JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
ANANTAPUR – 515 002 (A.P) INDIA

ACADEMIC REGULATIONS
COURSE STRUCTURE
AND
DETAILED SYLLABI

COMPUTER SCIENCE AND SYSTEMS ENGINEERING

B.Tech. Regular Four Year Degree Course
(Applicable for the batches admitted from 2009-2010)
&
B.Tech. (LES) (for the batches admitted from 2010–11)

Academic Regulations 2009 for B. Tech (Regular)

(Effective for the students admitted into I year from the Academic Year 2009-2010 onwards)

1. Award of B.Tech. Degree

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

i. Pursue a course of study for not less than four academic years and in not more than eight academic years.

ii. Register for 220 credits and secure all 220credits

2. 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 and their admission is cancelled.

3. Courses of study

The courses of study are offered at present for specialization for the B. Tech. Course:

S.No.	Branch
1.	Aeronautical Engineering.
2.	Biotechnology.
3.	Civil Engineering.
4.	Computer Science and Engineering.
5.	Computer Science and System Engineering.
6.	Electrical and Electronics Engineering.
7.	Electronics and Communication Engineering.
8.	Electronics and Computer Engineering.
9.	Electronics and Control Engineering.
10.	Electronics and Instrumentation Engineering.
11.	Information Technology.
12.	Mechanical Engineering.

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

4. Credits

	I Year		Semester	
	Periods / Week	Credits	Periods / Week	Credits
Theory	03	06	03	04
	02	04	--	--
Practical	03	04	03	02
Drawing	06	06	03 06	02 04
Seminar	--	--	6	02
Project	--	--	15	10

5. Distribution and Weightage of Marks

i. The performance of a 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 seminar and project work shall be evaluated for 50 and 200 marks respectively.

ii. For theory subjects the distribution shall be 30 marks for Internal Evaluation and 70 marks for the End-Examination.

iii. For theory subjects, during the semester there shall be Two midterm examinations. Each mid term examination consists of objective paper for 10 marks and subjective paper for 20 marks with duration of 1hour 50 minutes (20 minutes for objective and 90 minutes for subjective paper).

Objective paper is set for 20 bits for 10 marks. Subjective paper shall contain 5 questions of which student has to answer 3 questions evaluated***** for 20 marks. First mid term examination shall be conducted for I-IV units of syllabus and second mid term examination shall be conducted for V -VIII units. The total marks secured by the student in each mid term examination for 30 marks is considered and the better of the two mid term examinations shall be taken as the final sessional marks secured by each candidate in the subject.

However for first year, there shall be Three midterm examinations as in the above pattern and the average marks of the

best two midterm examinations secured in each subject shall be considered as final marks for sessionals.

*****Note 1: The subjective paper shall contain 5 questions of equal weightage of 10 marks and the marks obtained for 3questions shall be condensed to 20 marks, any fraction rounded off to the next higher mark

*****Note 2: The mid term examination shall be conducted first by distribution of the Objective paper simultaneously marking the attendance, after 20minutes the answered objective paper is collected back. The student is not allowed to leave the examination hall. Then the descriptive question paper and the answer booklet are distributed. After 90minutes the answered booklets are collected back.

iv. For practical subjects there shall be a continuous evaluation during the semester for 25 sessional marks and 50 end examination marks. Day-to-day work in the laboratory shall be evaluated for 25 marks by the concerned laboratory teacher based on the report of experiments/jobs. The end examination shall be conducted by the laboratory teacher and another examiner.

v. For the subject having design and / or drawing, such as Engineering Drawing, Machine Drawing and estimation, the distribution shall be 30 marks for internal evaluation and 70 marks for end examination. The Internal evaluation for sessionals will be 15 marks for day-to-day work in the class that shall be evaluated by the concerned subject teacher based on the reports/submissions prepared in the class. And there shall be two midterm exams in a Semester for a duration of 2hrs each, evenly distributed over the syllabi for 15 marks and the better of the two shall be considered as internal test marks. The sum of day to day evaluation and the internal test marks will be the final sessionals for the subject. However in the I year class, there shall be three midterm exams and the average of best two will be taken into consideration.

vi. 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 before presentation. The report and the presentation shall be evaluated

by the Departmental committee consisting of Head of the department, seminar supervisor and a senior faculty member. The seminar shall be evaluated for 50 marks and marks shall be submitted to the University along with internal marks. There shall be no external examination for seminar.

vii. Out of a total of 200 marks for the project work, 60 marks shall be for Internal Evaluation and 140 marks for the End Semester Examination (Viva-voce). The viva-voce shall be conducted by a committee consisting of HOD, Project Supervisor and an External Examiner nominated by the University. The evaluation of project work shall be conducted at the end of the IV year. The Internal Evaluation shall be made by the departmental committee, on the basis of two seminars given by each student on the topic of his project.

viii. Laboratory marks and the sessional marks awarded by the College are not final. They are subject to scrutiny and scaling by the University wherever necessary. In such cases, the sessional and laboratory marks awarded by the College will be referred to a Committee. The Committee will arrive at a scaling factor and the marks will be scaled as per the scaling factor. The recommendations of the Committee are final and binding.

ix. The laboratory records and internal test papers shall be preserved in the respective institutions as per the University norms and shall be produced to the Committees of the University as and when the same are asked for.

6. Attendance Requirements:

i. A student shall be eligible to appear for University examinations if he acquires a minimum of 75% of attendance in aggregate of all the subjects in a semester/ I year.

ii. **Shortage of Attendance below 65% in aggregate shall in <u>NO</u> case be condoned**.

iii. Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester or I year may be granted by the College Academic Committee.

iv. Students whose shortage of attendance is not condoned in any semester / I year are not eligible to take their end examination of that class and their registration shall stand cancelled.

v. A student will not be promoted to the next semester unless he satisfies the attendance requirements of the present semester / I year, as applicable. They may seek readmission for that semester / I year when offered next.

vi. A stipulated fee shall be payable towards condonation of shortage of attendance to the University.

7. Minimum Academic Requirements:

The following academic requirements have to be satisfied in addition to the attendance requirements mentioned in item no.**6**

i. A student shall be deemed to have satisfied the minimum academic requirements and earned the credits allotted to each theory, practical, design, drawing subject or project if he secures not less than 35% of marks in the end examination and a minimum of 40% of marks in the sum total of the internal evaluation and end examination taken together. In the Seminar he should secure 40%.

ii. A student shall be promoted from II to III year only if he fulfils the academic requirement of securing **40** credits from

a. One regular and one supplementary examinations of I year.
b. One regular examination of II year I semester

irrespective of whether the candidate takes the end examination or not as per the normal course of study.

iii. A student shall be promoted from third year to fourth year only if he fulfils the academic requirements of securing **68 c**redits from the following examinations,

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

irrespective of whether the candidate takes the end examination or not as per the normal course of study.

And in case of getting detained for want of credits by sections ii and iii above, the student may make up the credits through supplementary

exams of the above exams before the date of class work commencement of Third or Fourth year I semester respectively.

iv. A student shall register and put up minimum attendance in all 220 credits and earn all the 220 credits. Marks obtained in all 220 credits shall be considered for the calculation of percentage of marks obtained.

v. Students who fail to earn 220 credits as indicated in the course structure 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. Course pattern:

i. 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 on semester pattern.

ii. A student 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 next supplementary examination offered.

iii. When a student is detained due to lack of credits / shortage of attendance he may be re-admitted when the semester is offered after fulfilment of academic regulations, whereas he continues to be in the academic regulations he was first admitted.

9. Transitory Regulations:

Candidates who have been detained for want of attendance or not fulfilled academic requirements or who have failed after having undergone the 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**. and they continues to be in the academic regulations they were first admitted.

10. With–holding of results:

If the candidate has any dues not paid to the university or if any case of indiscipline or 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. Award of Class:

After a 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:

Class Awarded	% of marks to be secured	
First Class with Distinction	70% and above	From the aggregate marks secured for the best 220 Credits.
First Class	Below 70% but not less than 60%	
Second Class	Below 60% but not less than 50%	
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)

12. Minimum Instruction Days:

The minimum instruction days including exams for each semester / I year shall be 90/180 days respectively.

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

14. There shall be no place transfer within the Constituent Colleges.

15. General:

i. **The academic regulations should be read as a whole for purpose of any interpretation**.
ii. **Malpractices rules- nature and punishments is appended**
iii. **Where the words "he", "him", "his", occur in the regulations, they include "she", "her", "hers".**
iv. **In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Vice-Chancellor is final.**
v. **The University may change or amend the academic regulations or syllabi at any time and the changes or**

amendments shall be made applicable to all the students on roles with effect from the dates notified by the University.

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

(Effective for the students getting admitted into II year through Lateral Entry Scheme from the Academic Year 2010-2011 and onwards)

1. Award of B.Tech. Degree

A student admitted in LES will be declared eligible for the award of the B. Tech Degree if he fulfils the following academic regulations:

i. Pursue a course of study for not less than three academic years and in not more than six academic years.

ii. Register for 168 credits and secure all 168 credits from II to IV year of Regular B.Tech. program

2. Students, who fail to fulfil the requirement for the award of the degree in six consecutive academic years from the year of admission, shall forfeit their seat.

3. The regulations **3** to **6** are to be adopted as that of B. Tech. (Regular).

7. Minimum Academic Requirements :

The following academic requirements have to be satisfied in addition to the attendance requirements mentioned in item no.**6**

i. A student shall be deemed to have satisfied the minimum academic requirements and earned the credits allotted to each theory, practical, design, drawing subject or project if he secures not less than 35% of marks in the end examination and a minimum of 40% of marks in the sum total of the internal evaluation and end examination taken together. For the Seminar he should secure 40% in the internal evaluation.

ii. A student shall be promoted from third year to fourth year only if he fulfils the academic requirements of 42 credits from the following examinations.

a. Two regular and one supplementary examinations of II year I semester.

b. One regular and one supplementary examinations of II year II semester.

c. One regular examination of III year I semester.

irrespective of whether the candidate takes the end examination or not as per the normal course of study.

and in case of getting detained for want of credits the student may make up the credits through supplementary exams of the above

exams before the date of class work commencement of Fourth year I semester.

8. Course Pattern

i. The entire course of study is three academic years on semester pattern.

ii. A student 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 next supplementary examination offered.

iii. When a student is detained due to lack of credits / shortage of attendance he may be re-admitted when the semester is offered after fulfilment of academic regulations, whereas he continues to be in the academic regulations he was first admitted.

9. The regulations **9** to **10** are to be adopted as that of B. Tech. (Regular).

11. Award of Class:

After a 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:

First Class with Distinction	70% and above	From the aggregate marks secured for 168 Credits. (i.e. II year to IV year)
First Class	Below 70% but not less than 60%	
Second Class	Below 60% but not less than 50%	
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)

12.The regulations **12** to **15** are to be adopted as that of B. Tech. (Regular). All other regulations as applicable for B. Tech. Four-year degree course (Regular) will hold good for B. Tech. (Lateral Entry Scheme)

RULES FOR DISCIPLINARY ACTION FOR MALPRACTICES / IMPROPER CONDUCT IN EXAMINATIONS

	Nature of Malpractices/Improper conduct	Punishment
	If the candidate:	
1. (a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, Cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which he is appearing but has not made use of (material shall include any marks on the body of the candidate which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other candidate orally or by any other body language methods or communicates through cell phones with any candidate or persons in or outside the exam hall in respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that subject only of all the candidates involved. In case of an outsider, he will be handed over to the police and a case is registered against him.
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including

	practical) in which the candidate is appearing.	practical examinations and project work and shall not be permitted to appear for the remaining examinations of the subjects of that Semester/year. The Hall Ticket of the candidate is to be cancelled and sent to the University.
3.	Impersonates any other candidate in connection with the examination.	The candidate who has impersonated shall be expelled from examination hall. The candidate is also debarred and forfeits the seat. The performance of the original candidate who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.
4.	Smuggles in the Answer book or additional sheet or takes out or	Expulsion from the examination hall and

	arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination.	cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
5.	Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks.	Cancellation of the performance in that subject.
6.	Refuses to obey the orders of the Chief Superintendent/Assistant – Superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by	In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the candidate(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The candidates also are debarred and forfeit their seats. In case of outsiders, they will

	signs or by visible representation, assaults the officer-in-charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the College campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.	be handed over to the police and a police case is registered against them.
7.	Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
8.	Possess any lethal weapon or	Expulsion from the

	firearm in the examination hall.	examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat.
9.	If student of the college, who is not a candidate for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	Student of the colleges expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat. Person(s) who do not belong to the College will be handed over to police and, a police case will be registered against them.
10.	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate

		has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year.
11.	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	Cancellation of the performance in that subject and all other subjects the candidate has appeared including practical examinations and project work of that semester/year examinations.
12.	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the University for further action to award suitable punishment.	

Malpractices identified by squad or special invigilators

1. Punishments to the candidates as per the above guidelines.
2. Punishment for institutions : (if the squad reports that the college is also involved in encouraging malpractices)

(i) A show cause notice shall be issued to the college.

(ii) Impose a suitable fine on the college.

Shifting the examination centre from the college to another college for a specific period of not less than one year.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

Course structure for B.Tech. (Regular) I year (2009-10) for affiliated Engineering Colleges.
COMPUTER SCIENCE AND SYSTEMS ENGINEERING (C.S.S.E.)
(Common for Branches: E.C.E., E.E.E., E.I.E., C.S.E., I.T., C.S.S.E., E.Cont.E., E.C.M.)

S.No	Course code	Subject	Th	Tu/Drg/Lab	Credits
1.	9ABS101	English	2		4
2.	9ABS102	Engineering Physics	2		4
3.	9ABS103	Engineering Chemistry	2		4
4.	9ABS104	Mathematics – I	3	1 - -	6
5.	9A05101	Programming in C and Data Structures	3	1 - -	6
6.	9A03101	Engineering Drawing *		- 6 -	6
7.	9ABS105	Mathematical Methods	3	1 - -	6
8.	9A05102	C Programming & Data Structures Lab		- - 3	4
9.	9A03102	Engineering & I.T. Workshop #		- - 3	4
10.	9ABS106	Engineering Physics and Engineering Chemistry Lab **		- - 3	4
11.	9ABS107	English Language & Communication Skills Lab		- - 3	4
		contact periods/week	15	3 6 12	
			Total/week	36	

Total Credits (7 Theory + 4 Labs)	52

Th = Theory; Tu = Tutorial; Drg = Drawing & Lab = Laboratory:
* Engineering Drawing will have University External Exam.
** The Students attend the Physics lab and Chemistry lab in alternate weeks. The end exam shall be conducted separately and average of the two exams will be recorded by the University exam section.
# Students attend Engineering and IT work shop as a single lab every week and the end exam is conducted as a single lab. Sharing the Maximum marks and time for one task each from Engineering workshop and IT workshop. The sum of the marks awarded will be recorded

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

COMPUTER SCIENCE AND SYSTEMS ENGINEERING (C.S.S.E.)

B.Tech II - I Semester

S. No	Course code	Subject	Theory		Lab	Credits
1.	9ABS303	Environmental Science	4			4
2.	9A02306	Basic Electrical Engineering	4			4
3.	9A05301	Mathematical Foundations of Computer Science	4			4
4.	9A05302	Advanced Data Structures	4			4
5.	9A12301	Digital Logic Design and Computer Organization	4			4
6.	9A04301	Electronic Devices and Circuits	4			4
7.	9A05304	Data Structures Lab			3	2
8.	9A02307	Electrical and Electronics Lab			3	2

		contact periods/week	24		6	
			Total/Week		30	
Total Credits (6 Theory + 2 Labs)						28

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B.Tech II - II Semester

S. No	Course code	Subject	Theory		Lab	Credits
1.	9ABS304	Probability and Statistics	4			4
2.	9A05402	Object Oriented Programming	4			4
3.	9A15401	Operating System	4			4
4.	9A05401	Database Management systems	4			4
5.	9A05403	Design and Analysis of Algorithms	4			4
6.	9A12302	Data Communication Systems	4			4
7.	9A05404	Object Oriented Programming Lab			3	2
8.	9A05405	Database Management Systems Lab			3	2
		contact periods/week	24		6	
			Total/Week		30	
Total Credits (6 Theory + 2 Labs)						28

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

III Year B.Tech. CSSE I Sem

Sl.No	Course Code	Subject	L	T	P	Credits
1.	9A12501	Automata and Compiler Design	4	0	0	4
2.	9A05605	Artificial Intelligence	4	0	0	4
3.	9A04602	Microprocessors and Micro Controllers	4	0	0	4
4.	9A15501	System Programming	4	0	0	4
5.	9A05502	Software Engineering	4	0	0	4
6.	9A15502	Digital System Design	4	0	0	4
7.	9AHS601	Advanced English Communication Skills Lab	0	0	3	2
8.	9A19501	Microprocessors and Interfacing Lab	0	0	3	2
		contact periods/week	24	00	06	
			Total/Week 30			
Total Credits (6 Theory + 2 Labs)						28

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

III Year B.Tech. CSSE II Sem

Sl.No	Course Code	Subject	L	T	P	Credits
1.	9A05506	Computer Networks	4	0	0	4
2.	9A15601	Mathematical Modeling and Simulation	4	0	0	4
3.	9A05601	Object Oriented Analysis and Design	4	0	0	4
4.	9A05704	Advanced Computer Architecture	4	0	0	4
5.	9A05701	Web Technologies	4	0	0	4
6.	9A05603	Optimizing Techniques	4	0	0	4
7.	9A15602	Computer Networks Lab	0	0	3	2
8.	9A12602	Web Technologies Lab	0	0	3	2
		contact periods/week	24	00	06	
			Total/Week 30			
Total Credits (6 Theory + 2 Labs)						28

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

IV Year B.Tech. CSSE I Sem

Sl.No	Course Code	Subject	L	T	P	Credits
1.	9A05503	Computer Graphics	4	0	0	4
2.	9A04701	Embedded Real-Time Operating System	4	0	0	4
3.	9A15701	Performance Evaluation of Computer Systems	4	0	0	4
4.	9AHS401	Managerial Economics and Financial Analysis	4	0	0	4
5.	9A05708 9A05709 9A15702	**ELECTIVE-I** 1. Network Management Systems 2. Information Security 3. Human Computer Interaction	4	0	0	4
6.	9A15703 9A15704 9A15705	**ELECTIVE-II** 1. High Performance Computing 2. Distributed Databases 3. Soft Computing	4	0	0	4
7.	9A15706	Embedded Systems Lab	0	0	3	2
8.	9A15707	Computer Graphics Lab	0	0	3	2
		contact periods/week	24	00	06	
			Total/Week 30			

Total Credits (6 Theory + 2 Labs)	28

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

IV Year B.Tech. CSSE II Sem

Sl.No	Course Code	Subject	L	T	P	Credits
1.	9AHS701	Management Science	4	0	0	4
2.	9A05702	Software Testing	4	0	0	4
3.	 9A05807 9A15801 9A05703	**ELECTIVE – III** Wireless Sensor Networks High Speed Networks Grid and Cluster Computing	4	0	0	4
4.	 9A05801 9A05802 9A05707	**ELECTIVE – IV** Design Patterns Service Oriented Architecture Software Project Management	4	0	0	4
5.	9A15802	Seminar	-	-	-	2
6.	9A15803	Project Work	-	-	-	10
		contact periods/week	16	0	0	
			Total/Week 16			
Total Credits (4Theory + Seminar + Project Work)						28

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

Detailed Syllabus

B.Tech. I Year (C.S.S.E)

T	P	C
2	0	4

(9ABS101) ENGLISH

1. INTRODUCTION :

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

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

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

2. OBJECTIVES:

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

3. SYLLABUS :

Listening Skills:

Objectives

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

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

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

Speaking Skills :

Objectives

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

- Oral practice
- Describing objects/situations/people
- Role play – Individual/Group activities
- Just A Minute (JAM) Sessions.

(Using exercises from all units of the prescribed text)

Reading Skills:

Objectives

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

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

Writing Skills:

Objectives

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

4. TEXTBOOKS PRESCRIBED:

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

For Detailed study: **ENJOYING EVERYDAY ENGLISH**,
Sangam Books (India) Pvt Ltd, Hyderabad, 2009
For Non-detailed study: **INSPIRING LIVES**,
Maruti Publications, Guntur, 2009

Unit -I

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

Unit -II

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

Unit -III

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

Unit -IV

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

Unit -V

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

Unit-VI

a. Odds Against Us from **ENJOYING EVERYDAY ENGLISH**
b. Charlie Chaplin from **INSPIRING LIVES**

Unit – VII

Exercises on
Reading and Writing Skills
Reading Comprehension
Letter writing
Report writing

Unit – VIII

Exercises on
Remedial Grammar covering Common errors in English, Subject-Verb agreement,

Use of Articles and Prepositions, Active/Passive Voice, Reported speech, Tenses

Vocabulary development covering Synonyms & Antonyms, one-word substitutes, prefixes & suffixes, Idioms & phrases, words often confused.

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

REFERENCES:

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

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B.Tech. I Year (C.S.S.E)	**T**	**P**	**C**
	2	**0**	**4**

(9ABS102) ENGINEERING PHYSICS

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

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

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

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

UNIT V- MAGNETIC PROPERTIES: Introduction - Origin of magnetic moment – Classification of magnetic materials - Dia, Para , Ferro, anti-Ferro and Ferri magnetism - Hysteresis - Soft and hard magnetic materials – Magnetic bubbles memory.

DIELECTRIC PROPERTIES: Introduction - Dielectric constant - Electronic, Ionic and Orientation polarizations (qualitative treatment only) - Local field - Clausius-Mossotti equation –Frequency dependence of polarisability (qualitative treatment only) – Ferro electricity- $BaTio_3$.

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

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

UNIT VII- FIBER OPTICS: Introduction - Principle of optical fiber - Acceptance angle and Acceptance cone - Numerical aperture – Types of Optical fibers and refractive index profiles – Optical fiber communication systems - Application of optical fibers.

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

TEXT BOOKS:

1. Engineering Physics by P.K.Palanisamy, Scitech Publications
2. Engineering Physics by V. Rajendran & K.Thyagarajan, Tata McGraw-Hill Publishing Co. Ltd.
3. Engineering Physics by M.R.Srinivasan New Age Publications

REFERENCES:

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

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B.Tech. I Year (C.S.S.E)	**T**	**P**	**C**
	2	**0**	**4**

(9ABS103) ENGINEERING CHEMISTRY

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

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

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

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

UNIT IV: **Chemistry of nano materials:** Nano materials definition, properties and applications;
Explosives and Propellants: Explosives, Classification, precautions during storage, blasting fuses, important explosives. Rocket propellants, classification of propellants**.**
Lubricants : Principles and function of lubricants - Classification and properties of lubricants – Viscosity, flash and fire points, cloud and pour points, aniline point, Neutralisation Number and Mechanical Strength.

UNIT V: Electro Chemistry: Conductance – Equivalent Conductance – Molecular Conductance, Conductometric Titrations – Applications of Conductivity Measurements.
Electrochemical Cells: Measurement of EMF, Standard electrode potential, concentration cells, batteries (Ni–Cd cell), Lithium batteries. Fuel cell: hydrogen oxygen fuel cell and methanol fuel cell
Insulators – Definition, Properties and Characteristics of Insulating Materials; Engineering Applications.

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

UNIT VII: Fuels and Combustion: Definition and Classification of fuels. Solid, liquid & gaseous fuels, Characteristics of a good fuel. Metallurgical Coke – Characteristics & Manufacture (Otto-Halfmann). Petroleum – Refining – Synthetic Petrol. Calorific Value & its determination (Bomb Calorimeter – Junker's Gas Calorimeter). Combustion: Flue gas analysis by Orsat's apparatus.

UNIT VIII: Building Materials: Cement: composition of Portland cement, analysis, setting and hardening of cement (reactions).

Refractories : Definition, Classification With Examples; Criteria of a Good Refractory Material; Causes for the failure of a Refractory Material

TEXT BOOKS:

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

REFERENCE:

1. Engineering Chemistry Dr. K. B. Chandrasekhar, Dr. U.N. Dash, Dr. Sujatha Mishra, Scitech Publications(India) Pvt. Limted, Hyderabad. 2009
2. Fuel Cells principles and applications by B.Viswanath, M.Aulice Scibioh-Universities press
3. Chemistry of Engineering Materials by C.V. Agarwal, Tara Publication, Varanasi.20084. Physical Chemistry - Glasston & Lewis.
4. 5. Engineering Chemistry (Vol.1&2) by J C Kuriacose and J. Rajaram, Tata McGraw-Hill Co, New Delhi (2004)
5. 6. Applied Chemistry: A Text Book for chemistry for Engineers & Technologists, G.D. Gesser, Springer, 2000

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B.Tech. I Year (C.S.S.E)	**Th**	**Tu**	**C**
	3	**1**	**6**

(9ABS104) MATHEMATICS – I

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

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

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

UNIT – IV

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

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

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

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

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

TEXT BOOKS:

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

REFERENCES:

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

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B.Tech. I Year (C.S.S.E)	**Th**	**Tu**	**C**
	3	**1**	**6**

(9A05101) PROGRAMMING IN C AND DATA STRUCTURES
(Common to all Branches)

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

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

Unit III- Functions - Library Functions, Top-Down Design and Structure Charts, Functions with and without Arguments, Communications Among Functions, Scope, Storage Classes - Auto, Register, Static, Extern, Scope rules, Type Qualifiers, Recursion - Recursive Functions, Preprocessor Commands.
Arrays - Declaring and Referencing Arrays, Array Subscripts, Using For Loops for Sequential Access, Using Array Elements as Function Arguments, Arrays Arguments, Multidimensional Arrays.

Unit IV- Pointers - Introduction, Features of Pointers, Pointer Declaration, Arithmetic Operations With Pointers, Pointers and Arrays, Pointers and Two-Dimensional Arrays, Array of Pointers, Pointers to Pointers, Void Pointers, Memory Allocation Functions, Programming Applications, Pointer to Functions, Command- Line Arguments.
Strings - String Basics, String Library Functions, Longer Strings, String Comparison, Arrays of Pointers, Character operations, String-To-Number and Number-To- String Conversions, Pointers and Strings.

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

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

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

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

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

TEXT BOOKS :

1. Programming in C and Data Structures, J.R.Hanly, Ashok N. Kamthane and A. Ananda Rao, Pearson Education
2. C Programming & Data Structures, B.A.Forouzan and R.F. Gilberg, Third Edition, Cengage Learning.

REFERENCES :

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

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B.Tech. I Year (C.S.S.E)	**Drg**	**P**	**C**
	6	**0**	**6**

(9A03101) ENGINEERING DRAWING
(Common to all Branches)

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

a) Conic Sections including the Rectangular Hyperbola – General method only.
b) Cycloid, Epicycloids and Hypocycloid
c) Involutes.
d) Helices

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

UNIT III– PROJECTIONS OF PLANES: Projections of regular Plane surfaces/figures, Projection of lines and planes using auxiliary planes.

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

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

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

UNIT VI– ISOMETRIC AND ORTHOGRAPHIC PROJECTIONS: Principles of Isometric Projection – Isometric Scale – Isometric Views– Conventions – Isometric Views of Lines, Plane Figures, Simple and Compound Solids – Isometric Projection of objects having non-isometric lines. Isometric projections of spherical parts.

Conversion of Isometric projections/views to Orthographic Views – Conventions.

UNIT VII– INTERPENETRATION OF RIGHT REGULAR SOLIDS: Projections of curves of Intersection of Cylinder Vs Cylinder, Cylinder Vs Prism, Cylinder Vs Cone, Square Prism Vs Square Prism.

UNIT VIII– PERSPECTIVE PROJECTIONS: Perspective View of Plane Figures and Simple Solids.Vanishing Point Method (General Methods only).

TEXT BOOKS:

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

REFERENCES:

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

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B.Tech. I Year (C.S.S.E)	**Th**	**Tu**	**C**
	3	**1**	**6**

(9ABS105) MATHEMATICAL METHODS
(EEE, ECE, E.Con.E, E.I.E, CSE, IT, CSS, ECM)

UNIT – I

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

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

UNIT – II

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

UNIT – III

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

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

UNIT – IV

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

UNIT – V

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

UNIT – VI

Fourier Series: Determination of Fourier coefficients – Fourier series – 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 (only statement) – Fourier sine and cosine integrals. Fourier transform – Fourier sine and cosine transforms – Properties – Inverse transforms – Finite Fourier transforms.

UNIT – VII

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

UNIT – VIII

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

TEXT BOOKS:

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

REFERENCES:

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

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B.Tech. I Year (C.S.S.E)	**T**	**P**	**C**
	0	**3**	**4**

(9A05102) C PROGRAMMING AND DATA STRUCTURES LAB
(Common to all Branches)

Objectives:

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

Recommended Systems/Software Requirements:

- Intel based desktop PC with ANSI C Compiler and Supporting Editors

Week l.

a) Write a C program to find the sum of individual digits of a positive integer.

b) A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of the sequence.

c) Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.

Week 2.

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

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

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

Week 3

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 solve Towers of Hanoi problem.

Week 4

a) The total distance travelled by vehicle in 't' seconds is given by distance $S = ut+1/2at^2$ where 'u' and 'a' are the initial velocity (m/sec.) and acceleration (m/sec^2) respectively. Write C program to find the distance travelled at regular intervals of time given the values of 'u' and 'a'. The program should provide the flexibility to the user to select his own time intervals and repeat the calculations for different values of 'u' and 'a'.

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

Week 5

a) Write a C program to find both the largest and smallest number in a list of integers.

b) Write a C program that uses functions to perform the following:
i) Addition of Two Matrices ii) Multiplication of Two Matrices

Week 6

a) Write a C program that uses functions to perform the following operations:
i) To insert a sub-string in to a given main string from a given position.
ii) To delete n Characters from a given position in a given string.

b) Write a C program to determine if the given string is a palindrome or not

Week 7

a) Write a C program that displays the position or index in the string S where the string T begins, or – 1 if S doesn't contain T.

b) Write a C program to count the lines, words and characters in a given text.

Week 8

a) Write a C program to generate Pascal's triangle.

b) Write a C program to construct a pyramid of numbers.

Week 9

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

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

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

Print x, n, the sum

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

Week 10

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 a Roman numeral to its decimal equivalent.

Week 11

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

i) Reading a complex number ii) Writing a complex number

iii) Addition of two complex numbers iv) Multiplication of two complex numbers

(Note: represent complex number using a structure.)

Week 12

a) Write a C program which copies one file to another.

b) Write a C program to reverse the first n characters in a file.

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

Week 13

a) Write a C programme to display the contents of a file.

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

Week 14

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

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

Week 15

Write C programs that implement stack (its operations) using

i) Arrays ii) Pointers

Week 16

Write C programs that implement Queue (its operations) using

i) Arrays ii) Pointers

Week 17

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

i) Converting infix expression into postfix expression

ii) Evaluating the postfix expression

Week 18

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

i) Bubble sort ii) Selection sort

Week 19

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

i) Linear search ii) Binary search

Week 20

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

Week 21

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

Week 22

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

Week 23

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

Week 24

Write C programs to implement Trapezoidal and Simpson methods.

REFERENCES:

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

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B.Tech. I Year (C.S.S.E) **T P C**
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(9A03102) ENGINEERING AND I.T. WORKSHOP
(Common to all Branches)

ENGINEERING WORKSHOP

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

1. TRADES FOR EXERCISES:

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

f. Welding – Preparation of two welds (exercises): single V butt joint, lap joint, double V butt joint or T fillet joint

2. TRADES FOR DEMONSTRATION:

a. Plumbing
b. Machine Shop
c. Metal Cutting

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

REFERENCES:

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.

I.T. WORKSHOP

Objectives:

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

PC Hardware introduces the students to a personal computer and its basic peripherals, the process of assembling a personal computer, installation of system software like MS Windows, Linux and the required device drivers. In addition hardware and software level troubleshooting process, tips and tricks would be covered. **The students should work on a working PC (PIV or higher)to**

disassemble and assemble back to working condition and install Windows and Linux on the same PC. Students are suggested to work similar tasks in the Laptop scenario wherever possible.

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

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

PC Hardware

Week 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.

Week 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.

Week 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.

Week 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

Week 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

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

OFFICE TOOLS
LaTeX and Word

Week 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

Week 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

Week 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).

Week 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

Week 11 - Task 1: **Orientation & Connectivity Boot Camp :** Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally students should demonstrate, to the instructor, how to access the websites and email. If there is no internet connectivity preparations need to be made by the instructors to simulate the WWW on the LAN.
Web Browsers, Surfing the Web: Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop up blockers.

Week 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
6. IT Essentials PC Hardware and Software Companion Guide, Third Edition by David Anfinson and Ken Quamme. – CISCO Press, Pearson Education.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B.Tech. I Year (C.S.S.E)	**T**	**P**	**C**
	0	**3/2 each**	**4**

(9ABS106) ENGINEERING PHYSICS LAB and ENGINEERING CHEMISTRY LAB

ENGINEERING PHYSICS LAB

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

Sl.No.	**Name of the Experiment**
1.	Determination of wavelength of given source – spectrometer – normal incidence method.
2.	Dispersive power of the prism – Spectrometer.
3.	Determination of wavelength of a laser source - Diffraction Grating.
4.	Determination of particle size by using a laser source.
5.	Determination of thickness of a thin wire using parallel fringes.
6.	Newton's Rings.
7.	Magnetic field along the axis of a current carrying coil – Stewart and Gee's method.
8.	Numerical aperture of an optical fiber.
9.	Hall effect.
10.	B – H Curve.
11.	Energy gap of a material of p-n junction
12.	Determination of rigidity modulus of a wire material – Torsional pendulum
13.	Determination of dielectric constant.
14.	Verification of laws of stretched string – Sonometer.
15.	Melde's experiment – Transverse & Longitudinal modes.

Equipment required:

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

ENGINEERING CHEMISTRY LAB

1. Preparation of Standard Potassium Dichromate and Estimation of Ferrous Iron.
2. Preparation of Standard Potassium Dichromate and Estimation of Copper, by Iodometry.
3. Preparation of Standard EDTA solution and Estimation of Hardness of Water.
4. Preparation of Standard EDTA and Estimation of Copper
5. Determination of Manganese in Steel and Iron in Cement.
6. Determination of strength of the given Hydrochloric acid against standard sodium hydroxide solution by Conducto metric titration
7. Determination of viscosity of the oils through Redwood viscometer
8. Determination of calorific value of fuel using Bomb calorimeter
9. Estimation of dissolved oxygen
10. Determination of Eutectic Temperature of binary system (Urea – Benzoic Acid)

BOOKS:

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

Equipment Required:

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

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B.Tech. I Year (C.S.S.E)	**T**	**P**	**C**
	0	**3**	**4**

(9ABS107) ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB

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

Objectives:

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

SYLLABUS :

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

1. Introduction to the Sounds of English- Vowels, Diphthongs & Consonants.
2. Introduction to Stress and Intonation.
3. Situational Dialogues (giving directions etc.)
4. Speaking on the mobiles and telephone conversation
5. Role Play.

6. Oral Presentations- Prepared and Extempore.
7. 'Just A Minute' Sessions (JAM).
8. Describing Objects / Situations / People.
9. Information Transfer
10.Debate

Minimum Requirement:

The English Language Lab shall have two parts:

i) **The Computer aided Language Lab** for 60 students with 60 systems, one master console, LAN facility and English language software for self- study by learners.

ii) **The Communication Skills Lab** with movable chairs and audio-visual aids with a P.A System, a T. V., a digital stereo –audio & video system and camcorder etc.

System Requirement (Hardware component):

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

i) P – IV Processor
a) Speed – 2.8 GHZ
b) RAM – 512 MB Minimum
c) Hard Disk – 80 GB
ii) Headphones of High quality

PRESCRIBED SOFTWARE: GLOBARENA

Suggested Software:

• Cambridge Advanced Learners' English Dictionary with CD.
• The Rosetta Stone English Library
• Clarity Pronunciation Power – Part I
• Mastering English in Vocabulary, Grammar, Spellings, Composition
• Dorling Kindersley series of Grammar, Punctuation, Composition etc.
• Language in Use, Foundation Books Pvt Ltd with CD
• Learning to Speak English - 4 CDs
• Microsoft Encarta with CD
• Murphy's English Grammar, Cambridge with CD
▪ English in Mind, Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge

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

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

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B.Tech. II-I-Sem. (C.S.S.E)

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(9ABS303) ENVIRONMENTAL SCIENCE
(Common to ECE, E Con E, ECM, EIE, EEE, CSSE)

UNIT – I

MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES : – Definition, Scope and Importance – Need for Public Awareness.

UNIT – II

NATURAL RESOURCES : Renewable and non-renewable resources – Natural resources and associated problems – Forest resources – Use and over – exploitation, deforestation, case studies – Timber extraction – Mining, dams and other effects on forest and tribal people – Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems – Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies – Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. – Energy resources:

UNIT – III

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

a. Forest ecosystem.
b. Grassland ecosystem
c. Desert ecosystem
d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

UNIT – IV

BIODIVERSITY AND ITS CONSERVATION : Introduction 0 Definition: genetic, species and ecosystem diversity – Bio-geographical classification of India – Value of biodiversity: consumptive use, Productive use, social, ethical, aesthetic and option values – Biodiversity at global, National and local levels – India as a mega-diversity nation – Hot-soports of biodiversity – Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts – Endangered and endemic species of India – Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

UNIT – V

ENVIRONMENTAL POLLUTION : Definition, Cause, effects and control measures of :

a. Air Pollution.
b. Water pollution
c. Soil pollution
d. Marine pollution
e. Noise pollution
f. Thermal pollution
g. Nuclear hazards

SOLID WASTE MANAGEMENT : Causes**,** effects and control measures of urban and industrial wates – Role of an individual in prevention of pollution – Pollution case studies – Disaster management: floods, earthquake, cyclone and landslides.

UNIT – VI

SOCIAL ISSUES AND THE ENVIRONMENT: From Unsustainable to Sustainable development – Urban problems related to energy – Water conservation, rain water harvesting, watershed management – Resettlement and rehabilitation of people; its problems and concerns. Case studies – Environmental ethics: Issues and possible solutions – Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies – Wasteland reclamation. – Consumerism and waste products. – Environment Protection Act. – Air (Prevention and Control of Pollution) Act. –

Water (Prevention and control of Pollution) Act – Wildlife Protection Act – Forest Conservation Act – Issues involved in enforcement of environmental legislation – Public awareness.

UNIT – VII

HUMAN POPULATION AND THE ENVIRONMENT : Population growth, variation among nations. Population explosion – Family Welfare Proggramme. – Environment and human health – Human Rights – Value Education – HIV/AIDS – Women and Child Welfare – Role of information Technology in Environment and human health – Case studies.

UNIT – VIII

FIELD WORK : Visit to a local area to document environmental assets River/forest grassland/hill/mountain – Visit to a local polluted site-Urban/Rural/Industrial/Agricultural Study of common plants, insects, birds – river, hill slopes, etc..

TEXT BOOKS :

1. Text book of Environmental Studies for Undergraduate Courses by Erach Bharucha for University Grants Commission, Universities Press.
2. Environmental Studies by R.Rajagopalan, Oxford University Press.
3. Environmental Studies by Benny Joseph,Mc.graHill Publications.

REFERENCES :

1. Text book of Environmental Sciences and Technology by M.Anji Reddy, BS Publication.
2. Comprehensive Environmental studies by J.P.Sharma, Laxmi publications.
3. Environmental sciences and engineering – J. Glynn Henry and Gary W. Heinke – Printice hall of India Private limited.
4. Introduction to Environmental engineering and science by Gilbert M. Masters and Wendell P. Ela - Printice hall of India Private limited.

Environmental Studies by Anindita Basak – Pearson education.

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B.Tech. II-I-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A02306) BASIC ELECTRICAL ENGINEERING
(Common to CSE, CSSE, IT)

UNIT - I

Introduction to Electrical Engineering : ohm's law, basic circuit components, Kirchhoff's laws. Simple problems.

UNIT-II

Network Analysis: Basic definitions, types of elements, types of sources, resistive networks, inductive networks, capacitive networks, series parallel circuits, star delta and delta star transformation. , Network theorems- Superposition & Thevenin's theorems-Analysis of DC networks.

UNIT-III

Alternating Quantities: Principle of ac voltages, waveforms and basic definitions, root mean square and average values of alternating currents and voltage, form factor and peak factor, phasor representation of alternating quantities, the J operator and phasor algebra, analysis of ac circuits with single basic network element, single phase series and parallel circuits.

UNIT-IV

Transformers: Principles of operation, Constructional Details, Losses and efficiency, Regulation of Transformer, Testing: OC & SC test.

UNIT-V

D.C Generators: Principle of operation of dc machines, types of D.C generators, e.m.f equation in D.C generator, O.C.C. of a D.C. Shunt generator

UNIT-VI

D.C motors: Principle of operation of dc motors, types of D.C motors, torque equation, losses and efficiency calculation in D.C motor-Swinburne's test

UNIT-VII

Three phase induction motors: Principle of operation, slip and rotor frequency, torque (simple problems).

UNIT VIII

Measuring Instruments: Introduction, classification of instruments, operating principles, essential features of measuring instruments, Moving coil permanent magnet (PMMC) and moving Iron instruments (Voltmeters and Ammeters)- Extension of range of the meters.

TEXT BOOKS:

1. Basic Electrical Engineering - By M.S.Naidu and S. Kamakshiah – TMH.
2. Basic Electrical Engineering –By T.K.Nagasarkar and M.S. Sukhija Oxford University Press.
3. Electrical and Electronic Technology-By Hughes – Pearson Education.

REFERENCES:

1. Theory and Problems of Basic Electrical Engineering by D.P.Kothari & I.J. Nagrath PHI.
2. Principles of Electrical Engineering by V.K Mehta, S.Chand Publications.
3. Fundamentals of Electrical Electronics Engineering by T.Thyagarajan, SCITECH Publications 5th Edition-2007

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B.Tech. II-I-Sem. (C.S.S.E) **T P C**
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(9A05301)MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE
(Common to CSE, CSSE, IT)

UNIT-I

Mathematical Logic : Statements and notations, Connectives, Well formed formulas, Truth Tables, tautology, equivalence implication, Normal forms, Quantifiers, universal quantifiers

UNIT-II

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

UNIT-III

Relations: Properties of Binary Relations, equivalence, transitive closure, compatibility and partial ordering relations, Lattices, Hasse diagram. Functions: Inverse Function, Composition of functions, recursive Functions, Lattice and its Properties.

UNIT-IV

Algebraic structures : Algebraic systems Examples and general properties, Semi groups and monads, groups sub groups homomorphism, Isomorphism.

UNIT-V

Elementary Combinatorics: Basis of counting, Combinations & Permutations, with repetitions, Constrained repetitions, Binomial Coefficients, Binomial Multinomial theorems, the principles of Inclusion – Exclusion. Pigeon hole principles and its application

UNIT-VI

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

UNIT-VII

Graph Theory : Representation of Graph, DFS, BFS, Spanning Trees, planar Graphs.

UNIT-VIII

Graph Theory and Applications, Basic Concepts Isomorphism and Sub graphs, Multi graphs and Euler circuits, Hamiltonian graphs, Chromatic Numbers

TEXT BOOKS :

1. Elements of Discrete Mathematics- A computer Oriented Approach- C L Liu, D P Mohapatra. Third Edition, Tata McGraw Hill.
2. Discrete Mathematics for Computer Scientists & Mathematicians, J.L. Mott, A. Kandel, T.P. Baker, PHI.

REFERENCES :

1. Discrete and Combinational Mathematics- An Applied Introduction-5th Edition – Ralph. P.Grimaldi.Pearson Education
2. Discrete Mathematics and its Applications, Kenneth H. Rosen, Fifth Edition.TMH.
3. Discrete Mathematical structures Theory and application-Malik & Sen, Cengage.
4. Discrete Mathematics with Applications, Thomas Koshy, Elsevier
5. Logic and Discrete Mathematics, Grass Man & Trembley, Pearson Education.

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B.Tech. II-I-Sem. (C.S.S.E)	**T**	**P**	**C**
	4	**0**	**4**

(9A05302) ADVANCED DATA STRUCTURES
(Common to CSE, CSSE, IT, ECM)

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

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

Unit III :
Algorithms, performance analysis- time complexity and space complexity. Review of basic data structures- The list ADT, Stack ADT, Queue ADT, Implementation using template classes in C++.

Unit IV :
Dictionaries, linear list representation, skip list representation, operations insertion, deletion and searching, hash table representation, hash functions, collision resolution-separate chaining, open addressing-linear probing, quadratic probing, double hashing, rehashing, extendible hashing, comparison of hashing and skip lists.

Unit V :
Priority Queues – Definition, ADT, Realizing a Priority Queue using Heaps, Definition, insertion, Deletion, External Sorting- Model for external sorting, Multiway merge, Polyphase merge.

Unit VI :
Search Trees (Part1):-
Binary Search Trees, Definition, ADT, Implementation, Operations-Searching, Insertion and Deletion, AVL Trees, Definition, Height of an AVL Tree, Operations – Insertion, Deletion and Searching

Unit VII :
Search trees (part- II) : Introduction to Red –Black and Splay Trees, B-Trees, B-Tree of order m, height of a B-Tree, insertion, deletion and searching, Comparison of Search Trees

Unit VIII :
Pattern matching and Tries : Pattern matching algorithms-Brute force, the Boyer –Moore algorithm, the Knuth-Morris-Pratt algorithm, Standard Tries, Compressed Tries, Suffix tries.

TEXT BOOKS :

1. Data structures and Algorithms using C++, Ananda Rao Akepogu and Radhika Raju Palagiri, Pearson Education.
2. Data structures, Algorithms and Applications in C++, S.Sahni, University Press (India) Pvt.Ltd, 2nd edition, Universities Press.

REFERENCES :

1. Data structures and Algorithms in C++, Michael T.Goodrich, R.Tamassia and .Mount, Wiley student edition, John Wiley and Sons.
2. Data structures and Algorithm Analysis in C++, Mark Allen Weiss, Pearson Education. Ltd., Second Edition.
3. Data structures and algorithms in C++, 3rd Edition, Adam Drozdek, Thomson
4. Data structures using C and C++, Langsam, Augenstein and Tanenbaum, PHI.
5. Problem solving with C++, The OOP, Fourth edition, W.Savitch, Pearson education.
6. Data Structures using C++, D.S. Malik, Cengage Learning, India Edition.

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B.Tech. II-I-Sem. (C.S.S.E)

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4	0	4

(9A12301) DIGITAL LOGIC DESIGN AND COMPUTER ORGANIZATION
(Common to CSSE, IT)

UNIT I

BASIC STRUCTURE OF COMPUTERS : Computer Types, Functional units, Basic operational concepts, Bus structures, Software, Performance, multiprocessors and multi computers, Computer Generations.

DATA REPRESENTATION: Binary Numbers, Fixed Point Representation. Floating – Point Representation. Number base conversions, Octal and Hexadecimal Numbers, complements, Signed binary numbers, Binary codes.

UNIT II

DIGITAL LOGIC CIRCUITS-I:

Basic Logic Functions, Logic gates, universal logic gates, Minimization of Logic expressions. Flip-flops.

UNIT III

DIGITAL LOGIC CIRCUITS-II:

Registers, Shift Registers, Binary counters, Decoders, Multiplexers, Programmable Logic Devices.

UNIT IV

COMPUTER ARITHMETIC: Algorithms for fixed point and floating point addition, subtraction, multiplication and division operations. Hardware Implementation of arithmetic and logic operations, High performance arithmetic.

UNIT V

INSTRUCTION SET & ADDRESSING: Memory Locations and Addresses, Machine addresses and sequencing, Various Addressing Modes, Instruction Formats, Basic Machine Instructions. IA-32 Pentium example.

UNIT VI

PROCESSOR ORGANIZATION: Introduction to CPU, Register Transfers, Execution of Instructions, Multiple Bus Organization, Hardwired Control, Microprogrammed Control

UNIT VII

MEMORY ORGANIZATION : Concept of Memory, RAM, ROM memories, memory hierarchy, cache memories, virtual memory, secondary storage,memory management requirements.

UNIT VIII

INPUT / OUTPUT ORGANIZATION: Introduction to I/O, Interrupts- Hardware, Enabling and disabling Interrupts, Device Control, Direct memory access, buses, interface circuits, standard I/O Interfaces.

TEXT BOOKS :

1. Computer Organization – Carl Hamacher, Zvonko Vranesic, Safwat Zaky, fifth edition, McGraw Hill.
2. COMPUTER ARCHITECTURE AND ORGANIZATION- An Integrated Approach, Miles Murdocca, Vincent Heuring, Second Edition, Wiley India.
3. COMPUTER SYSTEMS ARCHITECTURE – M.Moris Mano, IIIrd Edition, Pearson.

REFERENCES :

1. Computer Organization and Architecture – William Stallings Sixth Edition, Pearson
2. Computer- organization and Design- David A. Paterson and John L.Hennessy-Elsevier.
3. Fundamentals or Computer Organization and Design, - Sivarama Dandamudi Springer Int. Edition.

4. Digital Design – Third Edition , M.Morris Mano, Pearson Education/PHI.
5. Fundamentals of Logic Design, Roth, 5th Edition,Thomson.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B.Tech. II-I-Sem. (C.S.S.E) **T P C**
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(9A04301) ELECTRONIC DEVICES AND CIRCUITS
(Common to CSE, CSSE, IT, ECE, E Con E, ECM, EIE, EEE)

UNIT- I

PN JUNCTION DIODE:

PN Diode Equation, Volt-Ampere (V-I) Characteristics, Temperature Dependence of V-I Characteristics, Ideal Versus Practical Static and Dynamic Resistances, Diode Equivalent circuits, Break down Mechanisms in semiconductor Diodes, Zener Diode Characteristics.

UNIT- II

RECTIFIERS AND FILTERS : PN Junction as a Rectifier, Half wave rectifier, ripple factor, full wave rectifier, Bridge Rectifier, Harmonic components in a rectifier circuit, Inductor filter, Capacitor filter, L-□section filter, Π- section filter, Use of Zener Diode as a Regulator, Problems on rectifier circuits, and voltage regulator.

UNIT- III

TRANSISTOR: Transistor construction, BJT Operation, BJT Symbol, Transistor as an Amplifier, Common Emitter, Common Base and Common Collector Configurations, Limits of Operation, BJT Specifications.

UNIT-IV

TRANSISTOR BIASING AND STABILISATION: Operating Point, DC and AC Load Lines, Importance of Biasing, Fixed Bias, Emitter Feedback Bias, Collector to Emitter Feedback Bias, Voltage Divider Bias, Bias Stability, Stabilization against Variations in V_{BE} and β, Bias Compensation Using Diodes and Transistors, Thermal Runaway,

Condition for Thermal Stability in CE configuration, Problems on biasing circuits.

UNIT- V

FIELD EFFECT TRANSISTOR:

The Junction Field Effect Transistor (Construction, Principle of Operation, Symbol) - Pinch-Off Voltage – Volt-Ampere Characteristics, Small Signal Model of JFET & MOSFET, MOSFET Characteristics in Enhancement and Depletion Modes.

UNIT- VI

FET AMPLIFIERS:

Common Source, and Common Drain Amplifiers using FET, Generalized FET Amplifier, Biasing of FET, FET as Voltage Variable Resistor, Comparison between BJT and FET.

UNIT-VII

SMALL SIGNAL ANALYSIS OF BJT AMPLIFIERS:

BJT Modeling, Hybrid Modeling, Determination of h-Parameters from Transistor Characteristics, Measurement of h-Parameters, Analysis of CE, CB and CC configurations using h-Parameters, Comparision of CB, CE and CC configurations, Simplified Hybrid Model, Millers Theorem, Dual of Millers Theorem.

UNIT-VIII

SPECIAL PURPOSE ELECTRONIC DEVICES:

Principle of Operation, and Characteristics of Tunnel Diode (With help of Energy Band Diagram) and Varactor Diode, Principle of Operations of Schottky Barrier Diode, Thermistor, Silicon Control Rectifier, and Uni-Junction Transistor (UJT).

TEXT BOOKS:

1. Integrated Electronics- J. Millman, Christos C. Halkias, 1991 edition, 2008, TMH.
2. Electronic Devices and Circuits- R.L. Boylestad and Louis Nashelsky, 9th edition, 2006, PHI.

3. Electronic Devices and Circuits – David A. Bell, Fifth Edition, 2008, Oxford University press.

REFERENCES:

1. Millman's Electronic Devices and Circuits- J.Millman and C.C.Halkias, Satyabratajit, 2nd edition, 1998, TMH.
2. Electronic Devices and Circuits - K. Lal kishore, 2nd edition, 2005, BSP.
3. Introduction to Electronic Devices and Circuits – Rober T. Paynter, PE
4. Electronic Devices and Circuits – S. Salivahana, N.Suresh Kumar, A. Vallavaraj, 2nd Edition, 2008, TMH.

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B.Tech. II-I-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A05304) DATA STRUCTURES LAB
(Common to CSE, CSSE, IT)

Objectives:

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

Recommended Systems/Software Requirements:

- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space
- C++ compiler and STL Recommended

Week1 :

Write C++ programs to implement the following using an array.

a) Stack ADT b) Queue ADT

Week2 :

Write C++ programs to implement the following using a singly linked list.

a) Stack ADT b) Queue ADT

Week3 :

Write C++ programs to implement the deque (double ended queue) ADT using a doubly linked list and an array.

Week 4 :

Write a C++ program to perform 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.

Week5 :

.Write C++ programs that use recursive functions to traverse the given binary tree in

a) Preorder b) inorder and c) postorder.

Week6 :

.Write C++ programs that use non-recursive functions to traverse the given binary tree in

b) Preorder b) inorder and c) postorder.

Week7 :

Write C++ programs for the implementation of bfs and dfs for a given graph.

Week8 :

Write C++ programs for implementing the following sorting methods:

a) Merge sort b) Heap sort

Week9 :

Write a C++ program to perform the following operations

a) Insertion into a B-tree b) Deletion from a B-tree

Week10 :

.Write a C++ program to perform the following operation

a) Insertion into an AVL-tree

Week11 :

Write a C++ program to implement all the functions of a dictionary (ADT) using hashing.

Week12 :

Write a C++ program for implementing Knuth-Morris- Pratt pattern matching algorithm.

(Note: Use Class Templates in the above Programs)

TEXT BOOKS :

1. Data structures and Algorithms using C++, Ananda Rao Akepogu and Radhika Raju Palagiri, Pearson Education.
2. Data Structures A Pseudocode Approach with C++, India Edition, R.F.Gilberg and B.A.Forouzan,Cengage Learning.
3. Programming Principles and Practice using C++, B.Stroustrup,Addison-Wesley(Pearson education).
4. Data Structures and STL, W.J.Collins,Mc Graw Hill,International edition.
5. Data structures and Algorithms with OODesign patterns in C++,B.R.Priess,John Wiley& sons.
6. The Art,Philosophy, and Science of OOP with C++,Rick Miller,SPD.

7. C++ for Programmers,P.J.Deitel and H.M.Deitel,PHI/Pearson

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(9A02307) ELECTRICAL AND ELECTRONICS LAB
(Common to CSE, CSSE, IT)
PART – A : ELECTRICAL LAB

1. Verification of Superposition theorem.
2. Verification of Thevenin's theorem.
3. Open Circuit characteristics of D.C. Shunt generator.
4. Swinburne's Test on DC shunt machine (Predetermination of efficiency of a given DC Shunt machine working as motor and generator).
5. Brake test on DC shunt motor. Determination of performance Characteristics.
6. OC & SC tests on Single-phase transformer (Predetermination of efficiency and regulation at given power factors).

PART – B : ELECTRONICS LAB

1. Identification, Specifications and Testing of R, L, C Components (colour codes), Potentiometers, Switches (SPDT, DPDT and DIP), Coils, Gang Condensers, Relays, Bread Boards, Identification and Specifications of active devices, Diodes, BJTs, Lowpower JFETs, MOSFETs, LEDs, LCDs, SCR, UJT, Linear and Digital ICs.
2. PN Junction Diode Characteristics (Forward bias, Reverse bias).
3. Zener Diode Characteristics and Zener as regulator.
4. Transistor CE Characteristics (Input and Output).
5. Rectifier without Filters (Full wave & Half wave).
6. Rectifier with Filters (Full wave & Half wave).

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(9ABS304) PROBABILITY AND STATISTICS
(Common to CE, IT, ME, CSSE)

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 Distributions – Distribution functions.

UNIT – III

Binomial and poisson's distributions Normal distribution – Related properties.

UNIT – IV

Sampling distribution: Populations and samples – Sampling distribution of mean (known and unknown) proportions, sums and differences.

UNIT – V

Estimation: Point estimation – Interval estimation – Bayesian estimation

UNIT – VI

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

UNIT – VII

Tests of significance – Student's t-test, F-test, Ψ^2 test, Estimation of proportions.

UNIT – VIII

Queuing Theory: Pure Birth and Death process, M/M/1 model and simple problems.

TEXT BOOKS:

1. Probability & Statistics, T.K.V. Iyengar, B. Krishan Gandhi and Others, S. Chand & Company.
2. Probability & Statistics, Ravindranath, B.S.R. Murthy, I.K. International Pvt. Ltd.
3. Probability & Statistics, Walpore, Myers, Ye 8th edition, - Pearson Education.

REFERENCES:

1. Probability & Statistics, Amold O. Allen, Academic Press.
2. Probability & Statistics, D.K. Murugesan & P. Guru Swamy, Anuradha Publications.
3. Introduction to Probability, Charles M. Grinstead, J. Laurie Snell, University Press.
4. Probability & Statistical inference : Hogg, Tanis, Rao – 7th edition, Pearson education.

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(9A05402) OBJECT ORIENTED PROGRAMMING
(Common to CSE, CSSE, IT)

UNIT I :

Object oriented thinking :- Need for oop paradigm, A way of viewing world – Agents, responsibility, messages, methods, classes and instances, class hierarchies (Inheritance), method binding, overriding and exceptions, summary of oop concepts, coping with complexity, abstraction mechanisms.

UNIT II :

Java Basics History of Java, Java buzzwords, data types, variables, scope and life time of variables, arrays, operators, expressions, control statements, type conversion and casting, simple java program, classes and objects – concepts of classes, objects, constructors, methods, access control, this keyword, garbage collection, overloading methods and constructors, parameter passing, recursion, string handling.

UNIT III :

Inheritance – Hierarchical abstractions, Base class object, subclass, subtype, substitutability, forms of inheritance- specialization, specification, construction, extension, limitation, combination, benefits of inheritance, costs of inheritance, Member access rules, super uses, using final with inheritance, polymorphism- method overriding, abstract classes.

UNIT IV :

Packages and Interfaces : Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, differences between classes and interfaces, defining an interface, implementing interface, applying interfaces, variables in interface and extending interfaces. Exploring packages – Java.io, java.util.

UNIT V :

Exception handling and multithreading - Concepts of exception handling, benefits of exception handling, Termination or resumptive models, exception hierarchy, usage of try, catch, throw, throws and finally, built in exceptions, creating own exception sub classes. Differences between multi threading and multitasking, thread life cycle, creating threads, synchronizing threads.

UNIT VI :

Event Handling : Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes, inner classes, The AWT class hierarchy, user interface components- labels, button, canvas, scrollbars, text components, check box, check box groups, choices, lists, panels – scrollpane, dialogs, menubar, graphics, layout manager – layout manager types – boarder, grid, flow, card and grid bag.

UNIT VII :

Applets – Concepts of Applets, differences between applets and applications, life cycle of an applet, types of applets, creating applets, passing parameters to applets.

Swing – Introduction, limitations of AWT, MVC architecture, components, containers, exploring swing- JApplet, JFrame and JComponent, Icons and Labels, text fields, buttons – The JButton class, Check boxes, Radio buttons, Combo boxes, Tabbed Panes, Scroll Panes, Trees, and Tables.

UNIT VIII :

Networking – Basics of network programming, addresses, ports, sockets, simple client server program, multiple clients, Java .net package, Enumerations, autoboxing, annotations, generics.

TEXT BOOKS :

1. Java; the complete reference, 7th editon, Herbert schildt, TMH.
2. Understanding OOP with Java, updated edition, T. Budd, Pearson Education.

REFERENCES :

1. An Introduction to programming and OO design using Java, J.Nino and F.A. Hosch, John wiley & sons.
2. An Introduction to OOP, third edition, T. Budd, pearson education.
3. Introduction to Java programming, 6th edition, Y. Daniel Liang, pearson education.
4. An introduction to Java programming and object oriented application development, R.A. Johnson, Thomson.
5. Core Java 2, Vol 1, Fundamentals, Cay.S.Horstmann and Gary Cornell, eighth Edition, Pearson Education.
6. Core Java 2, Vol 2, Advanced Features, Cay.S.Horstmann and Gary Cornell, eighth Edition, Pearson Education
7. Object Oriented Programming through Java, P. Radha Krishna, University Press.
8. Java and Object Orientation, an introduction, John Hunt, second edition, Springer.

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B.Tech. II-II-Sem. (C.S.S.E) **T P C**
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(9A15401) OPERATING SYSTEMS

UNIT I :
Computer System and Operating System Overview: Overview of computer operating systems, operating systems functions, protection and security, distributed systems, special purpose systems, operating systems structures, systems calls, operating systems generation.

UNIT II :
Process Management – Process concept, process scheduling, threads, operations on processes, interprocess communication, scheduling-criteria, algorithms, their evaluation, Thread scheduling, case studies UNIX, Linux, Windows.

UNIT III :
Synchronization: Backgroud, the critical- section problem, Peterson's Solution, synchronization Hardware, semaphores, classic problems of synchronization, monitors, Synchronization examples, atomic transactions. Case studies UNIX, Linux, Windows.

UNIT IV :
Memory Management : Swapping, contiguous memory allocation, paging, structure of the page table , segmentation, virtual memory management, demand paging, page-Replacement, algorithms, case studies UNIX, Linux, Windows.

UNIT V :
Principles of deadlock – System model, deadlock characterization, deadlock prevention, detection and avoidance, recovery form deadlock, **I/O** systems, Hardware, application interface, kernel I/O subsystem, Transforming I/O requests to Hardware operation, STREAMS, performance.

UNIT VI :

File system – File concept, Access Methods, Directory and Disk structure, File system mounting, file sharing, protection.

File System implementation- File system structure, file system implementation, directory implementation, allocation methods, free-space management, efficiency and performance, case studies. UNIX, Linux, Windows.

UNIT VII :

Secondary Storage Structure: overview of Mass-storage structure, Disk structure, disk attachment, disk scheduling, swap-space management, RAID structure, stable-storage implementation, Tertiary storage structure.

UNIT VIII :

System Protection : Protection, Goals of Protection, Principles of Protection, Domain of protection, Access Matrix, Implementation of Access Matrix, Access control, Revocation of Access Rights, Capability- Based systems, Language – Based Protection.

System Security- The Security problem, program threats, system and network threats cryptography as a security tool, user authentication, implementing security defenses, firewalling to protect systems and networks, computer –security classifications, case studies UNIX, Linux, Windows.

TEXT BOOKS :

1. Operating System Concepts- Abraham Silberschatz, Peter B. Galvin, Greg Gagne 8th Edition, John Wiley.
2. Operating systems- A Concept based Approach- D.M.Dhamdhere, 2nd Edition, TMH

REFERENCES :

1. Operating Systems' – Internal and Design Principles Stallings, Fifth Edition–2005, Pearson education/PHI
2. Operating System A Design Approach-Crowley, TMH.
3. Modern Operating Systems, Andrew S Tanenbaum 2nd edition Pearson/PHI.

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(9A05401) DATABASE MANAGEMENT SYSTEMS
(Common to CSE, CSSE, IT)

UNIT-I

Database Systems: Data vs Information-Introducing the Database and the DBMS-Why Database Design is Important-Files and File Systems-Problems with File System Data Management-Database Systems.

Data Models: Data Modeling and Data Models-The Importance of Data Models-Data Model Basic Building Blocks-Business Rules-The Evolution of Data Models-Degree of Data Abstraction.

UNIT-II

Entity Relationship Modeling: The Entity Relationship Model (ERM)-Developing an ER Diagram-Database Design Challenges:Conflicting Goals-The Extended Entity Relationship Model-Entity Clustering- Entity Integrity: Selecting Primary Keys-Learning Flexible Database Design-Data Modeling Checklist.

UNIT-III

The Relational Database Model: A Logical View of Data-Keys-Integrity Rules-Relational Set Operators-The Data Dictionary and the System Catalog-Relationships within the Relational Database-Data Redundancy Revisited-Indexes-Codd's Relational Database Rules.

UNIT-IV

Structured Query Language (SQL): Introduction to SQL-Data Definition Commands-Data Manipulation Commands-SELECT Queries- Advanced Data Definition Commands-Advanced SELECT Queries-Virtual Tables: Creating a View-Joining Database Tables.

Advanced SQL: Relational Set Operators-SQL Join Operators-Subqueries and Correlated Queries-SQL Functions-Oracle Sequences-Updatable Views-Procedural SQL-Embedded SQL.

UNIT-V

Normalization of Database Tables: Database Tables and Normalization-The Need for Normalization-The Normalization Process- Improving the Design-Surrogate Key Considerations-Higher-Level Normal Forms-Normalization and Database Design-Denormalization.

UNIT-VI

Transaction Management and Concurrency Control: What is a Transaction?-Transaction State-Implementation of atomicity and durability-Concurrency Control-Serializability-Testing for Serializability-Concurrency Control with Locking Methods-Concurrency Control with Time Stamping Methods-Concurrency Control with Optimistic Methods-Database Recovery Management-Validation Based Protocols-Multiple Granularity.

UNIT-VII

Recovery System: Recovery and Atomicity-Log-Based Recovery-Recovery with Concurrent Transactions-Buffer Management-Failure with loss of nonvolatile storage-Advance Recovery Techniques-Remote Backup Systems.

UNIT-VIII

File Structure and Indexing: Overview of Physical Storage Media-Magnetic Disks-RAID-Tertiary Storage-Storage Access- File Organization-Organization of Records in Files-Data-Dictionary Storage-Basic Concepts of Indexing-Ordered Indices-B^+-Tree Index Files-B-Tree Index Files-Multiple Key Access- Static Hashing-Dynamic Hashing-Comparison of Ordered Indexing and Hashing-Bitmap Indices-Indexed Sequential Access Methods (ISAM).

TEXT BOOKS:

1. Database Management Systems, Peter Rob, A.Ananda Rao and Carlos Coronel, Cengage Learning.
2. Database System Concepts, Silberschatz, Korth, McGraw hill, V edition.

REFERENCES:

1. Database Management Systems, Raghurama Krishnan, Johannes Gehrke, TATA McGraw Hill, 3rd Edition.
2. Fundamentals of Database Systems, Elmasri, Navate Pearson Education.
3. Introduction to Database Systems, C. J. Date, Pearson Education.
4. Oracle for Professionals, The X Team, S. Shah and V. Shah, SPD.
5. Database Systems Using Oracle: A Simplified guide to SQL and PL/SQL, Shah, PHI.
6. Fundamentals of Database Management Systems, M. L. Gillenson, Wiley Student Edition.

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(9A05403) DESIGN AND ANALYSIS OF ALGORITHMS
(Common to CSE, CSSE, IT)

UNIT I :
Introduction: Algorithm, Psuedocode for expressing algorithms, Performance Analysis-Space complexity, Time complexity, Asymptotic Notation- Big oh notation, Omega notation, Theta notation and Little oh notation, Basics of probability theory , Amortized complexity.

UNIT II :
Disjoint Sets- disjoint set operations, union and find algorithms, spanning trees, connected components and biconnected components.

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

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

UNIT V :
Dynamic Programming: General method, applications-Matrix chain multiplication, Optimal binary search trees, 0/1 knapsack, All pairs shortest path ,The Travelling sales person problem, Reliability design.

UNIT VI :
Backtracking: General method, applications-8-queen problem, sum of subsets, graph coloring, Hamiltonian cycles.

UNIT VII :

Branch and Bound: General method, applications - Travelling sales person(*),0/1 knapsack problem- LC Branch and Bound solution, FIFO Branch and Bound solution.

UNIT VIII :

NP-Hard and NP-Complete problems: Basic concepts, nondeterministic algorithms, The classes-NP-Hard and NPComplete , Cook's theorem(*).

TEXT BOOKS :

1. Fundamentals of Computer Algorithms, Ellis Horowitz,Satraj Sahni and Rajasekharam,Galgotia publications pvt. Ltd.
2. Design and Analysis Algorithms - Parag Himanshu Dave, Himanshu Bhalchandra Dave Publisher**:** Pearson
3. Algorithm Design: Foundations, Analysis and Internet examples, M.T.Goodrich and R.Tomassia,John wiley and sons.

REFERENCES :

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

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B.Tech. II-II-Sem. (C.S.S.E) **T P C**
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(9A12302) DATA COMMUNICATION SYSTEMS
(Common to IT, CSSE)

Unit I :

FUNDAMENTALS OF DATA COMMUNICATION: Data Communication Network Architecture, Protocols and standards, standards organizations for Data Communication, Data Communication circuits, Serial and parallel Data Transmission, Data communications Circuit Arrangements, Data communications Networks.

SIGNALS, NOISE, MODULATION, AND DEMODULATION :

Signal Analysis, Electrical Noise and Signal-to-Noise Ratio, Analog Modulation Systems, Information Capacity, Bits, Bit Rate, Baud, and *M*-ary Encoding, Digital Modulation.

Unit II :

ELECTRIC CABLE TRANSMISSION MEDIA :

Metallic Transmission Lines, Transverse Electromagnetic Waves, Characteristics of Electromagnetic Waves, Transmission Line Classifications, Metallic Transmission Line Types, Metallic Transmission Line Equivalent Circuit.

OPTICAL FIBER TRANSMISSION MEDIA :

Advantages of Optical Fiber Cables, Disadvantages of Optical Fiber Cables, Electromagnetic spectrum, Optical Fiber Communications System Block Diagram, Optical Fiber construction, The Physics of Light, Velocity of Propagation, Propagation of Light Through an Optical fiber Cable, Optical Fiber Modes and Classifications, Optical Fiber Comparison, Losses in Optical Fiber Cables.

Unit III :

DIGITAL TRANSMISSION :

Pulse Modulation, Pulse code Modulation, Dynamic Range, Linear Versus Nonlinear PCM Codes, Companding, PCM Line Speed.

MULTIPLEXING AND T CARRIERS :

Time- Division Multiplexi`ng, T1 Digital Carrier System, Digital Line Encoding, T Carrier systems, Statistical Time – Division Multiplexing, Frame Synchronization, Frequency- Division Multiplexing, Wavelength- Division Multiplexing,.

Unit IV :

WIRLESS COMMUNICATIONS SYSTEMS :

Electromagnetic Polarization, Rays and Wave fronts, Electromagnetic Radiation, Spherical Wave front and the Inverse Square Law, wave Attenuation and Absorption, Optical Properties of Radio Waves, Terrestrial Propagation of Electromagnetic Waves, Skip Distance, Free-Space Path Loss, Microwave Communications Systems, Satellite Communications Systems.

Unit V :

TELEPHONE INSTRUMENTS AND SIGNALS:

The Subscriber Loop, Standard Telephone Set, Basic Telephone Call Procedures, Call Progress Tones and Signals, Cordless Telephones, Caller ID, Electronic Telephones, Paging systems.

THE TELEPHONE CIRCUIT:

The Local Subscriber Loop, Telephone Message- Channel Noise and Noise Weighting, Units of Power Measurement, Transmission Parameters and Private-Line Circuits .

Unit VI :

CELLULAR TELEPHONE CONCEPTS AND SYSTEMS:

Mobile Telephone service, Cellular Telephone, Interference, Cell Splitting, Sectoring, Segmentation, Dualization, Topology, Roaming and handoff, Network Components, First- Generation Analog Cellular Telephone, Personal Communications system, Second-Generation Cellular Telephone Systems, Digital Cellular Telephone

Unit VII:

DATA COMMUNICATIONS CODES, ERROR CONTROL, AND DATA FORMATS:

Data Communications Character Codes, Bar Codes, Error Control, Error Detection, Error Correction, Character Synchronization.

Unit VIII:

DATA COMMUNICATIONS EQUIPMENT:

Digital Service Unit and Channel Service Unit, Voice- Band Data Communication Modems, Bell Systems- Compatible Voice- Band Modems, Voice- Band Modern Block Diagram, Voice- Band Modem Classifications, Asynchronous Voice-Band Modems, Synchronous Voice-Band Modems, Modem Synchronization, ITU-T Voice- Band Modem Specifications, 56K Modems, Modem Control: The AT Command Set, Cable Modems, Probability of Error and Bit Error Rate.

TEXT BOOKS:

1. Introduction to Data Communications and Networking, Wayne Tomasi, Pearson Education.

Reference Books

1. Data Communications and Networking, Behrouz A Forouzan, Fourth Edition.TMH.
2. Computer Communications and Networking Technologies, Gallow,
   Second Edition Thomson
3. Computer Networking and Internet, Fred Halsll, Lingana Gouda Kulkarni, Fifth Edition, Pearson Education

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(9A05404) OBJECT ORIENTED PROGRAMMING LAB
(Common to CSE, CSSE, IT)

Objectives:

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

Recommended Systems/Software Requirements:

- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space
- JDK Kit. Recommended

Week1 :

a) Write a Java program that prints all real solutions to the quadratic equation $ax^2 + bx + c = 0$. Read in a, b, c and use the quadratic formula. If the discriminant $b^2 - 4ac$ is negative, display a message stating that there are no real solutions.

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

Week 2 :

a) Write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.

b) Write a Java program to multiply two given matrices.

c) Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers (Use StringTokenizer class of java.util)

Week 3 :

a) Write a Java program that checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome.

b) Write a Java program for sorting a given list of names in ascending order.

c) Write a Java program to make frequency count of words in a given text.

Week 4 :

a) Write a Java program that reads a file name from the user, then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes.

b) Write a Java program that reads a file and displays the file on the screen, with a line number before each line.

c) Write a Java program that displays the number of characters, lines and words in a text file.

Week 5 :

a) Write a Java program that:

i) Implements stack ADT.

ii) Converts infix expression into Postfix form

iii) Evaluates the postfix expression

Week 6 :

a) Develop an applet that displays a simple message.

b) 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.

Week 7 :

Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -,*, % operations. Add a text field to display the result.

Week 8 :

a) Write a Java program for handling mouse events.

Week 9 :

a) Write a Java program that creates three threads. First thread displays "Good Morning" every one second, the second thread displays "Hello" every two seconds and the third thread displays "Welcome" every three seconds.

b) Write a Java program that correctly implements producer consumer problem using the concept of inter thread communication.

Week 10 :

Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the textfields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a NumberFormatException. If Num2 were Zero, the program would throw an ArithmeticException Display the exception in a message dialog box.

Week 11 :

Write a Java program that implements a simple client/server application. The client sends data to a server. The server receives the data, uses it to produce a result, and then sends the result back to the client. The client displays the result on the console. For ex: The data sent from the client is the radius of a circle, and the result produced by the server is the area of the circle. (Use java.net)

Week 12 :

a) Write a java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow, or green. When a radio button is selected, the light is turned on, and only one light can be on at a time No light is on when the program starts.

b) Write a Java program that allows the user to draw lines, rectangles and ovals.

Week 13 :

a) Write a java program to create an abstract class named Shape that contains an empty method named numberOfSides ( ).Provide three classes named Trapezoid, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method numberOfSides ( ) that shows the number of sides in the given geometrical figures.

b) Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines correspond to rows in the table. The elements are eparated by commas. Write a java program to display the table using Jtable component.

TEXT BOOKS :

1. Java How to Program, Sixth Edition, H.M.Dietel and P.J.Dietel, Pearson Education/PHI.
2. Introduction to Java programming, Sixth edition, Y.Daniel Liang, Pearson Education.
3. Big Java, 2nd edition, Cay Horstmann, Wiley Student Edition, Wiley India Private Limited.
4. Introduction to Programming with Java, J.Dean & R.Dean, McGraw Hill education.
5. Java Programming, D S Malik, cengage learning, India Edition.

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B.Tech. II-II-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A05405) DATABASE MANAGEMENT SYSTEMS LAB
(Common to CSE, CSSE, IT)

Objective: This lab enables the students to practice the concepts learnt in the subject DBMS by developing a database for an example company named "Roadway Travels" whose description is as follows. The student is expected to practice the designing, developing and querying a database in the context of example database "Roadway travel". Students are expected to use "Mysql" database.

Roadway Travels

"Roadway Travels" is in business since 1997 with several buses connecting different places in India. Its main office is located in Hyderabad.

The company wants to computerize its operations in the following areas:

- Reservations and Ticketing
- Cancellations

Reservations:

Reservations are directly handled by booking office. Reservations can be made 30 days in advance in either cash or credit. In case the ticket is not available, a wait listed ticket is issued to the customer. This ticket is confirmed against the cancellation.

Cancellation and Modifications:

Cancellations are also directly handed at the booking office. Cancellation charges will be charged.

Wait listed tickets that do not get confirmed are fully refunded.

Week1: E-R Model

Analyze the problem carefully and come up with the entities in it.
Identify what data has to be persisted in the database. This contains the entities, attributes etc.
Identify the primary keys for all the entities. Identify the other keys like candidate keys, partial keys, if any.
The student is required to submit a document by writing the Entities and Keys.

Example: **Entities:**

1. BUS
2. Ticket
3. Passenger

PRIMARY KEY ATTRIBUTES:

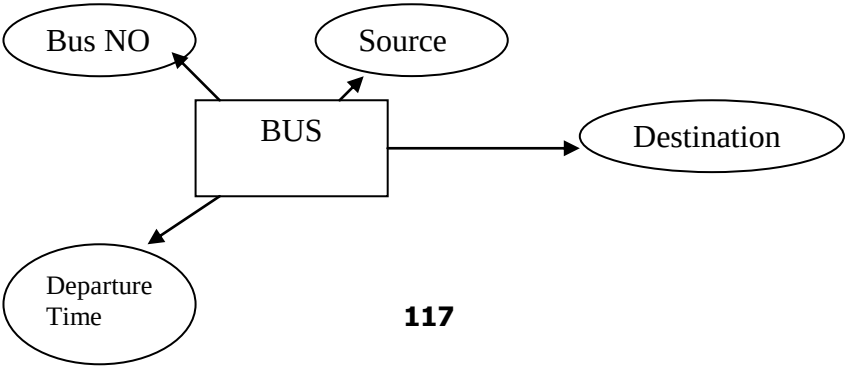
1. Ticket ID (Ticket Entity)
2. Passport ID (Passenger Entity)

Apart from the above mentioned entities you can identify more. The above mentioned are few.

Week2: Concept design with E-R Model

Relate the entities appropriately. Apply cardinalities for each relationship. Identify strong entities and weak entities (if any). Indicate the type of relationships (total / partial). Try to incorporate generalization, aggregation, specialization etc wherever required.
The student is required to submit a document by drawing the E-R diagram.

Example: E-R diagram for bus



Week3: Relational Model

Represent all the entities (Strong, Weak) in tabular fashion. Represent relationships in a tabular fashion. There are different ways of representing relationships as tables based on the cardinality. Represent attributes as columns in tables or as tables based on the requirement. Different types of attributes (Composite, Multivalued, and Derived) have different way of representation.

The student is required to submit a document by Represent relationships in a tabular fashion.

Example: The passenger tables look as below. This is an example. You can add more attributes based on your E-R model.

Passenger

Name	Age	Sex	Address	Passport ID

Week4: Normalization

Database normalization is a technique for designing relational database tables to minimize duplication of information and, in so doing, to safeguard the database against certain types of logical or structural problems, namely data anomalies. For example, when multiple instances of a given piece of information occur in a table, the possibility exists that these instances will not be kept consistent when the data within the table is updated, leading to a loss of data integrity. A table that is sufficiently normalized is less vulnerable to problems of this kind, because its structure reflects the basic assumptions for when multiple instances of the same information should be represented by a single instance only.

Week5: Installation of Mysql and practicing DDL commands

Installation of MySql. In this week you will learn Creating databases, How to create tables, altering the database, dropping tables and databases if not required. You will also try truncate, rename commands etc.

Example for creation of a table.

```
CREATE TABLE Passenger (
   Passport id          INTEGER   PRIMARY KEY,
   Name    CHAR (50) NULL,
   Age     Integer,
   Sex   Char
);
```

Note: Detailed creation of tables is given at the end.

Week6: Practicing DML commands

DML commands are used to for managing data within schema objects. Some examples:

- SELECT - retrieve data from the database
- INSERT- insert data into a table
- UPDATE- updates existing data within a table
- DELETE- deletes all records from a table, the space for the records remain

Inserting values into Bus table:

Insert into Bus values (1234,'Hyderabad', 'Tirupathi');
Insert into Bus values (2345,'Hyderabad','Bangalore');

Inserting values into Bus table:

Insert into Passenger values (1, 45,'ramesh', 45,'M','abc123');
Insert into Passenger values (2, 78,'geetha', 36,'F','abc124');

Few more Examples of DML commands:

Select * from Bus; (selects all the attributes and display)
UPDATE BUS SET Bus No = 1 WHERE BUS NO=2;

Week7: Querying

This week practice on queries (along with sub queries) using ANY, ALL, IN, Exists, NOT EXISTS, UNION, INTERSECT, Constraints etc.

Practice the following Queries:

1. Display unique PNR_no of all passengers.
2. Display all the names of male passengers.
3. Display the ticket numbers and names of all the passengers.
4. Display the source and destination having journey time more than 10 hours.
5. Find the ticket numbers of the passengers whose name start with 'A' and ends with 'H'.
6. Find the names of passengers whose age is between 30 and 45.
7. Display all the passengers names beginning with 'A'
8. Display the sorted list of passengers names
9. Display the Bus numbers that travel on Sunday and Wednesday
10. Display the details of passengers who are traveling either in AC or NON_AC(Using only IN operator)

Week8 and week9: Querying (continued…)

This students practices on queries using Aggregate functions (COUNT, SUM, AVG, and MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.

 Write a Query to display the Information present in the Passenger and cancellation tables. **Hint:** Use UNION Operator.

 Write a Query to display different travelling options available in British Airways.

 Display the number of days in a week on which the 9W01 bus is available.

 Find number of tickets booked for each PNR_no using GROUP BY CLAUSE. **Hint:** Use GROUP BY on PNR_No.

 Find the distinct PNR numbers that are present.

 Find the number of tickets booked in each class where the number of seats is greater than 1. **Hint:** Use GROUP BY, WHERE and HAVING CLAUSES.

- Find the total number of cancelled seats.
- Write a Query to count the number of tickets for the buses, which travelled after the date '14/3/2009'. **Hint:** Use HAVING CLAUSES.

Week10: Triggers

This week student works on Triggers. Creation of insert trigger, delete trigger, update trigger. Practice triggers using the above database.

Eg: **CREATE TRIGGER updcheck BEFORE UPDATE ON passenger**

```
FOR EACH ROW
BEGIN
 IF NEW.TickentNO > 60 THEN
   SET New.Tickent no = Ticket no;
ELSE
        SET New.Ticketno = 0;
END IF;
END;
```

Week11: Procedures

In this session the student learns Creation of stored procedure, Execution of procedure and modification of procedure. Practice procedures using the above database.

```
Eg:CREATE PROCEDURE myProc()
BEGIN
SELECT COUNT(Tickets) FROM Ticket WHERE age>=40;
End;
```

Week12: Cursors

Do the following: Declare a cursor that defines a result set.

Open the cursor to establish the result set. Fetch the data into local variables as needed from the cursor, one row at a time. Close the cursor when done

```
CREATE PROCEDURE myProc(in_customer_id INT)
BEGIN
```

DECLARE v_id INT;
DECLARE v_name VARCHAR(30);
DECLARE c1 CURSOR FOR SELECT stdId,stdFirstname FROM students WHERE stdId=in_customer_id;

OPEN c1;
FETCH c1 into v_id, v_name;
Close c1;
END;

Tables
BUS
Bus No: Varchar: PK (public key)
Source : Varchar
Destination : Varchar

Passenger
PNR_No : Numeric(9) : PK
Ticket_No: Numeric (9)
Name: Varchar(15)
Age : int (4)
Sex:Char(10) : Male / Female
PPNO: Varchar(15)
Reservation
PNR_No: Numeric(9) : FK
Journey_date : datetime(8)
No_of_seats : int (8)
Address : Varchar (50)
Contact_No: Numeric (9) --> Should not be less than 9 and Should not accept any other character other than Integer
Status: Char (2) : Yes / No

Cancellation
PNR_No: Numeric(9) : FK
Journey_date : datetime(8)
No_of_seats : int (8)
Address : Varchar (50)

Contact_No: Numeric (9) --> Should not be less than 9 and Should not accept any other character other than Integer
Status: Char (2) : Yes / No

Ticket
Ticket_No: Numeric (9): PK
Journey_date : datetime(8)
Age : int (4)
Sex:Char(10) : Male / Female
Source : Varchar
Destination : Varchar
Dep_time : Varchar

Text Books:

1. Database Management Systems, Peter Rob, A.Ananda Rao and Carlos Coronel, Cengage Learning.
2. Introduction to SQL,Rick F.Vander Lans,Pearson education.
3. Oracle PL/SQL, B.Rosenzweig and E.Silvestrova,Pearson education.
4. Oracle PL/SQL Programming,Steven Feuerstein,SPD.
5. SQL & PL/SQL for Oracle 10g, Black Book, Dr.P.S.Deshpande, Dream Tech.
6. Oracle Database 11g PL/SQL Programming, M.Mc Laughlin, TMH.
7. SQL Fundamentals, J.J.Patrick, Pearson Education.

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(9A12501) AUTOMATA and COMPILER DESIGN

(Common to CSSE, IT)

UNIT I

Formal Language and Regular Expressions: Languages, Definition Languages Regular Expressions, Finite Automata – DFA, NFA, Conversion of Regular Expression to NFA, NFA to DFA, Applications of Finite Automata to Lexical Analysis, Lex Tools.

UNIT II

Context Free Grammars and Parsing: Context Free Grammars, Derivation, Parse Trees, Ambiguity LL(K) Grammars and LL(1) Parsing.

UNIT III

Bottom Up Parsing Handle Pruning LR Grammar Parsing, LALR Parsing, Parsing Ambiguous Grammars, YACC Programming Specification.

UNIT IV

Semantics: Syntax Directed Translation, S-attributed and L-attributed Grammars, Intermediate Code – Abstract Syntax Tree, Translation of Simple Statements and Control Flow Statements.

UNIT V

Context Sensitive Features: Chomsky Hierarchy of Languages and Recognizers, Type Checking, Type Conversions, Equivalence of Type Expressions, Overloading of Functions and Operations.

UNIT VI

Run Time Storage: Storage Organization, Storage Allocation Strategies Scope Access to Know Local Names, Parameters, Language Facilities for Dynamics Storage Allocation.

UNIT VII

Code Optimization: Principal Sources of Optimization, Optimization of Basic Blocks, Peephole Optimization, Flow Graphs, Data Flow Analysis of Flow Graphs.

UNIT VIII

Code Generation: Machine Dependent Code Generation, Object Code Forms, Generic Code Generation Algorithm, Register Allocation and Assignment. Using DAG Representation of Block.

TEXT BOOKS:

1. Introduction to Theory of Computation, Sipser, Second Edition, Thomson.
2. Compilers Principles, Techniques and Tools, Aho, Ullman, Ravisethi, Pearson Education.

REFERENCES:

1. Modern Compiler Construction in C, Andrew W. Appel, Cambridge University Press.
2. Compiler Construction, Louden, Cengage Learning.
3. Elements of Compiler Design, A.Meduna, Auerbach Publications, Taylor and Francis Group.
4. Principles of Compiler Design, V.Raghavan, TMH.
5. Engineering a Compiler, K.D.Cooper, L.Torczon, Elsevier.
6. Introduction to Formal Languages and Automata Theory and Computation, Kamala Krithivasan and Rama R, Pearson.
7. Modern Compiler Design, D.Grune and Others, Wiley-India.
8. A Text book on Automata Theory, S.F.B.Nasir, P.K.Srimani, Cambridge Univ. Press.
9. Automata and Languages, A.Meduna, Springer.

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B.Tech. III-I-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A05605) ARTIFICIAL INTELLIGENCE

UNIT I

What is Artificial Intelligence: The AI Problems, The Underlying Assumption, What is an AI Technique?, The Levels of the Model, Criteria of Success, Some General References, One Final Word and Beyond. Problems, Problem Spaces, and Search: Defining the Problem as a State Space Search, Production Systems, Problem Characteristics, Production System Characteristics, Issues in the Design of Search Programs.

UNIT II

Problem-Solving**:** Uninformed Search Strategies, Avoiding Repeated States. Informed Search and Exploration: Informed (Heuristic) Search Strategies, Heuristic Functions, Local Search Algorithms and Optimization Problems, Local Search in Continuous Spaces, Backtracking Search for CSPs.

UNIT III

Knowledge and Reasoning: Logical Agents, Knowledge–Based Agents, The Wumpus World, Logic, Propositional Logic a Very Simple Logic, Reasoning Patterns in Propositional Logic, Effective Propositional Inference, Agents Based on Propositional Logic.

UNIT IV

First-Order Logic: Representation Revisited, Syntax and Semantic of First-Order Logic, Using First-Order Logic, Knowledge Engineering in First-Order Logic. Inference in First-Order Logic: Propositional vs. First-Order Inference, Unification and Lifting, Forward Chaining, Backward Chaining, Resolution.

UNIT V

Knowledge Representation: Ontological Engineering, Categories and Objects, Actions, Situations, and Events, Mental Events and Mental Objects, The Internet Shopping World, Reasoning Systems for Categories, Reasoning with Default Information, Truth Maintenance Systems.

UNIT VI

Uncertain Knowledge and Reasoning: Uncertainty, Acting Under Uncertainty, Basic Probability Notation, The Axioms of Probability, Inference Using Full Joint Distributions, Independence, Bayes' Rule and Its Use.

UNIT VII

Learning: Learning from Observations, Forms of Learning, Inductive Learning, Learning Decision Trees, Ensemble Learning, Why Learning Works: Computational Learning Theory, Knowledge in Learning: A Logical Formulation of Learning, Knowledge in Learning.

UNIT VIII

Statistical Learning Methods: Neural Networks. Fuzzy Logic Systems: Introduction, Crisp Sets, Fuzzy Sets, Some Fuzzy Terminology, Fuzzy Logic Control, Sugeno Style of Fuzzy Inference Processing, Fuzzy Hedges, α Cut Threshold.

TEXT BOOKS:

1. Artificial Intelligence, Elaine Rich, Kevin Knight and Shivashankar B Nair, Third Edition, Tata McGraw Hill.

2. Artificial Intelligence A Modern Approach, Second Edition, Stuart Russell and Peter Norvig, Pearson Education.

REFERENCES:

1. Artificial Intelligence: Structures and Strategies for Complex Problem Solving, George F. Luther, Fifth Edition, Pearson Education.
2. Introduction to Artificial Intelligence, Eugene Charniak and Drew McDermott, Pearson Education.

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B.Tech. III-I-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A04602) MICROPROCESSORS and MICRO CONTROLLERS (Common to CSSE, IT, ECM)

UNIT-I

INTRODUCTION

Architecture of 8086 microprocessor, special functions of general purpose registers.8086 flag register and function of 8086 flags, addressing modes of 8086,instruction set of 8086.assembler directives, simple programs, procedures and macros.

UNIT-II

ASSEMBLY LANGUAGE PROGRAMMING

Assembly language programs involving logical, branch and call instructions, sorting, evaluation of arithmetic expressions, string manipulation.

UNIT-III

ARCHITECTURE OF 8086 & INTERFACING

Pin diagram of 8086-Minimum mode and maximum mode of operation, Timing diagram, memory interfacing to 8086(static RAM and EPROM). Need for DMA. DMA data transfer method. Interfacing with 8237/8257.

UNIT-IV

PROGRAMMABLE INTERFACING DEVICES

8255 PPI-various modes of operation and interfacing to 8086.interfacing keyboard and display controller- 8279, stepper motor and actuators. D/A and A/D converter interfacing, Interrupt structure of 8086, Vector interrupt table. Interrupt service routines. Introduction to DOS and BIOS interrupts. 8259 PIC architecture and interfacing cascading of interrupt controller and its importance.

UNIT-V

SERIAL DATA TRANSFER SCHEMES

Asynchronous and synchronous data transfer schemes.8251 USART architecture and interfacing.TTL to RS232C and RS232C to TTL conversion. Sample program of serial data transfer. Introduction to high-speed serial communications standards, USB.

UNIT-VI

PROGRAMMABLE INTERRUPT CONTROLLERS

PIC 8259, Programming with 8259, Programmable interval timer 8253, Modes of 8253, Programming examples with 8253.

UNIT-VII

8051 MICROCONTROLLER AND ITS PROGRAMMING

Architecture of micro controller-8051 Microcontroller-internal and external memories-counters and timers-synchronous serial-cum asynchronous serial communication-interrupts. Addressing modes of 8051, Instructor set of 8051, Assembly Language Programming examples using 8051.

UNIT-VIII

ADVANCED MICROCONTROLLERS

MCS – 96 Microcontrollers: Important Features, Pin Diagram, Internal Architecture, Memory Map, Addressing Modes, Instruction set. ARM Microcontrollers: ARM Core Architecture, Versions of ARM, Important Features.

TEXT BOOKS:

1. Advanced microprocessor and peripherals-A.K. Ray and K.M.Bhurchandi, 2nd edition, TMH, 2000.
2. Microcontrollers-Deshmukh, Tata Mc-Graw Hill Edition, 2004.
3. Microcontrollers Architecture, programming, interfacing and system Design-Raj kamal, Pearson Education, 2005.

REFERENCES:

1. Microprocessors Interfacing-Douglas V.Hall, 2nd edition, 2007.
2. The 8088 and 8086 Microprocessors- Walter A. Triebel, Avtar Singh, PHI, 4th Edition, 2003.
3. Micro computer system 8066/8088 family Architecture, programming and Design-By Liu and GA Gibson, PHI, 2nd Ed.
4. 8051 Microcontroller-Internals, Instructions, Programming and Interfacing by Subrata Ghoshal, Pearson, 2010.

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(9A15501) SYSTEM PROGRAMMING

UNIT I

Basic Features of PC Hardware: Bits and Bytes. The Binary Number System, Hexadecimal Representation, PC Components, Internal Memory, Segments and Addressing, Registers, Hardware Interrupts, Instruction Addressing and Execution: Features of an Operating System, The BIOS Boot Process, The System Program Loader, The Stack, Instruction Execution and Addressing, Instruction Operands, Protected Mode, Using the DEBUG Program, Viewing Memory Locations.

UNIT II

Requirements for Coding in Assembly Language: Assembly Language Features, Conventional Segment Directives, Simplified Segment Directives, Defining Types of Data, Equate Directives, Assembling, Linking and Executing Programs: Preparing a Program for Assembling and Execution, Two-Pass Assembler, Linking an Object Program, Executing a Program, Writing .COM Programs, Symbolic Instructions and Addressing.

UNIT III

Program Logic and Control: The JMP Instruction, The LOOP Instruction, The Flags Register, The CMP Instruction, Conditional

Jump Instructions, Boolean Operations, Shifting Bits, Rotating Bits, Introduction to Video and Keyboard Processing: Screen Features, Setting the Cursor, Clearing the Screen, Components of a Video System, Video Modes, BIOS Keyboard Data Areas, INT 21H for Keyboard Input, INT 16H for Keyboard Input, Extended Function Keys and Scan Codes, BIOS INT 09H and the Keyboard Buffer.

UNIT IV

Processing String Data: Features of String Operations, MOVS: Move String Instruction, LODS: Load String Instruction, STOS: Store String Instruction, Processing Binary Data: Processing Unsigned and Signed Binary Data, Addition and Subtraction of Binary Data, Multiplying Binary Data, Dividing Binary Data, The Numeric Data Processor, Processing ASCII and BCD Data: Processing ASCII Data, Processing Packed BCD Data, Converting ASCII Data to Binary Format, Converting Binary Data to ASCII Format, Shifting and Rounding a Product.

UNIT V

Disk Storage: Organization, Writing and Reading Files, INT 21H Functions for Supporting Disks and Files, INT 13H Disk Functions.

UNIT VI

Defining and Using Macros: Simple Macro Definitions, Using Parameters in Macros, Using Comments in Macros, Nested Macros, Macro Directives, Linking to Subprograms: The SEGMENT Directive, Intrasegment Calls, Intersegment Calls, The EXTRN and PUBLIC Attributes, Using EXTRN and PUBLIC for an Entry Point, Defining the Code Segment as PUBLIC. Using Simplified Segment Directives, Passing Parameters to a Subprogram, The ENTER and LEAVE Instructions, Linking a C/C++ Program with an Assembly Language Program.

UNIT VII

Assemblers and Macroprocessor: Design of Assembler, Data, Structure, Format of Databases, Algorithm, Macro Instructions, Features of a Macro facility, A Two-Pass Algorithm and a Single Pass Algorithm, LOADERS, Compile-and-Go Loaders, General Loader Schemes, Absolute, Relocating and Direct-Linking loaders.

UNIT VIII

Compilers: Statement of Problem: Recognizing Basic Elements, Recognizing Syntactic Units and Interpreting Meaning, Intermediate Form, Storage Allocation, Code Generation, General Model of Compiler, Phases of the Compiler: Lexical phase, Syntax phase, Interpretation Phase, Optimization, Storage Assignment, Code Generation, Assembly Phase.

TEXT BOOKS:

1. IBM PC Assembly Language and Programming, Peter Abel, Fifth Edition, PHI.
2. Systems Programming, John J Donovan, McGraw Hill.

REFERENCES:

1. Operating Systems and Systems Programming, Dhamdhere, PHI.

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B.Tech. III-I-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A05502) SOFTWARE ENGINEERING
(Common to CSE, CSSE, IT)

UNIT I

Introduction to Software Engineering: The Evolving Role of Software, Changing Nature of Software, Legacy Software, Software Myths. A Generic View of Process: Software Engineering- A Layered Technology, A Process Framework, The Capability Maturity Model Integration (CMMI), Process Patterns, Process Assessment, Personal and Team Process Models.

UNIT II

Process Models: The Waterfall Model, Incremental Process Models, Evolutionary Process Models, Specialized Process Models, The Unified Process. Software Requirements: Functional and Non-Functional Requirements, User Requirements, System Requirements, Interface Specification, The Software Requirements Document.

UNIT III

Requirements Engineering Process: Feasibility Studies, Requirements Elicitation and Analysis, Requirements Validation, Requirements

Management, System Models: Context Models, Behavioral Models, Data Models, Object Models, Structured Methods.

UNIT IV

Design Engineering: Design Process and Design Quality, Design Concepts, The Design Model, Pattern Based Software Design. Creating an Architectural Design: Software Architecture, Data Design, Architectural Styles and Patterns, Architectural Design, Assessing Alternative Architectural Designs, Mapping Data Flow into a Software Architecture.

UNIT V

Modeling Component-Level Design: Designing Class-Based Components, Conducting Component-Level Design, Object Constraint Language, Designing Conventional Components, Performing User Interface Design: Golden Rules, User Interface Analysis and Design, Interface Analysis, Interface Design Steps, Design Evaluation.

UNIT VI

Testing Strategies: A Strategic Approach to Software Testing, Test Strategies for Conventional Software, Black-Box and White-Box Testing, Validation Testing, System Testing, The Art of Debugging, Product Metrics: Software Quality, Frame Work for Product Metrics, Metrics for Analysis Model, Metrics for Design Model, Metrics for Source Code, Metrics for Testing, Metrics for Maintenance.

UNIT VII

Metrics for Process and Products: Software Measurement, Metrics for Software Quality, Risk Management: Reactive vs. Proactive Risk Strategies, Software Risks, Risk Identification, Risk Projection, Risk Refinement, RMMM, RMMM Plan.

UNIT VIII

Quality Management: Quality Concepts, Software Quality Assurance, Software Reviews, Formal Technical Reviews, Statistical Software

Quality Assurance, Software Reliability, The ISO 9000 Quality Standards.

TEXT BOOKS:

1. Software Engineering: A Practitioner's Approach, Roger S Pressman, Sixth Edition. McGrawHill International Edition, 2005
2. Software Engineering, Ian Sommerville, Seventh Edition, Pearson Education, 2004.

REFERENCE BOOKS:

1. Fundamentals of Software Engineering, Rajib Mall, PHI, 2005.
2. Software Engineering, A Precise Approach, Pankaj Jalote, Wiley India,2010.
3. Software Engineering: A Primer, Waman S Jawadekar, Tata McGraw-Hill, 2008.
4. Software Engineering: Principles and Practices, Deepak Jain, Oxford University Press.
5. Software Engineering1: Abstraction and Modeling, Diner Bjorner, Springer International Edition, 2006.
6. Software Engineering2: Specification of Systems and Languages, Diner Bjorner, Springer International Edition, 2006.
7. Software Engineering Foundations, Yingxu Wang, Auerbach Publications, 2008.
8. Software Engineering Principles and Practice, Hans Van Vliet, Third Edition, John Wiley & Sons Ltd.

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(9A15502) DIGITAL SYSTEM DESIGN

UNIT I

Design of Digital Systems: ASM Charts, Hardware Description Language and Control Sequence Method, Reduction of State Tables, State Assignments.

UNIT II

Sequential Circuit Design**:** Design of Iterative Circuits, Design of Sequential Circuits Using Roms and Plas, Sequential Circuit Design Using CPLD, Fpgas.

UNIT III

Fault Modeling**:** Fault Classes and Models – Stuck at Faults, Bridging Faults, Transition and Intermittent Faults, Test Generation**:** Fault Diagnosis of Combinational Circuits by Conventional Methods – Path Sensitization Technique, Boolean Difference Method, Kohavi Algorithm.

UNIT IV

Test Pattern Generation**:** D- Algorithm, PODEM, Random Testing, Transition Count Testing, Signature Analysis and Testing for Bridging Faults.

UNIT V

Fault Diagnosis in Sequential Circuits: State Identification and Fault Detection Experiment, Machine Identification, Design of Fault Detection Experiment.

UNIT VI

Programming Logic Arrays: Design Using PLA's, PLA Minimization and PLA Folding.

UNIT VII

PLA Testing: Fault Models, Test Generation and Testable PLA Design.

UNIT VIII

Asynchronous Sequential Machine: Fundamental Mode Model, Flow Table, State Reduction, Minimal Closed Covers, Races, Cycles and Hazards.

TEXTBOOKS:

1. Switching and Finite Automata Theory, Z. Kohavi, TMH.
2. Logic Design Theory, N. N. Biswas, PHI.
3. Nolman Balabanian, Bradley Calson, Digital Logic Design Principles, Wiley Student Edition 2004.

REFRENCES:

1. Digital System Testing and Testable Design, M. Abramovici, M. A. Breues, A. D. Friedman, Jaico Publications.
2. Fundamentals of Logic Design, Charles H. Roth Jr., Fourth Edition, Wadsworth Publishing Company, 1995
3. Computer Aided Logic Design, Frederick. J. Hill & Peterson, Wiley.

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B.Tech III-I Sem. (C.S.S.E)	**T**	**P**	**C**
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(9AHS601) ADVANCED ENGLISH COMMUNICATION SKILLS LAB
(Common to BT, CE, CSE, CSSE, IT)

1. Introduction

The Advanced English Language Skills Lab introduced at the 3rd year B.Tech level is considered essential for the student for focusing on his/her career. At this stage it is imperative for the student to start preparing for the ever growing competition in the job market. In this scenario, in order to be on par with the best, he/she needs to improve his/her Communication and soft skills

This course focuses on the practical aspects of English incorporating all the four (LRSW) skills relevant to the requirements of the prospective employers in view of globalization. The proposed course will enable the students to perform the following:

- Intensive reading to improve comprehension and communication
- Attentive listening for better understanding
- Write project/research/technical reports
- Write Resume' to attract attention
- Discuss ideas / opinions for better solutions
- Face interviews confidently
- Gather information, organize ideas, and present them effectively before an audience
- 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,CAT, GMAT etc.

2. Objectives:

Keeping in mind the previous exposure of the student to English, this lab focuses on improving the student's proficiency in English at all levels. The lab intends t**o** train students to use language effectively, to participate in group discussions, to help them face interviews, and sharpen public speaking skills and enhance the confidence of the student by exposing him/her to various situations and contexts which he/she would face in his/her career

3. Syllabus

The following course content is prescribed for the Advanced Communication Skills Lab:

Reading Comprehension -- Reading for facts, guessing meanings from context, speed reading, scanning, skimming for building vocabulary(synonyms and antonyms, one word substitutes, prefixes and suffixes, idioms and phrases.)

Listening Comprehension-- Listening for understanding, so as to respond relevantly and appropriately to people of different

backgrounds and dialects in various personal and professional situations.

Technical Report Writing—Types of formats and styles, subject matter, organization, clarity, coherence and style, data-collection, tools, analysis

Resume' Writing—Structure, format and style, planning, defining the career objective, projecting one's strengths, and skills, creative self marketing, cover letter

Group Discussion-- Communicating views and opinions, discussing, intervening. providing solutions on any given topic across a cross-section of individuals,(keeping an eye on modulation of voice, clarity, body language, relevance, fluency and coherence) in personal and professional lives.

Interview Skills—Concept and process, pre-interview planning, mannerisms, body language, organizing, answering strategies, interview through tele and video-conferencing

Technical Presentations (Oral)— Collection of data, planning, preparation, type, style and format ,use of props, attracting audience, voice modulation, clarity, body language, asking queries.

4. Minimum Requirements

The English Language Lab shall have two parts:

The Computer aided Language Lab for 60 students with 60 systems, one master console, LAN facility and English language software for self-study by learners.

The Communication Skills Lab with movable chairs and audio-visual aids with a P.A System, a TV, A digital stereo-audio and video system, Camcorder etc

System Requirement (Hardware Component):

Computer network with LAN with a minimum of 60 multimedia systems with the following specifications:
P-IV Processor, Speed-2.8 GHz, RAM_512 MB minimum, Hard Disk-80 GB, Headphones

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

1. **Technical writing and professional communication, Huckin and Olsen** Tata Mc Graw-Hil 2009.
2. **Speaking about Science**, A Manual for Creating Clear Presentations **by Scott Morgan and Barrett Whitener, Cambridge University press, 2006**
3. **Books on** TOEFL/GRE/GMAT/CAT/ IELTS **by Barron's/DELTA/Cambridge University Press.**
4. **Handbook for Technical Writing** by David A McMurrey & Joanne Buckely CENGAGE Learning 2008
5. **Technical Communication** by Meenakshi Raman & Sangeeta Sharma, Oxford University Press 2009.
6. **The ACE of Soft Skills** by Gopal Ramesh and Mahadevan Ramesh, Pearson Education, 2010
7. **Cambridge English for Job-Hunting** by Colm Downes, Cambridge University Press, 2008
8. **Resume's and Interviews** by M.Ashraf Rizvi, Tata Mc Graw-Hill, 2008
9. **From Campus To Corporate** by KK Ramachandran and KK Karthick, Macmillan Publishers India Ltd, 2010
10. **English Language Communication : A Reader cum Lab Manual** Dr A Ramakrishna Rao, Dr G Natanam & Prof SA Sankaranarayanan, Anuradha Publications, Chennai 2008.
11. **Managing Soft Skills** by K R Lakshminarayan and T.Muruguvel, Sci-Tech Publications, 2010
12. **Business Communication** by John X Wang, CRC Press, Special Indian Edition,2008

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B.Tech. III-I-Sem. (C.S.S.E)	**T**	**P**	**C**
	0	**3**	**2**

(9A19501) MICROPROCESSORS and INTERFACING LAB
(Common to ECM, CSSE, IT)

I. Microprocessor 8086:

1. Introduction to MASM/TASM.
2. Arithmetic operation – Multi byte Addition and Subtraction, Multiplication and Division – Signed and unsigned Arithmetic operation, ASCII – arithmetic operation.
3. Logic operations – Shift and rotate – Converting packed BCD to unpacked BCD, BCD to ASCII conversion.
4. By using string operation and Instruction prefix: Move Block, Reverse string, Sorting, Inserting, Deleting, Length of the string, String comparison.

5. DOS/BIOS programming: Reading keyboard (Buffered with and without echo) – Display characters, Strings.

II. Interfacing:

1. 8259 – Interrupt Controller: Generate an interrupt using 8259 timer.
2. 8279 – Keyboard Display: Write a small program to display a string of characters.
3. 8255 – PPI: Write ALP to generate sinusoidal wave using PPI.
4. 8251 – USART: Write a program in ALP to establish Communication between two processors.

III. Microcontroller 8051

1. Reading and Writing on a parallel port.
2. Timer in different modes.
3. Serial communication implementation.

Equipment required for Laboratories:

1. 8086 μP Kits
2. 8051 Micro Controller kits
3. Interfaces/peripheral subsystems
   - i) 8259 PIC
   - ii) 8279-KB/Display
   - iii) 8255 PPI
   - iv) 8251 USART
4. ADC Interface
5. DAC Interface
6. Traffic Controller Interface
7. Elevator Interface

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(9A05506) COMPUTER NETWORKS

(Common to CSSE, ECM)

UNIT 1

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

UNIT II

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

UNIT III

The Medium Access Control Sublayer: The Channel allocation Problem, Multiple Access Protocols, Ethernet-Ethernet Cabling, Manchester Encoding, The Ethernet MAC Sublayer Protocol, The Binary Exponential Backoff Algorithm, Ethernet Performance, Switched Ethernet, Fast Ethernet, Wireless Lans-The 802.11 Protocol Stack, The 802.11 Physical Layer, The 802.11 MAC SubLayer Protocol, The 802.11 Frame Structure.

UNIT IV

The Network Layer**:** Network Layer Design Issues, Routing Algorithms, Congestion Control Algorithms.

UNIT V

Internetworking, The Network Layer in the Internet.

UNIT VI

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

UNTI VII

The Application Layer: DNS-The Domain Name System, Electronic Mail, The World Wide Web, Multimedia.

UNTI VIII

Network Security**:** Cryptography, Symmetric-Key Algorithms, Public-Key Algorithms, Digital Signatures.

TEXT BOOKS:

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

REFERENCES:

1. Computer Communications and Networking Technologies, Michael A. Gallo, William M. Hancock, Cengage Learning.
2. Computer Networks-Principles, Technologies and Protocols for Network Design, Natalia Olifer, Victor Olifer, Wiley India.

3. Data Communications and Networking, Behrouz A. Forouzan, Fourth Edition, Tata McGraw Hill.
4. Understanding Communications and Networks, Third Edition, W.A.Shay, Cengage Learning.
5. Computer and Communication Networks, Nader F. Mir, Pearson Education.
6. Computer Networking: A Top-Down Approach Featuring the Internet, James F.Kurose, K.W.Ross, Third Edition, Pearson Education.
7. Data and Computer Communications, G.S.Hura and M.Singhal, CRC Press, Taylor and Francis Group.

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	4	**0**	**4**

(9A15601) MATHEMATICAL MODELING and SIMULATION

UNIT I

Operation Research Models, Solving the OR Model, Queuing and Simulation Models, Art of Modeling, Principles of Modeling, Linear Programming: Formulation of LPP Models, Two-Variable LP Model, Graphical Solution to LP in Two Variables, Linear Programming in Standard Form, Solving System of Equation, The Simplex Method, Dual Simplex Method.

UNIT II

Transportation Model: Definition, Nontraditional Transportation Models, The Transportation Algorithm, The Assignment Model. Network Models: CPM and PERT.

UNIT III

Goal Programming: Formulation, Algorithms. Integer Linear Programming: Integer Programming Algorithms, Travelling Sales Person Problem.

UNIT IV

Deterministic Inventory Models: General Inventory Model, Role of Demand in the Development of Inventory, Static EOQ Models, Dynamic EOQ Models, Probabilistic Inventory Models: Continuous Review Models, Single-Period Models, Multi-Period Model.

UNIT V

Queuing Models: Introduction, Elements of Queueing Model, Role of Exponential Distribution, Pure Birth and Death Models, Generalized Poisson Queueing Models, Specialized Poison Queues, (M/G/1)(GD/∞/∞)-Pollaczek-Khintchine(P-K) Formula, Other Queueing Model, Queueing Decision Models.

UNIT VI

Basic Simulation Modeling: The Nature of Simulation, Systems, Models and Simulation, Discrete-Event Simulation, Simulation of another Inventory System, Other Types of Simulation. Simulation Software.

UNIT VII

Random-Number Generators: Introduction, Linear Congruential Generators, Other Kinds of Generators, Testing Random-Number Generators, Generating Random Variates: Intrifference the Duction, General Approaches to Generating Random Variates, Generating Continuous Random Variates.

UNIT VIII

Output Data Analysis for a Single System: Types of Simulation with Regard to Output Analysis, Statistical Analysis for Terminating Simulation, Statistical Analysis for Steady-State Parameters. Comparing Alternative System Configurations: Confidence Intervals for the Difference between the Expected Response of Two Systems, Confidence Intervals for Comparing More Than Two Systems.

TEXT BOOKS:

1. Operations Research: An Introduction, Hamdy. A. Taha, Eight Edition, Pearson Education
2. Operations Research: Principles and Practice, Ravindran, Philips, Solberg, Second Edition, Wiley Indian Edition

REFERENCES:

1. Introduction to Operations Research, F.S. Hillier, G.J. Lieberman, Eight Edition, Tata McGraw-Hill, 2005, rp2007.
2. Introductory Operations Research: Theory and applications, H.S. Kasana & K.D. Kumar, Springer, 2003, rp2005.
3. Operations Research Theory and Applications, J K Sharma., Third Edition, Macmillan India Ltd, 2007.
4. Operations Research, P. K. Gupta and D. S. Hira, S. Chand & co., 2007.
5. Operations Research, Panneerselvam, Second Edition, PHI, 2006, rp2008.
6. Operations Research, Ravindran, Phillips, Solberg, Second Edition,Wiley India.
7. Operations Research, W.L.Winston, Fourth Edition, Cengage Learning.
8. Operations Research, Col. D. S. Cheema, Laxmi Publications Ltd., 2005.

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B.Tech. III-II-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A05601) OBJECT ORIENTED ANALYSIS and DESIGN
(Common to CSE, CSSE, IT)

UNIT I

Introduction to UML: Importance of Modeling, Principles of Modeling, Object Oriented Modeling, Conceptual Model of the UML, Architecture, Software Development Life Cycle.

UNIT II

Basic Structural Modeling: Classes, Relationships, Common Mechanisms, and Diagrams, Advanced Structural Modeling: Advanced Classes, Advanced Relationships, Interfaces, Types and Roles, Packages.

UNIT III
Class and Object Diagrams: Terms, Concepts, Modeling Techniques for Class and Object Diagrams.

UNIT IV
Basic Behavioral Modeling-I: Interactions, Interaction Diagrams.

UNIT V
Basic Behavioral Modeling-II: Use Cases, Use Case Diagrams, Activity Diagrams.

UNIT VI
Advanced Behavioral Modeling: Events and Signals, State Machines, Processes and Threads, Time and Space, State Chart Diagrams.

UNIT VII
Architectural Modeling: Component, Deployment, Component Diagrams and Deployment Diagrams.

UNIT VIII
Case Study: The Unified Library Application.

TEXT BOOKS:

1. The Unified Modeling Language User Guide, Grady Booch, James Rumbaugh, Ivar Jacobson, Pearson Education.
2. UML 2 Toolkit, Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado, WILEY-Dreamtech India Pvt. Ltd.

REFERENCES:

1. Fundamentals of Object Oriented Design in UML, Meilir Page-Jones, Pearson Education.
2. Modeling Software Systems Using UML2, Pascal Roques, Wiley-Dreamtech India Pvt. Ltd.
3. Object Oriented Analysis and Design, Atul Kahate, The McGraw-Hill Companies.
4. Object-Oriented Analysis and Design with the Unified Process, John W. Satzinger, Robert B Jackson and Stephen D Burd, Cengage Learning.
5. Learning UML 2.0, Russ Miles and Kim Hamilton, O'Reilly, SPD.
6. Appling UML and Patterns: An introduction to Object – Oriented Analysis and Design and Unified Process, Craig Larman, Pearson Education.
7. UML and C++, R.C.Lee and W.M.Tepfenhart, PHI.
8. Object Oriented Analysis, Design and Implementation, B.Dathan and S.Ramnath, Universities Press.
9. OODesign with UML and Java, K.Barclay, J.Savage, Elsevier.
10. Mark Priestley: Practical Object-Oriented Design with UML, TMH.

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B.Tech. III-II-Sem. (C.S.S.E)	**T**	**P**	**C**
	4	**0**	**4**

(9A05704) ADVANCED COMPUTER ARCHITECTURE

UNIT I

Parallel Computer Models: The State of Computing-Multiprocessors and Multi Computers- Multivector and SIMD Computers, PRAM and VLSI Models, Architectural Development Tracks, Program and Networks Properties: Conditions of Parallelism, Program Partitioning

and Scheduling, Program Flow Mechanisms, System Interconnect Architectures.

UNIT II

Principles of Scalable Performance: Performance Metrics and Measures, Parallel Processing Applications, Speedup Performance Laws, Scalability Analysis and Approaches. Processors and Memory Hierarchy: Advanced Processor Technology, Superscalar and Vector Processors, Memory Hierarchy Technology.

UNIT III

Bus, Cache and Shared Memory: Bus Systems, Cache Memory Organizations, Shared-Memory Organizations, Pipelining and Super Scalar Techniques: Linear Pipeline Processors, Nonlinear Pipeline Processors, Instruction Pipeline Design, Arithmetic Pipeline Design.

UNIT IV

Multiprocessors and Multicomputer: Multiprocessor System Interconnects Cache Coherence and Synchronization Mechanisms, Three Generations of Multicomputers, Message-Passing Mechanisms.

UNIT V

Multivector and SIMD Computers: Vector Processing Principles, Multivector, MultiProcessors, Compound Vector Processing, SIMD Computer Organizations, The Connection Machine CM-5.

UNIT VI

Scalable, Multithreaded and Dataflow Architectures: Latency, Hiding Techniques, Principles of Multithreading, Fine-Grain Multicomputers, Scalable and Multithreaded Architectures, Dataflow and Hybrid Architectures.

UNIT VII

Instruction Level Parallelism: Introduction, Basic Design Issues, Problem Definition, Model of a Typical Processor, Operand Forwarding, Reorder Buffer, Register Renaming-Tomasulo's

Algorithm, Branch Prediction, Limitations in Exploiting Instruction Level Parallelism, Thread Level Parallelism.

UNIT VIII

Trends in Parallel Systems: Brief Overview of Technology, Forms of Parallelism, Case Studies.

TEXT BOOKS:

1. Advanced Computer Architecture, Kai Hwang and Jotwani, Second Edition, McGraw-Hill Publications.

REFERENCES:

1. Advanced Computer Architecture, D.Sima, T.Fountain, P.Kacsuk, Pearson Education.
2. Computer Architecture: A Quantitative Approach, Third Edition, John L.Hennessy and David A. Patterson, Morgan Kufmann(An Imprint of Elsevier).
3. Computer Architecture and Parallel Processing, Hwang and Briggs.

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(9A05701) WEB TECHNOLOGIES

UNIT I

Introduction to Web Technologies: Introduction to Web Servers like Apache 1.1,IIS XAMPP(Bundle Server), WAMP(Bundle

Server),Handling HTTP Request and Response, Installations of Above Servers.

UNIT II

Introduction to PHP: The Problem with Other Technologies (Servelets and JSP), Downloading, Installing, Configuring PHP, Programming in a Web Environment and the Anatomy of a PHP Page.

UNIT III

Overview of PHP Data Types and Concepts: Variables and Data Types, Operators, Expressions and Statements, Strings, Arrays and Functions.

UNIT IV

Overview of Classes, Objects and Interfaces**:** Creating Instances using Constructors, Controlling Access to Class Members, Extending Classes, Abstract Classes and Methods, using Interfaces, Using Class Destructors, File Handling and using Exceptions.

UNIT V

PHP Advanced Concepts: Using Cookies, Using HTTP Headers, Using Sessions, Authenticating users, Using Environment and Configuration variables, Working with Date and Time.

UNIT VII

Creating and Using Forms: Understanding Common Form Issues, GET vs. POST, Validating Form Input, Working with Multiple Forms, and Preventing Multiple Submissions of a Form.

UNIT VII

PHP and Database Access: Basic Database Concepts, Connecting to a MYSQL Database, Retrieving and Displaying Results, Modifying, Updating and Deleting Data, MVC architecture.

UNIT VIII

PHP and Other Web Technologies**:** PHP and XML, PHP and AJAX

TEXT BOOKS:

1. Beginning PHP and MySQL, Jason Gilmore, Third Edition , Apress Publications (Dream tech.).
2. PHP5 Recipes A problem Solution Approach Lee Babin, Nathan A Good, Frank M.Kromann and Jon Stephens.

REFERENCES:

1. Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHP, J.Lee and B.Ware(Addison Wesley) Pearson Education.
2. PHP6 Fast and Easy Web Development, Julie Meloni and Matt Telles, Cengage Learning Publications.
3. PHP5.1, I. Bayross and S.Shah, The X Team, SPD.
4. PHP and MySQL, Example, E.Quigley, Prentice Hall(Pearson).
5. PHP Programming solutions, V.Vaswani, TMH.

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B.Tech. III-II-Sem. (C.S.S.E)	**T**	**P**	**C**
	4	**0**	**4**

(9A05603) OPTIMIZING TECHNIQUES
(Common to CSE, CSSE)

UNIT I

Introduction to Optimization: Requirements for the Application of Optimization Methods, Applications of Optimization in Engineering, Structure of Optimization Problems, Functions of a Single Variable: Properties of Single-Variable Functions, Optimality Criteria, Region Elimination Methods, Polynomial Approximation or Point Estimation Methods.

UNIT II

Functions of a Several Variables: Optimality Criteria, Direct-Search Methods, Gradient Based Methods, Comparison of Methods and Numerical Results.

UNIT III

Linear Programming: Formulation of Linear Programming Models, Graphical Solution of Linear Programming in Two Variables, Linear Programming in Standard Form, Principles of the Simplex Method, Applications.

UNIT IV

Transportation Problems: Introduction, Optimal Solution for BFS, Unbalanced Transportation Problem, Transshipment, Assignment Problems, Hungarian Method.

UNIT V

Constrained Optimality Criteria: Equality-Constrained Problems, Lagrange Multipliers, Economic Interpretation of Lagrange Multipliers, Kuhn-Tucker Conditions, Kuhn-Tucker Theorems, SaddlePoint Conditions, Second-Order Optimality Conditions, Generalized Lagrange Multiplier Method, Generalization of Convex Functions.

UNIT VI

Transformation Methods: Penalty Concept, Algorithms, Codes, and Other Contributions, Method of Multipliers, Constrained Direct Search: Problem Preparation, Adaptations of Unconstrained Search Methods, Random-Search Methods.

UNIT VII

Quadratic Approximation Methods for Constrained Problems: Direct Quadratic Approximation, Quadratic Approximation of the Lagrangian Function, Variable Metric Methods for Constrained Optimization, Structured Problems and Algorithms: Integer Programming, Quadratic Programming, Complementary Pivot Problems, Goal Programming.

UNIT VIII

Project Management: Introduction, Critical Path Method, Critical Path Determination, Optimal Scheduling by CPM, Project Evaluation and Review Technique, Dynamic Programming: Introduction, Formulation, Recursive Relations, Continuous Cases, Discrete Cases, Forward Recursions, Linear Programming vs. Dynamic Programming.

TEXT BOOKS:

1. Engineering Optimization: Methods and Applications, A. Ravindran,K. M. Ragsdell, G.V. Reklaitis, Second Edition, Wiley India Edition.
2. Introductory Operation Research: Theory and Applications, H.S. Kasana, K.D. Kumar, Springer International Editions.

REFERENCES:

1. Optimization Methods in Operations Research and systems Analysis, K.V. Mital and C.Mohan, New Age International (P) Limited, Publishers, Third Edition, 1996.
2. Operations Research, J.K.Sharma, Mac Millan.
3. Operations Research: An Introduction, H.A. Taha, PHI Pvt. Ltd., Sixth Edition, Pearson Education

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B.Tech. III-II-Sem. (C.S.S.E)	**T**	**P**	**C**
	0	**3**	**2**

(9A15602) COMPUTER NETWORKS LAB

1. Write a Program To Implement Bit Stuffing.
2. Write a Program To Implement Character Count.
3. Write a Program To Implement Character Stuffing.
4. Implement On A Data Set Of Characters The Three CRC Polynomials – CRC 12, CRC 16 And RC CCIP.
5. Write a Program To Implement Transposition One Time Padding.
6. Write a Program To Implement Hamming Code For Single Bit Error Correction.
7. Implement Dijkstra's Algorithm To Compute The Shortest Path Thru A Graph.
8. Take an Example Subnet Graph With Weights Indicating Delay Between Nodes. Now Obtain Routing Table Art Each Node Using Distance Vector Routing Algorithm.
9. Take An Example Subnet Of Hosts. Obtain Broadcast Tree For It.
10. Take a 64 Bit Playing Text And Encrypt The Same Using DES Algorithm.
11. Write a Program To Break The Above DES Coding.
12. Write a Program To Implement Substitution Cipher Cryptography.
13. Using RSA Algorithm Encrypt A Text Data And Decrypt the Same.
14. Write a Program To Implement Transposition Of Cipher Cryptography.
15. Write a Program To Implement Two Way Communications in Client/Server Architecture.

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	0	**3**	**2**

(9A12602) WEB TECHNOLOGIES LAB

(Common to CSSE, IT)

Objective :

To create a fully functional website with mvc architecture. To Develop an online Book store using we can sell books (Ex amazon .com).

Hardware and Software required :

1. A working computer system with either Windows or Linux
2. A web browser either IE or firefox
3. Apache web server or IIS Webserver
4. XML editor like Altova Xml-spy [www.Altova.com/**XML**Spy – free] , Stylusstudio , etc.,
5. A database either Mysql or Oracle
6. JVM(Java virtual machine) must be installed on your system
7. BDK(Bean development kit) must be also be installed

Week-1:

Design the following static web pages required for an online book store web site.

1) **HOME PAGE:**

The static home page must contain three **frames**.

Top frame : Logo and the college name and links to Home page, Login page, Registration page, Catalogue page and Cart page (the description of these pages will be given below).

Left frame : At least four links for navigation, which will display the catalogue of respective links.

For e.g.: When you click the link **"CSE"** the catalogue for **CSE** Books should be displayed in the Right frame.

Right frame: The *pages to the links in the left frame must be loaded here*. Initially this page contains description of the web site.

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart

CSE ECE EEE CIVIL	Description of the Web Site

Fig 1.1

2) LOGIN PAGE:

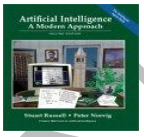
This page looks like below:

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Login : Password: Submit Reset			

3) CATOLOGUE PAGE:

The catalogue page should contain the details of all the books available in the web site in a table.
The details should contain the following:

1. Snap shot of Cover Page.
2. Author Name.
3. Publisher.
4. Price.
5. Add to cart button.

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	   	Book : XML Bible Author : Winston Publication : Wiely Book : AI Author : S.Russel Publication : Princeton hall Book : Java 2 Author : Watson Publication : BPB publications Book : HTML in 24 hours Author : Sam Peter Publication : Sam publication	$ 40.5 $ 63 $ 35.5 $ 50	Add to cart Add to cart Add to cart Add to cart

Note: Week 2 contains the remaining pages and their description.

Week-2:

4) CART PAGE:

The cart page contains the details about the books which are added to the cart.

The cart page should look like this:

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	**Book name** Java 2 XML bible	**Price** $35.5 $40.5	**Quantity** 2 1	**Amount** $70 $40.5
		Total amount -		$130.5

5) REGISTRATION PAGE:

Create a "*registration form* "with the following fields

1) Name (Text field)
2) Password (password field)
3) E-mail id (text field)
4) Phone number (text field)
5) Sex (radio button)
6) Date of birth (3 select boxes)
7) Languages known (check boxes – English, Telugu, Hindi, Tamil)
8) Address (text area)

WEEK 3:

VALIDATION:

Write *JavaScript* to validate the following fields of the above registration page.

1. Name (Name should contains alphabets and the length should not be less than 6 characters).
2. Password (Password should not be less than 6 characters length).
3. E-mail id (should not contain any invalid and must follow the standard pattern name@domain.com)
4. Phone number (Phone number should contain 10 digits only).

Note : You can also validate the login page with these parameters.

Week-4:

Design a web page using **CSS (C**ascading **S**tyle **S**heets**)** which includes the following:
1) Use different font, styles:
In the style definition you define how each selector should work (font, color etc.).
Then, in the body of your pages, you refer to these selectors to activate the styles.

For example:

```
<HTML>
<HEAD>
<style type="text/css">
B.headline {color:red, font-size:22px, font-family:arial, text-decoration:underline}
</style>

</HEAD>

<BODY>
<b>This is normal bold</b><br>
Selector {cursor:value}

For example:

<html>
<head>
<style type="text/css">
```

```
.xlink {cursor:crosshair}
.hlink{cursor:help}
</style>
</head>

<body>
<b>
<a href="mypage.htm" class="xlink">CROSS LINK</a>
<br>
<a href="mypage.htm" class="hlink">HELP LINK</a>
</b>
</body>
</html>

<b class="headline">This is headline style bold</b>
</BODY>

</HTML>
```

2) Set a background image for both the page and single elements on the page.
You can define the background image for the page like this:

```
BODY {background-image:url(myimage.gif),}
```

3) Control the repetition of the image with the background-repeat property.
As background-repeat: repeat
Tiles the image until the entire page is filled, just like an ordinary background image in plain HTML.

4) Define styles for links as

A:link
A:visited
A:active
A:hover

Example:

<style type="text/css">
A:link {text-decoration: none}
A:visited {text-decoration: none}
A:active {text-decoration: none}
A:hover {text-decoration: underline, color: red,}
</style>

5) Work with layers:

For example:

LAYER 1 ON TOP:

LAYER 1 LAYER 2

LAYER 2 ON TOP:

LAYER 1 LAYER 2

6) Add a customized cursor:

Selector {cursor:value}

For example:

```
<html>
<head>
<style type="text/css">
.xlink {cursor:crosshair}
.hlink{cursor:help}
</style>
</head>

<body>
<b>
```

```
<a href="mypage.htm" class="xlink">CROSS LINK</a>
<br>
<a href="mypage.htm" class="hlink">HELP LINK</a>
</b>
</body>
</html>
```

Week-5:

Write an XML file which will display the Book information which includes the following:

1) Title of the book
2) Author Name
3) ISBN number
4) Publisher name
5) Edition
6) Price

Write a Document Type Definition (DTD) to validate the above XML file.

Display the XML file as follows.

The contents should be displayed in a table. The header of the table should be in color GREY. And the Author names column should be displayed in one color and should be capitalized and in bold. Use your own colors for remaining columns.

Use XML schemas XSL and CSS for the above purpose.

Note: Give at least for 4 books. It should be valid syntactically.

Hint: You can use some xml editors like XML-spy

Week-6:

VISUAL BEANS:

Create a simple visual bean with a area filled with a color.

The shape of the area depends on the property shape. If it is set to true then the shape of the area is Square and it is Circle, if it is false.

The color of the area should be changed dynamically for every mouse click. The color should also be changed if we change the color in the "property window ".

Week-7:

1) Install IIS web server and APACHE.
   While installation assign port number 4040 to IIS and 8080 to APACHE. Make sure that these ports are available i.e., no other process is using this port.
2) Access the above developed static web pages for books web site, using these servers by putting the web pages developed in week-1 and week-2 in the document root.

Access the pages by using the urls :
http://localhost:4040/rama/books.html (for tomcat)
http://localhost:8080/books.html (for Apache)

Week-8:

User Authentication :
Assume four users user1,user2,user3 and user4 having the passwords pwd1,pwd2,pwd3 and pwd4 respectively. Write a PHP for doing the following.
1. Create a Cookie and add these four user id's and passwords to this Cookie.
2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) available in the cookies.
If he is a valid user(i.e., user-name and password match) you should welcome him by name(user-name) else you should display " You are not an authenticated user ''.
Use init-parameters to do this.

Week-9:
Install a database(Mysql or Oracle).
Create a table which should contain at least the following fields: name, password, email-id, phone number(these should hold the data from the registration form).
Write a PHP program to connect to that database and extract data from the tables and display them. Experiment with various SQL queries.

Insert the details of the users who register with the web site, whenever a new user clicks the submit button in the registration page (week2).

Week-10:

Write a PHP which does the following job:

Insert the details of the 3 or 4 users who register with the web site (week9) by using registration form. Authenticate the user when he submits the login form using the user name and password from the database (similar to week8 instead of cookies).

Week-11:

Create tables in the database which contain the details of items (books in our case like Book name , Price, Quantity, Amount) of each category. Modify your catalogue page (week 2)in such a way that you should connect to the database and extract data from the tables and display them in the catalogue page using PHP

Week-12:

HTTP is a stateless protocol. Session is required to maintain the state.

The user may add some items to cart from the catalog page. He can check the cart page for the selected items. He may visit the catalogue again and select some more items. Here our interest is the selected items should be added to the old cart rather than a new cart. Multiple users can do the same thing at a time (i.e., from different systems in the LAN using the ip-address instead of localhost). This can be achieved through the use of sessions. Every user will have his own session which will be created after his successful login to the website. When the user logs out his session should get invalidated (by using the method session.invalidate()).

Modify your catalogue and cart PHP pages to achieve the above mentioned functionality using sessions.

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(9A05503) COMPUTER GRAPHICS

UNIT I

Introduction: Image Processing as Picture Analysis, The Advantages of Interactive Graphics, Representative Uses of Computer Graphics, Classification of Applications, Development of Hardware and Software for Computer Graphics, Conceptual Framework for Interactive Graphics, Drawing with SRGP, Basic Interaction Handling, Raster Graphics Features, Limitations of SRGP.

UNIT II

Basic Raster Graphics Algorithms for Drawing 2D Primitives: Overview, Scan Converting Lines, Scan Converting Circles, Scan Converting Ellipses, Filling Rectangles, Filling Polygons, Filling Ellipse Arcs, Pattern Filling, Thick Primitives, Line Style and Pen Style, Clipping in a Raster World, Clipping Lines, Clipping Circles and Ellipses, Clipping Polygons, Generating Characters, SRGP Copy Pixel, Antialiasing.

UNIT III

Geometrical Transformations: 2D Transformations, Homogeneous Coordinates and Matrix Representation of 2D Transformations, Composition of 2D Transformations, The Window-to-Viewport Transformation, Efficiency, Matrix Representation of 3D Transformations, Composition of 3D Transformations, Transformation as a Change in Coordinate System, Viewing in 3D: Projections, Specifying an Arbitrary 3D View, Examples of 3D Viewing, The Mathematics of Planar Geometric Projections, Implementing Planar Geometric Projections, Coordinate Systems.

UNIT IV

Object Hierarchy and Simple PHIGS(SPHIGS): Geometric Modeling, Characteristics of Retained-Mode Graphics Packages, Defining and Displaying Structures, Modeling Transformations, Hierarchical Structure Networks, Matrix Composition in Display Traversal, Appearance-Attribute Handling in Hierarchy, Screen Updating and Rendering Modes, Structure Network Editing for Dynamic Effects, Interaction, Additional Output Features, Implementation Issues, Optimizing Display of Hierarchical Models, Limitations of Hierarchical Modeling in PHIGS, Alternative Forms of Hierarchical Modeling, Input Devices, Interaction Techniques, and Interaction Tasks: Interaction Hardware, Basic Interaction Tasks, Composite Interaction Tasks.

UNIT V

Representing Curves and Surfaces: Polygon Meshes, Parametric Cubic Curves, Parametric Bicubic Surfaces, Quadratic Surfaces.

UNIT VI

Solid Modeling: Representing Solids, Regularized Boolean Set Operations, Primitive Instancing, Sweep Representations, Boundary Representations, Spatial-Partitioning Representations, Constructive Solid Geometry, Comparison of Representations, User Interfaces for Solid Modeling.

UNIT VII

Achromatic Light and Colored Light: Achromatic Light, Chromatic Color, Color Models for Raster Graphics, Reproducing Color, Using Color in Computer Graphics.

UNIT VIII

Illumination and Shading: Illumination Models, Shading Models for Polygons, Surface Detail, Shadows, Transparency, Interobject Reflections, Physically Based Illumination Models, Extended Light Sources, Spectral Sampling, Improving the Camera Model, Global Illumination Algorithms, Recursive Ray Tracing, Radiosity Methods, The Rendering Pipeline.

TEXT BOOKS:

1. Computer Graphics Principles and Practice, Second Edition in C, James D.Foley, Andries Van Dam, Steven K.Feiner, Jhon F.Hughes, Pearson Education.
2. Computer Graphics C version, Donald Hearn and M. Pauline Baker, Pearson Education.

REFERENCES:

1. Computer Graphics Second edition, Zhigand xiang, Roy Plastock, Schaum's Outlines, Tata Mc Graw Hill.
2. Principles of Interactive Computer Graphics, Neuman and Sproul, TMH.
3. Principles of Computer Graphics, Shalini, Govil-Pai, Springer.
4. Computer Graphics, Steven Harrington, TMH
5. Computer Graphics, F.S.Hill, S.M.Kelley, PHI.
6. Computer Graphics, P.Shirley, Steve Marschner & Others, Cengage Learning.
7. An Integrated Introduction to Computer Graphics and Geometric Modelling, R.Goldman, CRC Press, Taylor & Francis Group.
8. Computer Graphics,Rajesh K.Maurya, Wiley India.

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B.Tech. IV-I-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A04701) EMBEDDED REAL-TIME OPERATING SYSTEM

(Common to ECE, CSSE, E Con E, EIE)

UNIT I

INTRODUCTION

History of Embedded Systems, Major Application Areas of Embedded Systems, Purpose of Embedded Systems, Core of the Embedded System, Sensors and Actuators, Communication Interface, Embedded Firmware.

UNIT II

HARDWARE SOFTWARE Co-DESIGN and PROGRAMME MODELLING

Characteristics of an Embedded System, Quality Attributes of Embedded Systems, Fundamental Issues in Hardware Software Co-Design, Computational Models in Embedded Design, Introduction to Unified Modeling Language (UML),Hardware Software Trade-offs.

UNIT III

EMBEDDED HARDWARE DESIGN AND DEVELOPMENT

Analog Electronic Components, Digital Electronic Components, VLSI and Integrated Circuit Design, Electronic Design Automation (EDA) Tools, Embedded Firmware Design Approaches, Embedded Firmware Development Languages.

UNIT IV

REAL-TIME OPERATING SYSTEMS (RTOS) BASED EMBEDDED SYSTEM DESIGN

Operating System Basics, Types of Operating Systems, Tasks, Process and Threads, Multiprocessing and Multitasking, Task Scheduling, Threads, Processes and Scheduling :Putting them Altogether, Task Communication, Task Synchronization, Device Drivers, How to Choose an RTOS.

UNIT V
DEVICES AND COMMUNICATION BUSES FOR DEVICES NETWORK

IO Types and Examples, Serial Communication Devices, Parallel Device Ports, Sophisticated Interfacing Features in Device Ports, Wireless Devices, Timer and Counting Devices, Watchdog Timer, Real Time Clock, Networked Embedded Systems, Serial Bus Communication Protocols, Parallel Bus Device Protocols- Parallel Communication Network Using ISA, PCI, PCI-X and Advanced Buses, Internet Enabled Systems- Network Protocols, Wireless and Mobile System Protocols.

UNIT VI
PROGRAM MODELING CONCEPTS

Program Models, DFG Models, State Machine Programming Models for Event-controlled Program Flow, Modeling of Multiprocessor Systems, UML Modeling.

UNIT VII
REAL TIME OPERATING SYSTEMS

OS Services, Process Management, Timer .Functions, Event Functions, Memory Management, Device, File and IO Subsystems Management, Interrupt Routines in RTOS Environment and Handling of Interrupt Source Calls, Real-time Operating Systems, Basic-Design an RTOS, RTOS Task Scheduling Models, Interrupt Latency and Response of the Tasks as Performance Matrices, OS Security Issues.

UNIT VIII
DESIGN EXAMPLES AND CASE STUDIES OF PROGAM MODELING AND PROGRAMMING WITH RTOS-2

Case study of Communication between Orchestra Robots, Embedded Systems in Automobile, Case study of an Embedded System for an

Adaptive Cruise Control(ACC) System in a Car, Case study of an Embedded System for a Smart Card, Case study of a Mobile Phone Software for Key Inputs.

TEXT BOOKS:

1. Introduction to Embedded System- Shibu KV, Mc-Graw Hill Higher Edition.
2. Embedded Systems Architecture, Programming and Design- Raj Kamal, Second Edition, McGraw-Hill Companies.
3. Embedded System Design by Peter Marwedel, Springer.

REFERENCES:

1. Embedded System Design – A Unified Hardware/Software Introduction-Frank Vahid, Tony D. Givargis, John Wiley, 2002.
2. Embedded/ Real Time Systems-KVKK Prasad, Dreamtech Press, 2005.
3. An Embedded Software Primer- David E. Simon, Pearson Ed. 2005.

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B.Tech. IV-I-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A15701) PERFORMANCE EVALUATION of COMPUTER SYSTEMS

UNIT I

Introduction: Motivation, Probability Models; Sample Space, Events, Algebra of Events, Graphical Methods of Representing Events, Probability Axioms, Discrete Random Variables, Random Variables and their Event Spaces, Distribution Functions, Special Discrete Distributions, Analysis of Program MAX, The Probability Generating Function, Discrete Random Vectors, Independent Random Variables, Continuous Random Variables, The Exponential Distribution, The Reliability, Failure Density and Hazard Function, Some Important Distributions, Functions of a Random Variable, Jointly Distributed Random Variables, Order Statistics

UNIT II

Expectation: Moments, Expectation of Functions of More Than one Random Variable, Transform Methods, Moments and Transforms of Some Important Distributions, Computation of Mean Time to Failure, Inequalities and Limit Theorems, Conditional Distribution and Conditional Expectation: Mixture Distributions, Conditional Expectation, Imperfect Fault Coverage and Reliability, Stochastic Processes: Classification of Stochastic Processes, The Bernoulli Process, The Poisson Process, Renewal Processes, Availability Analysis, Random Incidence, Renewal Model of Program Behavior.

UNIT III

Discrete-Parameter Markov Chains: Computation of n-step Transition Probabilities, State Classification and Limiting Distributions, Distribution of Times between State Changes, Irreducible Finite Chains with Aperiodic States, The M/G/1 Queuing System, Discrete Parameter Birth-Death Processes, Finite Markov Chains with Absorbing States, Continuous-Parameter Markov Chains: The Birth and Death Process, Other Special Cases of the Birth-Death Model, Non-Birth-Death Processes, Markov Chains with Absorbing States, Networks of Queues: Open Queuing Networks, Closed Queuing Networks, Non Exponential Service-Time Distributions and Multiple Job Types, Non-Product-Form Networks.

UNIT IV

Structures and Algorithms for Array Processors, SIMD Array Processors, AIMD Interconnection Networks, Parallel Algorithms for Array Processors, Associative Array Processing.

UNIT V

SMID Computers and Performance Enhancement: The Space of SMID Computers, Array and Associative Processors, SIMD Computer Perspectives, The Illiac IV and the BSP Systems, The Illiac IV System Architecture, Applications of Illiac IV, The Massively Parallel Processor, The MPP System Architecture, Performance Enhancement Methods: Parallel Memory Allocation, Array Processing Languages, Performance Analysis of Array Processors, Multiple-SMID Computer Organization.

UNIT VI

Multiprocessor Architecture and Programming, Functional Structures, Interconnection Networks, Parallel Memory Organizations, Multiprocessor Operation Systems, Exploiting Concurrency for Multiprocessing.

UNIT VII

Multiprocessing Control and Algorithm, Inter-process Communication Mechanisms, System Deadlocks and Protection, Multiprocessor Scheduling Strategies, Parallel Algorithms for Multiprocessors.

UNIT VIII

Example Multiprocessor Systems, The Space of Multiprocessor Systems, The C.mmp Multiprocessor System, The S-1 Multiprocessor, The HEP Multiprocessor, Mainframe Multiprocessor Systems, The Cray X-map and Cray 2

TEXT BOOKS:

1. Probabilty and Statistics with Reliability, Queuing, and Computer Science Applications, Kishore Trivedi, PHI.
2. Computer Architecture and Parallel Processing, Kai Hwang and Faye A.Briggs, MGH.

REFERENCES:

1. Computer Networks and Systems: Queuing Theory and Performance Evaluation, Thomas G. Robertazzi, Springer.

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B.Tech IV-I Sem. (C.S.S.E)	**T**	**P**	**C**
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(9AHS401) MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS
(Common to CSE, CSSE, IT)

UNIT I: INTRODUCTION TO MANAGERIAL ECONOMICS
Definition, nature and scope of managerial economics- relation with other disciplines- 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 :THEORY OF PRODUCTION AND COST ANALYSIS
Production Function – Isoquants and Isocosts, MRTS, least cost combination of inputs, Cobb-Douglas production function, laws of returns, internal and external economies of scale.
Cost Analysis: Cost concepts, opportunity cost, fixed Vs variable costs, explicit costs Vs Implicit costs, out of pocket costs Vs Imputed costs.

Break-Even Analysis (BEA) - Determination of Break Even Point (Simple Problems)- Managerial significance and limitations of BEA.

UNIT IV: INTRODUCTION TO MARKETS AND PRICING POLICIES

Market structures: Types of competition, features of perfect competition, monopoly- monopolistic competition. Price-Output determination under perfect competition and monopoly - Methods of Pricing-cost plus pricing, marginal cost, limit pricing, skimming pricing, bundling pricing, sealed bid pricing and peak load pricing.

UNIT V: BUSINESS ORGANISATIONS AND 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 VI: 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 proposal, methods of capital budgeting – payback method, accounting rate of return (ARR) and Net present value method (Simple problems).

UNIT VII: 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 VIII: FINANCIAL ANALYSIS THROUGH RATIOS

Computation, Analysis and Interpretation of financial statements through Liquidity Ratios (Current 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 Ratios and EPS), Du Pont Chart.

TEXT BOOKS:

1. Aryasri: Managerial Economics and Financial Analysis, 4/e, TMH, 2009.

2. Varshney & Maheswari: Managerial Economics, Sultan Chand, 2009.

REFERENCES

1. Premchand Babu, Madan Mohan:Financial Accounting and Analysis,Himalaya, 2009
2. S.A. Siddiqui and A.S. Siddiqui: Managerial Economics and Financial Analysis, New Age International,. 2009.
3. Joseph G. Nellis and David Parker: Principles of Business Economics, Pearson, 2/e, New Delhi.
4. Domnick Salvatore: Managerial Economics in a Global Economy, Cengage, 2009.
5. H.L.Ahuja: Managerial Economics, S.Chand, 3/e, 2009

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B.Tech. IV-I-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A05708) NETWORK MANAGEMENT SYSTEMS
(Common to CSE, CSSE, IT)
(ELECTIVE-I)

UNIT I

Data Communications and Network Management Overview: Analogy of Telephone Network Management, Communications Protocols and Standards, Case Histories on Networking and Management, Network Management Functions, Network and System Management.

UNIT II

Basic Foundations: Standards, Models, and Language, Network Management Standards, Network Management Models, Organization Model, Information Model, Communication Model, Functional Model, Network Management Applications, Abstract Syntax Notation One: ASN.1, Encoding Structure.

UNIT III

SNMPv1 Network Management: History of SNMP Management, Internet Organizations and Standards, SNMP Model, Organization and Information Models, Communication and Functional Models.

UNIT IV

SNMP Management: SNMPv2, Major Changes in SNMPv2, SNMPv2 System Architecture, SNMPv2 Structure of Management Information, SNMPv2 Management Information Base, SNMPv2 Protocol.

UNIT V

SNMP Management: SNMPv3, SNMPv3 Key Features, SNMPv3 Documentation Architecture, SNMPv3 Applications, SNMPv3 Management Information Base, SNMPv3 User-based Security Model, Access Control.

UNIT VI

SNMP Management: RMON, Remote Monitoring, RMON SMI and MIB, RMON1, RMON2, A Case Study on Internet Traffic.

UNIT VII

Some Current Network Management Topics: Web-Based Management, XML-Based Network Management.

UNIT VIII

Additional Topics in Networks Management, Distributed Network Management, Reliable and Fault Tolerant Network Management.

TEXT BOOKS:

1. Network Management: Principles and Practice, Mani Subramanian, Addison- Wesley Pub Co, First Edition, 2000.
2. SNMP, SNMPv2, SNMPv3, AND RMON 1 and 2, William Stallings, Addison- Wesley, Third Edition, 1999.

REFERENCES:

1. Practical Guide to SNMPv3 and Network Management, David Zeltserman, PHI.
2. Network Security and Management, Second Edition, Brijendra Singh, PHI.
3. Network management, Morris, Pearson Education.

4. Principles of Network System Administration, Mark Burges, Wiley Dreamtech.
5. Distributed Network Management, Paul, John Wiley.

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B.Tech. IV-I-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A05709) INFORMATION SECURITY
(Common to CSE, CSSE)
(ELECTIVE-I)

UNIT I

Is There A Security Problem In Computing: What Does Security Mean?, Attacks, The Meaning of Computer Security, Computer Criminals, Methods of Defense, Terminology and Background, Substitution Ciphers, Transpositions(Permutations), Making Good Encryption Algorithm, The Data Encryption Standard.

UNIT II

Program Security: Secure Programs, NonMalicious Program Errors, Viruses and Other Malicious Code, Targeted Malicious Code.

UNIT III

Public-Key Cryptography and RSA, Key Management; Other Public Key Cryptosystems, Message Authentication and Hash Functions: Authentication Requirements, Authentication Functions, Message

Authentication Codes, Hash Functions, Security Hash Functions and MACs Hash and MAC Algorithms: Secure Hash Algorithm, Whirlpool.

UNIT IV

Digital Signatures and Authentication Protocols: Digital Signatures, Authentication Protocols.

UNIT V

Authentication Applications: Kerberos, Electronic Mail Security: Pretty Good Privacy, S/MIME.

UNIT VI

IP Security: IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combing Security Associations, Key Management.

UNIT VII

Web Security: Web Security Considerations, Secure Socket Layer and Transport Layer Security, Secure Electronic Transaction.

UNIT VIII

Intruders: Intruders, Intrusion Detection, Password Management, Firewalls: Firewall Design and Principles, Trusted Systems.

TEXT BOOKS:

1. Security in Computing, Charles P. Pfleeger, Shari Lawrence Pfleeger, Deven Shah, Pearson Education.
2. Cryptography and Network Security: William Stallings Fourth Edition, Pearson Education.

REFERENCES:

1. Information Security, Markow, Breithaupt, Pearson Education.
2. Principles and Practices of Information Security, Michal E. Whitman and Herbert J. Mattord, Cengage Learning.
3. Network Security Essentials (Applications and Standards), William Stallings Pearson Education.

4. Hack Proofing Your Network, Ryan Russell, Dan Kaminsky, Rain Forest Puppy, Joe Grand, David Ahmad, Hal Flynn Ido Dubrawsky, Steve W.Manzuik and Ryan Permeh, Wiley Dreamtech.
5. Fundamentals of Network Security, Eric Maiwald (Dreamtech press).
6. Network Security: Private Communication in a Public World, Charlie Kaufman, Radia Perlman and Mike Speciner, Pearson/PHI.
7. Principles of Information Security, Whitman, Thomson.
8. Network Security: The Complete Reference, Robert Bragg, Mark Rhodes, TMH
9. Introduction to Cryptography, Buchmann, Springer.

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B.Tech. IV-I-Sem. (C.S.S.E)	**T**	**P**	**C**
	4	**0**	**4**

(9A15702) HUMAN COMPUTER INTERACTION (ELECTIVE - I)

UNIT I

Usability of Interactive Systems: Introduction, Usability Goals and Measures, Usability Motivations, Universal Usability, Goals for our Profession. Guidelines, Principles, and Theories: Introduction, Guidelines, Principles, Theories.

UNIT II

Managing Design Processes: Introduction, Organizational Design to Support Usability, The Four Pillars of Design, Development Methodologies, Ethnographic Observation, Participatory Design, Scenario Development, Social Impact Statement for Early Design Review, Legal Issues. Evaluating Interface Designs: Introduction,

Expert Reviews, Usability Testing and Laboratories, Survey Instruments, Acceptance Tests, Evaluation During Active Use, Controlled Psychologically Oriented Experiments.

UNIT III

Direct Manipulation and Virtual Environments: Introduction, Examples of Direct Manipulation, Discussion of Direct Manipulation, 3D Interfaces, Teleoperation, Virtual and Augmented Reality, Menu Selection, Form Fill-In, and Dialog Boxes: Introduction, Task-Related Menu Organization, Single Menus, Combinations of Multiple Menus, Content Organization, Fast Movement through Menus, Data Entry with Menus: From Fill-In, Dialog Boxes and Alternatives, Audio Menus and Menus for Small Displays.

UNIT IV

Command and Natural Languages: Introduction, Command Organization Functionality, Strategies and Structures, Naming and Abbreviations, Natural Language in Computing. Interactive Devices: Introduction, Keyboards and Keypads, Pointing Devices, Speech and Auditory Interfaces, Displays Small and Large.

UNIT V

Collaboration and Social Media Participation: Introduction, Goals of Collaboration and Participation, Asynchronous Distributed Interfaces: Different Place, Different Time, Synchronous Distributed Interfaces: Different Place, Same Time, Face-to-Face Interfaces: Same Place, Same Time

UNIT VI

Design Issues: Quality of Service: Introduction, Models of Response-Time Impacts, Expectations and Attitudes, User Productivity, Variability in Response Time, Frustrating Experiences. Balancing Function and Fashion: Introduction, Error Messages, Nananthropomorphic Design, Display Design, Web Page Design, Window Design, Color.

UNIT VII

User Documentation and Online Help: Introduction, Online versus Paper Documentation, Reading from Paper versus from Displays, Shaping the Content of the Documentation, Accessing the Documentation, Online Tutorials and Animated Demonstrations, Online Communities for User Assistance, The Development Process.

UNIT VIII

Information Visualization**:** Introduction, Data Type by Task Taxonomy, Challenges for Information Visualization

TEXTBOOKS:

1. Designing the User Interface Strategies for Effective Human Computer Interaction, Shneiderman Plaisant Cohen Jacobs, Fifth Edition, Pearson Education.

REFERENCES:

1. Human – Computer Interaction. Alan Dix, Janet Fincay, Gre Goryd, Abowd, Russell Bealg, Pearson Education.
2. Interaction Design, Prece, Rogers, Sharps. Wiley Dreamtech,
3. User Interface Design, Soren Lauesen, Pearson Education.

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B.Tech. IV-I-Sem. (C.S.S.E)	**T**	**P**	**C**
	4	**0**	**4**

(9A15703) HIGH PERFORMANCE COMPUTING (ELECTIVE-II)

UNIT I

Introduction, History of Parallel Computers, Utilizing Temporal Parallelism, Utilizing Data Parallelism, Comparison, Data Parallel Processing, Specialized Processors, Inter-task Dependency.

UNIT II

Instruction Level Parallel Processing, Pipelining, Delays, Difficulties, Superscalar Processors, VLIW Processors, Commercial Processors, Multithreaded Processors, Future Processor Architecture.

UNIT III

Structure of Parallel Computer, Classifications, Vector Supercomputer, IRAM, Array Processors, Systolic Array Processors, Shared Memory Parallel Computers, Interconnection Networks, Distributed Shared Memory Parallel Computers, Message Passing Parallel Computers, Cluster of Workstations.

UNIT IV

Parallel Algorithms, Models of Computation, Analysis of Parallel Algorithms, Prefix Computation, Sorting, Searching, Matrix Operations, Practical Models of Parallel Computations.

UNIT V

Parallel Programming, Message Passing Programming, Shared Memory Programming, Message Passing Libraries, Data Parallel Programming.

UNIT VI

Compiler Transformations for Parallel Computers, Issues in Compiler Transformations, Target Architecture, Dependence Analysis, Transformations, Transformations for Parallel Computers, Fine Grained Parallelism, Transformation Framework, Optimizing Compilers and their Evolution.

UNIT VII

Operating Systems for Parallel Computers, Resource Management, Process Management, Process Synchronization, Inter – Process Communication, Memory Management, Input / Output Disk Arrays.

UNIT VIII

Performance Evaluation of Parallel Computers, Basics of Performance Evaluation, Sources of Parallel Overhead, Speedup Performance Laws, Scalability Metric, Performance Measurement Tools.

TEXT BOOKS:

1. Parallel Computers: Architecture and Programming, V.Rajaaraman and C.Sivaram Murthy, Prentice-Hall of India private Ltd., 2000.

REFERENCS:

1. The Design and Analysis of Parallel Algorithms, Selim G.Akl, Prentice Hall International Inc, 1989.
2. Computer Architecture and Parallel Processing, Hwang K. Briggs F.A.Mcgraw Hill – 1985.
3. The Technology of Parallel Processing, Parallel Processing Architecture and VLSI Hardware, Volume I, Angel L.Decegama, Prentice Hall Engle Wood Cliffs New Jersey 1989.
4. Parallel Computer Theory and Practice, Michael J.Quinn, McGraw Hill, Second Edition 1994.
5. New Parallel Algorithms for Direct Solution of Linear Equations, C.Siva Ram Murthy, K.N. Balasubramanya Murthy and A.Srinivas, John Wiley & Sons Inc, USA 2001.
6. Scalable Parallel Computing: Technology, Architecture and Programming: WCB, K. Hwang and Z. Xu, McGraw –Hill Inc., USA 1998.

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B.Tech. IV-I-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A15704) DISTRIBUTED DATABASES (ELECTIVE-II)

UNIT I

Introduction, Distributed Data Processing, What is A Distributed Database System, Promises of Ddbss, Complication Factors, Problem Areas, Distributed DBMS Architecture: DBMS Standardization, Architectural Models for Distributed DBMSs, Distributed DBMS Architecture.

UNIT II

Distributed Database Design: Alternative Design Strategies, Distribution Design Issues, Fragmentation, Allocation.

UNIT III

Semantic Data Control: View Management, Data Security, Semantic Integrity Control.

UNIT IV

Overview of Query Processing: Query Processing Problem, Objectives of Query Processing, Complexity of Relational Algebra Operations, Characterization of Query Processors, Layers of Query Processing, Query Decomposition and Localization-Query Decomposition, Localization of Distributed Data.

UNIT V

Optimization of Distributed Queries-Query Optimization, Centralized Query Optimization, Join Ordering in Fragment Queries, Distributed Query Optimization Algorithms.

UNIT VI

Introduction to Transaction Management: Definition of a Transaction, Properties of Transactions, Types of Transactions. Distributed Concurrency Control: Serializability Theory, Taxonomy of Concurrency Control Mechanisms, Locking-Based Concurrency Control Algorithms, Timestamp-Based Concurrency Control Algorithms, Optimistic Concurrency Algorithms, Deadlock Management, Relaxed Concurrency Control.

UNIT VII

Distributed DBMS Reliability: Reliability Concepts and Measures, Failures and Fault Tolerance in Distributed Systems, Failures in Distributed DBMS, Local Reliability Protocols, Distributed Reliability Protocols, Dealing with Suite Failures, Networking Partitioning, Parallel Database Systems- Database Servers, Parallel Architectures, Parallel DBMS Techniques, Parallel Execution Problems, Parallel Execution for Hierarchical Architecture.

UNIT VIII

Current Issues: Data Delivery Alternatives, Data Ware Housing, World Wide Web, Push Based Technologies, Mobile Databases

TEXT BOOKS:

1. Principles of Distributed Database Systems, Second Edition, M.Tamerozsu Patrick Valduriez, Pearson education

REFERENCES:

1. Distributed Databases, Stefano Ceri, Giuseppe Pelagatti, TMH.
2. Distributed Systems Concepts and Design, Coulouris Dollimori, Kinberg, Pearson Education.
3. Distributed Database Systems, Chhanda, Ray, Pearson Education.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B.Tech. IV-I-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A15705) SOFT COMPUTING
(ELECTIVE-II)

UNIT I

AI Problems and Search: AI Problems, Techniques, Problem Spaces and Search, Heuristic Search Techniques: Generate and Test, Hill Climbing, Best First Search Problem Reduction.

UNIT II

Constraint Satisfaction and Means End Analysis, Approaches to Knowledge Representation- Using Predicate Logic and Rules.

UNIT III

Artificial Neural Networks: Introduction, Basic Models of ANN, Important Terminologies, Supervised Learning Networks, Perceptron Networks, Adaptive Linear Neuron, Backpropogation Network, Asscociative Memory Networks, Traing Algorithms for Pattern Association, BAM and Hopfield Networks.

UNIT IV

Unsupervised Learning Network: Introduction, Fixed Weight Competitive Nets, Maxnet, Hamming Network, Kohonen Self-Organizing Feature Maps, Learning Vector Quantization, Counter Propogation Networks.

UNIT V

Adaptive Resonance Theory Networks, Special Networks, Introduction to Various Networks. Introduction to Classical Sets (crisp Sets) and Fuzzy Sets-operations and Fuzzy Sets, Classical Relations.

UNIT VI

Fuzzy Relations: Cardinality, Operations, Properties and Composition, Tolerance and Equivalence Relations, Membership Functions-Features, Fuzzification, Membership Value Assignments, Defuzzification.

UNIT VII

Fuzzy Arithmetic and Fuzzy Measures, Fuzzy Rule Base and Approximate Reasoning Fuzzy Decision making.

UNIT VIII

Fuzzy Logic Control Systems, Genetic Algorithm: Introduction and Basic Operators and Terminology, Applications: Optimization of TSP, Internet Search Technique.

TEXT BOOKS:

1. Principles of Soft Computing, S N Sivanandam, S N Deepa, Wiley India, 2007.

2. Soft Computing and Intelligent System Design, Fakhreddine O Karray, Clarence D Silva, Pearson Edition, 2004.

REFERENCES:

1. Computational Intelligence, Amit Konar, Springer.
8. Artificial Intelligence and Soft Computing: Behavioural and Cognitive Modelling of the Human Brain, Amit Konar, CRC press, Taylor and Francis Group.
9. Artificial Intelligence, Elaine Rich and Kevin Knight, TMH, 1991, rp2008.
10. Artificial Intelligence, Patric Henry Winston, Third Edition, Pearson Education.
11. A first course in Fuzzy Logic, Hung T Nguyen and Elbert A Walker, CRC. Press Taylor and Francis Group.

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B.Tech. IV-I-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A15706) EMBEDDED SYSTEMS LAB

1. Assembly Language Programming Examples based on 8051 Microcontroller (Minimum of Five examples)
2. Write a Program to
   a) Read inputs from switches
   b) To make LEDs blink
3. Write a Program for serial communication

4. Write a program for encryption/decryption
5. Develop necessary interfacing circuit to read data from a sensor and process using the 8051 board. The data has to be displayed on a PC monitor.
6. Sort RTOs (mCOS) on to 89C51 board and Verify.
7. Simulate an elevator movement using RTOs on 89C51 board.

Ref.: KVKK Prasad: 'Embedded/Real-Time Systems', Dream-tech, Press.

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(9A15707) COMPUTER GRAPHICS LAB

1. Implement different line drawing algorithms
2. Program to implement the midpoint line algorithm to generate a line of given slope and thickness. Implement the Polyline command using this algorithm as a routine that displays a set of straight lines

between 'n' input points. For n=1, the routine displays a single point.
3. Implement mid-point circle and ellipse algorithm.
4. Program to draw a circle, arc and a segment.
5. Implement scan-line fill, boundary fill and flood algorithm.
6. Write a program to generate a circle using polynomial method.
7. Program to demonstrate scaling and reflection.
8. Program to demonstrate translation, rotation and shearing.
9. Write a program to draw an ellipse using 2D transformations
10. Implement even odd method for polygon inside test.
11. Implement Cohen-Sutherland and Cyrus-beck line clipping algorithms
12. Implement Sutherland-Hodgeman polygon clipping algorithm
13. Implement 3D transformations
14. Program:3D Cube Rotation about x , y , z axes
15. Implement Bezier & B-spline curve, drawing algorithm
16. Implement ray-tracing algorithm

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(9AHS701) MANAGEMENT SCIENCE
(Common to CSE, CSSE, IT)

UNIT I

INTRODUCTION TO MANAGEMENT:

Concepts of Management and organization- nature, importance and Functions of Management, Taylor's Scientific Management Theory,

Fayol's Principles of Management, Mayo's Hawthorne Experiments, Maslow's Theory of Human Needs, Douglas McGregor's Theory X and Theory Y, Herzberg's Two-Factor Theory of Motivation, Systems Approach to Management, Leadership Styles, Social responsibilities of Management.

UNIT II
DESIGNING ORGANIZATIONAL STRUCTURES:
Basic concepts related to Organisation - Departmentation and Decentralisation, Types of mechanistic and organic structures of organisation (Line organization, Line and staff organization, functional organization, Committee organization, matrix organization, Virtual Organisation, Cellular Organisation, team structure, boundaryless organization, inverted pyramid structure, lean and flat organization structure) and their merits, demerits and suitability.

UNIT III
OPERATIONS MANAGEMENT:
Principles and Types of Plant Layout-Methods of production (Job, batch and Mass Production), Work Study -Basic procedure involved in Method Study and Work Measurement- Statistical Quality Control: chart, R chart, *c* chart, *p* chart, (simple Problems), Acceptance Sampling, Deming's contribution to quality.

UNIT IV
MATERIALS MANAGEMENT:
Objectives, Need for Inventory control, EOQ, ABC Analysis, Purchase Procedure, Stores Management and Stores Records.
Marketing: Functions of Marketing, Marketing Mix, Marketing Strategies based on Product Life Cycle, Channels of distribution

UNIT V
HUMAN RESOURCES MANAGEMENT (HRM):

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 VI

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 VII

STRATEGIC MANAGEMENT:

Mission, Goals, Objectives, Policy, Strategy, Programmes, Elements of Corporate Planning Process, Environmental Scanning, Value Chain Analysis, SWOT Analysis, Steps in Strategy Formulation and Implementation, Generic Strategy alternatives.

UNIT VIII

CONTEMPORARY MANAGEMENT PRACTICES:

Basic concepts of MIS, End User Computing, Materials Requirement Planning (MRP), Just-In-Time (JIT) System, Total Quality Management (TQM), Six sigma and Capability Maturity Model (CMM) Levels, Supply Chain Management, Enterprise Resource Planning (ERP), Performance Management, Business Process outsourcing (BPO), Business Process Re-engineering and Bench Marking, Balanced Score Card.

TEXT BOOKS:

1. Aryasri: Management Science, TMH, 2004.
2. Stoner, Freeman, Gilbert, Management, 6th Ed, Pearson Education, New Delhi, 2004.

REFERENCES:

1. Kotler Philip & Keller Kevin Lane: Marketing Mangement 12/e, PHI, 2005.
2. Koontz & Weihrich: Essentials of Management, 6/e, TMH, 2005.
3. Thomas N.Duening & John M.Ivancevich Management—Principles and Guidelines, Biztantra, 2003.
4. Kanishka Bedi, Production and Operations Management, Oxford University Press, 2004.
5. Memoria & S.V.Gauker, Personnel Management, Himalaya, 25/e, 2005
6. Samuel C.Certo: Modern Management, 9/e, PHI, 2005
7. Schermerhorn, Capling, Poole & Wiesner: Management, Wiley, 2002.
8. Parnell: Strategic Management, Biztantra, 2003.
9. Lawrence R Jauch, R.Gupta &William F.Glueck: Business Policy and Strategic Management, Frank Bros., 2005.
10. L.S.Srinath: PERT/CPM,Affiliated East-West Press, 2005.

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B.Tech. IV-II-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A05702) SOFTWARE TESTING

UNIT I

Introduction: Purpose of Testing, Dichotomies, Model for Testing, Consequences of Bugs, Taxonomy of Bugs.

UNIT II
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 III
Transaction Flow Testing: Transaction Flows, Transaction Flow Testing Techniques, Dataflow Testing: Basics of Dataflow Testing, Strategies in Dataflow Testing, Application of Dataflow Testing.

UNIT IV
Domain Testing: Domains and Paths, Nice and Ugly Domains, Domain Testing, Domains and Interfaces Testing, Domain and Interface Testing, Domains and Testability.

UNIT V
Paths, Path Products and Regular Expressions: Path Products and Path Expression, Reduction Procedure, Applications, Regular Expressions and Flow Anomaly Detection.

UNIT VI
Logic Based Testing: Overview, Decision Tables, Path Expressions, KV Charts, Specifications.

UNIT VII
State, State Graphs and Transition Testing: State Graphs, Good and Bad State Graphs, State Testing, Testability Tips.

UNIT VIII
Graph Matrices and Application: Motivational Overview, Matrix of Graph, Relations, Power of a Matrix, Node Reduction Algorithm, Building Tools.

TEXT BOOKS:
1. Software Testing Techniques, Boris Beizer, Second Edition, Dreamtech.
2. Software Testing Tools, Dr. K.V.K.K.Prasad, Dreamtech.

REFERENCES:

1. The Craft of Software Testing, Brian Marick, Pearson Education.
2. Software Testing, Third Edition, P.C.Jorgensen, Aurbach Publications(Dist.by SPD).
3. Software Testing, N.Chauhan, Oxford University Press.
4. Introduction to Software Testing, P.Ammann and J.Offutt, Cambridge Univ.Press.
5. Effective Methods of Software Testing, Perry, John Wiley, Second Edition, 1999.
6. Software Testing Concepts and Tools, P.Nageswara Rao, Dreamtech Press.
7. Software Testing, M.G.Limaye, TMH.
8. Software Testing, Desikan, G.Ramesh, Pearson.
9. Foundations of Software Testing, D.Graham and Others, Cengage Learning.
10. Foundations of Software Testing, A.P.Mathur, Pearson.

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B.Tech. IV-II-Sem. (C.S.S.E)	**T**	**P**	**C**
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(9A05807) WIRELESS SENSOR NETWORKS
(Common to CSE, CSSE, IT)

(ELECTIVE – III)

UNIT I

HIPERLAN: Protocol Architecture, Physical Layer, Channel Access Control Sub-layer, MAC Sub-layer, Information Bases and Networking. WLAN: Infrared vs. Radio Transmission, Infrastructure and Ad Hoc Networks, IEEE 802.11. Bluetooth: User Scenarios, Physical Layer, MAC Layer, Networking, Security, Link Management. GSM: Mobile Services, System Architecture, Radio Interface, Protocols, Localization and Calling, Handover, Security and New Data Services, Mobile Computing (MC): Introduction to MC, Novel Applications, Limitations, and Architecture.

UNIT II

Motivation for a Specialized MAC (Hidden and Exposed Terminals, Near and Far Terminals), SDMA, FDMA, TDMA, CDMA. MAC Protocols for GSM, Wireless LAN (IEEE802.11), Collision Avoidance (MACA, MACAW) Protocols.

UNIT III

IP and Mobile IP Network Layers, Packet Delivery and Handover Management, Location Management, Registration, Tunneling and Encapsulation, Route Optimization, DHCP.

UNIT IV

Conventional TCP/IP Protocols, Indirect TCP, Snooping TCP, Mobile TCP, Other Transport Layer Protocols for Mobile Networks.

UNIT V

Basics of Wireless Sensors and Applications, The Mica Mote, Sensing and Communication Range, Design Issues, Energy consumption, Clustering of Sensors, Applications

UNIT VI

Data Retrieval in Sensor Networks, Classification of WSNs, MAC Layer, Routing Layer, High-Level Application Layer Support, Adapting to the Inherent Dynamic Nature of WSNs.

UNIT VII

Sensor Network Platforms and Tools, Sensor Network Hardware, Sensor Network Programming Challenges, Node-Level Software Platforms.

UNIT VIII

Operating System: TinyOS, Imperative Language: nesC, Dataflow Style Language: TinyGALS, Node-Level Simulators, ns-2 and its Sensor Network Extension, TOSSIM.

TEXT BOOKS:

1. Mobile Computing, Raj Kamal, Oxford University Press, 2007, ISBN: 0195686772
2. Mobile Communications, Jochen Schiller, Addison-Wesley, Second Edition, 2004
3. Ad Hoc and Sensor Networks: Theory and Applications, Carlos Corderio Dharma P.Aggarwal, World Scientific Publications / Cambridge University Press, March 2006
4. Wireless Sensor Networks: An Information Processing Approach, Feng Zhao, Leonidas Guibas, Elsevier Science Imprint, Morgan Kauffman Publishers, 2005, rp2009

REFERENCES:

1. Adhoc Wireless Networks: Architectures and Protocols, C.Siva Ram Murthy, B.S.Murthy, Pearson Education, 2004
2. Wireless Sensor Networks: Principles and Practice, Fei Hu, Xiaojun Cao, An Auerbach Book, CRC Press, Taylor & Francis Group, 2010
3. Wireless Ad hoc Mobile Wireless Networks: Principles, Protocols and Applications, Subir Kumar Sarkar et al., Auerbach Publications, Taylor & Francis Group, 2008.
4. Ad hoc Networking, Charles E.Perkins, Pearson Education, 2001.
5. Wireless Ad hoc Networking, Shih-Lin Wu, Yu-Chee Tseng, Auerbach Publications, Taylor & Francis Group, 2007
6. Wireless Ad hoc and Sensor Networks: Protocols, Performance and Control, Jagannathan Sarangapani, CRC Press, Taylor & Francis Group, 2007, rp 2010.

7. Security in Ad hoc and Sensor Networks, Raheem Beyah et al., World Scientific Publications / Cambridge University Press, 2010.
8. Ad hoc Wireless Networks: A Communication-Theoretic Perspective, Ozan K.Tonguz, Gialuigi Ferrari, Wiley India, 2006, rp2009.
9. Wireless Sensor Networks: Signal Processing and Communications Perspectives, Ananthram Swami et al., Wiley India, 2007, rp2009.

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(9A15801) HIGH SPEED NETWORKS (ELECTIVE – III)

UNIT I

Introduction to Computer Networks, Review of OSI/ISO Model, High Speed Lans, Fast Ethernet, Switched Fast Ethernet, Gigabit Ethernet.

UNIT II

ISDN, FDDI, Frame Relay, Operation and Layers.

UNIT III

Introduction to SONET, Multiplexing, SONET/SDH Layers, SONET Frame Structure, Sonet Physical Layer.

UNIT IV

Introduction ATM, Cell Format and Switching Principles, Switch Architectures, Protocol Architecture, Service Categories.

UNIT V

Congestion Control in Data Networks and Internets, Effects of Congestion, Congestion Control in Packet Switched Networks, Frame Relay Congestion Control, Traffic Rate Management, Congestion Avoidance, ATM Traffic and Congestion Control, Attributes, Traffic Management Framework, Traffic Control, ABR Traffic Management.

UNIT VI

TCP/IP Protocol Suite, User Services, Protocol Operation, Connection Establishment, TCP Traffic Control, Flow Control, TCP Congestion Control, Timer Management, Window Management.

UNIT VII

Quality of Service: Integrated Service Architecture (ISA), Random Early Detection, Differentiated Services, Protocols for QoS Support, Resource Reservation (RSVP), Multiprotocol Label Switching (MPLS), Real-Time Transport Protocol (RTP).

UNIT VIII

Introduction to Optical Networks, Wavelength Division Multiplexing (WDM), Introduction to Broadcast-and-Select Networks, Switch Architectures, Channel Accessing, Wavelength Routed Networks, Switch Architectures, Routing and Wavelength Assignment, Virtual Topology Design, IP Over SONET Over ATM Over WDM – IP Over ATM Over WDM – IP Over WDM.

TEXT BOOKS:

1. High-Speed Networks and Internets, Second Edition, William Stallings, Pearson Education, 2002.
2. Fred Halsall, Multimedia Communications: Applications, Protocols, and Standards, Pearson Education Asia, 2001.
3. WDM Optical Networks: Concepts, Design, and Algorithms, C. Siva Ram Murthy and Mohan Gurusamy, PHI, 2002.

REFERENCES:

1. Optical Networks: A Practical Perspective, Rajiv Ramaswami and Kumar N. Sivarajan, Second Edition, Morgan Kaufmann (Elsevier Indian Edition), 2004
2. Communication Networks: Fundamental Concepts and key Architectures, Laon-Garcia and Widjaja, Tata McGrawHill, 2000.
3. Data Communications and Networking, Behrouz A. Forouzan, Second Edition, Tata McGraw-Hill, 2000
4. Understanding SONET/SDH and ATM: Communications Networks for Next Millennium, Stamatios V. Kartalopoulos, Prentice-Hall of India, 2001.

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(9A05703) GRID AND CLUSTER COMPUTING (ELECTIVE – III)

UNIT I

Introduction: The Different Forms of Computing, The Strengths and Weaknesses of Distributed Computing, Operating System Concepts Relevant to Distributed Computing, The Architecture of Distributed Applications, Paradigms for Distributed Applications, Choosing a Paradigm for an Application (Trade-Offs).

UNIT II

Parallel Computing Overview, Parallel Programming Models and Paradigms.

UNIT III

Cluster Computing: Introduction, Cluster Architecture, Applications of Clusters.

UNIT IV

Grid Computing: Introduction, Grid Computing Anatomy – Architecture, Architecture and Relationship to Other Distributed Technologies, Grid Computing Road Map.

UNIT V

Merging the Grid Services Architecture with the Web Services Architecture.

UNIT VI

Open Grid Service Architecture: Introduction, Architecture and Goal, Sample Use Cases: Commercial Data Center, National Fusion Collaboratory, Online Media and Entertainment, OGSA Platform Components, Open Grid Services Infrastructure.

UNIT VII

Globus GT3 Toolkit: Architecture, Programming Model.

UNIT VIII

A Sample Implementation, High Level Services, OGSI.NET Middleware Solutions.

TEXT BOOKS:

1. Distributed Computing, Principles and Applications, M.L.Liu, Pearson Education, 2004.
2. High Performance Cluster Computing, Rajkumar Buyya, Pearson Education.
3. Grid Computing, Joshy, Joseph and Craig Fellenstein, Pearson Education, 2004.

REFERENCES:

1. Grid Computing: Making the Global Infrastructure A Reality, Fran Berman, Geoffrey C Fox, Anthony J G Hey, Wiley India, 2010.
2. A Networking Approach to Grid Computing, D.Minoli, Wiley and Sons, 2006.
3. Grid Computing: A Practical Guide to Technology and Applications, A.Abbas, Firewall Media, 2008.

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(9A05801) DESIGN PATTERNS
(Common to CSE, CSSE, IT)
(ELECTIVE – IV)

UNIT I

Review of Formal Notations and Foundation Classes in C++: Class Diagram, Object Diagram, Interaction Diagram Examples, List, Iterator, ListIterator, Point, Rect, Coding in C++.

UNIT II

Introduction to Design Patterns: Design Pattern Definition, Design Patterns in Small Talk MVC, Describing Design Patterns, Catalog of Design Patterns, Organizing The Catalog, Solving of Design Problems Using Design Patterns, Selection of A Design Pattern, Use of Design Patterns.

UNIT III

Designing a Document Editor: A Case Study: Design Problems, Document Structure, Formatting, Embellishing the User Interface, Supporting Multiple Look and Feel Standards, Supporting Multiple Window Systems, User Operations, Spelling Checking and Hyphenation.

UNIT IV

Design Patterns Catalog: Creational Patterns, Abstract Factory, Builder, Factory Method, Prototype, Singleton, Discussion of Creational Patterns.

UNIT V

Structural Patterns-1: Adapter, Bridge, Composite, Decorator.

UNIT VI

Structural Patterns-2 and Behavioral Patterns-1: Structural Patterns: Façade, Flyweight, Proxy, Discuss of Structural Patterns, Behavioral Patterns: Chain of Responsibility Command, Interpreter.

UNIT VII

Behavioral Patterns-2: Iterator, Mediator, Observer, State, Strategy, Template Method, Visitor, Discussion of Behavioral Patterns.

UNIT VIII

Behavioral Patterns-3: State, Strategy, Template Method, Visitor, Discussion of Behavioral Patterns, Expectations from Design Patterns.

TEXT BOOKS:

1. Design Patterns: Elements of Reusable Object Oriented Software, Gamma, Belm, Johnson, 1995, Pearson Education.
2. Head First Design Patterns, Eric Freeman, Oreilly-SPD.

REFERENCES:

1. Java Design Patterns, Cooper, Pearson Education.
2. Object Oriented Design and Patterns, Horstmann, Wiley.
3. Object Oriented Systems Development, Ali Bahrami, 1999, MCG.
4. Applying UML Patterns, Larman, PEA.

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(9A05802) SERVICE ORIENTED ARCHITECTURE
(Common to CSE, CSSE)
(ELECTIVE – IV)

UNIT I

Introduction to SOA, Evolution of SOA: Fundamental SOA, Common Characteristics of Contemporary SOA, Benefits of SOA, A SOA Timeline(from XML to Web Services to SOA), The Continuing Evolution of SOA (Standards organizations and Contributing vendors), The Roots of SOA(comparing SOA to Past architectures).

UNIT II

Principles of Service Orientation: Services-Orientation and the Enterprise, Anatomy of a Service-Oriented Architecture, Common Principles of Service-Orientation, Service Orientation and Object-Orientation, Service Layer Abstraction, Business Service Layer, Orchestration Service Layer.

UNIT III

Web Services and SOA: The Web Services Framework, Services (as Web Services), Service Registry, Service Descriptions (with WSDL), Messaging (with SOAP), Transactions, Coordination, Business Activity, Orchestration, Choreography.

UNIT IV

Addressing, Reliable Messaging, Policies, Metadata, Security, Notification and Events, Semantic Web Services, RESTful Services.

UNIT V

Business Process Design: Business Process Management Basics, WS-BPEL Language Basics, WS-Coordination Overview, Service Oriented Business Process Design.

UNIT VI

WS-Addressing Language Basics, WS-Reliable Messaging Language Basics, Service Component Architecture Basics.

UNIT VII

Enterprise Platforms and SOA: SOA Platform Basics, Enterprise Service Bus Basics (including Basic and Complex Patterns).

UNIT VIII

SOA Support in J2EE, SOA Support in .NET, SOA Reference Architecture.

TEXT BOOKS:

1. Service-Oriented Architecture Concepts and Technology and Design, Thomas Erl, Pearson Education, 2005.

REFERENCES:

1. IT Architecture and Middleware, Strategies for Building Large Integrated Systems, Chris Britton, ISBN 0-201-70907-4.
2. Understanding SOA with Web Services, Eric Newcomer, Greg Lomow, Pearson Education, 2005.
3. Developing Enterprise Web Services: An Architect's Guide, Sandeep Chatterjee, James Webber, Pearson Education, ISBN 81-297-0491-9

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B.Tech. IV-II-Sem. (C.S.S.E) **T P C**

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(9A05707) SOFTWARE PROJECT MANAGEMENT (ELECTIVE – IV)

UNIT I

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

UNIT II

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

UNIT III

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

UNIT IV

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

UNIT V

Flows of the Process: Software Process Workflows, Inter Trans Workflows, Checkpoints of the Process: Major Mile Stones, Minor Milestones, Periodic Status Assessments, Interactive Process Planning: Work Breakdown Structures, Planning Guidelines, Cost and Schedule Estimating, Interaction Planning Process, Pragmatic Planning.

UNIT VI

Project Organizations and Responsibilities: Line-of-Business Organizations, Project Organizations and Evolution of Organizations,

Process Automation: Automation Building Blocks, The Project Environment.

UNIT VII

Project Control and Process Instrumention: Server Care Metrics, Management Indicators, Quality Indicators, Life Cycle Expectations Pragmatic Software Metrics, Metrics Automation, Tailoring The Process: Process Discriminates, Example.

UNIT VIII

Modern Project Profiles Next Generation Software Economics, Modern Process Transitions, Case Study: The Command Center Processing and Display System –Replacement (CCPDS-R)

TEXT BOOKS:

1. Software Project Management, Walker Rayce, 1998, Pearson Education.
2. Software Project Management, Henre, Pearson education.

REFERENCES:

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