, Need of arrays while writing C programs. Types of arrays- One dimensional, Two dimensional, Multi-dimensional arrays. Declaration of One dimensional array, initialization of one dimensional array, storing and accessing the elements from a one dimensional array. Two-dimensional Arrays and their declaration, initialization, storing & accessing elements from it. Declaration of multi-dimensional array, initialization of multi-dimensional arrays, storing and accessing the elements from a cessing the elements from a multi-dimensional array. Example Programs on the topics mentioned above.

Functions: Introduction, Library Functions and User defined functions. Need for user-defined functions. General form of declaring a function, Elements of an user defined functions- Function definition Function call, Function declaration, Function name, return type, parameters, return statements. Categorization of functions with respect to parameters and return values. Definition of Scope of a variable with suitable examples. Storage Classes - Automatic, External, Static, and Register. Arrays and functions - Passing an entire array as an Argument to a function. Recursion – Need of recursive functions, Solving Towers of Hanoi Problem using recursive function and its trace out. Preprocessor Commands. Example Programs on the topics mentioned above.

UNIT IV:

Strings and Pointers:

Strings - Definition, Declaring and initializing strings, Basic Operations on strings, String handling Functions, Table of strings. Example Programs on the topics mentioned above.

Pointers - Introduction, Need of using pointer variables, Pointer variable declaration, initialization of pointer variables, how to access a value from a memory location through it's pointer variable. Arithmetic operations on pointer variables, Scale factor length. Pointers and functions - pointers as function arguments (i.e., call-by-

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

reference), Pointers and Arrays, Pointers and Strings, Array of Pointers, Pointers, Pointers, Generic Pointers, Pointer to Functions. Example Programs on the topics mentioned above.

UNIT V:

Structure and File Input/Output:

Structures – Introduction, Features of Structures. Declaration and Initialization of Structures, Accessing structure members, structure initialization. Nested Structures, Array of Structures, Arrays within structures and Pointers to Structures, Structures and Functions, Bit Fields, Unions, Union of Structures. Dynamic Memory Allocation Functions. Example Programs on the topics mentioned above.

File Input/Output: Introduction, Types of Files, File I/O Operations- High level I/O functions- Open & Close a file, Read and Write data into a file, Searching data in the file, Error handling during I/O operations on files. Command Line Arguments, Applications of Command Line Arguments. Example Programs on the topics covered in this unit.

UNIT VI:

Searchingand Sorting Techniques:

Searching Techniques- Linear search and Binary Search.

Sorting techniques- Bubble Sort, Selection Sort, Quick Sort, Insertion Sort, and Merge Sort.

Implementation of all the above mentioned techniques in C language and trace them by giving different test data.

TEXT BOOKS:

- 1. Computer programming and Data Structures, E.Balaguruswamy, Tata Mc Graw Hill. 2009 revised edition.
- 2. Programming in C and Data Structures, J.R.Hanly, Ashok N. Kamthane and A. Ananda Rao, Pearson Education
- 3. The C Programming Language, Brian W.Kerninghan, Dennis M.Ritchie.

REFERENCES:

- 1. Let us C Yeshwanth kanetkar, 8th Edition.BPB Publications
- 2. C Programming with problem solving, J.A. Jones & K. Harrow, Dreamtech Press
- Data Structures using C A.M.Tanenbaum, Y.Langsam, and M.J. Augenstein, Pearson Education / PHI, Eighth Edition.
- 5. C Programming & Data Structures, B.A.Forouzan and R.F. Gilberg, Third Edition, Cengage Learning.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

I B.Tech (IT)

(A0301121) ENGINEERING DRAWING

(Common to all Branches)

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

COURSE OBJECTIVES

At the end of this course the student should able to:

- Apply engineering graphics as a communications tool.
- Able to describe the skills required to develop engineering working drawings, sketch three-dimensional objects.
- Able to create orthographic projections.
- Able to create auxiliary views, to create sectional views.
- Able to dimension properly and also develop skill in using free hand sketches.
- The student should able to apply the knowledge of Engineering drawing for Architectural and engineering designs, Mechanical and Automobile engineering designs, design of communication equipment etc.

COURSE OUTCOMES:

- Draw different engineering curves and know their applications.
- Draw orthographic projections of different objects.
- Visualize three dimensional objects and draw isometric projections.
- Use in techniques and able to interpret the drawing in engineering field.

UNIT – I

INTRODUCTION TO ENGINEERING DRAWING: Principles of Engineering Graphics and their Significance – Drawing Instruments and their Use – Conventions in Drawing – Lettering – BIS Conventions of Engineering materials (Ferrous, Non ferrous metals, wood, plastic, glass and rubber).

Curves used in Engineering Practice:

- a) Conic Sections including the Rectangular Hyperbola.
- b) Cycloid, Epicycloid and Hypocycloid.
- c) Involutes.
- d) Helices.

UNIT – II

PROJECTION OF POINTS AND LINES: Principles of Orthographic Projection – Conventions – Projections of Points, Lines, Line inclined to one and both planes, Problems on projections (First Angle Projections only).

UNIT – III

PROJECTIONS OF PLANES & SOLIDS: Projections of regular Plane surfaces Viz., Triangle, Rectangle, square, pentagon and hexagon in simple position - inclined to one plane and inclined to both the planes (First Angle Projections only).

Projections of Regular Solids inclined to one and both planes (First Angle Projections only).

UNIT – IV

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

UNIT – V

DEVELOPMENT OF SURFACES: Development of surfaces of right regular solids – Prisms, pyramids, cylinder, cone and their sectional parts. Parallel line and Radial line methods.

UNIT – VI

ISOMETRIC AND ORTHOGRAPHIC VIEWS: Types of Pictorial projections - Isometric View and Isometric projections of simple solids -solid objects (combination of two solids) – Conversion of Isometric Views to orthographic Views - Conversion of orthographic views to isometric views.

TEXT BOOKS:

- 1. Engineering Drawing, N.D. Bhat / Charotar, Charotar Publishers.
- 2. Engineering Drawing & Graphics, Venu Gopal, New Age Publications.
- 3. Engineering Drawing, K.L. Narayana, P. Khanniah, Scitech Publications.

REFERENCES:

- 1. Engineering Drawing, B.V.R. Guptha, J.K. Publishesrs.
- 2. Engineering Drawing, Shah and Rana, 2/e Pearson Education.
- 3. Engineering Drawing, Venkata Reddy, B.S.Publishers.

D C 6 4

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

I B.Tech (IT)

P C 3 3

(A0591121) COMPUTER PROGRAMMING LAB

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

RECOMMENDED SYSTEMS /SOFTWARE REQUREMENTS:

Intel based desktop PC with ANSI C Compiler and Supporting Editors

COURSE OBJECTIVES:

- 1. To make the student to learn how to write programs in **C** language.
- 2. To introduce different constructs of C language to the students to solve various kinds of problems.
- 3. To make the students to implement different kinds of sorting algorithms like selection sort, bubble sort, insertion sort, quick sort and merge sort etc.
- 4. To make the students to implement different kinds of searching algorithms like linear search and binary search etc.

OUTCOMES:

By the end of this course, students should be able

- 1. To understand about the fundamentals of Computer programming.
- 2. To understand the fundamental concepts of C language like data types, keywords, operators, Input/Output functions and control statements.
- 3. To understand how to develop C programs to solve various kinds of problems by using different C programming concepts like arrays, functions, pointers and structures.
- 4. To develop programs by performing I/O operations through Files.
- 5. To implement various searching and sorting techniques.

Exercise 1:

- a) Write a C program to find the roots of a quadratic equation.
- b) Write a C program to calculate the following Sum:
 - $Sum=1-x^{2}/2!+x^{4}/4!-x^{6}/6!+x^{8}/8!-x^{10}/10!$

Exercise 2:

- a) Write a C program, which takes two integer operands and one operator from the user, performs the specified operation and then prints the result. (Consider the operators +,- ,*, /, % and use Switch Statement).
- b) 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/sec²) 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'.

Exercise 3:

- a) Write a C program to find the sum of individual digits of a positive integer.
- b) Write a C program to generate the first 'n' terms of the Fibonacci sequence.
- **Note:** 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.
- c) Write a C program to generate all the prime numbers between 1 and n, where 'n' value is given by the user.

Note: Develop each of the above programs by using different loop constructs supported by C language. (i.e., while, do while and for Loops).

Exercise 4:

- a) Write a C Program to mask the most significant digit of the given number.
- b) Given an integer number, write a C program, that displays the number as follows:

SCHOOL OF INFORMATION TECHNOLOGY

First line: all digits	For ex:
Second line: all except first digitThird line: all except first two digits	1234 234
Last line : last digit	34 4

Exercise 5:

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

Exercise 6:

- a) Write a C program to find all the even numbers in the given one dimensional array.
- b) Write a C program to print the elements of an array in reverse order.
- c) Write a C program to perform the following operations:
 - i) Addition of Two Matrices ii) Multiplication of Two Matrices
- [Note: Use functions to implement the above specified operations]

Exercise 7:

- a) Write C programs that use both recursive and non-recursive functions
 - i) To find the factorial of a given integer.
 - ii) To find the GCD (greatest common divisor) of two given integers.
 - iii) To reverse a given positive integer.

Exercise 8:

- a) Write a C Program to solve the Towers of Hanoi problem by using recursive function.
- b) Writea C Program to demonstrate the various storage classes, which are supported by the C language. [i.e., automatic, external, static and register]

Exercise 9:

- a) Write a C Program to demonstrate that, how to pass an entire array as an argument to a function with a suitable example.
- b) Write a C Program to perform various operations on given two strings using string handling functions.

Exercise 10:

- a) Write a C Program to perform various arithmetic operations on pointer variables.
- b) Write a C Program to demonstrate the following parameter passing mechanisms:
 i) call-by-value ii) call-by-reference

Exercise 11:

- 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 the specified 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 12:

- 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 13:

- a) 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.
- b) Write a C program to convert the given Roman numeral to its decimal equivalent value.

Exercise 14:

- 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

I B.Tech, Syllabus

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

(Note: Represent the complex number using a structure.)

Exercise 15:

- a) Write a C program which copies contents of one file to another file.
- 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 16:

- a) Write a C program to display the contents of a file using command line arguments.
- b) Write a C program to merge two files into a third file (i.e., the contents of the first file followed by the contents of the second file are put in the third file)
- (Note: The file name and n are specified on the command line.)

Exercise 17:

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 iii) Insertion sort

Exercise 18:

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

Exercise 19:

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

Exercise 20:

Write C program to implement linear search method to search an element in a given list of integers. [Note: Use both recursive and non recursive functions]

Exercise 21:

Write C program to implement Binary search method to search an element in a given list of integers. [Note: Use both recursive and non recursive functions]

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. Raja Raman, PHI Publications.

SCHOOL OF INFORMATION TECHNOLOGY

I B.Tech (IT)

(A0391121) ENGINEERING AND IT WORKSHOP

Р

3

С

3

(Common to all Branches)

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

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 labor 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.

OUTCOMES:

At the end of the Engineering Work Shop: A Student involved in acquiring manufacturing skills must have balanced knowledge of theory as well as practice. The First students of all engineering branches should know the basic knowledge of various tools and their use in different sections of manufacturing such as fitting, carpentry, smithy, tin smithy, foundry, welding etc. and basic engineering practices such as plumbing, electrical wiring, electronic circuits, machine shop practice.

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.
- Sheet Metal Shop- Two jobs (exercises) from: Tray, cylinder, hopper or funnel from out of 22 or 20 c) gauge 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 two lamps controlled by one switch in series.
- e) Welding – Preparation of two welds (exercises): single V butt joint, lap joint, double V butt joint or T fillet joint.
- f) Soldering- Test procedure for soldering & Series and parallel connection.
- Black smithy Two Jobs (exercises)To make square cross section bar from a given round bar & To g) make an eye bolt from a given square bar.

2. TRADES FOR DEMONSTRATION:

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

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.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY 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.

OUTCOMES:

At the end of the course, students should be able

- To work with few of the Microsoft office tools like word, excel etc.
- Should identify the fundamental ports of the computer.
- Should be able to Assemble and dissemble the computer (Desktop system).
- Gain knowledge about Web browsers, search engines & about basic network settings.

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 2007in 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.

SCHOOL OF INFORMATION TECHNOLOGY

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.

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 18th e, Scott Muller QUE, Pearson Education
- 5) Comdex Information Technology course tool kit, Vikas Gupta, WILEY Dreamtech
- IT Essentials PC Hardware and Software Companion Guide, Third Edition by David Anfinson and Ken Quamme. – CISCO Press, Pearson Education.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

I B.Tech (IT)

P C 3 3

(A0091121) ENGINEERING PHYSICS & ENGINEERING CHEMISTRY LAB

(Common to all Branches)

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

OBJECTIVES:

- 1. Providing an opportunity to develop and hone experimental skills, particularly as they pertain to scientific and technical knowledge
- 2. Providing a solid grounding in the methods of scientific and research inquiry,
- 3. Apply the scientific method to experiments in the laboratory.
- 4. To create curiosity in research methods by the experiments Hall effect, four pobe conductivity, laser diffraction etc.

OUTCOMES:

- 1. Develop procedures and observational skills as data is taken and gain a fundamental understanding of simple and complex apparatus used in the experiment.
- 2. Apply analytical techniques, statistical analysis, graphical analysis, spread sheet data/recording to the experiments.
- 3. Verify the theoretical ideas and concepts covered in lecture by completing a host of experiments.
- 4. Take the time to discuss the procedure, the data, and the results of the experiment with the lab partner.

Any TEN of the following experiments are to be performed during the Academic year.

- 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 Semiconducting Material
- 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. Study of bending loss in optical fiber

Equipment required:

Melde's apparatus.

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,

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY ENGINEERING CHEMISTRY LAB

OBJECTIVES:

Chemistry is one subject which gives adequate knowledge about the applications involved in the aerospace, mechanical, environmental and other engineering fields. Knowledge of chemistry plays a vital role in engineering profession enabling the potential engineers to understand and to perform successfully while working on multidisciplinary tasks.

The main objective of the department is to develop the necessary theoretical and practical aspects required for understanding intricacies of the subject and also give adequate exposure to the applied chemistry aspects in different disciplines of engineering. To educate the engineering students with all necessary concepts and to develop a scientific attitude by means of distinguishing, analyzing and solving various engineering problems. It develops their experimental skills and important practical knowledge in engineering by providing necessary facilities in chemistry laboratory.

Experiments:

- 1) Preparation of Standard Potassium Dichromate and Estimation of Ferrous Iron.
- 2) Preparation of Standard EDTA solution and Estimation of Hardness of Water.
- 3) Preparation of Standard EDTA and Estimation of Copper.
- 4) Verification of Beer-Lambert's Law.
- 5) Determination of strength of the given Hydrochloric acid against standard sodium hydroxide solution by Conducto metric titration.
- 6) Determination of strength of the given Acetic 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) Preparation of Phenol-formaldehyde Resin.
- 11) Preparation of Ester.

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)

- 1) Analytical balance (keroy) (15 Nos)
- 2) Calorimeter
- 3) Bomb Calorimeter
- 4) Redwood viscometer No.1& No.2
- 5) Conductometer/ Conductivity bridge
- 6) Wash bottles, test tube stands, burette stands
- 7) 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.,
SCHOOL OF INFORMATION TECHNOLOGY

I B.Tech (IT)

Р

3

С

3

(A0092121) ENGLISH LANGUAGE COMMUNICATION SKILLS LAB

(Common to all Branches)

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

OBJECTIVES:

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.

- 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
- To expose the students to a varied blend of self-instructional, learner-friendly modes of language learning
- To enable them to learn better pronunciation through stress on word accent, intonation, and rhythm
- To initiate them into greater use of the computer in writing, format-making etc.
- 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.

OUTCOMES:

- Be able to improve social interactive skills.
- Be able to acquire standard pronunciation.
- Be able to develop language skills LSRW Skills.
- Be able to enhance communication skills.

<u>Syllabus</u>

Part 1 – Language Development through Four Skills from Multimedia

Part II - Phonetics & Pronunciation Strategies: Vowels, Diphthongs, Consonants, Word Accent and Intonation

Part III – a. Communication & Social Interactive Skills:

- Ice Breaking Activities
- JAM
- Describing Objects
- Situational Dialogues & Role-Play (Group Task)
- Story Narration (Group Task)
- Information Transfer
- Debate (Group Task)

b. Writing Tasks

- Personal Experiences
- Current Affairs
- Technology Trends
- Book Reviews

c. Project / Creative Task (Team Task)

Evaluation:

English Language Laboratory Practical Paper:

- The Practical Examinations for the English Language Laboratory shall be conducted as per the 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 marks for External Examination. 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 and External Examiner from other Institution.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

Software Prescribed:

- Alania Series for Four Skills
- > Cambridge Advanced Learners' English Dictionary with CD (Accent)
- > The Rosetta Stone English Library (Four Skills)
- EL-Client (Phonetics)
- CL-Client (Communication skills)
- Department Built-In Software/Data

Suggested Reading:

- Longman Dictionary of Contemporary English for Advanced Learners, Pearson
- Education Ltd.
- Better English Pronunciation (Second Edition) by D. O' Connor, Cambridge University Press 1967, 1980
- Communication Skills for Engineers(Second Edition) by C. Muralikrishna & Sunita Mishra Pearson Education Ltd, 2011
- Better English pronunciation by Thakur K B P Sinha, Vijay Nicole, 2005
- Practical English Usage (New Edition) by Michael Swan, Oxford University Press.

SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech I-Sem (IT)

(A1201123) INFORMATION TECHNOLOGY FUNDAMENTALS

COURSE OBJECTIVES:

- Introduces students to the general meaning of Information Technology (IT) as well as the different aspects, domains and applications of IT.
- To provide an awareness of the necessary IT skills required for different careers.
- Expose them to some of the key technologies of IT that used in the present day world of work.

LEARNING OUTCOMES:

The student should be able to

- Acquire basic IT terminology.
- Understand the pervasiveness and impacts of IT in our everyday lives locally and globally as well as across organizations and industries.
- Acquire a beginning knowledge of computer security and ethical issues.

UNIT I: INTRODUCTION TO INFORMATION TECHNOLOGY

What is IT, Purpose of IT, Functions of IT, Benefits of IT; How IT is different from Computer Science? What are Information systems, role of information systems in business, IT-Data, Information & systems; IT ethos.

UNIT II: HISTORY AND ADVANCES IN COMPUTER HARDWARE AND SOFTWARE

History of Computers, Classification of computers and their features. Advances in processors technologies. Advances in System software, IDEs, Programming paradigms.

UNIT III: COMPUTER NETWORKS AND THE INTERNET.

Computer Networks: devices, Data transmission, Computer Network, Categories of Network, Types of Topology, architectures..

The Internet: History of Internet, Difference between Internet, Intranet & Extranet, WWW, electronic business, Internet issues. Internet Security.

UNIT IV: IT INFRASTRUCTURE, STORAGE MANAGEMENT AND SECURITY.

IT infrastructure, services support, delivery ,management and design issues. Overview of Information Storage, backup, recovery and management,

UNIT V: INFORMATION SYSTEMS

Transaction processing systems, decision support systems, knowledge management systems, learning management systems, database management systems, Human Computer Interaction, office information systems. Key personnel in IT industry – CIO, CEO, CFO, COO, CTO etc.

UNIT VI: EMERGING TECHNOLOGIES OF IT & APPLICATIONS

Web based Systems, Java based Technologies. Content Management, , ERP, etc., Application domens, Agriculture, Education, Entertainment, Law Enforcement, Medical Field, Business Field, Bio-Informatics, Others.

TEXT BOOKS:

 Information Technology Infrastructure and its Management, Manish Kumar jha, Publisher: Dhanpath Rai & Co.(2009) [Chapters 1-6,17-25]

REFERENCE BOOKS:

- 1. Fundamentals of Information Technology, Mathews Leon Alexis Leon, Vikas Publishing House, ISBN: 8182092450
- 2. Fundamentals of Information Technology, C.S.V. Murthy, Himalaya, Students Edition, CHIMPUB100608.
- 3. Fundamentals of Information Technology, S K Bansal, APH Publisher, ISBN: 8176483540.

С

3

T 3+1*

SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, I-Sem (IT)

(A0010123) ENVIRONMENTAL STUDIES

T C 3+1* 3

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

OBJECTIVES :

- To create a awareness about environment among the students.
- To develop an understanding of ecosystem and their interrelations.
- To develop an awareness about the utilization, over exploitation of natural resources.
- To recognize the need for keeping pollution under control in order to maintain the quality of life.
- To acquire skills to analyze and interpret information relating to environmental problems.
- To develop the ability to identify, analyze and reflect upon different environmental Concerns.
- To develop skills for effectively tackling problems related to the local environment.
- To adopt practices that help in promoting balance in nature by making judicious utilization of resources and materials.
- To develop love, affection, sensitivity and sense of responsibility towards all living beings.
- To appreciate and respect legal provisions for protection of animals and plants.
- To imbibe the essence of environmental values and ethics in order to live in harmony with nature.

UNIT I

MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES: Environment -Definition, scope and importance, Segments of Environment-Importance, Productivity, Austhetical & Optional values of nature, need for public awareness.

UNIT II

HARNESSING RESOURCES

- a) Sources of Energy:- Renewable and non renewable resources.
- b) Natural Resources: soil, water sources-Hydro power project-problems, forest, minerals -Utilizationproblems.
- c) Solar Energy and its applications Photo Voltaic Cells, Solar water heating, solar pond, Solar Cooker. Non-conventional sources of energy.
- d) Chemical fertilizers and pesticides-problems. Green Revolution-white revolution- blue revolution.
- e) Depletion of Resources-Over utilization and consumption, non -equitable distribution of resources, Technological and Industrial developmental activities.

UNIT III

CONCEPTS OF ECO-SYSTEM : Structure of ecosystem: Trophic structure, producers, consumers, and decomposers; Interaction between biotic and abiotic factors in an ecosystem; Energy flow and its importance; Trophic levels, food chain, Food web, Food Pyramid;

TYPES OF ECOSYSTEM: Understanding the types of ecosystem

- i Terrestrial (forest, grassland and desert) and
- ii Aquatic (fresh water River, pond and salt water-Marine) with an example of each.

UNIT IV

ENVIRONMENTAL FACTORS

- a) Disasters:- Natural and man-made Nuclear Disasters, major types and their causes, impact on environment and human life and remedies.
- b) Impact of environment degradation on: Natural habitats, living forms (endangered and Extinct species).
- c) Pollution:- Definition, types (soil, water, air and noise), sources, impact on physical environment control and preventive measures of pollution.

UNIT V

ENVIRONMENTAL VALUES:

- a) Population and Environment:- Definition of species, community, population; Population growth rate curves, Sex ratio, From unsustainable to sustainable development, Diseases-HIV, Malaria, Diaharia, Cancer.
- b) Human rights, fundamental duties and value education.
- c) Women and child welfare & Family welfare programs.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

UNIT VI

ISSUES OF THE ENVIRONMENT

- a) Resettlement and rehabilitation of people.
- b) Energy Crisis urban and rural sectors.
- c) Climatic changes Greenhouse effect and global warming..
- d) Acid rain& Ozone layer depletion.
- e) Wild-life management National parks, sanctuaries and bio-reserves, poaching, hunting and bio-piracy.
- f) E Waste Management

REFERENCES:

- 1. Environmental Studies by ERACH BHARUCHA for UG courses by UGC.
- 2. Environmental Science by Anubha Koushik & C.P Koushik, New Age International Publishers.
- 3. Environmental Engineering & Management by Dr.Suresh K.Dhameja, Katson books.
- 4. Environmental Studies by Rajagopalan, Oxford University press.
- 5. Environmental Studies by Manoj Tiwari & Archana Tiwari, J.K.International Publishers.
- 6. Environmental Studies by Benny joseph.
- 7. Environmental Science & Technology by M.Anji Reddy ,BS Publications.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, I-Sem (IT)

INFORMATION TECHNOLOGI

(A1202123) FUNDAMENTALS OF OBJECT ORIENTED DESIGN

COURSE OBJECTIVES:

- To create good object-oriented designs prior to coding using the fundamentals, notations, principles of object oriented software design (OOSD)
- To depict & given scope for learning about classes along with their attributes, and operations
- To provide scope for learning of different relationships in classes such as association, aggregate, generalization
- Building a working knowledge of object-oriented programming

LEARNING OUTCOMES:

The student should be able to

- Design object-oriented solutions from unified modelling language specifications.
- Map object-oriented designs in UML to a specific object-oriented language.
- Organize and contribute to team programming projects.

UNIT I: INTRODUCTION

What is Object oriented approach Overview of prerequisite if any or introduction, Encapsulation, Information Hiding, State Retention, Object Identity, Messages, Classes, Inheritance, Polymorphism, and Generosity. {*Chap.1*}

UNIT II: THE UNIFIED MODEL LANGUAGE-1

Basic expression of Class, Attributes, Operations, and Class Diagrams. [Chap 3 & 4]

UNIT III: THE UNIFIED MODEL LANGUAGE-2

Use-Case, collaboration, and sequence diagrams; Asynchronous messages and concurrent execution; State diagrams, [*Chaps 5, 6, 7*]

UNIT IV:PRINCIPLES OF OOD-1

Encapsulation and Connascence; Domains, Encumbrance, Cohesion. {Chap 8, 9}

UNIT V:PRINCIPLES OF OOD-2

State-space and behaviour; Type conformance, {Chap 10, 11}

UNIT VI:PRINCIPLES OF OOD-3

Perils of inheritance and polymorphism. Designing a software component. {Chap 12, 15}

TEXT BOOKS:

1. Fundamentals of Object-Oriented Design in UML, Meilir Page-Jones, 6th impression 2009, Pearson Education.

REFERENCE BOOKS:

- 1. The Unified Modeling Language User Guide, Grady Booch, James Rumbaugh, IvarJacobson, Pearson Education.
- 2. UML 2 Toolkit, Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado, WILEY-Dreamtech India Pvt. Ltd.
- 3. Modeling Software Systems Using UML2, Pascal Roques, WILEY-Dreamtech India Pvt. Ltd.
- 4. Object Oriented Analysis & Design, AtulKahate, The McGraw-Hill Companies.
- 5. Practical Object-Oriented Design with UML, Mark Priestley, TataMcGrawHill
- 6. Appling UML and Patterns: An introduction to Object Oriented Analysis and Design and Unified Process, Craig Larman, Pearson Education.

С

3

T 3+1*

SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, I-Sem (IT)

(A0502123) DIGITAL LOGIC DESIGN

(Common for CSE & IT)

COURSE OBJECTIVES:

- 1. 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.
- 3. Analysis of logic circuits and optimization techniques to minimize gate count, signals, IC count, or time delay.
- 4. To strengthen the principles of logic design and use of simple memory devices, flip-flops, and sequential circuits.
- 5. To fortify the documentation standards for logic designs, standard sequential devices, including counters and registers.

6. To understand design of logic functions using PLDs (ROM, RAM, PAL, PLA).

LEARNING OUTCOMES:

- 1. Ability to differentiate between analog and digital representations.
- 2. Ability to convert a number from one number system to its equivalent in of the other number system.
- 3. Cite the advantages of the octal and hexa-decimal number systems and to understand the difference between BCD and straight binary.
- 4. Ability to perform the three basic logic operations and construct the truth tables for the different types of gates. And Implement logic circuits using basic AND, OR and NOT gates.
- 5. Ability to Use De-Morgan's theorem to simplify logic expressions and describe the concept of active LOW and active HIGH logic signals and Use Boolean algebra and K-map as tool to simplify and design logic circuits and Design simple logic circuits without the help of truth tables.
- 6. Ability to Construct and analyse the operation of flip-flop and troubleshoot various types of flip-flop circuits.

UNIT I: BINARY SYSTEMS

Digital Systems, Binary Numbers, Number base conversions, Octal and Hexadecimal Numbers, complements, Signed binary numbers, Binary 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, and their integrated circuit numbers.

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 function,

UNIT IV: COMBINATIONAL LOGIC

Combinational Circuits, Analysis procedure Design procedure, Binary Adder-Subtractor, Decimal Adder, Binary Multiplier, Magnitude Comparator, Decoders, Encoders, Multiplexers, Introduction to HDL, VHDL code for basic and universal logic gates, Half adder ,full adder circuits.

UNIT V: SYNCHRONOUS SEQUENTIAL LOGIC

SYNCHRONOUS SEQUENTIAL LOGIC: Sequential circuits, latches, Flip-Flops Analysis of clocked sequential circuits, State Reduction and Assignment, Design Procedure.

ASYNCHRONOUS SEQUENTIAL LOGIC: Introduction, Analysis Procedure, Circuits with Latches, Design Procedure.

UNIT VI:

Registers, shift Registers, Ripple counters synchronous counters, other counters, , Introduction, Random-Access Memory, Memory Decoding, Error Detection and correction Read-only memory, Programmable logic Array programmable Array logic, Sequential Programmable Devices.VHDL code for Flip-flops, decade counter.

TEXT BOOKS:

- 1. Digital Design, M .Morris Mano, 3rd edn. Pearson Education/PHI.
- 2. Fundamentals Of Logic Design, Roth, 5th edn., Thomson.

REFERENCE BOOKS:

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

T C 3+1* 3

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, I-Sem (IT)

С Т 3+1* 3

(A1203123) MATHEMATICAL FOUNDATIONS OF IT

COURSE OBJECTIVES:

By the course-end the student will be able to understand:

- Fundamental concepts of set theory, Functional and relational properties and operations, Boolean algebra.
- Basic probability theory and applications, Counting principles. •
- Recursive definitions and solutions of simple of recurrence relations and generating functions.
- Graph algorithms and their application to computer science.
- Fundamentals of Group theory, Rings and their applications.

LEARNING OUTCOMES:

The student will be able to:

- Read, understand and apply definitions and theorems in basic discrete mathematics;
- Formulate simple definitions, examples and proofs in discrete mathematics;

UNIT I: MATHEMATICAL LOGIC

Statement Calculus: Statements and notations, Connectives, Well-formed formulas, Truth Tables, tautology, equivalence implication, Normal forms. Inference {Book-1 1.1 - 1.4}

UNIT II: PREDICATE LOGIC

Predicate Calculus: Predicates, Statement formulas, variables, quantifiers, Predicate formulas, Free & Bound variables, Universe of discourse. Inference theory: valid formulas, equivalence, Rules of inference, Consistency, proof of contradiction, Automatic Theorem Proving. {Book-1: 1.4 & 1.5 and book 3}

UNIT III: SET THEORY

Properties of binary Relations, equivalence, compatibility and partial ordering relations, Hasse diagram. Functions: Inverse Function Comports of functions, recursive Functions, Lattice and its Properties, Pigeon hole principles and its application. {Book-2: Chaps 3, 4, 5}

UNIT IV: ALGEBRAIC STRUCTURES

Algebraic systems Examples and general properties, Semi groups and monads, groups sub groups' homomorphism, Isomorphism. {Book-2: Chap 6}

UNIT V: RECURRENCE RELATION

Generating Functions, Function of Sequences Calculating Coefficient of generating function, Recurrence relations, Solving recurrence relation by substitution and Generating funds. Characteristic roots solution of In homogeneous Recurrence Relation. Method of Generating Functions. {Book-2: Chap 8}

UNIT VI: GRAPH THEORY AND APPLICATIONS

Basic Concepts- Representation of Graph, DFS, BFS, Spanning Trees, planar Graphs Isomorphism and Sub graphs, Operations on graphs, walk and connected graphs. Multi-graphs and Euler circuits, Hamiltonian graphs, Chromatic Numbers. Planar and nonplanar graphs. Graph and map coloring. {Book-2: Chaps 9 & 10}

TEXT BOOKS:

- 1. Discrete Mathematical Structures with applications to computer science Trembly ,J.P. & Manohar .P, First Edition, TMH.
- 2 Mathematical Foundations of Computer Science, Chandrasekhar D.S, Prism Books Pvt Ltd, 2011.
- 3 Discrete and Combinational Mathematics- An Applied Introduction-5th Edition - Ralph. P.Grimaldi. Pearson Education, 2004.

- 1. Discrete Mathematics and its Applications, Kenneth H. Rosen, Fifth Edition.TMH.
- 2. Discrete Mathematical Structures, BernandKolman, Roberty C. Busby, Sharn Cutter Ross, Pearson Education/PHI.
- 3. Discrete Mathematics for Computer science, Garry Haggard and others, Thomson.
- 4. Discrete Mathematics for Computer Scientists & Mathematicians, J.L. Mott, A. Kandel, T.P. Baker Prentice Hall.
- Logic and Discrete Mathematics, Grass Man & Trembley, Person Education.

SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech. I-Sem (IT)

T 3+1*

С

3

(A1204123) ALGORITHMS AND DATA STRUCTURES

COURSE OBJECTIVES:

The objective of this course is to teach students various data structures and to explain the algorithms for performing various operations on these data structures. The course aims are:

- Demonstrate familiarity with major algorithms and data structures.
- Analyze performance of algorithms.
- Choose the appropriate data structure and algorithm design method for a specified application.
- · Determine which algorithm or data structure to use in different scenarios.
- Be familiar with writing recursive methods.

LEARNING OUTCOMES:

The student should be able to:

- 1. Describe standard algorithms such as sorting algorithms, search algorithms, string matching algorithms, graph traversal algorithms;
- 2. Apply these algorithms or a given pseudo code algorithm in order to solve a given problem;
- Carry out simple asymptotic analyses of algorithms involving sequence, selection, and iteration, and identify and compare simple properties of these algorithms;
- 4. Describe the algorithm design principles of divide-and-conquer, greedy method, and dynamic programming and distinguish the differences between these principles;
- 5. Apply the studied algorithms that illustrate these design principles;
- 6. Apply the studied design principles to produce algorithmic solutions to a given problem;
- Explain and illustrate the distinction between different classes of problems, in particular, polynomial time and exponential time solvable problems.

UNIT I: ALGORITHMS

Algorithm specification, Performance analysis: Space complexity, Time complexity, Asymptotic Notations- Onotation, Omega notation and Theta notations

Basic Data Structures: Stacks, Array representation of stacks, Stack operations, Applications of stacks; Queues and Queue operations, Priority queues

UNIT II: LINKED LISTS

Linked lists, Representation of linked lists in memory, Traversing a Linked list, Searching a Linked list, Memory allocation and garbage collection, Insertion into a linked list, Deletion from a linked list, Header linked list, Two-way lists

UNIT III: TREES

Trees, Binary Trees, Representing binary trees in memory, traversing binary trees, traversal algorithms using stacks, Binary search trees, search, insert, delete operations in BST, Balanced search trees: AVL trees, B+ trees and 2-3 trees

Graphs: Representation of graphs: Adjacency matrix and Path matrix, Depth First Search, Breadth First Search

UNIT IV: SORTING AND SEARCHING TECHNIQUES

Insertion sort, Selection sort, Merging, Merge sort, Radix sort, Heap sort, linear search and binary search.

UNIT V: ALGORITHM DESIGN METHODS-1

Divide and Conquer Methods- General method, Application to binary search, merge sort, quick sort. Greedy method- General method (Greedy), application to Minimum cost spanning trees (Prims and Kruskals), Job sequencing with deadlines.

UNITVI: ALGORITHM DESIGN METHODS-2

Dynamic programming: General method, 0/1 knapsack problem, the travelling sales person problem. Backtracking, Branch-and- bound methods. NP-completeness: An overview.

TEXT BOOKS:

- Fundamentals of Computer algorithms, Ellis Horowitz, Sartaj Sahni, and Sanguhevar Rajasekharan, Second Edition, Galgotia Publications.
- 2) Data Structures using C, Samir Kumar Bandyopadhyay & Kasinath Dey, Person Education. 2004

REFERENCE BOOKS:

- 1) Theory and problems of data structures by Seymour Lipschutz, Third Edition, Tata McGraw-Hill Publishing
- 2) Data Structures using C, Padma Reddy AM, Sri Nandi Pub. 1999.
- 3) Classic Data Structures, Debasis Samanta, PHI Learning Pvt Ltd, 2nd edition.

II B.Tech, I-Sem Syllabus

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, I-Sem (IT)

C 2

Р

3

(A1291123) FUNDAMENTALS OF OBJECT ORIENTED DESIGN LAB

COURSE OBJECTIVES:

- 1. To familiarize students with Rational Rose and how to work with it
- 2. To train them to draw different UML diagrams using Rational Rose.
- 3. To train students to design and develop projects using UML.

LEARNING OUTCOMES:

- Understand key concepts and modeling techniques in object-oriented analysis and design
- Demonstrate understanding of the concepts and techniques by applying object-oriented modelling techniques in analysis and design of an object-oriented system
- Critically evaluate modeling techniques in object-oriented analysis and design
 Demonstrate ability to work as a member of a software development project tea
 - Demonstrate ability to work as a member of a software development project team

Week #	Tasks	
Week 1	Introduction	
Week 2	Familiarizing with Rational Rose	
Week 3	Familiarizing with Rational Rose	
Week 4	Introduction to UML and use case diagrams	
Week 5	Class Diagram	
Week 6	Flow of events and activity diagram	
Week 7	Interaction diagrams: sequence and collaboration diagrams	
Week 8	State Transition Diagram, Component and deployment diagrams	
Week 9	First Internal exam	
	DESIGN & DEVELOPMENT	
Week 10	Project-1	
Week 11	Project-2	
Week 12	Project-3	
Week 13	Project-4	
Week 14	Project viva & evaluation	

Project-1		Project-2		
1)	Library Management System	1)	Virtual Classrooms	
2)	Online Help Desk	2)	Construction of House	
3)	E-Post Office	3)	E-Ticketing System	
4)	Patient Billing Software	4)	Online Education System	
5)	Retail Shop	5)	Credit Card System	
Project-3		Project-4		
Project-	3	Project-	4	
1)	<u>S</u> Railway Reservation System	1)	Hospital Management System	
1) 2)	<u>3</u> Railway Reservation System E-Municipality	1) 2)	4 Hospital Management System Online Counselling System	
1) 2) 3)	2 Railway Reservation System E-Municipality Online Application	1) 2) 3)	4 Hospital Management System Online Counselling System Online Attendance System	
1) 2) 3) 4)	2 Railway Reservation System E-Municipality Online Application Two-Party Phone Call	1) 2) 3) 4)	4 Hospital Management System Online Counselling System Online Attendance System E-Voting System	
1) 2) 3) 4) 5)	2 Railway Reservation System E-Municipality Online Application Two-Party Phone Call ATM	1) 2) 3) 4) 5)	Hospital Management System Online Counselling System Online Attendance System E-Voting System Elevator Operations	

TEXT BOOKS:

- 1. Practical Object-Oriented Design with UML, Mark Priestley, Tata McGraw Hill
- 2. Appling UML and Patterns: An introduction to Object Oriented Analysis and Design and Unified Process, Craig Larman, Pearson Education
- 3. The Unified Modeling Language User Guide, Grady Booch, James Rumbaugh, IvarJacobson, Pearson Education

RGMCET-R-2012
RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG.& TECH., NANDYAL-518 501
AUTONOMOUS

SCHOOL OF INFORMATION TECHNOLOGY						
II B.Tech, I-Sem (IT)						
(A0593123) DIGITAL LOGIC DESIGN LAB (Common to CSE & IT)						
1.	Basic Logic Gates AND, OR, NOT and their applications					
2.	Universal gates NAND and NOR					
3.	Study of combinational circuits 1 Half Adder and Full Adder					
4.	. Study of combinational circuits 1 Half Sub tractor and Full sub tractor.					
5.	Study of Flipflops					
	a) S-R F/F b) J-K F/F c) D-F/F d)T - F/F					
6.	Design of four bit ring counter using Flip Flop					
7.	. 3 – bit synchronous counter using Flip Flop					
8.	4-bit Johnson Ring counter using Flip Flop					
9.	. MOD-5 Synchronous counter using F/F					
10.	10. 2-4 decoder					
11.	11. 4 to 1 Multiplexer					
12.	12. 3 – bit up/down counter using F/F					

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, I-Sem (IT)

С 2

р

3

(A1292123) ALGORITHMS AND DATA STRUCTURES LAB USING C

The Following Programs are to be implemented in C programming language.

COURSE OBJECTIVES:

To implement some simple programming exercise on data structures taught in algorithms & data • structures course using C programming language

LEARNING OUTCOMES:

- 1) Understand and develop a variety of techniques for designing
- 2) Design a variety of data structures and algorithms and should be able to use them appropriately to solve problems
- Understand some fundamental algorithms used in scientific computing and solve computational 3) problems using these algorithms
- 4) Develop new or re-use already existing efficient algorithms to solve problems

LAB EXPERIMENTS:

- 1) To implement the following programs using an array.
 - a) Stack b) Queue
- 2) To implement the following programs using a singly linked list.
 - a) Stack b) Queue
- 3) To implement the following operations:
 - a) Insert 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.
- 4) Use non-recursive functions to traverse the given binary tree in
 - a) Preorder. b) Inorder. c) Postorder
- 5) To implement BFS and DFS for a given graph.
- 6) To implementing the following sorting methods:
 - b) Heap sort a) Merge sort
- 7) To perform the following operations
 - a) Insertion into an AVL-tree, b) Deletion from an AVL-tree
- 8) To perform the following operations
 - 1) Insertion into an B+-tree, b) Deletion from an B+-tree
- 9) To implement Kruskal's algorithm for generating MST.
- 10) To implement Prim's algorithm to generate a MST

TEXT BOOKS:

- 1. Data Structures Using C, Padma Reddy AM, Sri Nandi Pub. 1999.
- 2. Data Structures using C, Samir Kumar Bandyopadhyay & KasinathDey, Person Edu. 2004.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech. I-Sem (IT)

(A0009123) CORPORATE MANAGEMENT SKILLS

Т

3

C 2

(Skill Development Course-1^{*}) (Common to all branches)

COURSE OBJECTIVES:

OBJECTIVES:

- To improve the communication skills of the students.
- To raise the confidence of the students with respect to the inter-personal communication.
- To make them to habituate to the Team culture and Team Work.
- To ensure the students to take up the challenges of Group Discussion and Personal Interview.
- To improve the overall personality of the students.

OUTCOMES:

- Able to improve the communication skills.
- Able to obtain the confidence of students with respect to the inter-personal communication.
- Able to cultivate the Team culture and Team Work.
- Able to take the challenges of Group Discussion and Personal Interview.

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: NONVERBAL 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, Harvard Business School, Harvard Business Review No.1214.
- 8. Essentials of Business Communication, Rajendra Pal, J. S. Korlahhi, S. Chand

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, II-Sem (IT)

T 3+1*

С

3

(A1205124) COMPUTER ORGANIZATION AND DESIGN

COURSE OBJECTIVES:

- To teach students the basics of modern computer architectures.
- To emphasize on understanding the interaction between computer hardware and software at various levels.
- To cover the concepts of Computer technology, Performance Evaluation, Instruction set design, Computer arithmetic, Data path and Control unit design of processors and Enhancing performance with pipelining.

LEARNING OUTCOMES:

The student should be able to

- Know basic Instruction Set Architecture (ARM) of a model CPU.
- Demonstrate understanding of low level computing can affect high level computing, e.g. cache design and data locality.
- Demonstrate knowledge of the memory hierarchy in a computer system.
- Demonstrate knowledge of performance factors associated with computer system organization, such as bus widths, clock rate, cache size, memory speed, CPU speed, etc.
- Demonstrate the design of a processor and the pipeline architecture in terms of datapaths.

UNIT I : COMPUTER ABSTRACTIONS AND TECHNOLOGY

Introduction to the course, what is below your program?, what is under the covers of your computer, the performance of a computer, the power wall, the switch from uniprocessors to multiprocessors, AMD Opteron X4. $\{1.1-1.7\}$

UNIT II : LANGUAGE OF THE COMPUTER

Operations and operands of the computer hardware, signed and unsigned numbers, representing instructions in the computer, logical operations, instructions for decision making, support for procedures in computer hardware, communicating with people, ARM 32-bit addressing modes, parallelism and instruction synchronization, translating and starting a program, a sort example program, arrays versus pointers. {2.1-2.14}

UNIT III: ARITHMETIC FOR COMPUTERS

Integer arithmetic: addition, subtraction, multiplication and division; Floating point, its representation and arithmetic operations. Parallelism and computer arithmetic. {3.1-3.6}

UNIT IV: THE PROCESSOR

Logic design conventions; Building data path and implementation; Pipelining; Data and control hazards; $\{4.1 - 4.5 & 4.7, 4.8\}$

UNIT V: MEMORY HIERARCHY

Basics of caches, measuring and improving cache performance; virtual memory; a common framework for memory hierarchies; virtual machines; parallelism and memory hierarchies, cache coherence. {5.1 - 5.6 & 5.8}

UNIT IV: STORAGE AND I/O

Dependability, reliability and availability; Disk storage; Flash storage; connecting processors, memory, and I/O devices; Interfacing I/O devices to the processor, memory and operating system; I/O performance measures; designing and I/O system; RAID; $\{6.1 - 6.9\}$

TEXT BOOKS:

1. Computer Organization and Design: The Hardware/Software Interface by Patterson and Hennessy, 4thedn. Morgan Kaufmann Pub. Indian edition, Elsevier. (2009). ISBN: 978-0-12-374493-7

- 1. Computer Systems: A Programmer's Perspective. By Randal E. Bryant and David R. Hallaron, Prentice Hall, 2003
- 2. Structured computer Organization by Andrew Tanenbaum, 4thedn. Pearson Education.
- 3. Computer Architecture and Organization, John P Hayes, McGraw Hill, 3rd edition
- 4. Computer Architecture and Organization, William Stallings,
- 5. Computer System Architecture, Mories Mano, Pearson Education India

SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, II-Sem (IT)

(A1206124) FOUNDATIONS OF SOFTWARE ENGINEERING

COURSE OBJECTIVES:

The objective of this course is to teach students.

- 1. To introduce software engineering and to explain its importance in building large programs.
- 2. To understand the process of developing new technology and the role of experimentation.
- 3. To set out the answers to key questions about software engineering.
- 4. To introduce ethical and professional issues and to explain why they are of concern to software engineers.

LEARNING OUTCOMES:

The student should be able to:

- 1. The ability to analyze, design, verify, validate, implement, apply, and maintain software systems.
- 2. Plan a software engineering process to account for quality issues and non-functional requirements.
- 3. Demonstrate knowledge of the wider software engineering context, software engineering processes and their applicability.
- 4. Interact with a client to elicit input, and communicate progress.

UNIT I: INTRODUCTION

The Problem Domain, the Software Engineering Challenges, The Software Engineering Approach, Software Process, Desired Characteristics of Software Process (Chapter 1 and Part of Chapter 2)

UNIT II: PROCESS MODELS AND REQUIREMENTS

Software Development Process Models, Software Requirements, , Requirements Specification, Validation, Metrics

(Remaining part of Chapter 2 and part of Chapter 3)

UNIT III: PROCESS PLANNING

Effort Estimation, Risk Management, Software Configuration Management Plan, Project Scheduling and Staffing, Project Monitoring Plan

(Chapter 5)

UNIT IV: DESIGN

Function-Oriented Design: Design Principles, Module-Level Concepts, Design Notation and specification Design Methodology. Detailed Design: Detailed Design and PDL (6.1-6.3, 7.3-7.5, 8.1-8.3)

UNIT V: CODING

Programming Principles and Guidelines, Coding Process, Refactoring, Verification, Metrics(Chapter 9)

UNIT VI: TESTING

Testing Fundamentals, Black-Box Testing, White-box Testing, Testing Process, Defect Analysis and Prevention, Metrics—Reliability Estimation(Chapter 10)

TEXT BOOKS:

 An Integrated Approach To Software Engineering, by PakajJalote, 3rd Edition, Narosa Publishing House. ISBN: 978-81-7319-702-4, 2013

REFERENCE BOOKS:

- 1. Software Engineering: A Practitioner's Approach, Roger S. Pressman, 6th edition, Mc-Graw Hill, *ISBN*-10: 007301933X.
- 2. Software Engineering, by Ian Sommerville, 7th edition, Addison Wesley, ISBN-10: 0321210263, 2004.

С

3

T 3+1*

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, II-Sem (IT)

T)

T C 3+1* 3

(A1207124) RELATIONAL DATABASE: DESIGN AND DEVELOPMENT

COURSE OBJECTIVES:

To teach students ability to

- Design and develop a relational database system with appropriate functionality to process the data and with constraints to maintain data integrity and avoid data redundancy.
- Examine a typical business application where there are data processing problems and develop database solutions.
- Develop skills in the application of data modeling methods and query language.

LEARNING OUTCOMES:

The student should be able to:

- Understand and apply methods in requirements analysis, design, and implementation of relational database systems.
- Understand and differentiate between Entity-Relational, Object-Relational, Object-Oriented database systems.
- Use SQL for data aggregation, calculations, views, sub-queries, embedded queries, manipulation, and report generation. Also, demonstrate the use of SQL for database creation and instantiation.
- Recognize normal form violations given a set of relations and a set of functional dependencies
- Understand how putting relations in normal forms reduces redundancy and update/delete anomalies.

UNIT I: INTRODUCTION TO DATABASE SYSTEMS (DBS)

What are Data base Systems(DBS) and Database Management Systems (DBMS); DBS Applications, purpose, advantages; DBS VS file System; View of Data; DB languages; Data Abstraction –Instances and Schemas – data Models – the ER Model – Relational Model; overview of DB design, storage and querying, Transaction management; DB architecture, DB users and administers; {Chap-1}

UNIT II: SQL

Basic SQL: Background, data definition, basic structure of SQL queries, set operations, aggregate functions, nested queries, complex queries, views, database modifications, join expressions.

Advanced SQL: Transactions, Integrity Constrains, SQL data types; authorization, Accessing SQL from a programming Language, functions and procedures. {Chaps 3.1 - 5.3}

UNIT III: FORMAL RELATIONAL QUERY LANGUAGES:

Relational algebra operations, null values, Modifications of database. Other Query Languages: Tuple relational Calculus – Domain relational calculus – QBE.

UNITIV : DATABASE DESIGN & ER MODEL

Overview of design process, ER model, constraints, ER diagrams, ER design issues; weak entities; Extended ER (EER) features, reduction to relation schemas, Conceptual Object Modelling using UML class diagrams,

UNIT V:RELATIONAL DATABASE DESIGN

Features of good relational design, Problems Caused by redundancy; Problem related to decomposition; reasoning about FDs, FIRST, SECOND, THIRD Normal forms, BCN; lossless join decomposition, dependency preserving; overview of other types of dependencies and normal forms (No theory)

UNIT VI: APPLICATION DEVELOPMENT

Database application development: JDBC, SQLJ, stored procedures; internet concepts, internet tools, web interfaces to data, web fundaments, servelets and JSP; HTML and XML documents, 3-tier application architecture, the presentation layer, the middle tier, Internet bookshop as case study, { here we provide only an overview. The detaled programming aspects are discussed in Web Tech course.}

TEXT BOOKS:

- 1. Data base System Concepts, Silberschatz, Korth, 6th Edition, Tata McGraw hill,2010.
- 2. Data base Management Systems, Raghuramakrishnan, Johannes Gehrke, 3rd Edition,TATA McGrawHill.2007.

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

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, II-Sem (IT)

(A0012123) PROBABILITY AND STATISTICS

(Common to CSE, IT, ME & CE)

COURSE OBJECTIVES:

- 1. 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.
- 3. 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".

LEARNING OUTCOMES:

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

- 1. Probability, Conditional Probability, Baye's theorem and its applications
- 2. Random variables, Discrete Random variables, Continuos Random variables
- 3. Binomial Distribution, Poisson Distribution, Normal Distribution
- 4. Population & Samples, Sampling Distribution of means
- 5. Point Estimation, interval Estimation, Bayesian Estimation
- 6. Tests of Hypothesis, Z Distribution, Student t test, F test, Chi square test
- 7. 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, Ψ 2 test – Good ness of fit – Contingency 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.ShahnazBathul.
- 3) Engineering Mathematics by B.V. Ramana, Tata McGraw Hill .

REFERENCE BOOKS:

- 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. Venkataraman The National Publishing co.

С

3

T 3+1*

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, II-Sem (IT)

T C 3+1* 3

(A1208124) DATA COMMUNICATIONS AND NETWORKING - 1

COURSE OBJECTIVES:

Students who have successfully completed this course will have able to do the following:

- 1. Understands the fundamentals.
- 2. Gain knowledge about various networks, transmission of data.
- 3. Knowledge in transmission network technologies.
- 4. Gain knowledge in signaling systems.
- 5. Gain knowledge in Ethernet technology.

LEARNING OUTCOMES:

After completing this course the student must demonstrate the knowledge and ability to:

- 1. Independently understand basic computer network technology.
- 2. Understand and explain Data Communications System and its components.
- 3. Identify the different types of LAN protocols.

UNIT I:

Introduction: Components, Data representations, Data flow, Networks, The Internet, Protocols and Standards. Network Models: Layered Tasks, The OSI Model, Layers in the OSI Model. Addressing. (Chapters 1,2)

UNIT II:

Physical Layer: Data and Signals: Fundamentals, Analog and Digital Signals, Transmission Impairments, Data Rate Limits, Performance. Data Transmission: Digital – to – Digital conversion, Analog – to – Digital Conversion, Transmission Modes (Parallel, Serial). Analog Transmission: Digital – to – Analog conversion, Analog – to – Analog Conversion. (Chapters 3, 4, 5)

UNIT III:

Multiplexing: FDM, WDM, TDM, STDM. Transmission Media and Switching: Guided and Unguided Media. Switching: Circuit-Switched Networks, Datagram Networks, and Virtual Circuit Networks, Structure of a Switch. (Chapters 6, 7, 8)

UNIT IV:

Telephone and Cable Networks: Telephone Network, Dial-up Modems, Digital Subscriber Line. Error Detection and Correction: Fundamentals Block Coding, Linear Block Codes, Cyclic Codes, Checksum. (Chapters 9, 10)

UNIT V:

Datalink Control: Framing, Flow and Error Control, Data Link Protocols, HDLC, PPP. Multiple Access: CSMA / CA, CSMA / CD, Controlled Access, Channelization. (Chapters 11, 12)

UNIT VI:

Wired LANs-Ethernet: IEEE Standards, Standard Ethernet, Changes in the Ethernet, Fast Ethernet, Gigabit Ethernet. Wireless LANs: IEEE 802.11, Bluetooth. (Chapters 13, 14)

TEXT BOOKS:

- 1. Behrouz A Forouzan, Data Communications and Networking,4th Edition, Tata McGraw Hill, 2007.
- 2. A.Tanenbaum, Computer Networks,4th Edition, Prentice Hall, 2003.

SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, II-Sem (IT)

T C 3+1* 3

(A1209124) JAVA PROGRAMMING

COURSE OBJECTIVES:

The objective of this course is to teach the students about core java language:

- The major objective of this course is to provide theoretical knowledge about the basic programming language concepts.
- To familiarize the students with the object oriented concepts
- Discuss java's exception-handling mechanism, multithreading programming, string handling and applets.
- Discuss java development environment.

LEARNING OUTCOMES:

The Student should be able to:

- An understanding of the principles and practice of object oriented analysis and design in the construction of robust, maintainable programs which satisfy their requirements;
- A competence to design, write, compile, test and execute straightforward programs using a high level language;
- An appreciate of the principles of object oriented programming;
- An awareness of the need for a professional approach to design and the importance of good documentation to the finished programs.

UNIT 1:INTRODUCTION

Introduction to Java: About Java, Platform Independence, Java Virtual Machine, Java as OOP, Java Features, Java Applications. Getting Started with Java: Java Architecture, Compiling and Running an Application, Java Development Kit, Introduction to Java 6.Language Basics describes the traditional features of the basic elements of the language including, Keywords, Comments, Data Types, Variable, Identifiers, Operators, Control Flow, Stings, Arrays, I/O.

UNIT 2:CLASSES AND OBJECTS

Classes: Declaring Classes, Member Variables, Defining Methods, Constructors for Classes, Passing Information to a Method or a Constructor,

Objects: Creating Objects Using Objects, Returning a Value from a Method, this Keyword, Access to Members of a Class, Instance and Class Members, Initializing Fields, **Method Overloading**. Nested Classes, Inner Class, Enum Types, Annotations.

UNIT 3: INTERFACES, INHERITANCE, NUMBERS AND STRINGS

Interfaces: Definition, implementation of an Interface, Using an Interface as a Type, Rewriting Interfaces. **Inheritance:** Overriding and Hiding Methods, Polymorphism, Hiding Fields, Keyword super, Object as a Super class, Writing Final Classes and Methods, Abstract Methods and Classes.

Numbers: Numbers, Numbers Classes, Formatting Numeric Print Output, Beyond Basic Arithmetic.

Strings: Characters, Strings, Converting between Numbers and Strings, Manipulating Characters in a String, Comparing Strings and Portions of Strings, The String Builder Class

UNIT 4:

Generics and Packages Generics: Introduction, Types, Generic Methods and Constructors, Type Inference, Packages: Creating a Package, Naming a Package, Using Package Members, Managing Source and Class Files.

UNIT 5:ESSENTIAL CLASSES: EXCEPTIONS, BASIC I/O, CONCURRENCY.

Exceptions: What Is an Exception? The Catch or Specify Requirement, Catching and Handling Exceptions, Specifying the Exceptions, Thrown by a Method, How to Throw Exceptions? Using assertions, Debugging techniques.

Basic I/O: I/O Streams, File I/O.

Concurrency: Processes and Threads, Thread Objects and operations with them, Synchronization, Liveness, Deadlock, Starvation and Livelock, Guarded Blocks, Immutable Objects, High Level Concurrency Objects.

II B.Tech, II-Sem Syllabus

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

UNIT 6:

GUI and Deployment Graphical User Interfaces with Swing: What is Swing? Swing Features, Swing Components (Look and Feel), Pluggable Look and Feel, Data Transfer, Internationalization and Localization, Accessibility, Integrating with the Desktop, System Tray Icon Support Applets: Definition of an Applet Subclass, Methods for Milestones, Life Cycle of an Applet, Applet's Execution Environment, Developing an Applet, Deploying with the Applet Tag, Doing More With Applets.

TEXT BOOKS:

- 1. Core Java 2 volume 1-Fundamentals. By Cay S. Horstmann, and Gary Cornell. 2011, Pearson Education.
- 2. The complete Reference , Java J2SE, 7thedn, TMH 2005.
- 3. http://www.oracle.com/technetwork/java/javase/overview/index.html

- 1. Head First Java, Kathy Sierra & Bert Bates, (O'Reilly) Shroff Publishers & Distributors Pvt. Ltd,
- 2. How to Program, Deitel&Deitel, Pearson Education,6
- 3. Java for for programmers, Paul J. Deitel, 2009, Pearson Education.
- 4. Programming with Java, T. V. Suresh Kumar, 2011, Pearson Education

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech, II-Sem (IT)

(A1293124) RELATIONAL DATABASE SYSTEMS LAB

Р

3

С

2

COURSE OBJECTIVES:

• To teach the students database design and querying and PL/SQL

LEARNING OUTCOMES:

The student will be able to

- Analyse situations for the application of RDBMS (relational database management system) solutions.
- Design a suitable relational data model for a given application area
- Examine the functions required and the organizational implications of administrating a RDBMS

RECOMMENDED SYSTEMS/SOFTWARE REQUIREMENTS:

- Intel based desktop PC
- Mysql /Oracle latest version Recommended
- 1) Creation, altering and dropping 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.
- 3) Queries using Aggregate functions (COUNT, SUM, AVG, MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.
- 4) 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)
- 5) i) Creation of simple PL/SQL program which includes declaration section, executable section and

exception –Handling exceptions (Ex. Student marks can be selected from the table and printed for those who secured first class and an exception can be raised if no records were found)

ii) Insert data into student table and use COMMIT, ROLLBACK and SAVEPOINT in PL/SQL block.

- 6) Develop a program that includes the features NESTED IF, CASE and CASE expression. The program can be extended using the NULLIF and COALESCE functions.
- 7) Program development using WHILE LOOPS, numeric FOR LOOPS, nested loops using ERROR Handling, BUILT –IN Exceptions, USE defined Exceptions, RAISE- APPLICATION ERROR.
- 8) Programs development using creation of procedures, passing parameters IN and OUT of PROCEDURES.
- Program development using creation of stored functions, invoke functions in SQL Statements and write complex functions.
- 10) Program development using creation of package specification, package bodies, private objects, package variables and cursors and calling stored packages.
- 11) Develop programs using features parameters in a CURSOR, FOR UPDATE CURSOR, WHERE CURRENT of clause and CURSOR variables.
- 12) Develop Programs using BEFORE and AFTER Triggers, Row and Statement Triggers and INSTEAD OF Triggers

Application Development: Design and develop any ONE of the following application area . Clearly mention the scope of the system. Use standard tools for expressing the design of the systems.

- Library Information System
- Students' Information System

II B.Tech, II-Sem Syllabus

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

- Ticket Reservation System
- Hotel Management System
- Hospital Management System
- Inventory Control system
- Retail Shop Management
- Employee Information System
- Payroll System
- Time table development system
- Any other Similar System

TEXT BOOKS:

- 1) ORACLE PL/SQL by example. Benjamin Rosenzweig, Elena Silvestrova, Pearson Edu. 3rd Edition
- 2) ORACLE DATA BASE LOG PL/SQL Programming by SCOTT URMAN, Tata Mc-Graw Hill.
- 3) SQL & PL/SQL for Oracle 10g, Black Book by Dr.P.S. Deshpande.
- 4) Mysql reference manual.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech. II-Sem (IT)

(A1294124) UNIX AND SHELL PROGRAMMING LAB

Р

3

С

2

COURSE OBJECTIVES:

Students are expected to know most aspects of UNIX commands that are needed by a program developer or UNIX user, and some system administration. Although it is not required for this course, students are encouraged to install Linux on their personal computers.

LEARNING OUTCOMES:

The student will be able to:

- Discuss the development of UNIX system over time.
- Use line and screen text editors with regular expressions.
- Explain UNIX file system including advanced file processing,
- Practice pipelining and IO redirecting.
- Explain process concepts and cooperating processes.
- Manage UNIX base networks.
- Write simple shell scripts.

Week 1:

Session-1

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

Session-2

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

Week 2:

- 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.

1425	Ravi	15.65
4320	Ramu	26.27
6830	Sita	36.15
1450	Raju	21.86
	1 1 1 1 1 01	

- 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.

Week 3:

- 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.
- Use the who command and redirect the result to a file called myfile1. Use the more command to see the contents of d) mvfile1.
- Use the date and who commands in sequence (in one line) such that the output of date will display on the screen e) and the output of who will be redirected to a file called myfile2. Use the more command to check the contents of myfile2.
- Write a sed command that deletes the first character in each line in a file. a)
- Write a sed command that deletes the character before the last character in each line in a file. b)
- Write a sed command that swaps the first and second words in each line in a file. c)

Week 4:

2.

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

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

<u>Week 5</u>:

- Write a shell script that takes a command -line argument and reports on whether it is directory, a file, or something a) else.
- h) 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.
- Write a shell script that determines the period for which a specified user is working on the system. c)

Week 6:

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

Week 7: a)

- Write a shell script that computes the gross salary of a employee according to the following rules:
- If basic salary is < 1500 then HRA =10% of the basic and DA =90% of the basic. i)
- If basic salary is >=1500 then HRA =Rs500 and DA=98% of the basic ii)
- The basic salary is entered interactively through the key board.
- h) 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.
- c) Write a shell program to generate multiplication table

Week 8:

- 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.
- Write shell script that takes a login name as command line argument and reports when that person logs in , if he b) is logged in find out on which terminal he is working.
- Write a shell script which receives two file names as arguments. It should check whether the two file contents are c) same or not. If they are same then second file should be deleted.

Week 9:

Session 1

- Write a shell script that displays a list of all the files in the current directory to which the user has read, write a) and execute permissions.
- Develop an interactive shell script that ask for a word and a file name and then tells how many times that b) word occurred in the file.
- c) Write a shell script to perform the following string operations:
 - To extract a sub-string from a given string. 1
 - ii. To find the length of a given string.
- Write a shell script to find the files which have read, write and execute permissions in the current directory. d)

Session 2:

- Write a shell program to perform the following operations insertion, deletion, searching and sorting on a) arravs.
- b) Write a shell program to reverse the rows and columns of a matrix.

Week 10: 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. Time of last access (Note: Use stat/fstat system calls)

Week 11:

Write C programs that simulate the following unix commands:

mv, cp, ls, (Use system calls)

TEXT BOOKS:

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

SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech. II-Sem (IT)

P C 3 2

(A1295124) JAVA PROGRAMMING LAB

COURSE OBJECTIVES:

The objective of this course is to teach the students about the core java programming environment.

- The major objective of this course is to provide practical knowledge about the basic programming language concepts.
- To provide practical knowledge of object oriented concepts.
- To provide practical knowledge about java's exception-handling mechanism, multithreading programming, string handling and applets.
- Practice on java development environment.

LEARNING OUTCOMES:

The student will be able to:

- Be able to implement, compile, test and run Java programmes, comprising more than one class, to address a particular software problem.
- Understand how to include arithmetic operators and constants in a Java program.
- Be able to make use of members of classes found in the Java API (such as the Math class).
- Demonstrate the ability to employ various types of selection constructs in a Java program.
- Be able to employ a hierarchy of Java classes to provide a solution to a given set of requirements.
- Demonstrate the ability to employ repetition constructs in a Java program.
- Demonstrate the ability to use simple data structures like arrays in a Java program.

List of Experiments:

1. 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 discriminate b2-4ac is negative, display a message stating that there are no real solutions.
- 2. The Fibonacci sequence is defined by the following rule. The first 2 values in the sequence are 1, 1. Every subsequent value is the sum of the 2 values preceding it. Write a Java program that uses both recursive and non-recursive functions to print the n th value of the Fibonacci sequence.
- 3. Write a Java program that prompts the user for an integer and then prints out all the prime numbers up to that Integer.
- 4. Write a Java program to multiply two given matrices
- 5. Write a Java program that reads a line of integers and then displays each integer and the sum of all integers. (use String Tokenizer class)
- 6. Write a Java program that checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome.
- 7. Write a Java program for sorting a given list of names in ascending order.
- 8. Write a Java program that reads on 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.
- 9. Write a Java program that reads a file and displays the file on the screen, with a line number before each line.
- 10. Write a Java program that displays the number of characters, lines and words in a text file.
- 11. Implements a Stack ADT
- 12. Converts Infix expression to Postfix expression
- 13. Write an Applet that displays a simple message.
- 14. Develop an applet 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.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

- 15. Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the + x / % operations. Add a text field to display the result.
- 16. Write a Java program for handling mouse events.
- 17. Write a Java program that creates three threads. First thread displays "Goof Morning" every one second the second thread displays "Hello" every two seconds and the the third thread displays "Welcome" every three seconds
- 18. Write a Java program that correctly implements Producer-Consumer problem using the concept of Inter Thread Communication.
- 19. 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.
- 20. To simulate a traffic light. The program lets the user select one pf the 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 program starts.
- 21. Write a Java program that allows user to draw lines, rectangles and ovals.
- 22. 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 class contains only the method number of sides (...) that shows the number of sides in the given geometrical figures.
- 23. Create a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines corresponding to rows in the table. Write a java program to display a table using JTable component
- 24. Program to print JAVA IS SIMPLE in different styles and fonts
- 25. Write a java program to implement the APPLET PACKAGES, draw event handlers programs.
- 26. Write a java program to implement the APPLET PACKAGES, draw Lines, Rectangles, Rounded Rectangles, filled Polygons programs.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

II B.Tech. II-Sem (IT)

(A0007123) APTITUDE, ARITHMETIC, REASONING & COMPREHENSION

Т

С

2

(Skill Development Course-2^{*}) (Common to All Branches)

OBJECTIVES:

- To make the students ready to the recruitment drives.
- To raise the confidence of the students to face the written test of any Company.
- To train the students regarding employability skills.

OUTCOMES:

- Students becomes well trained for recruitment drives.
- Student become well trained to face the written test of any company.
- Students become well trained in employability skills

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

REFERENCES:

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

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, I-Sem (IT)

(A1211125) MODERN OPERATING SYSTEM

COURSE OBJECTIVES:

The objective is to introduce to the operating system and different types of operating system.

- 1. Understand main components of OS and their working.
- 2. To study the operations performed by Operating System as a resource manager.
- 3.Implementation of different memory management techniques.
- 4.Description of multiprocessor and distributed OS.
- 5.To study different OS and compare their features

LEARNING OUTCOMES:

The student should be able to:

- 1.Describe the major functions of an operating system. Include hardware and software relationships.
- 2.Describe the major components of an operating system. (kernel, processes, files and memory management, user interfaces, IO devices etc.).
- 3.Describe OS process interactions. This includes scheduling, communications, etc.
- 4.Describe OS memory management. Include paging, virtual memory, swapping etc.

UNIT I: INTRODUCTION

What is OS, OS types; OS- concepts, system calls, structure. (Except 1.2 & 1.4)

UNIT II: PROCESSES AND THREADS

Processes, threads, Inter process communication, classical IPC problems, scheduling.

UNIT III: DEADLOCK & RECOVERY

Resources, introduction to dead-lock, dead –lock detection & recovery, dead-lock prevention, dead-lock avoidance Two Phase Locking, Non-Resource deadlocks, Recovery. (Except3.3)

UNIT IV: MEMORY MANAGEMENT

Basic memory management, swapping, virtual memory, page replacement algorithms, segmentation, segmentation with paging, Design issues for paging. Segmentation and Segmentation with paging (galvin 8.6, 8.7 for segmentation and segmentation with paging), segmentation with paging in MASTICS

UNIT V: FILE SYSTEMS

File Systems and I/O: Files, Directories, File system implementation. Examples. Principles I/O hardware & software, I/O software layers. (Chapter 6, 5.1, 5.2, 5.3)

UNIT VI: CASE STUDIES:

Linux, Windows, UNIX

TEXT BOOKS:

- 1. Modern Operating Systems, Andrew S. Tanenbaum, 3rd Edition, Pearson education, 2007.
- 2. Operating System Concepts- Abraham Silberchatz, Peter B. Galvin, Greg Gagne ,7th Edition, John Wiley,2006.

REFERENCE BOOKS:

- 1. Operating Systems Internal and Design Principles, Stallings, 5th Edition, Pearson education/PHI,2005
- 2. Operating System A Design Approach-Crowley, TMH.

С

3

T 3+1*

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech I-Sem (IT)

T C 3+1* 3

(A1212125) DATA COMMUNICATIONS AND NETWORKING - 2

COURSE OBJECTIVES:

At the end of the course, the students will be able to:

- 1. Introduce the student to advanced networking concepts, preparing the student forentry Advanced courses in computer networking.
- 2. Allow the student to gain expertise in some specific areas of networking such as the design and maintenance of individual networks.

LEARNING OUTCOMES:

After completing this course the student must demonstrate the knowledge and ability to:

- 1. Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of eachlayer.
- 2. Identify the different types of network devices and their functions within a network.
- 3. Understand and building the skills of subnetting and routing mechanisms.
- 4. Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.

UNIT I:

TCP/IP Protocol Suite, Comparison of TCP/IP with OSI, ATM. Network Layer Addressing: IPv4 Addresses, IPv6 Addresses. Network Layer-Internet Protocol: Internetworking, IPv4, IPv6

UNIT II:

Network Layer-Multicasting and Routing: ICMP, IGMP, Delivery, Forwarding, Unicast Routing Protocols, Multicast Routing Protocols.

UNIT III:

Transport Layer-Processes: Process-to-Process Delivery, User Datagram Protocol, Transmission Control Protocol, Stream Control Transmission Protocol.

UNIT IV:

Transport Layer-Congestion: Data Traffic, Congestion, Congestion Control, Examples, Quality of Service, Techniques to improve QoS, Integrated Services, Differentiated Services, Quality of Service in Switched Networks.

UNIT V:

Application Layer-Services: Domain Name System, Electronic mail, File Transfer Protocol, World Wide Web and Hiper Text Transfer Protocol.

UNIT VI:

Application Layer-Security: Symmetric-Key Cryptography, Asymmetric-key Cryptography, Security Services, Message Confidentiality, Message Integrity, Message Authentication, IPSec, SSL/TLS, Firewalls.

TEXT BOOKS:

1. Computer Networks: A Top-Down Approach Featuring the Internet, by Jim Kurose, Keith Ross, 3rdEd,Pearson Education 2004.

- 1. Data And Computer Communications, by William Stallings, 7thEdition, Pearson Education, 2005.
- 2. Computer Networks, by Andrew S. Tanenbaum, 4th Edition, Pearson Education 2003

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, I-Sem (IT)

T 3+1*

С

3

(A1213125) WEB APPLICATION DEVELOPMENT

COURSE OBJECTIVES:

• The objective of this introductory web application development program is to help students quickly acquire the core skills needed to develop web applications.

LEARNING OUTCOMES:

The student should be able to:

- Installing and configuring a web server
- Writing dynamic web pages, accessing data bases and using web services
- Applying security concepts to web servers
- Designing and implementing web applications

UNIT I: HTML - JAVA SCRIPT

HTML: Basic tags, List, Tables, images, forms, Frames; Cascading Style sheets.

Java Script: Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script.

UNIT II: XML

Introduction to XML, well-formed XML documents, components of XML document, Document type definition, XML Schemas, Document Object model, XML namespaces, XSL, Using XML Processors: DOM and SAX.

UNIT III: WEB SERVERS AND SERVLETS

Tomcat web server, Introduction to Servlets: Lifecycle of a Serverlet, JSDK, The Servlet API, The javax. servlet Package, Reading Servlet parameters, Reading Initialization parameters. The javax. servlet HTTP package, Handling Http Request & Responses, Using Cookies-Session Tracking.

UNIT IV: 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: Installing the Java Software Development Kit, Tomcat Server & Testing Tomcat.

UNIT V: 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 Error Handling and Debugging Sharing Data Between JSP pages, Requests, and Users Passing Control and Date between Pages – Sharing Session and Application Data

UNIT VI: DATABASE ACCESS

Components of JDBC, JDBC Architecture, working with JDBC Statement objects, Result set, result set metadata, accessing a Database from a JSP Page.

TEXT BOOKS:

- 1. Web Programming, building internet applications, Chris Bates, 2nd Eedition, WILEY Dreamtech
- 2. The complete Reference Java 2 , Patrick Naughton and Herbert Schildt, 5th Edition, TMH
- 3. Java Server Pages -Hans Bergsten, Second Edition, SPD O'Reilly,2002.

- 1. Internet and World Wide Web How to program by Dietel and Nieto PHI/Pearson Education Asia.
- 2. An Introduction to web Design and Programming -Wang-Thomson.
- 3. Programming world wide web-Sebesta, Pearson.
- 4. Java Server Pages, Pekowsky, Pearson.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech I-Sem (IT)

(A1214125) DATABASE MANAGEMENT CONCEPTS

Т

3+1*

С

3

COURSE OBJECTIVES:

It covers:

- 1. Advanced data modelling and database development methodology,
- 2. The techniques exploited by relational database technologies relating in particular to query processing and transaction management, and
- 3. Post relational database technologies including object oriented databases and web databases.

LEARNING OUTCOMES:

The student should be able to:

- 1. Demonstrate the technologies of relational databases and their development.
- 2. Develop competence with SQL and in building web facing database systems.
- 3. Get and understanding of application issues and current trends in database technologies.

UNIT I: FILE STRUCTURE, INDEXING AND HASHING

File Organization, Organization of Records in Files, Data-Dictionary Storage, Database Buffer. Indexing and Hashing: Ordered Indices, Tree Index Files 485, Multiple-Key Access, Static Hashing, Dynamic Hashing, Comparison of Ordered Indexing and Hashing, Index Definition in SQL. [Chps 10.5-10.8; Chp 11 except 11.4 & 11.9]

UNIT II: QUERY PROCESSING AND OPTIMIZATION

Query Processing: Measures of Query Cost, cost estimation of Selection, Sorting and Join Operation. Evaluation of Expressions. [Chp 12.1-12.5.5.2 and 12.7]

Query Optimization: Overview, Transformation of Relational Expressions, Estimating Statistics of Expression Results, Choice of Evaluation Plans. [13.1-13.4]

UNIT III: TRANSACTIONS MANAGEMENT

Transaction Concept, A Simple Transaction Model, Storage Structure, Transaction Atomicity and Durability, Transaction Isolation, Serializability, Transaction Isolation and Atomicity, Transaction Isolation Levels, Implementation of Isolation Levels, Transactions as SQL Statements. [14.1-14.10]

Concurrency Control: Lock-Based Protocols, Deadlock Handling, Multiple Granularity, Timestamp-Based Protocols, Validation Based Protocols, Multiversion Schemes. [15.1 – 15.6]

Recovery System: Failure Classification, Storage, Recovery and Atomicity, Recovery Algorithm [16.1 – 16.4]

UNIT IV: SYSTEM ARCHITECTURE

Database-System Architectures: Centralized and Client–Server Architectures, Server System Architectures, Parallel Systems, Distributed Systems. [17.1-17.4]

Distributed Databases: Homogeneous and Heterogeneous Databases, Distributed Data Storage, Distributed Transactions, Commit Protocols, Concurrency Control in Distributed Databases, Availability, Distributed Query Processing, Heterogeneous Distributed Databases, Cloud-Based Databases, Directory Systems. [19.1-19.10]

UNIT V: OBJECT-BASED DATABASES

Overview, Complex Data Types, Structured Types and Inheritance in SQL, Table Inheritance, Array and Multiset Types in SQL, Object-Identity and Reference Types in SQL, Implementing O-R Features, Persistent Programming Languages, Object-Relational Mapping, Object-Oriented versus Object-Relational.[22.1 – 22.10]

UNIT VI: ADVANCED TOPICS

Performance Tuning, Performance Benchmarks, Other Issues in Application Development, Standardization Spatial and Temporal Data and Mobility: Time in Databases, Spatial and Geographic Data, Multimedia Databases Mobility and Personal Databases. [24.1 - 24.4; 25.1 - 25.5]

TEXT BOOKS:

1. Database System Concepts, Abraham Silberschatz, Henry F. Korth, S. Sudarshan, 6thEdition, McGrawhill.

- 1) Data base Management Systems, Raghuramakrishnan, Johannes Gehrke, 3rd Edition, TATA McGraw Hill
- 2) Fundamentals of Database Systems, Elmasri, Navathe Pearson Education.
- 3) Data base Systems design, Implementation, and Management, 7th Edition, Peter Rob & Carlos Coronel.
- 4) Introduction to Database Systems, C.J.Date Pearson Education.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech I-Sem (IT)

(A0515125) C# AND .NET FRAMEWORK

(Common to CSE & IT)

COURSE OBJECTIVES:

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

LEARNING 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, Errors and Exceptions.

UNIT III: WINDOWS APPLICATIONS

Drawbacks of Console Applications, Container Controls, Non Container Controls, Developing Windows Application from Notepad and Visual Studio, Events, Types of Events – Mouse, Focus, Drag, Key and Other Related Events, Building Windows Applications.

ADO.NET: Problems with File Handling, Data Source Communication, Drivers and Providers, Introduction of ADO.NET, ADO.NET Namespaces, ADO.NET Objects, Accessing Data with ADO.NET.

UNIT IV: BUILDING ASP.NET WEB PAGES

HTML form Development, Client side Scripting, Server side Scripting, Web applications and Web servers, HTTP, Advantages Using ASP.NET, ASP.NET Application, ASP.NET Namespaces, ASP.NET Web Page Structure, Creating Sample C# Web Applications, ASP.NET Web Page Execution Architecture, Debugging and Tracing of ASP.NET.

UNIT V: ASP.NET WEB CONTROLS

Web Form Structures, Introduction to Web Form controls, Server Side Controls, Web Server Controls, GET and POST, Page Submission, Web Page Creation Techniques, Redirection between Web Pages, Validation Controls.

UNIT VI: WEB SERVICES

Web Services, Web Service Architecture, WSDL, Building WSDL Web Service.

CONFIGURING .NET ASSEMBLIES: Private Assemblies, Shared Assemblies, and Versioning.

MULTITHREADED PROGRAMMING: Thread Class, Life Cycle of a Thread, Steps for Creating a Thread, Thread Synchronization.

TEXT BOOKS:

- 1. Pro C# 2010 and the .NET 4 Platform, Andrew Trolesen,
- 2. Programming in C#, E. Balagurusamy, Tata McGraw-Hill, 2004.

REFERENCE BOOKS:

- 1. Programming C#, J. Liberty, 2nd Edition., O'Reilly, 2002.
- 2. C# and the .NET Platform, Andrew Trolesen, 2nd Edition, Dreamtech Press
- 3. Sams Teach Yourself the C# Language in 21 Days', Bradley L Jones, 1st edition, 2001.
- 4. Microsoft C# Programming for the Absolute Beginner, Andy Harris, PTR publications, 2002.
- 5. The Complete Reference: C#, Herbert Schildt, Tata McGraw-Hill, 2004.
- 6. Professional C#, Robinson et al, 2nd Edition., WroxPress, 2002.
- 7. C# and the .NET Platform, Andrew Troelsen, A! Press, 2003.
- 8. A Textbook on C#, S. ThamaraiSelvi, R. Murugesan, Pearson Education, 2003.

T C 3+1* 3

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, I-Sem (IT)

P C 2

(A1296125) MODERN OPERATING SYSTEMS LAB

COURSE OBJECTIVES:

- 1. Grasp a fundamental understanding of computer and operating systems
- 2. Learn the concepts and creation computer processes and threads
- 3. Understand memory management and virtual memory concepts in modern OSes
- 4. Understand process concurrency and synchronization
- 5. Learn the scheduling policies of modern operating systems
- 6. Understand the concepts of data input/output, storage and file management

List of Experiments:

- 1) Case study on disk management
- 2) FCFS CPU scheduling algorithm (with given arrival time & service time) for n number of processes.
- 3) Shortest Job First scheduling
- 4) Priority scheduling algorithm
- 5) Round robin scheduling algorithm
- 6) Inter Process Communication using pipes
- 7) First fit algorithm
- 8) Best fit algorithm
- 9) Worst fit algorithm
- 10) Simulate bankers algorithm for dead lock avoidance
- 11) Simulate bankers algorithm for dead lock prevention
- 12) Simulate the MVT and MFT
- 13) FIFO page replacement
- 14) LRU page replacement
- 15) Optimal page replacement
- 16) Simulate paging technique of memory management.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, I-Sem (IT)

(A1297125) WEB APPLICATION DEVELOPMENT LAB

Р

3

С

2

COURSE OBJECTIVE:

• The objective of this introductory web application development program is to help students quickly acquire the core skills needed to develop web applications.

LEARNING OUTCOMES:

- The student should be able to:
 - Installing and configuring a web server
 - Writing dynamic web pages, accessing data bases and using web services
 - Applying security concepts to web servers
 - Designing and implementing web applications

PROGRAMS TO IMPLEMENT:

- Develop static pages (using only HTML) of an online Book store. The pages should resemble: www.amazon.com. The website should consist of the following pages. Home page, Registration and user Login, User profile page, Books catalog, Shopping cart, Payment By credit card, order confirmation.
- 2) Validate the registration, user login, user profile and payment by credit card pages using JavaScript.
- 3) Create and save an XML document at the server, which contains 10 users information. Write a program which takes User Id as input and returns the user details by taking the user information from the XML document.
- 4) Install TOMCAT web server. Convert the static web pages of assignments 2 into dynamic web pages using servlets and cookies. Hint: User's information (user id, password, credit card number) would be stored in web. Xml. Each user should have a separate shopping cart.
- 5) Bean Assignments
 - a. Create a JavaBeans which gives the exchange value of INR (Indian Rupees) into equivalent American/Canadian/Australian Dollar value.
 - b. Create a simple Bean with a label which is the count of number of clicks. Then create a Bean info class such that only the count properly is visible in the property Window.
 - c. Create two Beans a) Keypad b) Display pad. After that integrate the two Beans to make it work as a calculator.
 - d. Create two Beans Traffic Light(implemented as a label with only three background colors-red, green, yellow) and Automobile(Implemented as a Text Box which states its state/movement). The state of the Automobile should depend on the following Light Transition table.
- 6) Redo the previous task using JSP by converting the static web pages of assignment 2 into dynamic web pages. Create a database with user information and books information. The books catalogue should be dynamically loaded from the database. Follow the MVC architecture while doing the website.
- 7) Implement a sample program using JSP Struts Framework.
- 8) Using JavaScript sort given array in ascending and descending order.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, I-Sem (IT)

(A0598125) C# AND .NET FRAMEWORK LAB

Р

3

С

2

(Common to CSE & IT)

COURSE OBJECTIVE:

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

LEARNING 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.

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 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

Lab 7:

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

Lab 9:

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 name properties of the button control

SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, I-Sem (IT)

P C 3 2

(A0015125) MAN MANAGEMENT

[Skill Development Course-3*] (Common to CSE &IT)

COURSE OBJECTIVE:

- 1. To inculcate Human Values and ethos and to introduce to the cultural heritage of Bharath.
- 2. To produce IT personal committed to the creation of a happier society through IT.

LEARNING OBJECTIVES:

- After going through this course students will be able to
 - 1. Appreciate the importance of values in day to day life.
 - 2. Appreciate the great Indian heritage and what it has taught over generations
 - 3. Apply some these both at work and at home.

UNIT I: LIFE STYLE OF A LEADER-MANAGER-I

The Manager and Values-Based Management: Significance and Salient Features, Individual Character and National Character: Fundamental Requisites for an Ideal Leader-Manager [Chapters 9 & 10 from the book"Man Management"]

UNIT II: LIFE STYLE OF A LEADER-MANAGER-II

Guidelines for a Values-Based Leader-Manager: Spiritual, Personal and Business, Ideal Qualities of a Leader-Manager: Insights from Indian Scriptures [Chapters 11 & 12 from the book" Man Management"]

UNIT III: FACTORS OF EXCELLENCE IN MANAGEMENT: INDIVIDUAL FACET-I

Personality and Its Influencing Factors, Manager and Self-Concept: An Indian Perspective, In Search of Excellence in Man-Management: An Indian Perspective [Chapters 13, 14 & 15 from the book "Man Management"]

UNIT IV: FACTORS OF EXCELLENCE IN MANAGEMENT: INDIVIDUAL FACET-II

Spiritual Insights for Man-Management, Manager and Mind Control, WATCH Method of Transformational Leadership. [Chapters 16, 22 & 23 from the book "Man Management"]

UNIT V: VALUES-BASED BUSINESS AND MANAGEMENT: CONCEPTUAL BACKGROUND-I

Art and Science of Management in Ancient India, the Life Breaths of Business Management and Organisation. [Chapters 4 & 5 from the book "Man Management"]

UNIT VI: VALUES-BASED BUSINESS AND MANAGEMENT: CONCEPTUAL BACKGROUND-II

Role of Values In Management Education, Roles and Responsibilities of Business Executives in the contemporary World, Need and Significance of Morality and Ethics in the World of Business And Finance.(Chapters 24,25 & 26 from the book "Man Management"]

TEXT BOOKS:

 "Man Management- A Value-Based Management Perspective", Based on The Discourses of Sri Sathya Sai Baba, Compiled by Prof. Racherla Kumar Bhaskar ,Published by The Sai Publications Division, Sri Sathya Sai Students And Staff Welfare Society, Sri Sathya Sai Vidyagiri, Prasanthinilayam, August 2012[ISBN:978-81-909128-2-2]

REFERENCE BOOKS:

2. References from the book "Man Management", compiled by Prof. Racherla Kumar Bhaskar
AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

ELECTIVE -1: [Group 1]

[Each student must choose ONE of the following courses]

III B.Tech, I-Sem (IT)

T C 3+1* 3

(A1215125) G1.1 ARTIFICIAL INTELLIGENCE

COURSE OBJECTIVES:

- To present basic methods of expressing knowledge in forms suitable for holding in computing systems, together with methods for deriving consequences from that knowledge by automated reasoning;
- To present basic methods for learning knowledge

LEARNING OUTCOMES:

The student will be able to:

- Ability to identify problems that can be expressed in terms of search problems or logic problems
- Translate them into appropriate form
- Know how they could be addressed using an algorithmic approach.

UNIT I: OVERVIEW OF ARTIFICIAL INTELLIGENCE

What is AI? The Importance of AI, Early work in AI, AI and related Fields

Knowledge - General Concepts: Introduction, Definition and Importance of Knowledge, Knowledge-based systems, Representation of Knowledge, Knowledge Organization, Knowledge Manipulation, Acquisition of Knowledge

UNIT II: FORMALIZED SYMBOLIC LOGICS

Introduction, Syntax and Semantics for Propositional Logic, Syntax and Semantic for FOPL, Properties of WFFs, Conversion to Clausal Form, Inference Rules, The Resolution Principle, Non-deductive Inference Methods, Representation Using Rules: Dealing With Inconsistencies and Uncertainties: Introduction, Truth Maintenance systems, Default Reasoning and the closed world Assumption, Predicate Completion and Circumscription, Modal and Temporal Logics, Fuzzy Logic and Natural Language Computations

UNIT III:PROBABILISTIC REASONING

Introduction, Bayesian Probabilistic Inference. Structured Knowledge: Graphs, Frames, and Related Structures. Introduction, associative networks, frame structures, conceptual dependencies and scripts

UNIT IV: SEARCH AND CONTROL STRATEGIES

Introduction, Preliminary Concepts, Examples of Search Problems, Informed Search, Searching And-Or Graphs. Matching Techniques: Introduction, Structures used in Matching, Measures for Matching, Matching like Patterns, Partial Matching, Fuzzy Matching Algorithms, The RETE Matching Algorithm,

UNIT V: LANGUAGE PROCESSING

Introduction, Overview of Linguistics, Grammars and Languages, Basic Parsing Techniques, Semantic Analysis and Representation Structure, Natural Language Generation, Natural Language Systems Pattern Recognition: Introduction, the Recognition and Classification Process, Learning Classification Patterns, Recognizing and Understanding Speech

UNIT VI: SYSTEMS ARCHITECTURES

Introduction, Rule-Based Systems Architectures, Nonproduction Systems Architectures, Dealing with Uncertainly, Knowledge Acquisition and Validation, Knowledge System Building Tools General Concepts In Knowledge Acquisition: Introduction, Types of Learning, Knowledge Acquisition Is Difficult, General Learning Model, Performance Measure.

MACHINE LEARNING:

Introduction, Perceptions, Checker Playing Example, Learning Automata, Genetic Algorithms, Intelligent Editors

TEXT BOOKS:

1. Introduction to Artificial Intelligence and Expert Systems- DAN W. PATTERNSON, First Edition, PHI, 2009

- 1. Artificial Intelligence, Elaine Rich and Kevin Knight-3rd Edition Tata McGraw-Hill
- 2. Artificial Intelligence, Patrick Henry Winston, 3rd Edition, Pearson Education
- 3. Artificial Intelligence: A modern approach, Russel, Peter Norvig, Third Edition, PHI

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, I-Sem (IT)

```
T C 3+1* 3
```

(A1216125) G1.2 COMPUTER GRAPHICS - PRINCIPLES & PRACTICE

COURSE OBJECTIVE:

1. To make students aware of the full range of techniques required to enable implementation of a graphics system capable of generating complex, realistic images.

LEARNING OUTCOMES:

The student able to perform

- 1. To perform pixel-based processing to create simple geometric figures upon a screen
- 2. To understand the principles of filling and rendering in the representation of solid objects
- 3. To understand the principles of animation

UNIT I:

Introduction: Picture Analysis, Interactive Graphics, Representative Uses of Computer Graphics, Classification of Applications, Refresh Cathode Ray tubes, Raster scan displays, Color CRT Monitors, Direct view storage tube, Flat-panel displays, Raster scan systems, Random scan systems, Graphics work monitors and work stations

UNIT II:

Line drawing algorithms, Frame buffer, Circle-generating algorithms, Ellipse-generating algorithms, Pixel addressing and geometry, scan-line polygon fill algorithm, Inside-outside tests, Boundary fill algorithm

UNIT III:

Two Dimensional Geometric transformations: Basic transformations, Composite transformations, other transformations

Two-Dimensional Viewing: The viewing pipe line, window-viewport coordinate transformations, Line clipping, Polygon clipping

UNIT IV:

Three-Dimensional Object Representations – Three-Dimensional Geometric and Modeling Transformations, Three-Dimensional Viewing

UNIT V:

Three dimensional object representations: Polygon surfaces, curved lines and surfaces, Spline representations, Bezier curves & surfaces

UNIT VI:

Illumination models and surface rendering methods: Light sources, Basic illumination models, Displaying light intensities, Halftone approximation

Color models and color applications: RGB, YIQ, CMY, and HSV Color models, conversion between HSV and RGB Models

TEXTBOOKS:

- Computer Graphics C Version, Donald Hearn, Pauline Baker, Second edition, Pearson Education, 2009.
- Computer Graphics Principles & Practice, Foley, Van Dam, Feiner, Hughes, Second edition, Pearson Education, 2003.

- 1. Computer Graphics, Zhigandxiang, Roy Plastock, Schaum's outlines, 2nd Edition, Tata McGraw hill edition.
- 2. Procedural elements for Computer Graphics, David F Rogers, 2nd edition, TMH.
- 3. Principles of Interactive Computer Graphics, Neuman and Sproul, TMH.
- 4. Principles of Computer Graphics, Shalini, Govil-Pai, Springer.
- 5. Computer Graphics, Steven Harrington, International Edition, TMH

SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, I-Sem (IT)

(A1217125) G1.3 SOFTWARE ARCHITECTURE

COURSE OBJECTIVES:

- Introduction to the fundamentals of software architecture.
- Software architecture and quality requirements of a software system
- Fundamental principles and guidelines for software architecture design, architectural styles, patterns, and frameworks.
- Methods, techniques, and tools for describing software architecture and documenting design rationale.
- Software architecture design and evaluation processes.

LEARNING OUTCOMES:

The student will be able to:

- Design and motivate software architecture for large scale software systems
- Recognise major software architectural styles, design patterns, and frameworks
- Describe a software architecture using various documentation approaches and architectural description
 languages
- Generate architectural alternatives for a problem and select among them
- Use well-understood paradigms for designing new systems

UNIT I: ENVISIONING ARCHITECTURE

What is software Architecture-What is Software Architecture, Other Points of View, Architectural Patterns, Reference Models, and Reference Architectures, Importance of Software Architecture, Architectural Structures and views.

ENVISIONING ARCHITECTURE:

Architecture Business Cycle- Architectures influences, Software Processes and the Architecture Business Cycle, Making of "Good" Architecture.

UNIT II: DESIGNING THE ARCHITECTURE WITH STYLES

Designing the Architecture: Architecture in the Life Cycle, Designing the Architecture, Formatting the Team Structure, Creating a Skeletal System.

Architecture Styles: Architectural Styles, Pipes and Filters, Data Abstraction and Object-Oriented Organization, Event-Based, Implicit Invocation, Layered Systems, Repositories, Interpreters.

UNIT III: CREATING AN ARCHITECTURE-I

Creating an Architecture: Understanding Quality Attributes – Functionality and Architecture, Architecture and Quality Attributes, System Quality Attributes, Quality Attribute. Scenarios in Practice, Other System Quality Attributes, Business Qualities, Architecture Qualities.

Achieving Qualities: Introducing Tactics, Availability Tactics, Modifiability Tactics, Performance Tactics, Security Tactics, Testability Tactics, Usability Tactics.

UNIT IV: CREATING AN ARCHITECTURE-II

Documenting Software Architectures: Use of Architectural Documentation, Views, Choosing the Relevant Views, Documenting a view, Documentation across Views.

Reconstructing Software Architecture: Introduction, Information Extraction, Database Construction, View Fusion, and Reconstruction.

UNIT V: ANALYZING ARCHITECTURES-I

The ATAM: Participants in the ATAM, Outputs of The ATAM, Phases Of the ATAM. The CBAM: Decision-Making Context, The Basis for the CBAM, Implementing the CBAM.

UNIT VI: ANALYZING ARCHITECTURES-II

The World Wide Web:A Case study in Interoperability- Relationship to the Architecture Business Cycle, Requirements and Qualities, Architecture Solution, Achieving Quality Goals.

J2EE/EJB:A Case study of an Industry-Standard Computing Infrastructure- Relationship to the Architecture Business Cycle, Requirements and Qualities, Architecture Solution, System Deployment Decisions.

III B.Tech, I-Sem Syllabus

T C 3+1* 3

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

The Luther Architecture: A case Study in Mobile Application Using J2EE- Relationship to the Architecture Business Cycle, Requirements and Qualities, Architecture Solution, How Luther Achieved its Quality Goals.

TEXT BOOKS:

- Software Architectures in Practice , Len Bass, Paul Clements, Rick Kazman, 2nd Edition, Pearson Publication, 2003.1st, 2nd –Unit 1st Part, 3,4,5,6 Units Complete.
- Software Architecture , Mary Shaw and David Garlan, First Edition, PHI Publication, 1996 2nd Unit 2nd Part.

- 1. Software Design: From Programming to Architecture, Eric Braude, Wiley, 2004.
- 2. N. Domains of Concern in Software Architectures and Architecture Description Languages. Medvidovic and D. S. Rosenblum. USENIX.
- 3. www.cs.cofc.edu.
- 4. www4.desales.edu.

SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, I-Sem (IT)

T C 3+1* 3

(A1218125) G1.4 E – COMMERCE

(Common to CSE & IT)

COURSE 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

LEARNING 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.

UNITIII:

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 BOOKS:

1. Frontiers of electronic commerce - Kalakata, Whinston, First Edition, Pearson, 1996.

REFERENCE BOOKS:

- 1. E-Commerce fundamentals and applications Hendry Chan, Raymond Lee, Tharam Dillon, Ellizabeth Chang, John Wiley.
- 2. E-Commerce, S.Jaiswal Galgotia.

III B.Tech, I-Sem Syllabus

SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, I-Sem (IT)

Т	С
3+1*	3

(A1219125) G1.5 THEORY OF COMPUTATION

COURSE OBJECTIVES:

1. The primary objective of this course is to introduce students the areas of computability and complexity, fundamental topics in computer science. The course also facilitates life-long learning in computer science by providing the student with foundational material that continues to be applicable even as the discipline rapidly evolves.

LEARNING OUTCOMES:

The student will be able to:

- 1. Develop finite state machines for regular languages
- 2. Prove a language is not regular
- 3. Convert a NFA to a DFA
- 4. Recognize regular grammars
- 5. Develop regular grammars for regular languages
- 6. Prove facts about unions, intersections, complements of regular languages
- 7. Develop PDAs for context-free languages

UNIT I:INTRODUCTION

Automata, computability, and complexity Automata and Languages: Finite automata, Non-determinism, Regular expressions, Regular expressions, nonregular languages

UNIT II: CONTEXT-FREE LANGUAGES

Context free grammars, Pushdown automata, Non-context free languages

UNIT III: THE CHURCH-TURING THESIS

Turing machines, Variants of Turing machines Decidability: Decidable languages, The halting problem

UNIT IV:REDUCIBILITY

Undecidable problems from language theory, A simple undecidable problem, mapping reducibility

UNIT V: TIME COMPLEXITY

Measuring complexity, The class P, The class NP, NP-completeness, NP-complete problems

UNIT VI:SPACE COMPLEXITY

Sactch's theorem, The class PSPACE, PSPACE-completeness, The classes L and NL, NL-completeness, NL equals coNL

TEXT BOOKS:

1. Introduction to the theory of computation, Michal Sipser, Third Edition, Thomson, 2012

- 1. Introduction to Automata Theory, Languages, and Computation, Jhon E.Hopcroft, Jefferey D.Ullman, Pearson
- 2. Introduction to Formal Languages, and Automata, Peter Linz, 3rd Edition, Narosa
- 3. The Theory of Computation, Bernard M.Moret, Pearson Education

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, II-Sem (IT)

T C 3+1* 3

(A0011123) MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS

(Common to all Branches)

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 analyse 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.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

- 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.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech. II-Sem (IT)

(A1220126) EMBEDDED COMPUTING

(Common to CSE & IT)

COURSE OBJECTIVES:

- 1. To distinguish the characteristics of embedded computer systems.
- To examine the various vulnerabilities of embedded computer systems. 2
- 3. To evaluate/critique various protection methodologies as to their effectiveness to deter, detect, and respond to exploitation activities.

LEARNING OUTCOMES:

The student will be able to:

- 1. Acquire a working knowledge of embedded computer hardware and software architecture.
- 2. Use Hex Editors and Basic Debuggers to navigate, reverse engineer, and modify machine-readable code.
- Examine the operation, implementation, and circumvention of various commonly employed data integrity 3. algorithms.

UNIT I: EMBEDDED COMPUTING AND INSTRUCTION SETS

Embedded Computing: Complex Systems and Microprocessors, The Embedded System Design Process, Formalisms for System Design, Model Train Controller.

Instruction Sets: ARM Processor.

UNIT II: CPUS AND BUS-BASED COMPUTER SYSTEMS

CPUs: Programming Input and Output, Supervisor Mode, Exceptions, and Traps, CPU Performance ,CPU Power Consumption, Design Example: Data Compressor.

Bus-Based Computer Systems: The CPU Bus, I/O devices, Component Interfacing, Designing with Microprocessors, Development and Debugging, System-Level Performance Analysis, Design Example: Alarm [3.1,3.2,3.5,3.6, 3.7 and 4.1,4.3,4.4,4.5,4.6,4.7,4.8] Clock.

UNIT III: PROGRAM DESIGN AND ANALYSIS

Components for Embedded Programs, Models of Programs, Program Optimization, Program-Level Performance Analysis, Software Performance Optimization, Program-Level Energy and Power Analysis and Optimization, Analysis and Optimization of Program Size, Software Modem. [5.1, 5.2, 5.5, 5.6, 5.7, 5.8, 5.9, 5.11]

UNIT IV: PROCESSES AND OPERATING SYSTEMS

Multiple Tasks and Multiple Processes, Preemptive Real-Time Operating Systems, Priority-Based Scheduling, Interprocess Communication Mechanisms, Evaluating Operating System Performance, Power Management and Optimization for Processes, Design Example: Telephone Answering Machine. [6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7]

UNIT V: MULTIPROCESSORS

Why Mulltiprocessors?, CPU's and Accelerators, Muiltiprocessor Performance Analysis, Consumer Electronics Architecture, Design Examples: Cell Phones, Compact DISCs and DVDs, Audio Players, Digital Still Cameras, Video Accelerator. [7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9]

UNIT VI NETWORKS

Distributed Embedded Architectures, Networks for Embedded Systems, Network-Based Design, Internet-Enabled Systems, Vehicles as Networks, Sensor Networks, Design Example: Elevator Controller.

[8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7]

TEXT BOOK:

Computers as Components - Principles of Embedded Computing System Design, by Wayne Wolf, 2/E, Morgan 1. Kaufmann Publishers, 2012.

REFERENCES BOOKS:

- 1. Embedded Realtime Systems Programming, Sriram V. iyer, Pankaj Gupta, Tata McGraw-Hill Pub. Co. Ltd, 2004. [Chaps 2, 3.2, 4-7] -5, Appendix G]
- 2. Embedded Systems, Raj Kamal, -Hill Pub. Co. Ltd, 11th print 2007. [Chaps 1
- An Embedded Software Primer, David E. Simon, Pearson Education, 2007. 3. [Chps 5-10]
- 4. Programming for Embedded Systems, Dream Software Team, WILEY dreamtech India Ltd. 2005. [has lots of excellent case studies]
- 5. Embedding system building blocks, Labrosse, via CMP publishers.

III B.Tech, II-Sem Syllabus

[1.1 - 1.4 and 2.2]

т С 3+1* 3

SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech II-Sem (IT)

Т	С
3+1*	3

(A1221126) SYSTEM PROGRAMMING

COURSE OBJECTIVES:

- Consolidate the programming skills from the previous core courses.
- The System Programming course concentrates on how programs run in user space and how the interact with the OS

LEARNING OUTCOMES:

• The student will be able to use tools like IDEs, debuggers, profilers, and source control to help them write good and maintainable code.

UNIT I: INTRODUCTION

What is system programming, differences between system programming and application programming, system programs-assembler-compiler-interpreter-operating system, the simplified instruction computer(SIC), Machine architecture – Data and instruction formats – addressing modes – instruction sets – I/O and programming

UNIT II:ASSEMBLERS

Basic assembler functions, machine-dependent assembler features, machine independent assembler features, one-pass assemblers, multi-pass assemblers, learning of MASM assembler and SPARC assembler

UNIT III: LOADERS AND LINKERS:

Basic loader functions, machine-dependent loader features, machine-independent loader features, linkage editors, dynamic linking, bootstrap loaders

UNIT IV: MACRO PROCESSORS:

Macro definition and expansion, macro processor algorithms and data structures, Concatenation of macro parameters, generation of unique labels, conditional macro expansion, keyword macro parameters, recursive macro expansion, general purpose macro processors, macro processing within language translators

UNIT V: COMPILERS

Basic compiler functions, machine-dependent compiler functions, machine-independent compiler functions, compiler design options

UNIT VI: IMPLEMENTATION EXAMPLES

Compilers: Java compiler and environment, The YACC compiler Loaders and Linkers: MS-DOS linker, SunOS linker Assemblers: TASM

TEXT BOOKS:

1. System software: An Introduction to systems programming, Third edition, Leland Beck, Pearson Education, 1996.

- Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman, Compilers: Principles, Techniques, & Tools, 2nd edition Addison-Wesley
- 2. Systems Programming John J. Donovan, Tata McGraw Hill.
- 3. David Galles, Modern Compiler Design, Addison Wesley
- 4. Operating Systems and Systems Programming D.M. Damdhere, Tata McGraw Hill

SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, II-Sem (IT)

T C 3+1* 3

(A0520126) 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:

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

LEARNING OUTCOMES:

- 1. Have an ability to apply software testing knowledge and engineering methods.
- 2. Have an ability to design and conduct a software test process for a software testing project.
- 3. Have an ability to identify the needs of software test automation, and define and develop a test tool to support test automation.
- 4. Have an ability understand and identify various software testing problems, and solve these problems by designing and selecting software test models, criteria, strategies, and methods.

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:

Paths, Path products and Regular expressions: path products & path expression, reduction Procedure, applications, regular expressions & flow anomaly detection.

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, Overview of Some Commercial Testing Tools: WinRunner, LoadRunner, QTP, Selenium

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

TEXT BOOKS:

- 1. Software testing techniques Boris Beizer, 2nd Edition, Dreamtech,.
- 2. Software Testing Principles and Practices by NARESH CHAUHAN, OXFORD HIGHER EDUCATION, university Press, 2013.

- 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.

RGMCET-R-2	2012	
RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG.& TECH., NANDYAL-518 50)1	
AUTONOMOUS		

	SCHOOL OF INFORMATION TECHNOLOGY				
III B.Tech, l	I-Sem (IT)	Р	С		
	(A1298126) EMBEDDED COMPLITING LAB	3	2		
COURSE (OBJECTIVES:				
1.	To familiarize students to embedded systems' programming on ARM's "MBED	" microco	ntroller		
LEARNIN	G OUTCOMES:				
The student 1.	at will be able to: Describe the architectural features of ARM's "MBED" microcontroller				
2.	. Use Keil simulator and develop and test applications				
3.	Write standard embedded application programs				
implement t	he following problem on the following topics on 'mbed' ARM microcontroller. to 'mbed 'architecture and Keil compiler software				
Lab Exerci	ses:				
1.	Digital Output on the mbed using LEDs.				
2.	Digital Output using mbed external pins.				
3.	Digital Inputs by connecting switches to a digital system.				
4.	Analog Outputs on the mbed.				
5.	Combining Analog Input and Output.				
6.	Processing Data from Analog Inputs.				
7.	Exploring Data Conversion Timing.				
8.	Implementing a Seven- Segment Display Counter.				
9.	Function Reuse.				
10.	Serial Communication.				
11.	Liquid Crystal Displays.				
12.	Timers and Interrupts.				
ГЕХТ ВОС	OK:				
1."Fast Wilmsh	And Effective Embedded Systems Design, Applying the ARM mbed " by Rob Tourst, Elsevier, 2012	oulson,Tim	1		

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, II-Sem (IT)

(A1299126) SYSTEM PROGRAMMING LAB

COURSE OBJECTIVES:

- 1. Consolidate the programming skills from the previous core courses.
- 2. The System Programming course concentrates on how programs run in user space and how the interact with the OS

LEARNING OUTCOMES:

1. The student will be able to use tools like IDEs, debuggers, profilers, and source control to help them write good and maintainable code.

Lab Experiments:

- 1. To generate machine op-code table, symbol table, and pseudo op-code table using the first pass assembler
- 2. To generate the machine op-code table using two-pass assembler
- 3. Sample assembly language program with illustration of symbol, literal, and base tables
- 4. Implement an absolute loader
- 5. Implement a re-locatable loader
- 6. Implement pass-one of a direct linking loader
- 7. Implement pass-two of a direct linking loader
- 8. To design a lexical analyzer
- 9. Practice of LEX/YACC programming
- 10. Programming on MACRO definition and expansion
- 11. Implement a macro processor
- 12. Context Free Grammar acceptance program
- 13. To implement a token recognition program
- 14. To implement a program that simulates the operation of operator precedence parsing
- 15. To implement a program that simulates recursive descent parsing
- 16. To implement a program for macro invocation
- 17. To implement a program for recursive macro processor
- 18. To implement a program for non-recursive macro processor
- 19. To develop a modular design for a two-pass assembler with an integrated macro processor
- 20. To implement a program for machine-dependent code optimization
- 21. To implement a program for eliminating of common sub-expressions and removal of loop invariants in code optimization
- 22. To implement a program for reduction in strength of operations in code optimization
- 23. To understand Java compiler and its environment by sample programs

С

2

P 3

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, II-Sem (IT)

(A0581126) SOFTWARE TESTING TOOLS LAB

Р

3

С

2

COURSE OBJECTIVES:

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

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

LEARNING OUTCOMES:

- 1. Have an ability to apply software testing knowledge and engineering methods.
- 2. Have an ability to design and conduct a software test process for a software testing project.
- 3. Have an ability to identify the needs of software test automation, and define and develop a test tool to support test automation.
- 4. Have an ability understand and identify various software testing problems, and solve these problems by designing and selecting software test models, criteria, strategies, and methods.

Lab Experiments:

- 1. Write programs in 'C' Language to demonstrate the working of the following constructs:
- 2. i) do...while
 - ii) while....do
 - iii) if...else
 - iv) switch
 - v) for
- 3. "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.
- 4. Write manual test cases for Gmail application.
- 5. Write manual test cases for ATM application.
- 6. Write manual test cases for Banking application.
- 7. Study of Quick Test Professional(QTP):
- 8. Overview of QTP Components.
- 9. Record & Run Options.
- 10. Generating Basic Script.
- 11. Enhancement of Script.
- 12. Check Points.
- 13. Output Values.
- 14. Object Repository.
- 15. Writing Script manually.
- 16. Study of Rational Functional Tester(RFT).
- 17. Study of SELENIUM.

Note: this lab deals only with testing tools and not case tools as case tools are already covered for IT students in the II year I semester in 'Fundamentals of OOD'

III B.Tech, II-Sem Syllabus

SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, II-Sem (IT)

T C 3 2

(A0013125) PROFESSIONAL ETHICS AND SOFT SKILLS

(Soft Skill Development Course-4*) (Common to all branches)

OBJECTIVES

The recent past decades have witnessed a dilemma of performance on ethical grounds. A professional be able to carry out tasks and achieve success at societal level. The syllabus has been designed keeping in view of the needs and goals of the generation next undergraduates. It comprises essentials of professional ethics embedded with soft skills which in turn mould students as dynamic professionals. The course of **Professional Ethics and Soft Skills** has been designed with the following objectives.

- To ignite the spark of professionalism among students with the purpose to acquire success at societal level.
- To enable them to accomplish tasks balancing hard skills and soft skills.
- To develop critical thinking skills and emotions of students through recent research theories.
- The greatest contribution of this course shall be to shape human skills of students at the global level.

OUTCOMES

- Be able to acquire professional ethics & Job Etiquettes
- Be able to balance hard skills and soft skills.
- Considerable improvement in communicative ability.
- Increase in motivational level and Professional attitudes.
- Be able to possess wide range of relevant knowledge.

UNIT I

NATURE AND SCOPE OF ENGINEERING ETHICS: Definition, Nature, Scope – Moral Dilemmas – Moral Autonomy – Kohlberg's theory – Gilligan's theory, the characteristic traits of real professional, Moral Reasoning and Ethical theories – Theories of Right Action, Self – interest- Use of ethical Theories- case study.

UNIT II

PROFESSIONAL ETIQUETTES: Professional Etiquettes – Mobile Etiquettes – Email Etiquettes - Kinesics – Proxemics - Chronemics – Olfacts - Haptics – Case Study.

UNIT III

CORPORATE COMMUNICATION: Communication models- Types of Communication – downward and upward communication Business Deliberations – Meetings – Negotiation Skills - Case Study.

UNIT IV

SOFT SKILLS: Interpersonal Communication – Johari Window – Interpersonal conflict resolutions- Daniel Goleman's Emotional Intelligence.

UNIT V

GLOBAL ISSUES: Multinational corporations – cross-cultural communication-Environmental ethics – Computer – ethics –Terrel Ward Bynum's concept of computer ethics - Weapons developments- case study.

UNIT VI

INTRODUCTION TO INTELLECTUAL PROPERTY: Meaning and Types of Intellectual Property – recent developments of the copy right act – plagiarism – trademark protection – patent law.

TEXT BOOKS:

- 1. Charles D.Fleddermann [1999], Engineering Ethics, Prentice Hall Publishers, New Mexico.
- 2. Business Communication , P.D. Chaturvedi, Mukesh Chaturvedi

REFERENCES :

- 1. The ACE of Soft Skills(Attitude, Communication and Etiquette for success) by Gopalaswamy **Formatted:** Tab stops: 0.25", Left Ramesh & Mahadevan Ramesh, Pearson 2010.
- 2. Essentials of Business Communication, Rajendra Pal, JS.Korlahhi, S.Chand
- 3. Intellectual Property Right, Deborah E. BouchouxS, Cengage, 2005
- 4. Business Ethics and Professional Values, A.B. Rao, Excel, 2009
- 5. M.P. Raghavan [2006], Professional Ethics And Human Values, Scitech Publications, Chennai.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

Elective Group-2 for Elective-2 & Elective-3

A student must choose ANY TWO from the following list:

III B.Tech. II-Sem (IT)

С 3+1* 3

т

(A1222126) G 2.1 BASICS OF IMAGE PROCESSING

COURSE OBJECTIVES: The objectives of this course are to:

- Cover the basic theory and algorithms that are widely used in digital image processing 1.
- Expose students to current technologies and issues that are specific to image processing 2
- 3. Develop hands-on experience in using computers to process images
- Familiarize with MATLAB Image Processing Toolbox 4
- 5 Develop critical thinking about shortcomings of the state of the art in image processing

LEARNING OUTCOMES:

The student will be able to:

- 1. Describe different modalities and current techniques in image acquisition
- 2. Describe how digital images are represented and stored efficiently depending on the desired quality, color depth, dynamics
- Use the mathematical principles of digital image enhancement 3.
- 4. Describe and apply the concepts of feature detection and contour finding algorithms.
- 5. Analyze the constraints in image processing when dealing with larger data sets.

UNIT I:

INTRODUCTION: Digital Image Processing, Fundamental Steps in Digital Image Processing, Components of an Image Processing System.

DIGITAL IMAGE FUNDAMENTALS: Elements of Visual Perception, Image Sensing and Acquisition, Image Sampling and Quantization, Some basic Relationships between Pixels, color image processing fundamentals.

UNIT II:

IMAGE ENHANCEMENT: Some Basic Gray Level Transformation, Histogram Processing, Enhancement Using Arithmetic/Logic Operations, Basics of Spatial Filtering, Smoothing spatial Filters, Sharpening spatial Filters.

UNIT III:

IMAGE RESTORATION: A Model of the Image Degradation/Restoration Process, Linear, Position-Invariant Degradations, Inverse Filtering, Minimum Mean Square Error (Wiener) Filtering, Constrained Least Squares Filtering.

UNIT IV:

LOSSLESS COMPRESSION: Variable length coding - LZW coding - Bit plane coding- predictive coding-DPCM. Lossy Compression: Transform coding - Wavelet coding - Basics of Image compression standards: JPEG, MPEG, Basics of Vector quantization.

UNIT V:

MORPHOLOGICAL IMAGE PROCESSING: Preliminaries, dilation, erosion, open and closing, hit or miss transformation, basic morphologic algorithms.

UNIT VI:

IMAGE SEGMENTATION: Detection of Discontinuities, Edge Linking and Boundary Detection, Thresholding, Region-Based Segmentation.

TEXT BOOKS:

1. Digital Image Processing, Rafael C.Gonzalez, Richard E.Woods, 2nd Edition, Addison Wesley, 1992

REFERENCE BOOKS:

- 1. Image Processing. Analysis, and Machine Vision, Milan Sonka, Vaclav Hlavac, Roger Boyle, 2nd Edition John Wiley
- 2. Image Processing Fundamentals, A.K.Jain, 2nd Edition, BPB publications.
- 3. Image Processing in C, Philips, 3rd Edition, BPP Publications.

III B.Tech, II-Sem Syllabus

SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, II-Sem (IT)

(A1223126)G2.2 DATA WAREHOUSING AND DATA MINING CONCEPTS COURSE OBJECTIVES:

- 1. This course aims to provide a comprehensive introduction to data mining and data warehousing.
- The goal is to present fundamental concepts and algorithms for important topic in knowledge discovery
 process such as data pre-processing, data mining and post-process evaluation.
- 3. The students will understand the principles of these techniques and appreciate their strengths and applicability to solve problems in daily life.

LEARNING OUTCOMES:

The student will be able to:

- 1. Identify the key processes of data mining, data warehousing and knowledge discovery process;
- 2. Describe the basic principles and algorithms used in practical data mining and understand their strengths and weaknesses;
- 3. Apply data mining techniques to solve problems in other disciplines in a mathematical way; and
- 4. Apply data mining methodologies with information systems and generate results which can be immediately used for decision making in well-defined business problems.

UNIT I: INTRODUCTION

Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Data Warehouse and OLAP Technology for Data Mining Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation

UNIT II: DATA PREPROCESSING

Needs Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation

Data Mining Primitives, Languages, and System Architectures: Data Mining Primitives, Data Mining Query Languages

UNIT III: CONCEPTS DESCRIPTION

Characterization and Comparison: Data Generalization and Summarization-Based Characterization, Analytical Characterization: Analysis of Attribute Relevance, Mining Class Comparisons: Discriminating between Different Classes, Mining Descriptive Statistical Measures in Large Databases

UNIT IV: MINING ASSOCIATION RULES IN LARGE DATABASES

Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses

UNIT V: CLASSIFICATION AND PREDICTION

Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Classification by Back propagation, Classification Based on Concepts from Association Rule Mining, Other Classification Methods, Prediction, Classifier Accuracy

UNIT VI: CLUSTER ANALYSIS INTRODUCTION

Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Outlier Analysis

Mining Complex Types of Data: Mining Spatial Databases, Mining Multimedia Databases, Mining Time-Series and Sequence Data, Mining Text Databases, Mining the World Wide Web

TEXT BOOKS:

 Data Mining – Concepts and Techniques , JIAWEI HAN & MICHELINE KAMBER, 3rd Edition , Elsevier,2011

REFERENCE BOOKS:

- 1. Data Mining Techniques , ARUN K PUJARI, 2nd Edition, University Press
- 2. Data Warehousing, Data Mining & OLAP- Alex Bezon, Stephen J.Smith, 3rd Edition, TMH
- 3. Data Mining Introductory and advanced topics ,MARGARET H DUNHAM, PEARSON
- 4. Data Warehousing Fundamentals PAULRAJ PONNAIAH WILEY
- 5. Data Warehousing in the Real World SAM ANAHORY & DENNIS MURRAY

T C 3+1* 3

SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, II-Sem (IT)

T C 3+1* 3

(A1224126) G2.3 INFORMATION STORAGE AND MANAGEMENT

COURSE OBJECTIVE:

- 1. To fill the knowledge gap in understanding varied components of modern information storage infrastructure, including virtual environments.
- 2. To provide comprehensive learning of storage technology, which will enable students to make more informed decisions in an increasingly complex IT environment.
- 3. To build strong understanding of underlying storage technologies and prepares students to learn advanced concepts, technologies, and products.

LEARNING OUTCOMES:

- 1. You will learn about the architectures, features, and benefits of Intelligent Storage Systems; storage networking technologies such as FC-SAN, IP-SAN, NAS, Object-based and unified storage;
- 2. business continuity solutions such as backup, replication, and archive;
- 3. the increasingly critical area of information security; and the emerging field of cloud computing.

UNIT I:

Introduction to Information Storage: Introduction to evolution of storage architecture, key data center elements, virtualization, and cloud computing.

Data Center Environment: Key data center elements – Host (or compute), connectivity, storage, and application in both classic and virtual environments.

Data Protection: RAID: implementations, techniques, and levels along with the impact of RAID on application performance.

UNIT II:

Intelligent Storage Systems: Components of intelligent storage systems and virtual storage provisioning and intelligent storage system implementations.

Fibre Channel Storage Area Networks: Fibre Channel SAN components, connectivity options, and topologies including access protection mechanism 'zoning", FC protocol stack, addressing and operations, SAN-based virtualization and VSAN technology,

IP SAN and FCoE: iSCSI and FCIP protocols for storage access over IP network, Converged protocol FCoE and its components

UNIT III:

Attached Storage (NAS): components, protocol and operations, File level storage virtualization, Object based and unified storage: Devices, Content-Address Storage (CAS), CAS use cases, unified storage.

Introduction to Business Continuity: information availability, Business Continuity (BC) terminologies, planning, failure and impact analysis, BC technology solutions.

UNIT IV:

Backup and Archive: purpose, considerations, granularity. Recovery - methods, targets and topologies, Data deduplication and backup in virtualized environment, archiving solution architecture.

Local Replication: replication terminology and consistency. Local replication technology, local replication in virtual environments.

UNIT V:

Remote replication: remote replication methods and technologies, three-site remote replication and data migration.

Cloud Computing: Characteristics and benefits

Cloud computing, definition, characteristics and benefits. Cloud service and deployment models, Cloud infrastructure components, Cloud challenges.

UNIT VI:

Securing the Storage Infrastructure: framework and domains of storage security along with covering security, implementation at storage networking. Security threats, and countermeasures in various domains

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

Security solutions for FC-SAN, IP-SAN and NAS environments, Security in virtualized and cloud environments.

Managing the Storage Infrastructure: Monitoring and managing various information infrastructure components in classic and virtual environments, Information lifecycle management (ILM) and storage tiering, Cloud service management activities.

TEXT BOOKS:

Information Storage and Management,2nd edn.Author :EMC Education Services, Publisher: India edn., (2012). ISBN: 9781118094839
 {Unit-I: Chps 1-3, Unit-II: Chps 4-6, Unit III: Chps 7-9, Unit IV: Chps 10-11, Unit V: Chps 12-13, Unit VI: Chps 14-15}

REFERENCE BOOKS:

 Storage Virtualization, Author: Clark Tom, Publisher: Addison Wesley Publishing Company ISBN : 9780321262516

SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, II-Sem (IT)

T C 3+1* 3

(A1225126) G 2.4 MULTIMEDIA AND APPLICATION DEVELOPMENT (Common to CSE & IT)

COURSE OBJECTIVES:

 The skills have to be acquired across a range of careers in multimedia including games development, web application development, multimedia application development, computer based training, e-Learning application development, interactive multimedia development, software development, software analysis, project management.

LEARNING OUTCOMES:

The student will be able to:

- 1. Have gained a thorough understanding of the technical design and implementation issues involved in building complex multimedia systems or web-based systems/applications.
- 2. Apply appropriate design solutions and usability principles in their multimedia systems applications.
- 3. Analyse how digital media and technology impacts on society.

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

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

UNIT : ACTION SCRIPT II

Inheritance, Interfaces, Packages, Exceptions.

UNIT V: APPLICATION DEVELOPMENT

An OOP Application Frame work, Using Components with Action Script 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. Fundamentals of Multimedia by Ze-Nian Li and Mark S. First Edition, Drew PHI/Pearson Education, 2003.
- 2. Essentials ActionScript 2.0, Colin Moock, 2nd Edition, SPD O, REILLY, 2004.

- 1. Digital Multimedia, Nigel chapman and jenny chapman, Wiley-Dreamtech.Macromedia Flash MX Professional 2004 Unleashed, Pearson.
- 2. Multimedia and communications Technology, Steve Heath, Elsevier (Focal Press).
- 3. Multimedia Applications, Steinmetz, Nahrstedt, Springer.
- 4. Multimedia Basics by Weixel Thomson
- 5. Multimedia Technology and Applications, David Hilman ,Galgotia

SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech II-Sem (IT)

Т	С
3+1*	3

(A1226126) G2.5 NETWORK MANAGEMENT SYSTEMS

COURSE OBJECTIVES:

- 1. The main objective of this course is to provide an understanding of SNMP (Simple Network Management Protocol) and OSI network management (NM) standards and technologies.
- This course covers various aspects of Network Management, including Network Management functions, facilities, equipment, communications protocols, processes and methodologies.
- This course covers general concepts and terminology associated with SNMP and TMN (Telecommunication Management Network) and RMON (Remote Monitoring).
- 4. The objective of the network manager encompasses not only monitoring for performance and security, but also anticipating future network problems and transcending technology to ensure everything runs well together, whether it's the network, the server, or the application.
- 5. The study areas are broadly organized under the functional areas of Fault Management, Configuration Management, Accounting Management, Performance Management, and Security Management.

COURSE OUTCOMES:

- 1. By the end of this course, students will be able to understand network management concept, standards, and protocols including SNMP and OSI protocols.
- 2. By this course students can understand how to apply network management standards to manage practical networks.
- 3. By the end of this course, students will be able to understand Organizational Model, Information model, Communication model and Functional model of SNMP Protocol.
- 4. By this course, students will get a clear idea about the functionality of SNMPV1 and SNMPV2 Protocols.
- 5. By this course students will learn about TMN, RMON and Web Based Management.

UNIT I: NETWORK MANAGEMENT

Goals, Organization and Functions, Network and System Management, Network Management System Platform, Analogy of Telephone Network Management, Communications protocols and Standards, Challenges of Information Technology Managers

UNIT II:SNMPV1 NETWORK MANAGEMENT

Managed network: The History of SNMP Management, The SNMP Model, The Organization Model, The Information Model, The SNMP Communication Model, Functional model

UNIT III: SNMPV2

Major Changes in SNMPv2, SNMPv2 System Architecture, The SNMPv2 Management Information Base, **RMON:** What is Remote Monitoring? RMON SMI and MIB, RMON1, RMON2, ATM Remote Monitoring

UNIT IV: TELECOMMUNICATIONS MANAGEMENT NETWORK

Why TMN? Operations Systems, TMN Conceptual Model, TMN Standards, TMN Architecture, TMN Management Service Architecture, An Integrated View of TMN

UNIT V: NETWORK MANAGEMENT TOOLS AND SYSTEMS

Network Management Tools, Network Statistics Measurement Systems, Network Management systems, Commercial Network management Systems, System Management, Enterprise Management Solutions.

UNIT VI: WEB-BASED MANAGEMENT

NMS with Web Interface and Web-Based Management, Web Interface to SNMP Management, Embedded Web-Based Management, WBEM: Windows Management Instrumentation, Java management Extensions, Management of a Storage Area Network

TEXT BOOKS:

 Network Management, Principle and Practice, Mani Subramanian, 2nd Edition, Pearson Education, 2012.

- 1. Network Management, Moris, Pearson Education, 2003.
- 2. Principles of Network System Administration, Mark Burges, Wiley Deamtech.
- 3. Distributed Network Management, Paul, Wiley .

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

III B.Tech, II-Sem (IT)

T C 3+1* 3

(A1227126) G2.6 HUMAN COMPUTER INTERACTION

(Common to CSE & IT)

COURSE OBJECTIVES:

- 1. To expose students to the central concepts of Human-Computer Interaction.
- 2. Establish target users, functional requirements, and interface requirements for a given computer application
- 3. Describe and explain user interface design principles, and apply them to designing an interface.
- 4. Develop quick-and-dirty interface designs using rapid prototyping methods.
- 5. Evaluate user interface designs through usability inspection and user models
- 6. Develop user studies and analyze study data to gain information about users, tasks, and interface designs.
- 7. Choose appropriate HCI methods for specified goals and justify the choice

LEARNING OUTCOMES:

The Student will be able to:

- 1. Apply HCI principles and a user-centered approach to interaction design
- 2. Analyze user needs and requirements
- 3. Design and develop prototypes based on user assessments (needs and requirements), while applying HCI principles and models.
- 4. Apply evaluation and usability testing methods to interactive products to validate design decisions
- 5. Develop pre-design and post-design usability testing techniques on the developed website
- 6. Assess user needs and requirements
- 7. Categorize, design and develop information in proper architectural structures
- 8. Create interface design prototypes based on a range of design principles and user data, and user assessments
- 9. Apply prototype principles and a user-centered approach to interaction design

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.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

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, 3rd Edition, Wiley India, 2007.

REFERENCES:

- 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, SorenLauesen, Pearson Education.

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech, I-Sem (IT)

P C 3+1* 3

(A1228127) MIDDLEWARE TECHNOLOGIES AND SERVICE ORIENTED ARCHITECTURE

COURSE OBJECTIVES:

- 1. Course will primarily deal with the idea of service-oriented architecture (SOA) and apply it to the domain of educational resources. It has the overall aim of demonstrating how a set of application interfaces can be used to deliver services to learners and learning facilitators.
- 2. Illustrating the concept of SOA, the Open ICOPER Content Space (OICS) together offer an umbrella for combining a portfolio of interoperable repositories, content and tools, where the services, quality attributes and design principles of a SOA are well represented.

LEARNING OUTCOMES:

The student will be able to:

- 1. Describe Service Oriented Architecture (SOA) principles (the basic methodology employed for the OICS creation);
- 2. Understand the usages and services provided by the Open ICOPER Content Space (OICS) as an example of SOA learning content;
- 3. Identify the ICOPER Reference Model (IRM) that regroups the shareable online content;
- 4. Give examples relating to how the Middle Layer API facilitates the implementation of OICS client interfaces

UNIT- I: INTRODUCTION TO MIDDLEWARE

What is Middleware? Types of Middleware, Client Server computing, Benefits and pitfalls of client server programming. Multi-tiered architecture, distributed computing models, RPC Middleware, java RMI.

UNIT -II: WEB SERVICE TECHNOLOGIES

Introduction. Where does WS fit into Middleware? WS Standards - XML/XSLT, SOAP, WSDL, REST, BPEL, Frameworks & Utilities - Axis, etc.

UNIT - III: ENTERPRISE ARCHITECTURE INTEGRATION (EAI)

What is Integration? Intro to EAI - definition of concepts involved - EDI, B2B Integration, Legacy integration, EAI Infrastructure, ESB, EAI Solution utilities - TIBCO

UNIT – IV: EJB ARCHITECTURE & APPLICATIONS

Overview of EJB Architecture, View of EJB Conversation, Building and deploying EJBs, Role in EJB. EJB Session beans, EJB Entity beans, Lifecycle of beans, EJB Clients, Steps in developing an application with EJB, EJB deployment.

UNIT - V: SERVICE ORIENTED ARCHITECTURE-1

Review of basic tiered architecture-EA and the basic points of benefit of SOA including better integration, business agility, asset re-use, increase ROI.

Web Services and SOA - XML over the Http protocol. Representational State Transfer(REST). Main java implementations of web services JAX-WS 2, Axis2, Spring-WS, and XFire/CXF 2.0.

UNIT – VI: SERVICE ORIENTED ARCHITECTURE-2

Data and Services –review of JDO(Java Data Objects) as an alternative to JDBC along with sample code and examples. Service Data Objects(SDO). Apache Tuscany DSO. Service Component Architecture(SCA) with a Tuscany SCA java example. Benefits of MOM and ESB. Open ESB

TEXT BOOKS:

- 1. Middileware and Enterprise Integration techniques, by Sudha Sadasivam G. and Radha Shankarmani, 2009, WIND.
- 2. Programming With Middleware Technologies, S Anitha and M Gomathi, Ane Books Pvt. Ltd (2011).
- Service Oriented Architecture with Java" by Binildas CA, Malhar Barai, and Vicenzo, Packt Publishing (sold by Amazon Digital Services),2008.

- 1. Distributed Computing, Principles and applications, M.L.Liu, Pearson
- 2. Client/Server Computing-D.T.Dewire, TMH.
- 3. Programming C#, Jesse Liberty, SPD-O'Reilly.

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech, I-Sem (IT)

P C 3+1* 3

(A1229126) INFORMATION SECURITY

(Common to CSE & IT)

Course Objectives:

• This course covers the major aspects of computer and network security. It starts with a general introduction to information security, then proceeds to cover types of threats and attacks, hacking techniques, network vulnerabilities, security policies and standards, firewalls, cryptography, Authentication & digital signatures, the SSL protocol, Wireless security, intrusion detection and prevention

Learning Outcomes:

The student will be able to:

- Define information security and outline its major components.
- Identify the major types of threats to information security and the associated attacks.
- Develop strategies to protect organization information assets from common attacks.
- Understand how security policies, standards and practices are developed.
- Understand the role of management in enforcing security policies, standards and practices.
- Identify the major techniques, approaches and tools used to discover network and system vulnerabilities.
- Understand firewalls and packet filtering.

UNIT I:

Security goals, Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internet work security, Internet Standards and RFCs, Buffer overflow & format string vulnerabilities, ARP attacks, route table modification and man-in-the-middle attacks.

UNIT II:

Conventional Encryption Principles, Conventional encryption algorithms, cipher block modes of operation, location of encryption devices, key distribution Approaches of Message Authentication, Secure Hash Functions and HMAC.

UNIT III:

Public key cryptography principles, public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management Kerberos, X.509 Directory Authentication Service.

UNIT IV:

Email privacy: Pretty Good Privacy (PGP) and S/MIME.

UNIT V:

IP Security: Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations and Key Management. **Web Security:** Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET).

UNIT VI:

Intruders, Viruses and related threats. Firewall Design principles, Intrusion Detection Systems.

TEXT BOOKS:

- 1. Network Security Essentials Applications and Standards, William Stallings,4th Edition, Pearson Education,2010.
- Hack Proofing your network by Ryan Russell, Dan Kaminsky, Rain Forest Puppy, Joe Grand, David Ahmad, Hal Flynn IdoDubrawsky, Steve W.Manzuik and Ryan Permeh,,2nd Edition wileyDreamtech,2002

- 1. Fundamentals of Network Security by Eric Maiwald (Dreamtech press)
- 2. Network Security Private Communication in a Public World by Charlie Kaufman, Radia Perlman and Mike Speciner, Pearson/PHI.
- 3. Cryptography and network Security, Third edition, Stallings, PHI/Pearson.
- 4. Principles of Information Security, Whitman, Thomson.
- 5. Network Security: The complete reference, Robert Bragg, Mark Rhodes, TMH
- 6. Introduction to Cryptography, Buchmann, Springer.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech, I-Sem (IT)

P C 3+1* 3

(A0517126) MOBILE COMPUTING

(Common to CSE&IT)

COURSE OBJECTIVES:

- Introduction of an advanced element of learning in the field of wireless communication
- introduces the basic concepts and principles in mobile computing
- Expose the students to the concepts of wireless devices and mobile computing.

LEARNING OUTCOMES:

At the end of this course the student should be able to

- Students to understand the concept of mobile computing and architecture of mobile communication.
- Students to apply the concepts of mobile communications to the transactions and transaction
 management
- Apply the concepts of mobile computing on conventional wired networks
- Students to understand the working of heterogeneous networks.

PREREQUISITES:

- 1. The knowledge about the spectrum and information the radio waves.
- 2. The knowledge of Computer networks and protocols is essential.

UNIT I: INTRODUCTION TO MOBILE COMMUNICATION AND COMPUTING

Novel applications - Limitations - Architecture

GSM: Mobile services, System architecture, Radio Interface, Protocols, Localization and calling, Handover, Security, New data Services

UNIT II: (WIRELESS) MEDIUM ACCESS CONTROL

Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA.

UNIT III: MOBILE NETWORK LAYER

Mobile IP (Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, tunneling and encapsulation), Dynamic Host Configuration Protocol (DHCP), Properties and Applications of a MANETs - Routing – DSDV – DSR

UNIT IV: MOBILE TRANSPORT AND APPLICATION LAYER

Traditional TCP - Indirect TCP - Snooping TCP - Mobile TCP - Fast retransmit/Fast recovery - Transmission/time-out freezing - Selective retransmission - Transaction Oriented TCP - Wireless Application Protocol

UNIT V: DATABASE ISSUES

Hoarding techniques - caching invalidation mechanisms - client server computing with adaptation - poweraware and context-aware computing - transactional models - query processing – recovery - Quality of service issues.

UNIT VI: DATA DISSEMINATION

Communications asymmetry - classification of new data delivery mechanisms - push-based mechanisms - pullbased mechanisms - hybrid mechanisms - selective tuning (indexing) techniques.

TEXT BOOKS:

- 1. Jochen Schiller, "Mobile Communications", *Addison-Wesley*. (Chapters 4,7,9,10,11), second edition, 2004.
 - 2. Stojmenovic and Cacute, "Handbook of Wireless Networks and Mobile Computing", Wiley, 2002.

- 1. Reza Behravanfar, "Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML", ISBN: 0521817331, Cambridge University Press, October 2004.
- 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. MartynMallick, "Mobile and Wireless Design Essentials", Wiley DreamTech, 2003.

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech, I-Sem (IT)

(A1230127) INTRODUCTION TO HIGH PERFORMANCECOMPUTING

COURSE OBJECTIVES:

- To provides an introduction to High Performance Computing with an orientation towards applications in science and engineering.
- Aspects of numerical computing and the design and construction of sophisticated scientific software will be considered.
- It will also look at practical methods of estimating and measuring algorithm/architecture performance.

LEARNING OUTCOMES:

The student will be able to:

- 1. Appreciate the building blocks of scientific and engineering software.
- Apply a basic knowledge of numerical computing using an appropriate programming language. 2
- 3 Competent in experimental computing in a numerical context and of the optimisation of algorithms on high performance architectures.
- 4. Reason about the accuracy of mathematical and numerical models of real physical phenomena.
- 5. Have an awareness of the modern field of computational science and engineering and of the impact of high performance computing on science and industry.
- 6. Have an understanding of the various paradigms of high performance computing and their potential for performance and programmability.

UNIT I : INTRODUCTION

Modern processors: Stored -program computer architecture; General-purpose cache - based microprocessor architecture; Memory hierarchies; Multicore and Multithreaded processors; Vector processors.

Basic optimization techniques for serial code: Simple measures-Elimination of common sub expressions, avoiding branches, using SIMD instruction sets; The role of compilers; C++ Optimizations

UNIT II : OPTIMIZATION

Data access optimization: Balance analysis- Bandwidth-based performance modelling, the STREAM benchmarks; storage order - case studies; Algorithm classification and access optimizations.

UNIT III : PARALLEL COMPUTERS & PARALLELIZATION.

Parallel computers: Taxonomy; shared - memory computers; Distributed- memory computers; Hierarchical systems; Networks.

Basics of parallelization: Why parallelize? Parallelism; Parallel scalability.

UNIT IV : OPEN MP

Shared- memory parallel programming with Open MP: Introduction to Open MP; Open MP Case Study: parallel Jacobi algorithm.

Efficient open MP Programming: Profiling open MP programs; Performance pitfalls; Case study: Parallel sparse matrix-vector multiply

UNIT V : cc NUMA ARCHITECTURES

Locality optimizations on cc NUMA architectures: Locality of access on cc NUMA; cc NUMA optimization of sparse MVM(Case study); Placement pitfalls; cc NUMA issues with C++.

UNIT VI : DISTRIBUTED-MEMORY PARALLEL PROGRAMMING WITH MPI

Message passing; Introduction to MPI; MPI Parallelization of a Jacobi solver.

Efficient MPI Programming: MPI Performance tools; Communication Parameters; Synchronization, serialization, contention; Reducing communication overhead; Internodes point-to-point communication. Basic MPI/0pen MP programming models.

TEXT BOOK:

1. Introduction to high performance computing for scientists and engineers, Georg Hager and Gerhard Wellein, CRC Press (Special Indian Edition) 2012.

REFERENCE BOOKS:

- 1. Multi-Core Programming: Increasing Performance through Software Multithreading, S. Akhter & J. Roberts, Intel Press, 2006. ISBN: 0-9764832-4-6
- The OpenMP API specification for parallel programming. http://openmp.org./wp/openmp-2. specifications
- Computer Architecture: A Quantitative Approach, Hennessy J.L., Patterson /D.A., Morgan Kaufmann, 3 4th edn, 2006, ISBN: 978-0123704900.

IV B.Tech, I-Sem Syllabus

С 3+1* 3

р

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech, I-Sem (IT)

(A1281127) MOBILE APPLICATION DEVELOPMENT LAB

COURSE OBJECTIVES:

- 1. To familiarize students with mobile application development platforms like Android
- 2. To familiarize students with tool, techniques and methods used for MAD
- 3. To develop MAD skills

LEARNING OUTCOMES:

The Student will be able to

- 1. Plan, design, manage and evaluate the requirements for a mobile application
- 2. Develop some simple mobile applications and deploy them

List of Experiments:

- 1. J2ME Software Development Kits Installation of Java Wireless Toolkit.
- 2. Create a MIDlet to determine the Color attribute of the small computing device screen.
- 3. Create a MIDlet to implement the String Item and Ticker Class.
- 4. Implement a MIDlet which illustrates Item State Listener.
- 5. Implement a MIDlet which describes about Alert box types.
- 6. Implement a MIDlet that appends String to the form with and without insert and append Methods.
- 7. Create a MIDlet to illustrates the Text Field and Text Box class.
- 8. Implement a Program which illustrates Choice Group class.
- 9. Create a program which creates to following kind of menu.



- 10. Event Handling. Create a menu which has the following options:
 - * cut can be on/off
 - * copy can be on/off
 - * paste can be on/off
 - * delete can be on/off
 - * select all put all 4 options on
 - * unselect all put all 4 options off
- 11. Input checking: Create an MIDP application which examine, that a phone number, which a user has entered is in the given format.
 - Area code should be one of the following: 040, 041, 050, 0400, 044
 - There should 6-8 numbers in telephone number (+ area code)



12. Implement a MIDlet which displays all types of Rectangle, Circles on the Small computing device screen. Create a slide show which has three slides, which includes only text. Program should change to the new slide after 5 seconds. After the third slide program returns to the first slide.

IV B.Tech, I-Sem Syllabus



Р

3

С

2

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

Create a MIDP application, which show to the user 5-10 quiz questions. All questions have 4 possible options and one right option exactly. Application counts and shows to the user how many right answers were right and shows them to user.



Create a MIDP application, where the user can enter player name and points. The program saves the information to the record using RMS at MIDP device. Program should also print out the top 10 player list to the end user. You can use this class in your game if you made own class for saving and reading record sets.

Create a slide show which has three slides, which includes pictures at PNG format. Program should change to the new slide other 5 seconds.

Create a MIDP application, which draws a bar graph to the display. Data values can be given at int[] array.

Create a MIDP application, which draws a bar graph to the display. Data values can be given at int[] array. You can enter four data (integer) values to the input text field.

Design Login to HTTP Server from a J2ME Program.

RAJEEV GANDHI MEMORIAL COLLEGE OF ENGG.& TECH., NANDYAL-518 501
AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY
IV B.Tech, I-Sem (IT) P C
3 2
(A1282127) HIGH PERFORMANCE COMPUTING LAB
IMPLEMENT THE FOLLOWING DISTRIBUTED ALGORITHMS: 1. LCR Algorithm
2. Synchronous BFS Algorithm
3. Bellmanford Algorithm
4. Luby MIS Algorithm
5. EIG Algorithm
6. Dijkstra's Algorithm
IMPLEMENT THE FOLLOWING PROGRAMS IN MPI-C:
7. Detecting the Prime Numbers in Parallel
8. Detecting the sum of N numbers in Parallel
9. Area Computation in Parallel
10. Matrix Multiplication in Parallel
11. Sorting the data in Parallel
12. Shortest Path computation in Parallel
MULTI CORE ARCHITECTURE LAB
1. To use number of threads to run Hello World
2. To use Open MP loop work-sharing construct
3. To use the Open MP SECTIONS work-sharing construct
4. To compute a dot product in parallel
5. Matrix multiplication by distributing the iterations of the operation between available threads
6. Use of Posix Threads
7. To Demonstrate Signaling
8. To Demonstrate Data Race Condition
9. To Demonstrate DeadLock and Live Locks
10. To Demonstrate Inter core communication
11. To use Intel Inspector XE
12. To analyse Performance using Intel VTune Amplifier XE

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech, I-Sem (IT)

Р

3

С

2

(A1283127) MINI PROJECT

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 year first semester during lab classes. Implementation or development 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.

Evaluation:

Mini Project50End Examination (External evaluation)This max25Internal evaluationDay	50	End Examination (External evaluation)	This End Examination in mini project will be for a maximum of 50 marks.
	Day-to-day performance in executing mini project.		

IV B.Tech, I-Sem Syllabus

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. I-Sem (IT)

T C 3 2

(A1243127) FREE/OPEN SOURCE SOFTWARE

(Skill Development Course – 5*)

COURSE OBJECTIVES:

- 1. To impart a first-hand knowledge on the FOSS philosophy and methodology.
- 2. To familiarize the students with various software available under FOSS.
- 3. To train the students in some of the commonly used packages.
- 4. To encourage students to apply OSS philosophy and migrate to FOSS in their own domains.
- 5. To develop application programs using FOSS.

LEARNING OUTCOMES:

The student will be able to:

- 1. Ability to install, run open-source and develop application on FOSS supported software. s.
- 2. Ability to gather information about Free and Open Source Software projects from software releases and from sites on the internet.
- 3. Ability to build and modify one or more Free and Open Source Software packages.
- 4. Ability to use a version control system and to interface with version control systems used by development communities.
- 5. Ability to contribute software to and interact with Free and Open Source Software development projects.

Syllabus:

This Skill Development Course will be offered for the first time in July, 2015. It is likely that different sources of FOSS may undergo significant modifications both in their offerings and in policies. Therefore, the department will assess the situation during March 2015, select a list of suitable packages and mode of training and a plan of action for students to train on them. Note: those of the students who take SAP-ABP as an elective, will have SAP-ABP Lab as this Skill Development Course.

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech, I-Sem (IT)

T C 3+1* 3

Unit I:

Introduction: what is machine learning? Supervised learning, unsupervised learning

Linear regression with one variable: model representation, cost function, gradient descent, gradient descent for linear regression.

(A1231127) G3.1 MACHINE LEARNING

Linear regression with multiple variables: multiple features, gradient descent for multiple variables, gradient descent in practice- feature scaling, learning rate, features and polynomial regression, normal equation, Unit II:

Logistic regression: classification, hypothesis representation, decision boundary, cost function, simplified cost function and gradient descent. Multiclass classification: one-vs.-all.

Regularization: the problem of over fitting, cost function regularized linear regression, regularized logistic regression.

Unit III:

Neural networks: representation: non-linear hypotheses, neurons and the brain, model representation, examples and intuitions, multiclass classification.

Neural networks: learning:

cost function, back propagation algorithm, Back propagation intuition, implementation- unrolling parameters, gradient checking, random initialization, putting it together, autonomous driving,

Unit IV:

Advice for applying machine learning: Deciding what to try next, evaluating a hypothesis, model selection and train/validation/test sets, diagnosing bias vs. variance, regularization and bias/variance ,learning curves.

Machine learning system design: prioritizing what to work on, error analysis, error metrics for skewed classes, trading off precision and recall, data for machine learning,

Unit V:

Support Vector Machines: optimization objective, large margin intuition, kernels, using an SVM.

Clustering: unsupervised learning: introduction, k-means algorithm, optimization objective, random initialization, choosing the number of clusters.

Dimensionality reduction: motivation: data compression, visualization. formulation and Choosing the number of principal components, reconstruction from compressed representation, advice for applying PCA. Unit VI:

Application example: photo OCR- problem description and pipeline, subtitles (text) for problem description and pipeline, subtitles (srt) for problem description and pipeline, video (mp4) for problem description and pipeline. Sliding windows, getting lots of data and artificial data.

TEXT BOOK:

- 1. Source for the Course Content: Machine Learning, Andrew Ng., https://www.coursera.org/.
- Pattern Recognition and Machine Learning, Christopher M. Bishop, Springer, (2006), ISBN: 13:978-0387-31073-2

- A First Course in Machine Learning, Simon Rogers, Mark Girolami, CRC Press, (2012), ISBN:978-1-4398-2414-6
- 2. 2Machine Learning: An algorithmic Perspective, Stephen Marslad, Chapmann & Hall/crc, (2009),ISBN: 9781420067187
- 3. Machine Learning: A probabilistic approach, Kevin P. Murphy,
- 4. Machine Learning, Tom Mitchell, McGrahill (1997), ISBN 0070428077
- 5. Introduction to Data Mining, Pang-Ning Tan, Michael Steinberg, Vipin Kumar, Morgan Kaufmann Pub. (2011), ISBN:978-0-12-374856-0.
- 6. Machine Learning with SVM and Other Kernael Methods, K.P.Soman, R. Loganathan, V. Ajay, PHI Learning (2009)

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. I-Sem (IT)

```
T C 3+1* 3
```

(A1232127) G3.2 DESIGN PATTERNS: CONCEPTS AND APPLICATIONS

COURSE OBJECTIVES:

The goal of this course is to arm the students with the knowledge needed in architecting effective and maintainable complex software systems of high quality by applying design patterns. Each pattern represents a best practice solution to a software problem in some context. The course will sensitize the student that there is rarely one "right" design and an engineer is faced with a spectrum of possibilities representing trade-offs. The course will cover the rationale and benefits of design patterns in architecting software systems.

LEARNING OUTCOMES:

- The student will be able to:
 - 1. Identify the classification of a pattern
 - 2. State the intention and motivation of the pattern.
 - Draw the structure of the pattern in UML notation.
 Identify the participants and describe their responsibilities.
 - 4. Identify the participants and describe their respo
 - 5. Suggest sample applications areas.
 - 6. Contrast the difference in intentions between structurally similar patterns.
 - 7. Apply several appropriate patterns in the design of small programming assignments.
 - 8. Select appropriate design patterns to refactor an existing design.

UNIT I:

Introduction to design pattern: how do I use design pattern, How about an interface, setting behaviours dynamically, HAS-A can be better than IS-A, Strategy pattern, The power of shared vocabulary, Keeping your objects Know: The power of loose coupling .meet the Observer pattern, the observer pattern defined, designing and implementing the weather station.

UNIT II:

Decorating Objects: The open closed principle, the decorator pattern defined, meets the decorator pattern, constructing a drink orders with decorators, Baking with OO Goodness: Encapsulating object creation, simple factory defined, declaring the factory method, meets the factory method pattern, a frame work for the pizza store

UNIT III:

One of a kind of Objects: The little singleton, dissecting the classic singleton pattern, confessons of a singleton pattern, the chocolate factory

UNIT IV:

Template method pattern: Abstracting prepare recipe, meet the template method, what did the template method get us, template method pattern defined, template method in the wild,s toringwith template method, applets, swinging with frames, Template method and strategy

UNIT V:

The iterator and composite pattern: can we encapsulate the iteration, meet the Iterator pattern, Adding an Iterator to Diner menu, Iterator pattern defined, single responsibility, Iterator and collections, The composite pattern: The composite pattern defind, Designing menu with composite, implementing the composite menu, The Null Iterator, The magic of Iterator & composite together.

Unit VI:

The State pattern: How do implement state, State Machines, A first attempt to state machine, defining the state interfaces and classes, implementing our state classes, The state pattern defined. Patterns of patterns: Compound patterns, Adding an adapter, Adding an Iterator, adding a factory, Adding a composite and Iterator, Adding an observer, Model view controller, Adaptig the model, MVC and the web

TEXT BOOKS:

1. HeadFirst Design Patterns- Eric Freeman, and Eli Sabeth Freeman, Reilly, 2004

- 1. Design Patterns- Elements of reusable object-oriented software, Addison Wesley, 1995
- 2. Refactoring to patterns , Joshua Kerievsky, Addison Wesley, 2005
- 3. <u>www.cs.umbc.edu</u>
- 4. www.rescach.umbc.edu

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. I-Sem (IT)

T C 3+1* 3

(A1233127) G3.3 CLOUD INFRASTRUCTURE AND SERVICES

COURSE OBJECTIVES:

- 1. Explain the importance and benefits of Cloud computing and the need for its rapid adoption.
- 2. Explain roadmap for transformation from classic to cloud environment.
- 3. Identify and differentiate various infrastructure components of classic and virtualized data center.
- 4. Explain virtualization requirements and available tools at each layer of IT infrastructure.
- 5. Explain business continuity options in a virtualized environment.
- 6. Discuss effective cloud computing deployment model for businesses/IT organizations.
- 7. Perform detailed exploration of cloud products and services.
- 8. Describe infrastructure framework and service management activities in Cloud computing.
- 9. Understand and address security concerns commonly found in Cloud computing environments.
- 10. Formulate high-level cloud migration strategy and best practices.

LEARNING OUTCOMES:

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

- 1. Explain the phases of transition from classic data center to virtual data center and then to the Cloud.
- 2. Describe virtualization technology at server, storage, network, desktop, and application layers of IT infrastructure.
- 3. Describe business continuity solutions in a VDC environment.
- 4. Explain the key characteristics, services, and deployment models of Cloud.
- 5. Describe the Cloud infrastructure components and service management processes.
- 6. Describe Cloud security concerns and solutions.
- 7. List the key considerations for migration to the Cloud.

UNIT I: JOURNEY TO THE CLOUD

This unit focuses on the business drivers, definition, essential characteristics, and phases of journey to the Cloud. Business drivers for Cloud computing, Definition of Cloud computing, Characteristics of Cloud computing as per NIST, Steps involved in transitioning from Classic data center to Cloud computing environment.

UNIT II: CLASSIC DATA CENTER (CDC)

This unit focuses on the key elements of CDC – compute, storage, and network, with focus on storage networking, business continuity, and data center management. Application, DBMS, Compute, Storage and Networking, Object based and Unified storage technologies, Business continuity overview and backup, Replication technologies, CDC Management.

UNIT III: VIRTUALIZED DATA CENTER (VDC) - COMPUTE AND STORAGE

VDC Compute: compute aspect of the VDC, fundamental concepts of compute virtualization and techniques, virtual machine (VM) components and management of compute resources, process to convert physical machine to VM.

VDC Storage: storage virtualization implementation, key underlying technologies, methods for providing virtual storage to compute systems in a VDC environment.

UNIT IV: VIRTUALIZED DATA CENTER (VDC) – NETWORKING AND DESKTOP APPLICATIONS

VDC Networking: network virtualization in VDC, VDC network infrastructure and components, virtual LAN, and virtual SAN. key network traffic management techniques.

VDC Desktop and Application: the various aspects of desktop and application virtualization technologies.

Business Continuity in VDC: concepts and techniques employed for ensuring business continuity, mechanisms to protect single point of failure, various technology options for backup, replication, and migration of VMs and their data, various options for recovering from total site failure due to a disaster.
AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

UNIT V: CLOUD COMPUTING AND INFRASTRUCTURE

Cloud Computing Primer: essential characteristics of Cloud Computing, Cloud services and deployment models, the economics of Cloud.

Cloud Infrastructure and Management: Cloud infrastructure components, Cloud service creation processes. Cloud service management processes, delivery of Cloud services is aligned with business objectives, expectations of Cloud service consumers.

UNIT VI: CLOUD SECURITY AND MIGRATION TO CLOUD

Cloud Security: Security concerns and counter measures in a VDC and Cloud environment, Key security concerns and threats, infrastructure security mechanisms in VDC and cloud environments, access control, identity management, governance, cloud security best practices.

Cloud Migration Considerations: considerations for migration to the cloud, details 'cloud models' suitable for different categories of users, governance, risk and compliance aspects in Cloud, considerations for choosing applications suitable for Cloud, different phases to adopt the Cloud.

REFERENCE BOOKS:-

- 1. Cloud Computing: A Practical Approach Author: Anthony T. Velte, Publisher: Tata Mcgraw Hill Education Private Limited (2009), ISBN: 0070683514.
- 2. Cloud Computing For Dummies Author: Halper Fern, Kaufman Marcia, Bloor Robin, Hurwit Judith, Publisher: Wiley India Pvt Ltd (2009), ISBN: 8126524871

PREREQUISITES:

Students who have completed courses on the following topics will have an added advantage in successfully completing the CIS course:

- 1. Computer systems and architectures
- 2. Networking technologies
- 3. Operating system
- 4. Information storage and management

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. I-Sem (IT)

(A1234127) G3.4 PRINCIPLES OF COMPILER DESIGN

COURSE OBJECTIVE:

The goal of the course is to provide an introduction to the system software like assemblers, compilers, and macros. It provides the complete description about inner working of a compiler. The main focus is on the design of compilers and optimization techniques. It also focuses on the design of Compiler writing tools. The course also aims to convey the language specifications, use of regular expressions and context free grammars behind the design of compiler.

LEARNING OUTCOME:

The student will be able to have an understanding, based on knowledge of the underlying machine architecture, the limitations and efficiency of various design techniques of compilers implementation. Students will also be exposed to understand different parsers, optimization etc., It also covers programming in various tools like LEX and YACC for scanning and parsing etc.

UNIT I: INTRODUCTION TO COMPILERS

Compilers – Analysis of the source program – Phases of a compiler – Cousins of the Compiler – Grouping of Phases – Compiler construction tools – Lexical Analysis – Role of Lexical Analyzer – Input Buffering – Specification of Tokens.

UNIT II: SYNTAX ANALYSIS

Role of the parser –Writing Grammars –Context-Free Grammars – Top Down parsing – Recursive Descent Parsing – Predictive Parsing – Bottom-up parsing – Shift Reduce Parsing – Operator Precedent Parsing – LR Parsers – SLR Parser – Canonical LR Parser – LALR Parser.

UNIT III: INTERMEDIATE CODE GENERATION

Intermediate languages – Declarations – Assignment Statements – Boolean Expressions – Case Statements – Back patching – Procedure calls.

UNIT IV: TYPE CHECKING AND RUNTIME ENVIRONMENTS

Syntax directed definitions – Construction of syntax trees – Type systems – Specification of a simple type checker - Equivalence of type expressions – Type conversions – Attribute grammar for a simple type checking system – Runtime Environments: Source language issues – Storage organization – Storage allocation strategies – Parameter passing.

UNIT V: CODE GENERATION

Issues in the design of a code generator – The target machine – Runtime storage management – Basic blocks and flow graphs – Next-use information – A simple code generator – Register allocation and assignment – The DAG representation of basic blocks – Generating code from DAG – Dynamic programming code generation algorithm – Code-generator generators.

UNIT VI: CODE OPTIMIZATION

Principal sources of optimization – Peephole optimization – Optimization of basic blocks – Loops in flow graphs – Introduction to global data flow analysis – Iterative solution of data flow equations – Code improving transformations – Dealing with aliases.

TEXT BOOKS

 Compilers Principles, Techniques and Tools ,Alfred V. Aho, Ravi Sethi, Jeffrey D. Ullman,2nd Edition, Pearson Education,2006.

REFERENCE BOOKS:

- 1. Advanced Compiler Design Implementation, Steven S. Muchnick, Morgan Koffman, 1997.
- 2. Crafting a Compiler with C, Charles N. Fischer, Richa, J. Leblanc, 4th Edition, 2004
- 3. Compiler Design in C, Allen Holub, Prentice Hall of India, 1990.

С

3

T 3+1*

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. I-Sem (IT)

T C 3+1* 3

(A0530127) G 3.5 SOFTWARE PROJECT MANAGEMENT

(Common to CSE & IT)

Course Objective:

The objective of the course is to familiarise students in practice with the initiation, management and supervision of a software project. During the course, actual software projects are defined and their implementation is managed and supervised. To provide basic project management skills with a strong emphasis on issues and problems associated with delivering successful IT projects. The module is designed to provide anunder standing of the particular issues encountered in handling IT projects and to offer students methods, techniques and 'hands-on' experience in dealing with them.

LEARNING OUTCOMES:

The student will be able to:

- 1. Understand and practice the process of project management and its application in delivering successful IT projects;
- 2. evaluate a project to develop the scope of work, provide accurate cost estimates and to plan
- 3. the various activities;
- 4. understand and use risk management analysis techniques that identify the factors that put a project at risk and to quantify the likely effect of risk on project timescales;
- 5. identify the resources required for a project and to produce a work plan and resource schedule;
- 6. monitor the progress of a project and to assess the risk of slippage, revising targets or counteract drift;
- 7. Distinguish between the different types of project and follow the stages needed to negotiate an appropriate contract.

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.

The old way and the new: The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process.

UNIT III: 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.

UNIT IV: MODEL BASED SOFTWARE ARCHITECTURES

A Management perspective and technical perspective.

Work Flows of the process: Software process workflows, Iteration workflows.

UNIT V: CHECKPOINTS OF THE PROCESS

Major mile stones, Minor Milestones, Periodic status assessments. Iterative Process Planning: Work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning.

UNIT VI: PROJECT ORGANIZATIONS AND RESPONSIBILITIES

Line-of-Business Organizations, Project Organizations, evolution of Organizations. **Process Automation**: Automation Building blocks, The Project Environment.

TEXT BOOKS:

1. Software Project Management, Walker Royce: Pearson Education, 2005.

- 1. Software Project Management, Bob Hughes and Mike Cotterell: Tata McGraw-Hill Edition.
- 2. Software Project Management, Joel Henry, Pearson Education.
- 3. Software Project Management in practice, PankajJalote, Pearson Education.2005.

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. I-Sem (IT)

T C 3+1* 3

(A0531127) G3.6 SAP-ABAP AND BASIC APPLICATIONS

(Common to CSE & IT)

COURSE OBJECTIVES:

- 1. Student will learn about the SAP ABAP Programming Language and how to use the SAP ABAP Workbench tools to develop basic applications.
- The course objective is to understand the concepts of Procedure and Object Oriented Programming in SAP ABAP to develop various applications, and to understand the concepts of ABAP Objects.
- 3. It allows understanding the Data Dictionary and Open SQL which include in basic concepts of SAP ABAP to manipulate the data in database.
- 4. It allows to build graphical user interface and to handle various events.

LEARNING OUTCOMES:

- 1. Understand and use the basic programming concepts of SAP ABAP.
- Design, develop the code, check, activate and run the programs and database tables using SAP ABAP Workbench tools.
- 3. Understand and use the basic SAP ABAP application concepts to be able to develop the applications.
- 4. After completing the course, participants should able to: Understand the advantage of ERP tools, working with SAP ABAP Workbench Tools, basic programming concepts in ABAP, Working with database through ABAP data dictionary, Open SQL and Internal Tables, Understand and develop the basic applications.

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.

Programming Concepts: ABAP/4 Editor (SE38), Steps for Creating a Program, Elements in R/3 Screen, ABAP Syntax, Comments, Errors, Write Statements, Data, Data types, variables, parameters, system variables, control statements, string operations.

UNIT II:

ABAP Dictionary: Introduction, Exploring Domain, Data types, Types Groups, Database Tables, structures, append structures, views, and search helps, lock object, Primary key and foreign key.

Internal Table: Introduction, types of internal table, Declaring Internal Table, Populating Internal Table, Processing Internal Table, Initializing Internal Tables, Control Break processing.

UNIT III:

OPEN SQL: Accessing Database Tables, Reading data using select statement, insert, update, modify, delete. **Modularization Techniques**: Working with subroutines, Macros, Function Modules.

UNIT IV:

REPORTS: Working with classical reports, interactive reports, ALV Reports.

UNIT V:

ABAP User Dialogues: Introduction, introducing dialog programming, screen painter, menu painter, working with selection screens.

Forms in SAP: Exploring the SAP script tool, The SAP smart Forms Tool, Comparing SAP Script and smart Forms, migrating SAP script forms to smart Forms.

UNIT VI:

OOPS Concepts: Encapsulation, Abstract, Polymorphism, Inheritance, Defining OOPS Concepts local and Global.

TEXT BOOKS:

- 1. SAP ABAP/4, Covers SAP ECC 6.0 Black Book, Kogent Learning Solutions Inc., Dream Tech Press.
- "Introduction to ABAP/4 programming for SAP" by Gareth <u>M.de</u>.Bruyn& Robert Lyfareff; Publisher: Golgotia pub.

IV B.Tech, I-Sem Syllabus

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. I-Sem (IT)

C 2

Т

3

(A0544127) G3.6 ASAP-ABAP AND BASIC APPLICATIONS LAB

(Skill Development Course – 5*)

SAP - ABAP LAB will replace Skill Development Course-5 if this elective chosen.

WEEK-1

- 1. Write a program to print semester details by using write keyword.
- 2. Write a program to display the list of modules in SAP (SD, MM, HR, PP, FI/CO, CRM, SEM).
- 3. Write a program to print the values in system variables.
- 4. Write a program to print the list of importance days in a year.

WEEK-2

1. Accept two integer values from selection screen and perform the following.

- (a) Addition
- (b) Subtraction
- (c) Multiplication
- (d) Division
- (e) Modulo-Division.
- 2. Write a program to accept a number from user and print multiplication table of it.
- 3. Write a program to print week days by using selection screen
- 4. (1)IF-ENDIF
 - (2) IF-ELSE-IF
 - (3) NESTED IF

WEEK-3

- 1. Write a program to print year of months by using CASE-ENDCASE statement.
- 2. Write a program to print even numbers by using DO and ENDDO statement.
- 3. Write a program to print sequence of numbers by using WHILE-END WHILE statement.
- 4. Write a character string program by using predefined operations.
- 5. (a) TRANSLATE
 (b) CONDENSE
 (c) CONCATENATE
 (d) SPLIT
 (e) REPLACE
 - (f) STRLEN

WEEK-4

- 1. Create database table using the following fields by creating data elements and domains: Vendor number, name of the account holder, bank key, bank account number, bank city and country key.
- 2. Create the structure of some common fields: name, mobile no, street, city, country.
- 3. Create Employee table define domain EMPNO and remaining fields make use of INCLUDE structure.

WEEK-5

- 1. Create the database tables as following and make use of INCLUDE structure for common fields:
 - a) Vendor Details: Vendor No (PK), Name, City, District, Street, Country
 - b) Customer Details: Customer No (PK), Vendor No FK), City, District, Street, Country
 - c) Company Details: Company Code (PK), Name, Customer No (FK), City, District, Street, Country.

WEEK-6

- 1. Write a program to find factorial of integer value using subroutine, macro and function module.
- 2. Create a internal table (ITAB) for KNA1 with five fields ,KUNNAR, NAME1, ADRNR, ORTO1, LAND1.Dispaly the data in ITAB and download the content to a file.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

WEEK-7

- 1. Select Options
- 2. Add records to internal table ITAB
- 3. Delete and Adjacent duplicates
- 4. Sort
- 5. Read
- 6. Modify

WEEK-8

1. Write a program to display the changing of database operation (Insert, Update, Delete).

WEEK-9

- 1. Create a report for MARA table with Four fields, MANTR, MTART, MATKL, MEINS. Display the data in report and download the content to a file.
- 2. Inner Join
- 3. Loop AT
- 4. AT FIRST
- 5. AT NEW
- 6. AT END
- 7. AT LAST

WEEK-10

- 1. Write a program to create interactive report.
- A) ATLINE-SELECTION B) GET CURSOR C) HIDE D) BUTTON SELECTION.

WEEK-11

1. Write a program to create ALV reports by using events.

WEEK-12

1. Develop a print program.

WEEK-13

1. Create local and global classes and write programs to show inheritance.

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. I-Sem (IT)

T C 3+1* 3

(A0014125) MANAGEMENT SCIENCE

(Common to ECE, CSE, EEE, EIE, IT & CE)

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.

- 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

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. II-Sem (IT)

T C 3 2

(A0537127) CCNA

(Skill Development Course - 6) (Common to CSE & IT)

COURSE OBJECTIVES:

- 1. The main objectives of this course are how networks function, identifying major components, function of network components and the Open System Interconnection (OSI) reference model
- 2. Host-to-host packet delivery process, describe issues related to increasing traffic on an Ethernet LAN and identify switched LAN technology solutions to Ethernet networking issues.
- 3. Describes the reasons for extending the reach of a LAN and the methods that can be used with a focus on RF wireless access.
- 4. Describes the reasons for connecting networks with routers and how routed networks transmit data through networks using TCP/IP
- 5. Use the command-line interface to discover neighbors on the network and managing the router's start up and configuration
- 6. Expand a small-sized, switched LAN to a medium-sized LAN with multiple switches, supporting VLANs, trunking, and spanning tree
- 7. Configure, verify, and troubleshoot OSPF, Configure, verify, and troubleshoot EIGRP

COURSE OUTCOMES:

- 1. By this course students will be able to understand the network concepts clearly.
- 2. By this course students will get a clear idea to install, configure, operate, and troubleshoot mediumsize route and switched networks, including implementation and verification of connections to remote sites in a WAN.

PREREQUISITES:

The knowledge and skills that you must have before attending this course are as follows:

- 1. Basic computer literacy
- 2. Windows navigation skills
- 3. Basic Internet usage skills
- 4. Fundamental understanding of data networking and IP addressing
- 5. Familiarity with the Cisco IOS command-line interface

UNIT I: EXAMINING THE NETWORK

Scope of Networks, Basic Connectivity Components, Network Topologies, Network Technologies, Expanding the Network

UNIT II: EXAMINING NETWORK PROTOCOLS

Introduction to Protocols, Protocols and Data Transmissions, Common Protocols, Other Communication Protocols, Remote Access Protocols

UNIT III: EXAMINING IP ADDRESSING

Classful IP Addressing (IP Addresses, IP Address Classes),

Subnetting a Network (Subnets, Subnet Masks, Determining Local and Remote Hosts),

Planning IP Addressing (Addressing Guidelines, Assigning Network IDs, Assigning Host IDs),

Assigning TCP/IP Addresses (Static IP Addressing, Automatic IP Addressing, Viewing TCP/IP Configuration, Viewing TCP/IP Configuration Using Ipconfig)

UNIT IV: ROUTERS AND ROUTING BASICS

Routers, Routing Basics, IP Routing Table and Directly Connected Networks, Static Routing, Routing Theory and Dynamic Routing Operations.

UNIT V:ROUTING PROTOCOLS-RIP, RIPV2, OSPF, EIGRP, and IGRP

UNIT VI: SWITCHING - Types of VLANS, VTP, STP

TEXT BOOK:

1. CCNA Study Guide v2.52, Aaron Balchunas, 2012.

REFERENCES:

- 1. Cisco Certified Network Associate Study Guide by Todd Lammle, 5th edition.
- 2. Authorized Self-Study Guide Interconnecting Cisco Network Devices, Part 1(ICND1) by Steve McQuerry, Second Edition.

IV B.Tech, II-Sem Syllabus

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. II-Sem (IT)

т С

3 3+1*

(A1235128) G 4.1 PROGRAMMING MASSIVELY PARALLEL PROCESSORS COURSE OBJECTIVES:

- 1. To introduce students to parallel architectures.
- 2. Ability to develop software that will run on parallel processors

LEARNING OUTCOMES:

The student will be able to:

- 1. Understand GPU architectures
- 2. Understand and learn to develop software that runs on a GPU
- 3. Ability to program in CUDA
- 4. Basic understanding of OpenCL.

UNIT I: GPU COMPUTING

Introduction: GPUs as parallel computers Architecture of a Modern GPU why more speed or parallelism? Parallel programming languages and models overarching Goals Organization of the Book History of GPU Computing:

Evolution of Graphics pipelines the Era of Fixed - function Graphics pipelines Evolution of Programmable Real - Time Graphics Unified Graphics and Computing Processors GPGPU

GPU Computing: Scalable GPUs Recent Developments Future Trends

UNIT II:CUDA PROGRAMMING

Introduction to CUDA: Data parallelism CUDA program structure A Matrix - Matrix Multiplication Example Device memories and data Transfer Kernel Functions and Threading Function declarations Kernel launch predefined variables Runtime API

CUDA Threads: CUDA thread Organization using blockidx and threadidx synchronization and Transparent Scalability Thread Assignment Thread Scheduling and Latency Tolerance

UNIT III: CUDA MEMORIES & PERFORMANCE

CUDA TM Memories: Importance of memory access efficiency, CUDA Device memory types, a strategy for reducing global memory traffic, memory as a limiting factor to parallelism.

Performance considerations: More on thread execution, global memory bandwidth, Dynamic Partitioning of SM resources, Data prefetching, instruction Mix, Thread granularity, measured performance.

UNIT IV: APPLICATIONS

Floating point considerations: Floating - Point format, Represent able numbers, Special bit patterns and precision, arithmetic accuracy and rounding, Algorithm Considerations

Case studies: advanced MRI Reconstruction; Molecular visualization and analysis

UNIT V:PARALLEL PROGRAMMING AND OPENCL

Goals of parallel programming, problem decomposition, algorithm selection, computational thinking A brief introduction to openCL Background, Data parallelism mode, I Device architecture, kernel functions, device management and kernel launch, electrostatic potential map in OpenCL.

UNIT VI: FUTURE OUTLOOK

Goals revisited; Memory Architecture evolution, Kernel execution control evolution, Core performance, Programming Environment.

Text Books:

1. Programming massively parallel processors- A hands-on Approach, David B. Kirk and WenmeiW.Hwu, Elsevier, [Morgan Kaufmann], 2010.

Reference Book:

1. Parallel Computing Tool box, http://www.mathworks.in/products/parallel-computing/builtin-parallelsupport.html

IV B.Tech, II-Sem Syllabus

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. II-Sem (IT)

Т	С
3+1*	3

(A1236128)G4.2 INFORMATION RETRIEVAL SYSTEMS

COURSE OBJECTIVES:

1. This course covers principles of information retrieval and their application to information systems and services. Emphasis is on models of user information seeking behavior, human information processing, and their relationship to retrieval models in information systems.

LEARNING OUTCOMES:

The student will be able to:

- 1. Design, query, and evaluate a database information retrieval system, using an appropriate user model;
- 2. Articulate the fundamental concepts of information retrieval and information-seeking behavior, and employ them in the design and evaluation of systems;
- 3. Understand the problems inherent in the representation of information in a retrieval system, and be aware of the dominant models used in information retrieval,
- 4. Understand principles of good interface design and be able to evaluate interfaces using those principles.

UNIT I: INTRODUCTION & INFORMATION RETRIEVAL SYSTEM CAPABILITIES

Definition, Objectives, Functional Overview, Relationship to DBMS, Digital libraries and Data Warehouses. Search, Browse, Miscellaneous

UNIT II: CATALOGING AND INDEXING

Objectives, Indexing Process, Automatic Indexing, Information Extraction.

Data Structures: Introduction, Stemming Algorithms, Inverted file structures, N-gram data structure, PAT data structure, Signature file structure, Hypertext data structure.

UNIT III: AUTOMATIC INDEXING

Classes of automatic indexing, Statistical indexing, Natural language, Concept indexing, Hypertext linkages

UNIT IV: DOCUMENT AND TERM CLUSTERING

Introduction, Thesaurus generation, Item clustering, Hierarchy of clusters.

UNIT V: USER SEARCH TECHNIQUES

Search statements and binding, Similarity measures and ranking, Relevance feedback, Selective dissemination of information search, Weighted searches of Boolean systems, Searching the Internet and hypertext. Information Visualization: Introduction, Cognition and perception, Information visualization technologies.

UNIT VI: TEXT SEARCH ALGORITHMS

Introduction, Software text search algorithms, Hardware text search systems. Measures used in system evaluation, Measurement example – TREC results.

TEXT BOOKS:

1. Kowalski, Gerald, Mark T Maybury: Information Retrieval Systems: Theory and Implementation, Kluwer Academic Press, 1997.

- 1. Frakes, W.B., Ricardo Baeza-Yates: Information Retrieval Data Structures and algorithms, Prentice Hall, 1992.
- 2. Modern Information RetrievalBy Yates Pearson Education.
- 3. Information Storage & RetrievalBy Robert Korfhage John Wiley & Sons.

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. II-Sem (IT)

(A1237128) G4.3 DATA SCIENCE AND BIG DATA ANALYTICS

COURSE OBJECTIVES:

To provide:

- 1. A practical foundation level training that enables immediate and effective participation in big data and other analytics projects.
- 2. A baseline of skills that can be further enhanced with additional training and real-world experience.
- 3. An introduction to big data and a Data Analytics Lifecycle Process to address business challenges that leverage big data.
- 4. A grounding in basic and advanced analytic methods and an introduction to big data analytics technology and tools, including MapReduce and Hadoop.
- 5. Practical opportunities to apply these methods and tools to real-world business challenges and includes.

LEARNING OUTCOMES:

- 1. Define big data and the business drivers for advanced, big data analytics.
- 2. Describe why and how Data Science is different to traditional Business Intelligence.
- 3. Describe the roles and skills required in a big data analytics team.
- 4. Explain the phases and activities of the data analytics lifecycle and identify the main activities and deliverables.
- 5. Explore and make an initial analysis of the data, using R.
- 6. Select and execute appropriate advanced analytic methods for candidate selection, categorization, and predictive modeling.
- 7. Describe the challenges and tools for analyzing text and other unstructured data.
- 8. Describe the challenges and tools for analyzing text and other unstructured data.

UNIT I: INTRODUCTION TO BIG DATA ANALYTICS

Big Data overview, state of the practice of Analytics, Big Data Analytics in industry verticals. Overview of Data Analytics lifecycle, discovery, data preparation, model planning, model building, communicating results and findings, operationalizing.

UNIT II: USING R FOR INITIAL ANALYSIS OF THE DATA

Introduction to using RInitial exploration, analysis of the Data using RBasic, data visualization using R. Use of R package as a tool to perform basic data analytics, reporting, and apply basic data visualization techniques to data. Application of basic analytics methods such as distributions, statistical tests and summary operations, and differentiate between results that are statistically sound vs. statistically significant. Identifying a model for data and define the null and alternative hypothesis.

UNIT III: ADVANCED ANALYTICS AND STATISTICAL MODELING FOR BIG DATA – THEORY AND METHODS

Examining analytic needs and selects an appropriate technique based on business objectives, initial hypotheses, the data's structure and volume. Application of some of the more commonly used methods in Analytics solutions. Algorithms and the technical foundations for the commonly used methods. Environment (use case) in which each technique can provide the most value. Appropriate diagnostic methods to validate the models created.

UNIT IV: ADVANCED ANALYTICS AND STATISTICAL MODELING FOR BIG DATA – TECHNOLOGY & TOOLS

Various tools to Perform Analytics on unstructured data using MapReduce Programming paradigm. Use Hadoop, HDFS, HIVE, PIG and other products in the Hadoop ecosystem for unstructured data analytics.

UNIT V: IN-DATABASE ANALYTICS

Use R and in-database analytical functions to fit score and evaluate models.

Effectively use advanced SQL functions and Greenplum extensions for in-database analytics. Use MADlib to solve analytics problems in-database

IV B.Tech, II-Sem Syllabus

T C 3+1* 3

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

UNIT VI: ENDGAME - OPERATIONALIZING AN ANALYTICS PROJECT

This unit focuses on- Articulate three tasks needed to operationalize an analytics project. Explain how the four common deliverables of an analytics lifecycle project meet the needs of key stakeholders. Use a framework for creating final presentations for sponsors and analysts. Evaluate a data visualization and identify ways to improve it. Apply these concepts to a big data analytics problem in the final lab.

TEXT BOOK:

1. Will be provided by EMC2 in due course

REFERENCE BOOKS:-

- Analytics in Practice, Author: Soumendra Mohanty, Publisher: Tata Mcgraw Hill Education (2011), ISBN-13:-9780070707061
- 2) Agile Analytics: A Value-Driven Approach to Business Intelligence and Data Warehousing, Author: Ken W. Collier

Publisher: Pearson Education (2012), ISBN-13:- 9788131786826

3) MapReduce Design Patterns, Author: Donald Miner, Publisher: O'Reilly (2012), ISBN-13:-9789350239810.

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. II-Sem (IT)

T C 3+1* 3

(A1238128)G4.4 BACKUP RECOVERY SYSTEMS AND ARCHITECTURE COURSE OBJECTIVES:

To provide students with a solid foundation in Backup and Recovery infrastructure. The course focuses on the concepts and technologies used in Backup and Recovery environments. Students will learn about

- 1. Backup and recovery theory, including backup methods, planning and key terminology,
- 2. How storage technologies work and how their features such as replication and snapshots can be used for backup.
- 3. Data sources at the backup client and storage node backup targets.

LEARNING OUTCOMES:

After completing the course students will be able to:

- 1. Define key backup and recovery terminology.
- 2. Describe backup and recovery operations.
- 3. Identify and differentiate various types of storage systems.
- 4. Identify SAN and NAS concepts and components.
- 5. Describe storage system features used in backup and recovery.
- 6. Describe the different types of backup storage media, their advantages and disadvantages.
- 7. Examine the steps involved in planning for backup and recovery.
- 8. Describe the EMC portfolio of backup products.
- 9. Identify major sources of backup data.

UNIT I: BACKUP THEORY

Introduction to backup and recovery, including the reasons for performing backups, definition of common backup and recovery terms, and a look at the flow of data in typical client/server backup and restore operations. Backup and Recovery overview, backup/Recovery Methods and Operations.

UNIT II: INFORMATION STORAGE CONCEPTS

Disk architecture and storage systems: Introduction to Storage Systems, Protecting Disks in Arrays, Intelligent Storage Systems, Direct-Attached Storage, SCSI Architecture, Storage Area Networks (SAN), Network-Attached Storage (NAS), Protecting Data in External Storage, Continuous Data Protection. Storage system features used in backup and recovery operations.

UNIT III: BACKUP CLIENT

Various sources of backup data including file system data and several types of databases, including Oracle, Microsoft SQL, Exchange, Protecting Data in File Systems vs. Applications, Microsoft Volume Shadow Copy Service, File Servers, Virtualization, Client and Remote Office Backups, Backup Considerations and Challenges.

UNIT IV: BACKUP STORAGE NODE

Backup and recovery from the perspective of the storage node, including the various protocols used when writing data and the advantages and disadvantages of the various types of backup storage media Storage Node Components, Protocols, Backup to Physical Tape, Backup to Disk, Backup to Virtual Tape, Deduplication Systems, Cloud Storage.

UNIT V : BACKUP AND RECOVERY PLANNING

Various factors to be considered in backup and recovery planning, Management and Testing, Disaster Recovery Considerations.

UNIT VI: APPLICATION:

Use the concepts learned in the course to develop a proposed solution that addresses the backup and recovery concerns of a sample company's backup and recovery concerns.

AUTONOMOUS SCHOOL OF INFORMATION TECHNOLOGY

REFERENCE BOOKS:-

- Pro Data Backup and Recovery Author: Steven Nelson, Publisher: Apress (2011), ISBN: 9788132205876
- 2) Disaster Recovery & Business Continuity: Author: thejendrabs, Publisher: Shroff/i T Governance Publishing ISBN:- 9788184043310

PREREQUISITES:

Students who have completed courses on the following topics will have an added advantage in comprehending the content of the course:

- 1. Computer systems and architectures
- 2. Networking technologies
- 3. Operating systems
- 4. Information storage and management.

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. II-Sem (IT)

T C 3+1* 3

(A1239128) G4.5 SOFT COMPUTING

COURSE OBJECTIVES:

• To introduce students to basic concepts of Soft Computing and its applications; in particular, genetic algorithms, neural networks and fuzzy logic.

LEARNING OUTCOMES:

The students will be able to apply

- 1. Fuzzy logic methods to real world problems having qualitative description.
- 2. Neural network methods to clustering and decision making
- 3. Genetic algorithms for finding optimal solutions.

UNIT I :

Introduction to Intelligent Systems and Soft Computing, Hard computing Vs Soft computing. Intelligent systems. Knowledge-based systems. Knowledge representation and processing. Over view of soft computing. [Reading material – chap-1 of Book-1 & Book-2]

Optimization and some traditional Method: Introduction to Optimization. Traditional Methods of Optimization: Exhaustive search, Random Walk, and Steepest Decent Methods Drawbacks.

UNIT II: GENETIC ALGORITHMS

Working Cycle of a Genetic Algorithm. Binary – Coded GA. GA-parameters Setting. Constraints Handling in GA. Advantages and disadvantages of GA. Some Specialized Genetic Algorithms: Real-Coded GA. Micro-GA. Visualized Interactive GA. Scheduling GA.

UNIT III: INTRODUCTION TO FUZZY SETS

Crisp Sets, Properties of Crisp Sets. Fuzzy Sets: Representation, Difference between Crisp Set and Fuzzy Set. Some standard operations in Fuzzy Sets, Properties of Fuzzy Sets.

UNIT IV:FUZZY REASONING AND CLUSTERING

Fuzzy Logic Controller: Two Major forms of Fuzzy Logic Controller. Hierarchical Fuzzy Logic Controller. Sensitivity Analysis. Advantages and Disadvantages. Fuzzy Clustering. Fuzzy C-Means Clustering.

UNIT V: FUNDAMENTALS OF NEURAL NETWORKS

Biological Neuron. Artificial Neuron. Single and multiple Layer of Neurons. Static Vs Dynamic Neural Networks. Training of Neural networks: Supervised and Unsupervised Learning. Incremental Training, and Batch Training.

UNITVI: SOME EXAMPLE OF NEURAL NETWORKS

Multi-layer feed-forward Neural Network (MLFFNN). Radial Basis Function Network(RBFN). SelfOrganizing Map(SOM).Recurrent Neural Networks(RNNs).

TEXT BOOK:

1. Soft Computing, by D. K. Prathikar, Narosa Publishing House, 2009.

- 1. Soft Computing and Intelligent Systems Design: Theory, Tools and Applications. By Fakhreddine O. Karrayand Clarence De Silva. Pearson Education, (2009).
- 2. Neuro-Fuzzy and Soft Computing: A computational Approach to Learning and MachineIntelligence, by Jang, J.R., Sun, C.T., and Mizutani, E., (1997), Prentice Hall.

SCHOOL OF INFORMATION TECHNOLOGY

IV B.Tech. II-Sem (IT)

T C 3+1* 3

(A1240128) G4.6 NATURAL LANGUAGE PROCESSING

COURSE OBJECTIVES:

The main objective of this course is to introduce the students to the underlying problems when facing with natural languages data.

This course has the following objectives:

- to understand the problems related to representation and manipulation of text data;
- to understand the statistical properties underlying in all text data;
- to understand the main approaches in NLP;

LEARNING OUTCOMES:

The student will be able to:

- Understand the fundamentals of natural language processing
- Understand how NLP relates to search engines
- Understand how NLP relates to text mining
- Understand how NLP relates to decision support tools

UNIT I

Introduction - Issues and difficulties in NLP – Study of language – Evaluating Language understanding Systems – the different levels of language – representations – Organization of NLP systems – Linguistic issues – Types of NLP Systems.

UNIT II

Grammars and Parsing Language Hierarchies and Complexity -Grammars and sentence structures – A top down parser – a bottom up chart parser – top down chart parsing – Finite state models and morphological analysis and the Lexicon

UNIT III

Grammars and Logic programming –Augmented grammars – A simple grammar with features – Parsing with features –Augmented Transition Networks (ATN) – Definite clause grammars – Efficient parsers –Shift reduce parsers – A deterministic parsers - Lexicalised and Probabilistic Parsing.

UNIT IV

Three System types of Semantics and logical forms – Defining semantic structure: Model theory –Semantic interpretation and composability –A simple grammar and lexicon with semantic interpretation – Prepositional phrases and verb phrases – Lexicalised semantic interpretation and semantic roles – Semantic networks – Frames and scripts- Truth, Meaning and Ontology –Word Net.

UNIT V

Language Communication: Adding Language - Modeling reference – Defining Local Discourse context and Discourse entities – The need for discourse structure – Discourse interpretation – Pragmatics.

UNIT VI

Typical Systems: Generation – Strategies for generation – Planning English referencing expression Architecture of Natural Language Generation System – Typical systems – ELIZA Baseball

TEXT BOOKS:

- 1. James Allen "Natural Language Understanding", Benjamin / Cummings Publishing Co., 1995.
- 2. Ronald Hausser "Foundations of Computational Linguistics", Springer-Verleg, 1999.

REFERENCE BOOKS:

- Gerald Gazer and Chris Mellish, "Natural Language Processing for PROLOGprogrammers" PHI 1995.
- AshkarBharathi, Vineetchaitanya and Rajeev Sangal, "Natural Language Processing a Paining Perspective" – PHI-1995.
- 3. Ralph Grishman, "Computational Linguistics an introduction", Cambridge university press 1986.

IV B.Tech, II-Sem Syllabus