FOREWORD

The autonomy conferred Sri Venkateswara College Engineering and technology by JNT University, Ananthapuramu based on performance as well as future commitment and competency to impart quality education. It is a mark of its ability to function independently in accordance with the set norms the monitoring bodies UGC and AICTE. It reflects the confidence of the affiliating University in the autonomous institution to uphold and maintain standards it expects to deliver on its own behalf and thus awards degrees on behalf of college. Thus, an autonomous institution is given the freedom to have its own curriculum, examination system and monitoring mechanism, independent of the affiliating University but under its observance.

Sri Venkateswara College of Engineering and Technology is proud to win the confidence of all the above bodies monitoring the quality in education and has gladly accepted the responsibility of sustaining, the standards and ethics it has been striving for more than a decade in reaching its present standing in the arena of contemporary technical education.

As a follow up, statutory bodies like Academic Council and Boards of Studies are constituted with the guidance of the Governing Body of the

College and recommendations of the JNTUA, Ananthapuramu to frame the regulations, course structure and syllabi under autonomous status.

The autonomous regulations, course structure and syllabi have been prepared after prolonged and detailed interaction with several expertise solicited from academics, industry and research, to produce quality engineering graduates to the society.

All the faculty, parents and students are requested to go through all the rules and regulations carefully. Any clarifications needed are to be sought at appropriate time and with principal of the college, without presumptions, to avoid unwanted subsequent inconveniences and embarrassments. The cooperation of all the stake holders is sought for the successful implementation of the autonomous system in the larger interests of the college and brighter prospects of engineering graduates.

Principal

Vision and Mission of the Institute

Vision

- Carving the youth as dynamic, competent, valued and knowledgeable professionals who shall lead the Nation to a better future.

Mission

- Providing quality education, student-centered teaching-learning processes and state-of-art infrastructure for professional aspirants hailing from both rural and urban areas.
- Imparting technical and management education to encourage independent thinking, develop strong domain of knowledge, own contemporary skills and positive attitudes towards holistic growth of young minds.
- Evolving Institution into a Center of Excellence and Research.

Quality policies

Sri Venkateswara College of Engineering and Technology strides towards excellence by adopting a system of quality policies and processes with continued improvements to enhance student's skills and talent for their exemplary contribution to the society, the nation and the word.

ACADEMIC REGULATIONS (R – 14)

COURSE STRUCTURE

AND

DETAILED SYLLABI

FOR

B. Tech Regular Four Year Degree Courses

(For the Batches Admitted From 2014-2015)

&

B. Tech (Lateral Entry Scheme)

(For the Batches Admitted From 2015-2016)

COMPUTER SCIENCE & ENGINEERING

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Affiliated to JNTUA, Ananthapuramu, Approved by AICTE, New Delhi, Accredited by NAAC, Bengaluru)

R.V.S. NAGAR, CHITTOOR- 517 127 (AP)

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY (Autonomous)

(**Affiliated to J.N.T. University Anantapur, Ananthapuramu).**

ACADEMIC REGULATIONS

B.Tech. Regular Four Year Degree Program

(For the batches admitted from the academic year 2014-15)

and

B.Tech. (Lateral Entry Scheme)

(For the batches admitted from the academic year 2015-16)

1.   **Applicability**   **:**   All the rules specified herein, approved by the Academic Council, will be in force and applicable to students admitted from the academic year 2014-2015 onwards. Any reference to "College" in these rules and regulations stands for Sri Venkateswara College of Engineering and Technology (Autonomous).

2.   **Extent**   **:**   All the rules and regulations, specified herein after shall be read as a whole for the purpose of interpretation and as and when a doubt arises, the interpretation of the Chairman, Academic Council is final. As per the requirements of statutory bodies, Principal, Sri Venkateswara College of Engineering and Technology (A) shall be the Chairman of the Academic Council.

3.   **Admission**   **:**

3.1   **Admission in to first year of Four Year B.Tech., Degree Program of study in Engineering :**

3.1.1   **Eligibility**   **:**   A candidate seeking admission into the first year of four year B.Tech., Degree Program should have

Passed either Intermediate Public Examination conducted by the Board of Intermediate Education, Government of Andhra Pradesh with Mathematics, Physics and Chemistry as optional subjects (or any equivalent examination recognized by the Board of Intermediate Education and JNTU Anantapur) or Diploma in Engineering in the relevant branch conducted by the Board of Technical Education, Andhra Pradesh (or equivalent Diploma recognized by State Board of Technical Education, Government of Andhra Pradesh and JNTU Anantapur) for admission.

**3.1.2 Admission Procedure : ** As per the existing stipulations of A.P State Council of Higher Education (APSCHE), Government of Andhra Pradesh, admissions are made into the first year of four year B.Tech., Degree Program as follows:

Seats under various categories are filled as per the norms prescribed by the Government of Andhra Pradesh.

3.2 Admission into the second year of four Year B.Tech., Degree Program in Engineering:

**3.2.1 Eligibility : ** Candidates qualified in ECET (FDH) and / or admitted by the Convener, ECET (FDH).

In all such cases for admission, when needed, Permissions from the statutory bodies are to be obtained.

**3.2.2 Admission Procedure : ** Lateral Entry seats are filled as per the norms prescribed by the Government of Andhra Pradesh from time to time.

4. Programs of study offered leading to the award of B.Tech degree

1. B.Tech (Civil Engineering)
2. B.Tech (Electrical & Electronics Engineering)
3. B.Tech (Mechanical Engineering)
4. B.Tech (Electronics & Communication Engineering)
5. B.Tech (Computer Science & Engineering)
6. B.Tech (Information Technology)
7. B.Tech (Automobile Engineering)

**5. Academic Year : ** The College shall follow semester pattern from first year onwards. I, II semesters of First Year of four Year B.Tech., Program shall have a minimum of 14 instructional weeks. From second year onwards each semester shall have a minimum of 16 instructional weeks.

**6. Course Structure : ** Each Program of study shall consist of:

- **General subjects comprise of the following courses: (5 to 10%)**
    i. English Language /Communication Skills / Mind Skills
    ii. Humanities and Social Sciences
    iii. Principles of Management

The above courses are common to all Branches.

- **Basic science subjects comprise of the following courses: (15 to 25%)**
    i. Mathematics
    ii. Physics
    iii. Chemistry

The above courses are common to all branches.

- **Basic Engineering subjects comprise some of the following courses, depending upon the branch: (15 to 25%)**
    i. Engineering Drawing
    ii. Engineering workshop
    iii. Engineering Mechanics
    iv. Basic Mechanical Engineering
    v. Basic Electrical & Electronics Engineering
    vi. Computer Programming

- **Core Subjects: (45 to 55%)**

The list of professional subjects is chosen as per the suggestions of the experts to impart broad based knowledge needed in the concerned branch of study.

- **Elective subjects: (10 to 15%)**

Electives will be offered to the students to diversify the spectrum of knowledge.

These electives can also be chosen based on the interest of the student to broaden his individual skill and knowledge in the specialized area.

Main Project: Main Project shall be carried out in the institution / industry during IV year II semester for a period of one semester. The project report shall be submitted to thedepartment after successful completion.

7. **Credit System** : Credits are assigned based on the following norms.

Subject	Semester Pattern		
	Hours / Week	Credits	
Theory	01	01	
Practical	03	02	
Drawing Practice	02	01	
Project Work	--	**16**	

i.   As a norm, for the theory subjects, **one credit** for one contact period per week is assigned.

ii.   As a norm, for practical courses **two credits** will be assigned for three contact periods per week.

iii. Tutorials do not carry any credits. However, each of the analytical and problem oriented courses will have one tutorial period per week.

iv.   For Project work where formal contact hours are not specified, credits are assigned based on the complexity of the work to be carried out.

- The four year curriculum of any B.Tech, Program of study shall have a total of **176** credits.

- In the case of lateral entry students, B.Tech. program of study shall have a total of **132** credits.

- The exact requirements of credits for each subject will be as recommended by the concerned Board of Studies and approved by the Academic Council.

8.   Examination System   :   All components in any Program of study will be Evaluated continuously through internal evaluation and an external evaluation component conducted as semester-end examination.

Distribution of Marks:

S. No	Examination	Marks %		Examination and Evaluation	Scheme of examination
1	Theory	70		Semester-end examination (external Paper setting and external evaluation)	This Examination question paper in theory subjects will be for a maximum of 70 marks. The question paper shall consists of two parts **Part A:** 5 short answer questions shall be given for a maximum 20 marks with one question from each unit. No choice will be given and all questions carry equal marks. **Part B**: 5 Descriptive/ problematic questions shall be given for a maximum of 50 marks with one question from each unit with internal choice i.e either or type. All questions carry equal marks.
		30	20	Mid– Examination of 120 Min. duration (Internal evaluation). The question paper shall be of descriptive type with 5 questions out of which 4 are to be answered and evaluated for 20 marks.	Two (02) mid-term exams, each for 20 marks are to be conducted. Better of the two shall be considered for awarding internal marks. **Mid-I:** After first spell of instructions(First 2 Units) **Mid-II:** After second spell of instructions (Last 3 Units.)
			10	Assignment (Internal evaluation)	Two assignments shall be given and each will be evaluated for 10 marks. Average of two Assignments shall be taken as internal marks for the

					assignments. **Assignment-I:** After first spell of instructions(First 2 Units) **Assignment-II:** After second spell of instructions (Last 3 Units.)
2	Laboratory	70		Semester-end Lab Examination (External evaluation)	70 marks are allotted for laboratory examination during semester-end.
		30	20	Continuous evaluation	Performance in laboratory experiments and Record are considered.
			10	Internal test	Practical Test at the end of the semester.
					➤ Marks scored in the continuous evaluation and internal test are considered for awarding internal marks.
3	Drawing	70		Semester-end drawing Examination (External evaluation)	70 marks are allotted for drawing examination during semester-end.
		30	20	Continuous evaluation	Performance in Drawing classes will be considered.
			10	Internal test	Two tests will be conducted. Better of the two will be taken.
					➤ Marks scored in the continuous evaluation and internal test are considered for awarding internal marks.
4	Project Work	300	200	External evaluation	Semester-end Project Viva-Voce Examination by a Committee as detailed under 8.2.
			100	Internal evaluation	Continuous evaluation by the Departmental Committee

Wherever the Question paper is different from the conventional pattern, the concerned pattern of question paper will be given at the end of the syllabus of that subject.

8.2	**Project Work Evaluation**	:	The Semester-End Examination (Viva-voce) shall be conducted by a Committee consisting of External examiner (nominated by the Chief Controller of Examinations), HOD, & Supervisor. The evaluation of project work shall be conducted at the end of the IV year second semester. The Internal Evaluation shall be made by the Departmental Committee, on the basis of two project reviews of each student.

8.3 **Eligibility to appear for the Semester-End examination:**

8.3.1 A student shall be eligible to appear for Semester –End examinations if he acquires a minimum of 75% of attendance in aggregate of all the subjects in a semester.

8.3.2 Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester may be granted on medical grounds by the College Academic Committee. A stipulated fee shall be payable towards condonation of shortage of attendance to the College.

8.3.3 Shortage of Attendance below 65% in aggregate shall in no case be condoned and the candidate will be detained.

8.3.4 Detained students are not eligible to take their end examination of that class and their registration shall stand cancelled.

8.3.5 A student detained due to shortage of attendance, will have to repeat that semester when offered next.

8.4 **Evaluation: Following procedure governs the evaluation.**

8.4.1 The marks for the internal evaluation components will be added to the external evaluation marks secured in the Semester –End examinations, to arrive at total marks for any subject in that semester.

8.4.2 Performance in all the subjects is tabulated program-wise and will be scrutinized by the Results Committee and subject-wise marks lists are finalized. Total marks obtained in each subject are converted into letter grades.
Results Committee comprises of Principal, Controller of Examinations, one Senior Professor nominated by the Principal and the University Nominee.

8.4.3 Student-wise tabulation is done and student-wise Grade Sheet is generated and issued to the students.

8.5 **Revaluation / Recounting:**
Students shall be permitted for request for recounting/revaluation of the Semester-End

examination answer scripts within a stipulated period after payment of prescribed fee. After recounting or revaluation, records are updated with changes if any and the student will be issued a revised grade sheet. If there are no changes, the same will be intimated to the students.

8.6   Supplementary Examination:

8.6.1   In addition to the regular Semester- End examinations conducted, the College may also schedule and conduct supplementary examinations for all the subjects of other semesters when feasible for the benefit of students. Such of the candidates writing supplementary examinations may have to write more than one examination per day.

9.   Academic Requirements for Promotion/ completion of regular B.Tech Program of study:

The following academic requirements have to be satisfied in addition to the attendance requirements for promotion/completion of regular B.Tech Program of study.

9.1   For students admitted in B.Tech (Regular) Program:

i.   A student shall be deemed to have satisfied the minimum academic requirements for each theory, practical, design drawing subject or project, if he secures not less than 35% of marks in the Semester End examination and a minimum of 40% of marks in the sum total of the internal evaluation and Semester-End examination taken together.

ii.   A student shall be promoted from second year to third year only if he fulfills the academic requirement of securing 44 credits from:
   a) Two regular and two supplementary examinations of I-year I semester.
   b) Two regular and one supplementary examinations of I-year II semester.
   c) One regular and one supplementary examination of second year I semester.
   d) One regular examination of II- year II Semester.

   Irrespective of whether the candidates appear for Semester-End examination or not as per the normal course of study.

iii.   A student shall be promoted from third year to fourth year Program of study only if he fulfills the academic requirements of securing 66 credits from:
   a) Three regular and three supplementary examinations of I-year I semester.
   b) Three regular and two supplementary examinations of I-year II Semester
   c) Two regular and two supplementary examination of second year I semester.
   d) Two regular and one supplementary examinations second year II semester.
   e) One regular and one supplementary examination of third year I semester.
   f) One Regular Examination of Third year II semester.

Irrespective of whether the candidate appears for the Semester-End examination or not as per the normal course of study and in case of getting detained for want of credits by sections 9.1(ii) and 9.1 (iii) above, the student may make up the credits through supplementary examinations before the date of commencement of class work for III year I semester or IV year I semester as the case may be.

iv. A student shall register for all the 176 credits and earn all the 176 credits. Marks obtained in all the 176 credits shall be considered for the award of the class based on CGPA.

v. A student who fails to earn 176 credits as indicated in the course structure within eight academic years from the year of his admission shall forfeit his seat in B. Tech., Program and his admission stands cancelled.

9.2   For Lateral Entry Students (batches admitted from 2015-2016):

i. A student shall be deemed to have satisfied the minimum academic requirements for each theory, practical, design, drawing subject or project if he secures not less than 35% of marks in the Semester-End examination and a minimum of 40% of marks in the sum total of the internal evaluation and Semester-End examination taken together.

ii.   A student shall be promoted from third year to fourth year only if he fulfills the academic requirements of securing 44 credits from the following examinations.
   a) Two regular and two supplementary examinations of II year I semester.
   b) Two regular and one supplementary examination of II year II semester.
   c) One regular and one supplementary examination of III year I semester.
   d) One Regular Examination of Third year II semester.

Irrespective of whether the candidate appear the Semester-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 commencement of class work for IV year I semester.

i. A student shall register for all 132 credits and earn all the 132 credits. Marks obtained in all 132 credits shall be considered for the award of the class based on CGPA.

ii. A student who fails to earn 132 credits as indicated in the Course structure within six

academic years from the year of his admission shall forfeit his seat in B.Tech., Program and his admission stands cancelled.

9.3   **Audit Courses:** Any student who wishes to pursue audit course can register for the same with the concerned teacher and attend to the classes regularly. No examination will be conducted, no grade will be given for the audit courses. However such of those students who have registered and got the requisite attendance of 75% in the audit course, it will be mentioned in their grade sheet.

10.   **Transitory Regulations:**

Students who got detained for want of attendance (or) who have 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 and they continue to be in the academic regulations of the batch they join later.

A regular student has to satisfy all the eligibility requirements within the maximum stipulated period of eight years, and a lateral entry student within six years, for the award of B.Tech Degree.

11.   **Grades, Grade Point Average and Cumulative Grade Point Average**

11.1   **Grade System:** After all the components and sub-components of any subject (including laboratory subjects) are evaluated, the final total marks obtained will be converted to letter grades on a **"10 point scale"** described below.

% of marks obtained	Grade	Grade Points(GP)	
90 to 100	A+	10	
80 to 89	A	9	
70 to 79	B	8	
60 to 69	C	7	
50 to 59	D	6	
40 to 49	E	5	
Less than 40 in sum of Internal & External (or) Less than 35 in External	F	0	
Not Appeared	N	0	

➢ **Pass Marks:** A student is declared to have passed theory and/ or laboratory subject, if he secures minimum of 35% marks in external examination, and a minimum of 40% marks in the sum total of internal evaluation and external examination taken together. Otherwise he will be awarded fail grade – F in such subject irrespective of

internal marks.

➤ F is considered as a fail grade indicating that the student has to pass the semester-end examination in that subject in future and obtain a grade other than F and N for clearing this subject.

11.2 Grade Point Average (GPA):

Grade Point Average (GPA) will be calculated as given below on a "10 Point scale" as an Index of the student's performance at the end of each semester:

$$\textbf{GPA} = \frac{\sum(C \times GP)}{\sum C}$$

Where C denotes the credits assigned to the subjects undertaken in that semester and GP denotes the grade points earned by the student in the respective subjects.

11.3 Cumulative Grade Point Average (CGPA):

At the end of every semester, a Cumulative Grade Point Average (CGPA) on a 10 Point scale is computed considering all the subjects passed up to that point as an index of overall Performance up to that Point as given below:

$$\textbf{CGPA} = \frac{\sum(C \times GP)}{\sum C}$$

Where C denotes the credits assigned to subjects undertaken upto the end of the current year/semester and GP denotes the grade points earned by the student in the respective courses.

11.4 Grade Sheet: A grade sheet (Marks Memorandum) will be issued to each student Indicating his performance in all subjects registered in that semester Indicating the GPA and CGPA. GPA and CGPA will be rounded off to the second place of decimal.

12.   Consolidated Grade Sheet: After successful completion of the entire Program of study, a Consolidated Grade Sheet containing performance of all academic years will be issued as a final record. Transcripts will also be issued, if required, after payment of requisite fee.

13.   Award of Degree   :   The Degree will be conferred and awarded by Jawaharlal Nehru Technological University Anantapur, Ananthapuramu on the recommendation of the Principal of SVCET (Autonomous), Chittoor.

13.1 Eligibility   :   A student shall be eligible for the award of B.Tech., Degree if he fulfills all the following conditions:

➤ Registered and successfully completed all the components prescribed in the program of study for which he is admitted.

➤ Successfully acquired the minimum required credits as specified in the curriculum corresponding to the branch of study within the stipulated time.

> Obtained CGPA greater than or equal to 5.0 (Minimum requirement for declaring as passed.)

13.2 Award of Class   :   Declaration of Class is based on CGPA.

Cumulative Grade Point Average	Class
≥7.0	First Class with Distinction
≥6.0 and<7.0	First Class
>5.0 and <6.0	Second Class
5.0	Pass Class

14. With – Holding of Results: If the candidate has not paid dues to the university/ college or if any case of in-discipline 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.

15.   Additional academic regulations:

i.   A regular student has to complete all the eligibility requirements within the maximum stipulated period of eight years, and a lateral entry student within six years.

ii.   A student can appear for any number of supplementary examinations till he clears all subjects within the stipulated period.

iii. A grade sheet (marks memorandum) will be issued to the student indicating his performance in all the courses of that semester along with the GPA and CGPA.

iv.   Any canvassing / impressing the administration, examiners, faculty or staff in any form, the candidate is liable for punishment as per the mal practice rules appended here with.

v.   When a student is absent for any examination (internal or external) he is treated as to have appeared and obtained zero marks in that component (course) and grading is done accordingly.

vi.   When a component is cancelled as a penalty, he is awarded zero marks in that component.

16. **Amendments to regulations:**

    The Academic Council of Sri Venkateswara College of Engineering and Technology (Autonomous) reserves the right to revise, amend, or change the Regulations,Scheme of Examinations, and / or Syllabi or any other Policy relevant to the needs ofthe society or industrial requirements etc.., without prior notice.

17. **General:**

    Where the words "he", "him", "his", "himself" occur in the regulations, they include "she", "her", "herself".

    Note: Failure to read and understand the regulations is not an excuse.

SRI VENKATESWARA COLLEGE OF ENGINNERING & TECHNOLOGY
(AUTONOMOUS)
(AFFILIATED TO JNTUA, ANANTAPUR)
RULES FOR DISCIPLINARY ACTION FOR MALPRACTICE / 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 itfrom any other candidate orally or by anyother 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 practical) in which the candidate is appearing.	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 to appear for the remaining examinations of thesubjects of that Semester/year. The Hall Ticket of the candidate is to be cancelled.
3.	Comes in a drunken condition to the	Expulsion from 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 to appear for the remaining examinations of the subjects of that Semester/year.
4.	Smuggles in the Answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination.	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 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.	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 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 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.
6.	Possess any lethal weapon or firearm in 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. The candidate is also debarred and forfeits of seat.
7.	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 impostor is an outsider, he will be handed over to the police and a case is registered against him.

8.	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 whetherby words, either spoken or written or by signs or by visible representation, assaults the officer-in-charge, or any person on duty in or outside the examination hall or any of hisrelations, or indulges in any other act of misconduct or mischief which result in damage to or destruction or 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.	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 thecandidate(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 behanded over to the police and a police case is registered against them.
9.	If student of the college, who is not a candidate for the particular examination or any person not connected with the collegeindulges in any malpractice or improperconduct 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.	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.
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 Examination committee for further action to award suitable punishment.	

Malpractices identified by squad or special invigilators

1. Punishments to the candidates as per the above guidelines.

Identification of Courses

B.Tech

Each course shall be uniquely identified by an alphanumeric code of with 7 characters as given below

No. of digits	Description
First two digits	Year of regulation Ex: 14
Next one letter	Type of program: A: B.Tech
	B: M.Tech
	C: M.B.A
	D: M.C.A
Next two letters	Code of department:
	HS/CE/CS/EE/EC/IT/ME/MB/MC
Last two digits	Indicate series numbers: ≥ 01

Ex: I Year Course:

14AHS02	14AHS01
14AHS04	14AHS03
14AHS05	14AHS06
14AHS09	14AME01
14AHS02	14ACS05
14AHS04	14AHS07
14AME03	14AHS08
14ACS03	14ACS06
14ACS01	14AEE03

Vision and Mission of the Department under R14 Regulation

Department Vision:

- Evolve as a centre of excellence in Computer Science and Engineering education with national and international reputation and to adapt itself to the rapid advancements in the Computer science and Engineering field.

Department Mission:

- To impart high quality professional training in undergraduate and postgraduate level with emphasis on basic principles of Computer Science and Engineering and to foster leading edge research in the fast changing field.
- To inculcate professional behavior, strong ethical values, innovative research capabilities and leadership abilities in the young minds so as to work with a commitment to the progress of the nation.

Program Educational Objectives (PEOs)

PEO1: To be able to solve wide range of computing related problems in order to cater to the needs of industry and society.

PEO2: To exhibit analytical decision making and problem solving skills by applying research principles for handling dynamic real time challenges.

PEO3: To be able to adapt to the evolving technical challenges and changing career opportunities. Learn to effectively communicate ideas in oral, written, or graphical form to promote collaboration other engineering teams in accordance with social standards and ethical practices.

Program Specific out comes (PSOs)

PSO1: Design and develop Mobile Applications and Web based applications to cater societal needs.

PSO2: Understand the structure, evolutionary changes and Devolopment methodologies of software systems to address modern computing challenges.

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)
R.V.S. NAGAR, CHITTOOR, ANDHRA PRADESH-517127.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SCHEME OF INSTRUCTION AND EXAMINATIONS UNDER R14 REGULATIONS EFFECTIVE FROM 2014-15

I B.Tech- I Semester

S. No	Subject Code	Subject	Hours/Week			Credits	Maximum Marks		
			L	T	P	C	Internal	External	Total
1	14AHS02	Engineering Mathematics-I	3	1	-	3	30	70	100
2	14AHS04	Engineering Physics	3	1	-	3	30	70	100
3	14AHS05	Environmental Science	3	1	-	3	30	70	100
4	14AEE03	Basic Electrical Engineering	3	1	-	3	30	70	100
5	14ACS01	Problem Solving and Computer Programming	3	2	-	4	30	70	100
6	14AHS09	Engineering Physics Lab	-	-	3	2	30	70	100
7	14AME03	Engineering Workshop	-	-	3	2	30	70	100
8	14ACS03	Computer Programming Lab	-	-	3	2	30	70	100
		Total	**15**	**6**	**9**	**22**	**240**	**560**	**800**

I B.Tech- II Semester

S. No	Subject Code	Subject	Hours/Week			Credits	Maximum Marks		
			L	T	P/D	C	Internal	External	Total
1	14AHS01	Technical English -I	3	-	-	3	30	70	100
2	14AHS06	Engineering Mathematics-II	3	1	-	3	30	70	100
3	14AHS03	Engineering Chemistry	3	1	-	3	30	70	100
4	14AME01	Engineering Drawing	2	-	4	4	30	70	100
5	14ACS05	Data Structures	3	1	-	3	30	70	100
6	14AHS07	Technical English Lab-I	-	-	3	2	30	70	100
7	14AHS08	Engineering Chemistry Lab	-	-	3	2	30	70	100
8	14ACS06	Data Structures Lab	-	-	3	2	30	70	100
		Total	**14**	**3**	**13**	**22**	**240**	**560**	**800**

II B.Tech – I Semester

S. No	Subject Code	Subject	Hours/Week			Credits	Maximum Marks		
			L	T	P	C	Internal	External	Total
1	14AHS12	Managerial Economics and Financial Analysis	3	1	-	3	30	70	100
2	14ACS07	Computer Organization	3	1	-	3	30	70	100
3	14ACS08	Advanced Data Structures	3	1	-	3	30	70	100
4	14AEC07	Digital Logic Design	3	1	-	3	30	70	100
5	14ACS09	Discrete Mathematics	3	1	-	3	30	70	100
6	14AEC01	Electronic Devices and Circuits	3	1	-	3	30	70	100
7	14AEC02	Electronic Devices and Circuits Lab	-	-	3	2	30	70	100
8	14ACS10	Advanced Data Structures Lab	-	-	3	2	30	70	100
		Total	**18**	**6**	**6**	**22**	**240**	**560**	**800**

II B.Tech – II Semester

S. No	Subject Code	Subject	Hours/Week			Credits	Maximum Marks		
			L	T	P	C	Internal	External	Total
1	14AHS10	Probability and Statistics	3	1	-	3	30	70	100
2	14ACS11	Operating Systems	3	1	-	3	30	70	100
3	14ACS12	Object Oriented Programming through JAVA	3	1	-	3	30	70	100
4	14ACS13	Design and Analysis of Algorithms	3	1	-	3	30	70	100
5	14ACS14	Theory of Computation	3	1	-	3	30	70	100
6	14ACS15	Database Management Systems	3	1	-	3	30	70	100
7	14ACS16	JAVA Programming Lab	-	-	3	2	30	70	100
8	14ACS17	Database Management Systems Lab	-	-	3	2	30	70	100
		Total	**18**	**6**	**6**	**22**	**240**	**560**	**800**
9	14AHS15	Quantitative aptitude and Reasoning-I(Audit Course)	3	-	-	-	-	-	-

III B.Tech – I Semester

S. No	Subject Code	Subject	Hours/			Credits	Maximum Marks		
			L	T	P	C	Internal	External	Total
1	14ACS18	Compiler Design	3	1	-	3	30	70	100
2	14ACS19	Computer Networks	3	1	-	3	30	70	100
3	14ACS20	Computer Graphics	3	1	-	3	30	70	100
4	14AEC22	Microprocessors and Interfacing	3	1	-	3	30	70	100
5	14ACS21	Software Engineering	3	1	-	3	30	70	100
6	14ACS22	Unix Shell Programming	3	1	-	3	30	70	100
7	14AEC25	Microprocessors & Interfacing Lab	-	-	4	2	30	70	100
8	14ACS23	Computer Graphics and Compiler Design	-	-	4	2	30	70	100
9	14ACS24	Comprehensive Online Examination	-	-	-	1	-	100	100
		Total	**18**	**6**	**8**	**23**	**240**	**660**	**900**
10	14AHS16	Quantitative aptitude and Reasoning-II	3	-	-	-	-	-	-

III B.Tech – II Semester

S. No	Subject Code	Subject	Hours/Week			Credits	Maximum Marks		
			L	T	P	C	Internal	External	Total
1	14AHS13	Technical English -II	3	1	-	3	30	70	100
2	14ACS25	Object Oriented Analysis and Design	3	1	-	3	30	70	100
3	14ACS26	Internet and Web Technologies	3	1	-	3	30	70	100
4	14ACS27	Data Warehousing and data Mining	3	1	-	3	30	70	100
5	14ACS28	Advanced Computer Networks	3	1	-	3	30	70	100
6		Choice based Credit Courses (Inter	3	1	-	3	30	70	100
	14AEC36	Digital Image processing							
	14AME57	Robotics							
	14AEC31	MEMS & MICROSYSTEMS							
7	14ACS32	Data Engineering and Web Technologies Lab	-	-	4	2	30	70	100
8	14AHS14	Technical English Lab-II	-	-	4	2	30	70	100
9	14ACS33	Comprehensive Online Examination	-	-	-	1	-	100	100
		Total	**18**	**6**	**8**	**23**	**240**	**660**	**900**
10	14AMB01	Management Science (Audit Course)	3	-	-	-	-	-	-

IV B.Tech – I Semester

S. No	Subject Code	Subject	Hours/Week			Credits	Maximum Marks		
			L	T	P	C	Internal	External	Total
1	14ACS34	Artificial Intelligence & Expert systems	3	1	-	3	30	70	100
2	14ACS35	Cloud Computing	3	1	-	3	30	70	100
3	14ACS36	Software Testing	3	1	-	3	30	70	100
4	14ACS37	Cryptography and Network Security	3	1	-	3	30	70	100
Choice based Credit System/Department Specific									
5	14ACS38	Mobile Computing	3	1	-	3	30	70	100
	14ACS39	Big Data Analytics							
	14ACS40	Software Project Management							
Choice based Credit System/Department Specific									
6	14ACS41	Web services	3	1	-	3	30	70	100
	14ACS42	E-Commerce							
	14ACS43	Internetworking with TCP/IP							
7	14ACS44	CASE Tools& CN Lab	-	-	4	2	30	70	100
8	14ACS45	Cloud Computing and Software Testing Lab	-	-	4	2	30	70	100
		Total	**18**	**6**	**8**	**22**	**240**	**560**	**800**
9	14AMB02	Professional Ethics (Audit Course)	3	-	-	-	-	-	-

IV B.Tech – II Semester

S. No	Subject Code	Subject	Hours/Week			Credits	Maximum Marks		
			L	T	P	C	Internal	External	Total
MOOC 1									
1	14ACS46	Subject 1	-	-	-	3	30	70	100
	14ACS47	Subject 2							
	14ACS48	Subject 3							
	14ACS49	Subject 4							
MOOC 2									
2	14ACS50	Subject 5	-	-	-	3	30	70	100
	14ACS51	Subject 6							
	14ACS52	Subject 7							
	14ACS53	Subject 8							
3	14ACS54	Comprehensive viva – voce	-	-	-	2	-	100	100
4	14ACS55	Project Work& Seminar	-	-	-	12	60	140	200
		Total	-	-	-	**20**	**120**	**380**	**500**

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

I B.Tech I Semester   **L   T   P   C**
Code:14AHS02   **3   1   -   3**
ENGINEERING MATHEMATICS-I
(Common to all branches)

Outcomes:

After completion of the course the student will be able to

1. *comprehend the areas of application of differential equations.*
2. *apply the principles of differential equations, functions of variables separable, integration, Laplace transforms and vector calculus to the engineering and scientific problems.*
3. *obtain their solutions using various computational methods.*

UNIT-I

DIFFERENTIAL EQUATIONS: Linear and Bernoulli's Equations – Non - homogenous Linear Differential equation of second and higher order with constant co-efficients. Newton's law of cooling-**L**-R-C circuits.

UNIT-II

FUNCTIONS OF SEVERAL VARIABLES: Maxima and Minima for functions of two variables – Lagrange's method of multipliers of 3 variables only.

Curve Tracing: Cartesian and polar curves. **Radius of Curvature**: Cartesian and polar curves.

UNIT-III

APPLICATIONS OF INTEGRATION: Length of an arc and area using line integral.

Multiple Integrals: Double and Triple integrals-Change of variables-Change of Order of integration(Cartesian and polar forms). Surface area and Volume of solid of revolution.

UNIT-IV

LAPLACE TRANSFORMS: Laplace transforms of standard functions - First Shifting Theorem - Transforms of derivatives and integrals- Unit step Function – Second Shifting Theorem –Laplace transforms of Periodic functions – Inverse Laplace transforms - Convolution theorem.

UNIT-V

VECTOR CALCULUS: Gradient, Divergence, Curl and their properties (without identities).

Vector Integration: Line Integrals – Potential functions - Area, Surface and Volume integrals - Green's theorem- Stoke's theorem& Gauss Divergence theorems (without proof) – problems on Green's,Stoke's and Gauss's Theorem

Text Books:
1. B.V.Ramana, *A Text book of Engineering Mathematics-I,* Tata Mc Grawhill

2. T.K.V.Iyengar, B.Krishna Gandhi and others, *A Text book of Engineering Mathematics –I,* S.Chand andcompany.
3. Dr.B.S.Grewal, *Higher Engineering Mathematics*.
4. E.Rukmangadachari and Keshava Reddy, *A Text book of Engineering Mathematics-I,* Pearson Education

References:
1. C.Sankaraiah,A Text book of Engineering Mathematics, VGS book links
2. Thomson ,*A Text book of Engineering Mathematics*, Book Collection
3. N.Bail, M.Goyal & C.Walking, *A Text book of Advanced Engineering Mathematics-A* computer approach

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	3	-	-	-	-	-	-	1	1	2	3
CO2	3	2	1	2	-	-	-	-	-	-	1	1	3	2
CO3	2	2	1	2	-	-	-	-	-	-	1	1	3	2

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I B.Tech I Semester	**L**	**T**	**P**	**C**
Code:14AHS04	**3**	**1**	**-**	**3**

ENGINEERING PHYSICS
(Common to EEE,ECE,CSE & IT)

Outcomes : After completion of the course the student will be able to

1. *Graduates will able to apply the knowledge of Physics in the field of Communications, Electrodynamics, SolidState Physics and Optics.*
2. *The acquaintance of basic physics principles would help the engineers to develop or understand the working ofdifferent tools and devices*
3. *It equips the students with the fundamental knowledge of physics together with the problem solving skills andunderstanding.*

UNIT I

OPTICS: Interference- Interference in thin films by reflection – Newton Rings. Diffraction- Fraunhofer diffraction due to single slit-Diffraction Grating.

MODERN OPTICS

Introduction to lasers – Characteristics of lasers – Spontaneous and stimulated emission of radiation – Einstein's coefficients – population inversion –Ruby laser - He-Ne laser Applications of laser. Introduction to fiber optics – Principle of optical fiber – Acceptance angle and acceptance cone – Numerical aperture – Classification of Optical Fibers- Attenuation in optical fibers – Optical fiber communication system- Applications of optical fibers.

UNIT II

CRYSTAL STRUCTURES AND X-RAY DIFFRACTION: Introduction – Space lattice – Basis – Unit cell – Lattice parameter – Crystal systems – Bravais lattices – Structure and packing fractions of Simple cubic, body centered cubic, face centered cubic crystals-Directions and planes in crystals – Miller Indices – Separation between successive [h k l] planes – Bragg's law-X-Ray Diffraction by Powder method

ULTRASONICS Introduction – Production of ultrasonics by piezoelectric method – Properties and detection of Ultrasonic waves – Applications in non-destructive testing.

UNIT III

PRINCIPLES OF QUANTUM MECHANICS: Wave and particles – de Broglie hypotheses – Matter waves – Schrödinger time independent wave equation – Physical significance of wave function – Particle in one dimensional box. **FREE ELECTRON THEORY:** Classical free electron theory – Equation for electrical conductivity - Quantum free electron theory – Fermi-Dirac distribution –Kronig-Penny model (qualitative)

UNIT IV

DIELECTRIC PROPERTIES: Introduction – Dielectric constant – Electronic, Ionic and Oriental polarizations (qualitative) – Local Field- Clausius-Mossotti equation – Piezoelectricity - Ferroelctricty.

MAGNETIC PROPERTIES - Introduction – magnetic moment – Classification of magnetic materials – Hysteresis curve – Hard and Soft Magnetic Materials-Applications.

UNIT V

SEMICONDUCTORS: Introduction – Intrinsic and extrinsic Semiconductors–Fermi level-Equation of conductivity - Drift and diffusion – Einstein's equation – Hall Effect. **SUPERCONDUCTORS:** General properties of superconductors – Meissner effect – Penetration depth – Type Iand Type II superconductors – Flux quantization – Josephson effect – Application of superconductors.**NANOMATERIALS:** Introduction– Basic principles of nanomaterials – Growth of nanomaterials: Sol-Gel method-Chemical vapor deposition–Properties of nanomaterials-Carbon Nano Tubes -Application of carbon nano tubes and nanomaterials.

Text Books:

1. Avadhanulu and *KshirasagarA Text book of Engineering Physics*, Revised Edition, S.Chand, New Delhi2014
2. Gaur and Gupta:*Engineering Physics, New Delhi*, DhanpatRai Publishers, 2010
3. K. Thyagarajan*: Engineering Physics,Delhi*, Tata Mcgraw Hill Publishers, 2013.

Reference Books:

1. Pillai.S.O*: Solid State Physics*, 6[th]edition,NewDelhi:New Age International, 2005.
2. Chattopadhyay, K.K; Banerjee,A.N: *Introduction to Nano Science and Technology*,New Delhi:PHI,2009 .
3. Resnick, Halliday and Walker*: Fundamentals of Physics*, 9th Edition, New Delhi: Wiley Publishers,2010.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1	1	-	-	-	-	-	-	-	-	2	1
CO2	3	2	-	2	1	-	-	-	-	-	-	1	-	-
CO3	3	2	-	2	1	-	-	-	-	-	-	1	-	-

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I B.Tech I Semester	**L**	**T**	**P**	**C**
Code:14AHS05	**3**	**1**	**-**	**3**

ENVIRONMENTAL SCIENCE
(Common to EEE,ECE,CSE & IT)

Outcomes:

After completion of the course the student will be able to
1. *develop critical thinking (or) observation skills and apply them in the analysis of a problem (or) question relatedto the environment.*
2. *analyse and interpret the complex relationships between natural and human systems.*
3. *analyse and interpret the fundamental physical, chemical and biological principles that govern natural process.*

UNIT-I

ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT: Definition, Scope and Importance of Environmental Science, Need for Public Awareness, Components of Environment (Atmosphere, Hydrosphere, Lithosphere and Biosphere) Renewable and non-renewable 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. **Food resources**: Sourcesof food, impacts of overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. **Energy resources:** Renewable and Non-renewable energy resources

UNIT-II

ECOSYSTEMS: Concept of an ecosystem, Structure and function of an ecosystem (Producers, Consumersand decomposers) – Energy flow in the ecosystem – Food chains, food webs and ecological pyramids – Ecological Succession.

TYPES OF ECOSYSTEMS: a. Forest ecosystem   b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries)

UNIT-III

BIODIVERSITY AND ITS CONSERVATION: Introduction, Definition, Types of biodiversity (genetic, species and ecosystem diversity)- Bio-geographical classification of India, Values of biodiversity(Consumptive use, Productive use, Social use, Ethical use, Aesthetic and Option values)- India as a mega diversity nation-Hot spots of India-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-IV

ENVIRONMENTAL POLLUTION AND ACT'S: Definition, causes, effects and control measures of:
a. Air Pollution b. Water Pollution c. Soil Pollution d. Noise Pollution e. Thermal Pollution f. nuclear
hazards.Solid Waste Management: Causes, effects and control measures of urban and industrial
wastes.

ACT'S: Environment Protection Act-Air (Prevention and Control of Pollution) Act-Water
(Prevention andcontrol of Pollution) Act-Wildlife Protection Act-Forest Conservation Act-
Disaster management: Floods, Earthquake, Cyclone and Landslides.

UNIT-V

SOCIAL ISSUES AND THE ENVIRONMENT: From unsustainable to sustainable development,
Water conservation(rainwater harvesting, watershed management)-Resettlement and rehabilitation of
people its problems and concerns, Environmental ethics, Global warming, Acid rain, Ozone layer
depletion-Population growth, variation among nation, Population explosion-Family Welfare Programme-
Environment and human health-Human Rights-Value Education-HIV/AIDS-Women and Child Welfare
Programmes-Role of Information Technology in Environment and human health.

Field Work: Visit to local polluted site-Urban/Industrial.

Text Books:

1. ErachBharucha,*Textbook of Environmental Studiesfor Undergraduate courses by from UGC.*
2. Dr.RaghavanNambiar.K, *Text Book of Environmental Studies*, Sitech publications, 2010.
3. Benny Joseph,*Environmental Studies* by Mc.GrawHill Publications, 2010.

References:

1. Dr.Suresh.K.Dhameja, *Environmental Studies*, S.K. Kataria& Sons Publishers, 2012.
2. Sharma. J.P.,*Comprehensive Environmental Studies*, Laxmi Publications, 2010.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	1	-	-	-	-	-	-	-	1
CO2	3	3	-	2	1	-	-	-	-	-	-	1
CO3	3	3	-	2	1	-	-	-	-	-	-	1

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	L	T	P	C
I B.Tech I Semester				
Code:14AEE03	**3**	**1**	**-**	**3**

BASIC ELECTRICAL ENGINEERING
(Common to CSE & IT)

Outcomes:

After completion of this course the students will be able to:
1. *Understand the fundamentals of Electrical Circuits*
2. *Acquire the concept of all types of Electrical Machines like DC and AC Machines*
3. *Know the principle of Measuring Instruments*

UNIT I

INTRODUCTION TO ELECTRIC CIRCUITS: Circuit element – Sources - Ohm's Law - Kirchhoff's Law - Network reduction Techniques, Mesh and Nodal Analysis. Sinusoidal Alternating Quantities – Concept of Frequency, Period, Phase, Average and RMS Values – Concept of Impedance- Simple Problems.

UNIT II

NETWORK THEOREMS: The venin's, Norton's, Superposition and Maximum Power Transfer Theorem -Simple Problems with DC & AC excitation.

UNIT III

DC MACHINES: Construction - Principle of Operation and EMF Equation - Different Types of Generators - DCMotor Operation – Different Types – torque Equation – Efficiency - Application of DC Machines.

UNIT IV

AC MACHINES: Single Phase Transformer - Principle of Operation, EMF Equation, Losses, Efficiency and Regulation - Three Phase Induction Motors (Squirrel and cage rotor) – Slip-Torque Characteristics and Application – Three Phase Alternator - Principle of Operation, EMF Equation – Regulation by EMF Method.

UNIT V

MEASURING INSTRUMENTS: Principle of Operation of Moving Coil and Moving Iron Types of Ammetersand Voltmeters – Extension of Range - Principle of Operation of Wattmeter and Energy Meter

TEXT BOOKS:

1. HUGHES: Electrical and Electronic Technology, Pearson Publications.
2. wincent&DeltoroPrinciples of Electrical Engineering-–PHI, 2010.

REFRENCE BOOKS:
1. J.P. Nagrath& D. P Kothari: Basic Electrical Engineering, PHI Publications.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	3									3	
CO2	3	3	3	3									3	
CO3	3	3	3	3					3			3		

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I B.Tech I Semester	**L**	**T**	**P**	**C**
Code:14ACS01	**3**	**2**	**-**	**4**

PROBLEM SOLVING AND COMPUTER PROGRAMMING
(Common to CSE & IT)

Outcomes:

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

1. *Apply the principles of structured programming in problem solving.*
2. *List out the salient features and applications of C programming language.*
3. *Demonstrate the techniques for implementing applications using C programming.*
4. *Develop C programming skills to do variety of tasks like low level programming, networking, and OS relatedoperations and so on.*

UNIT – I

Introduction to Computers, Computer Problem Solving and C Language

Introduction to Computers: Computer Systems, Computing Environment, Computer Languages, Creating and Running Programs and System Developments. **Introduction to Computer Problem Solving:** The problem solving aspect, Top-Down Design, Bottom-Up approach, Flowcharts, Implementation of Algorithms, The Efficiency of Algorithms, Program Verification. **Introduction to C Language**: The C Character Set, Identifiers and Keywords, Data Types, Variables andConstants, Structure of a C program, Input and Output, Programming examples.

UNIT – II

Fundamental Algorithms, Selection and Making Decision and Iterative Statements

Fundamental Algorithms: Exchanging the values between two variables, Counting, Summation of a set of numbers, Factorial computation, Sine function computation, Generation of the Fibonacci sequence, Reversingthe digits of an integer, Basic conversion, Character to Number Conversion.

Selection and Making Decision: Logical data, Operator – Types of operators, Expression - Precedence and Associativity, Evaluation of Expressions, Type Conversion, Conditional   andUnconditional Statements.

Iterative Statements: Concept of a loop – Pretest and Posttest loops, Event and Counter Controller loops, Looping application.

UNIT – III

Factoring Methods, Functions, Arrays and Array Techniques

Factoring Methods: Finding square root of a number, The smallest divisor of an Integer, The GCD of two integers, Generating prime numbers, Computing prime factor of an Integer, Generation of Pseudo

random number, Raising the number to large power, Computing the nth Fibonacci. **Functions:** Definition, accessing a function, Inter function communication by Call-by-value, Call-by-reference (address), Standard library functions, Scope. **Arrays:** Introduction, Two-Dimensional arrays, multi-Dimensional arrays, Inter function communication with array elements, Array applications. **Array Techniques:** Array order reversal, Array counting, Finding the maximum number set, Removal duplicates from an ordered array, Partitioning an array, Finding k^{th}smallest element, Longest Monotone Subsequence.

UNIT – IV

Enumerated, Structure and Union Types, Strings

Enumerated, Structure and Union Types: The Type definition (typedef), Enumerated Types (Enum), Definition and Declaration of Structures, Accessing Structures and Nested Structures, Arrays of Structures,Structures and functions, Union, Programming applications. **Strings:** Basics, String input / output function, Arrays of Strings, String manipulation functions, String / Dataconversion.

UNIT – V

Pointers, Pointer Applications and Files

Pointers: Introduction, Pointer arithmetic and Arrays, Pointers to Pointers, Pointers for Inter functioncommunications, Compatibility, Lvalue and Rvalue. **Pointer Applications:** Dynamic Memory Allocation, passing an array to a function, Passing structuresthrough pointers, Pointers and functions, Pointers and strings. **Files:** Why files, Text and Binary files, Basic operations on files, Standard library functions for files,Converting file type and Command-line parameters.

TEXT BOOKS

1.R.G. Dromey, *"How to Solve it by Computer",* Low Price Edition, Pearson Education India, 2008.2.Ashok Kamthane, *"Programming in C",* Second Edition, Pearson Education India, 2011.

REFERENCES

1. Brian W. Kernighan, Dennis M. Ritchie, "*The C Programming Language*", Second Edition, Prentice Hall,1988.
2. Stephen G. Kochan, *"Programming in C (Developer's Library)",* Fourth Edition, Addison WesleyProfessional, 2014.
3. WikiBooks*, "C Programming ",*opensource-books, 2014.
4. Greg Perry, Dean Miller, "*C Programming Absolute Beginner's Guide (Absolute Beginner's Guide)",* ThirdEdition, Que Publishing, 2013.
5. Robert C. Seacord, *"The CERT® C Coding Standard: 98 Rules for Developing Safe, Reliable, and*

SecureSystems (SEI Series in Software Engineering Series)", Addison Wesley Professional, 2014.
6. Binu A, *"Problem Solving and Computer Programming Using C",* Laxmi Publications, Ltd., 2010.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	2	2	-	-	-	3	-	3	3	3	3
CO2	3	2	3	-	2	-	-	-	3	-	3	2	3	3
CO3	3	3	3	2	2	-	-	-	3	-	3	3	2	2
CO4	3	3	3	2	2	-	-	-	3	-	3	3	3	3

I B.Tech I Semester   **L   T   P   C**

Code:14AHS09   **-   -   3   2**

ENGINEERING PHYSICS LAB
(Common to EEE,ECE,CSE & IT)

Outcomes: After completion of the course the student will be able to

1. *They shall able to obtain and analyze scientific data from different physics laboratory instruments.*
2. *They shall develop their manipulative, observational and reporting skills.*
3. *The student will be able to understand many modern devices and technologies based on optics, electrodynamics,semiconductors, lasers and optical fibers.*

ENGINEERING PHYSICS LAB:

A minimum of 10 experiments to be conducted during the academic year

1. Determine the wavelengths of given light source - Spectrometer.

2. Dispersive power of prism

3. Determine the wavelength of given laser source – Diffraction grating.

4. Determine the particle size by using laser source

5. Determine the thickness of thin wire by Interference.

6. Determine the radius of curvature of given plano convex lens by forming Newton 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. Bending losses in Optical Fiber.

10. Determine the wavelength of Laser source by using optical fiber.

11. Determination of Hall Coefficient and Carrier concentration in the

givenSemiconductor.

12. Determine the energy loss of ferromagnetic sample by plotting B-H curve

13. Energy gap of a given semiconductor.

14. Determine the Dielectric constant of Barium Titanate.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	-	-	-	-	-	-	-	-	-	-	-
CO2	1	-	-	-	-	-	-	-	-	-	-	-
CO3	3	-	-	-	1	-	-	-	-	-	-	-

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

I B.Tech I Semester	L	T	P	C
Code:14AME03	-	-	3	2

ENGINEERING WORKSHOP
(Common to EEE,ECE,CSE & IT)

Outcomes:

After completion of the study of this lab a student will be able to:

1. *Distinguish between tools of various trades such as carpentry, fitting, sheet metal, welding, foundry & house wiring.*
2. *Explain the tools & connections pertaining to house wiring, stair case wiring etc.*
3. *To describe the use of carpentry & fitting joints such as lap, dovetail, mortise, tenon joint, various sheet metal models & manufacturing processes.*

1. TRADES FOR EXERCISES:

a. Carpentry shop– Two joints (exercises) involving tenon and mortising, groove and tongue: Making T lap joint, cross lap joint, Dovetail lap Joint, mortise and tenon joint, T - Bridle 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 and dovetail joint out of100 x 50 x 5 mm M.S. stock

c. Sheet metal shop– Two jobs (exercises) from: Tray, cylinder, hopper and funnel from out of 22 or 20guage G.I. sheet

d. House-wiring– Two jobs (exercises) from: wiring for two lamps (bulbs) with independent switch controls with or without looping, wiring for stair case lamp, wiring for Tube Light and wiring for a water pump with single phase starter.

e. Foundry– Preparation of two moulds (exercises): for a single Piece pattern and a Two Piece pattern.

f. Welding – Preparation of two welds (exercises): single V butt joint, lap joint, Square butt Joint and filletweld.

2. TRADES FOR DEMONSTRATION:
a. Plumbing   b. Machine Shop   c. Metal Cutting

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

REFERENCE BOOKS:
1. P.Kannaiah/ K.L.Narayana ,Work shop Manual ,SciTech Publishers.
2. Jeyapoovan, SaravanaPandian,Engineering Practices Lab Manual 4/e Vikas
3. GHF Nayler, Dictionary of Mechanical Engineering,Jaico Publishing House.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	1	2	-	-	-	-	1	-	1	-	-
CO2	3	3	3	1	2	-	-	-	-	1	-	1	-	-
CO3	3	2	3	1	1	-	-	-	-	1	-	1	1	-

SRI VENKATESWARA COLLEGE OF ENGINEERIN AND TECHNOLOGY
(AUTONOMOUS)

I B.Tech I Semester		L	T	P	C
Code:14ACS03		-	-	3	2

COMPUTER PROGRAMMING LAB
(Common to CSE & IT)

Outcomes:

After performing this lab, the students should be able to:

1. *Get practical knowledge about how to use concepts of C and Data structures for solving a problem.*
2. *Acquire and apply knowledge on pointers, memory allocation and files for dealing with variety of real world problems.*
3. *Compete the industry professional in analyzing and documenting a structured program by applying the coding standards.*
4. *Understand and apply the in-built functions and customized functions for solving the problems.*

Week l

a) Write a C program to exchange the values between two variables with and without using temporary variable.

b) Sum of the individual digits means adding all the digits of a number. Ex: 123, sum of digits is 1+2+3=6. Write a C program to find the sum of individual digits of a positive integer.

c) Write a C program to generate all the factors of 4 and 7 between 1 and n and count their value, where n is a value supplied by the user.

Week 2

a) Write a C program to compute the factorial of a given number.

b) Write a C program to compute the Sine function.

Week 3

a) 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.

b) Write a C program to reverse the digits of a given integer.

Week 4

a) Write a C program to covert the given decimal number into its equivalent binary, octaland hexadecimal number.

b) Write a C program to calculate the following: Sum=1-x2/2! +x4/4!-x6/6!+x8/8!-x10/10!.

c) 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 C program to display the result of a student by considering the standard grades.

b) Write a C Program to find both largest and smallest in the given list of integers.

Week 6

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

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

Week 7

a) Write a C program

i) To find the square root of a given integer.

ii) To find the smallest divisor of an integer.

iii) To raise the number to large power.

iv) To generate the prime numbers from 1 to n, where n is the value supplied by the user.

Week 8

a) Write a C program

i) To compute the prime factor of an integer.

ii) To generate the pseudo random number.

iii) To find the GCD (greatest common divisor) of two given integers.

iv) To compute the nth Fibonacci number.

Week 9

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 10

a) 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.)

b) Write a C Program to find whether the given string is a palindrome or not.

Week 11

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

i) To insert a sub-string in to a given main string from a given position.

ii) To delete n Characters from a given position in a given string.

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

Week 12

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

b) Write a C program 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 13

a) Write a C program using command line arguments to search for word in file and replace it with the specific word.

 b) Write a C program

    i) To write macro definition to test whether a character is lowercase or not.

    ii) To check whether a character is alphabet or not.

    iii) To obtain the largest of two numbers.

 c) Write a C program to concatenate two strings using command line arguments.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1	2	-	2	3	-				-		2
CO2	3	2	2	2	-	2	3	-				-		2
CO3	3	2	2	1	-	2	3	-				-		3
CO4	2	2	1	2	-	2	3	-				-		2

		L	T	P	C
I B.Tech II Semester					
Code:14AHS01		3	-	-	3

TECHNICAL ENGLISH-I
(Common to EEE,ECE,CSE & IT)

Outcomes: After completion of the course the student will be able to

1. *The students will learn the language by observing the rules of grammar, vocabulary and composition that are necessary.*
2. *Students are made to appreciate the intelligent and innovative use of rules in order to be able to generate creative output in tune with the demands of industry and the corporate world.*
3. *After the course, the students will improve their power of comprehension and the ability to express themselves through listening, reading, speaking and writing.*
4. *The students will be able to distinguish between formal English and functional English.*

UNIT-I   EMERGING TECHNOLOGIES:
Solar Thermal Power-Cloud Computing

UNIT-II   ENVIRONMENTAL CONSCIOUSNESS:
Climate Change- Green cover-Pollution

UNIT-III   ENERGY:
Renewable and Non-Renewable sources-Alternative sources-Conservation-Nuclear Energy

UNIT-IV   ENGINEERING ETHICS:
Challenger   Disaster-Biotechnology-Genetic   Engineering-
ProtectionFrom Natural Calamities

UNIT-V   TRAVEL AND TOURSIM:
Advantages and Disadvantages of Travel –Tourism - Atithi Devo Bhava-Tourism in India**.**

- **The teacher shall cover the following components which are given as exercises in the prescribed text book while teaching each of the five units listed above.**

REMEDIAL GRAMMAR:
1. Articles
2. Prepositions
3. Time & Tense
4. Sentence Construction-Strategies (avoiding Repetition and ambiguity)
5. Sentence Transformation (Degrees, Voice, Speech & synthesis)
6. Common Errors in English

VOCABULARY:
1. Roots-Prefixes-Suffixes(RPS Method)
2. Synonyms
3. Antonyms
4. Phrasal Verbs
5. Idioms
6. One-word substitutes

WRITING PRACTICE (COMPOSITION):
1. Paragraph-Writing(Descriptive, Narrative, Persuasive, Expository and Creative)
2. Summarizing
3. Note-Making and Note taking
4. Letter-Writing (Formal &Informal)
5. Report writing

Texts for classroom study:

(Prescribed Text book: Mindscapes-English for Technologies and Engineers, published by Orient BlackSwan, 2012)

Reference Books:

1. M. Ashraf RizWi, *"Technical English Communication***",** Tata Mc Graw Hill, Latest Edition.
2. V.R. Narayana Swamy, *"Strengthen Your Writing",* 1st edition, Orient longman, 2003.
3. Thomas Elliot Berry.*"The Most Common Mistakes in English Usuage",* 1st Edition, Tata McGraw Hill,2004.
4. Margaret M Maison*,"Examine your English",* 1st edition, Orient Longman, 1999.
5. Andrea J Rutherford ,*Basic communication skills for Technology,* Pearson Education, Asia.
6. MeenakshiRaman Sangeetha Sharma, *Technical communication* , Oxford
7. *Cambridge International of Phrasal Verbs*, Cambridge.
8. Martin Hewings ,*Essential English Grammar* , Cambridge
9. John Eastwood ,Oxford Practice Grammar, Oxford.
10. Daniel Jones ,*English Pronouncing Dictionary*, Oxford.

Question Paper Pattern:

From the prescribed text book without leaving any lessons:
1. Three-mark questions   **4 x 3 = 12M**
2. Ten Mark questions   **2 x 10 = 20M**

 Based on the Grammar exercises given in the prescribed Text Book.

3. Reading Comprehension – I   **5M**
4. Synonyms & Antonyms   **5M**
5. Prefixes & Suffixes   **5M**
6. Tense Forms   **4M**
7. Compound words   **2M**
8. Prepositions & Articles   **2M**
9. Idioms   **2M**
10. Jumbled Sentences   **5M**
11. Letter writing   **8M**
                                          _____
 Total   **70M**
                                          _____

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	-	-	-	-	-	-	3		-	1	1
CO2	3	2	-	-	-	-	-	-	-	3		-	2	1
CO3	3	3	-	-	-	3	-	-	-	3		-	1	2
CO4	2	2	-	-	-	1	-	-	-	3		-	1	2

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

I B.Tech II Semester   **L   T   P   C**
Code:14AHS06   **3   1   -   3**
ENGINEERING MATHEMATICS-II
(Common to All Branches)

Outcomes:

After completion of the course the student will be able to

1. *comprehend the areas of application of matrices, interpolation, partial differential equations and transforms.*
2. *apply the principles of matrices, curve fitting, partial differential equations, transforms etc. to the engineering and scientific problems.*
3. *obtain their solutions using various computational methods.*

UNIT-I

MATRICES: Rank of a matrix-Echelon form, Normal form -solution of linear system of homogeneous and non-homogeneous equations -Gauss elimination method.

Eigen values and Eigen vectors - Cayley-Hamilton theorem - Linear Transformations - Orthogonal transformations -Diagonalization of a matrix. Quadratic forms- Reduction of Quadratic form to Canonical form and their nature.

UNIT-II

SOLUTION OF ALGEBRAIC AND TRANSCENDENTAL EQUATIONS: Introduction - The Bisection method -The method of false position - Newton - Raphson method.

Curve Fitting: Fitting a straight line - Second degree curve- Exponential curve - Power curve by method ofleast squares.

Interpolation: Forward Differences - backward differences-Newton's forward and backward differences formulae for interpolation - Lagrange's interpolation formula - Inverse interpolation .

UNIT-III

Numerical differentiation-First and second order derivatives- . Numerical integration-Trapezoidal rule - Simpson's 1/3 rule - Numerical solutions of ordinary differential equations by Taylor's series-Picard's method of successive Approximations - Euler's Method – Runge-Kutta Methods – Predictor - corrector method - Milne's method

UNIT-IV

FOURIER SERIES: Fourier series- Even and odd functions-Fourier series in an arbitrary interval - - Half- range Fourier sine and cosine expansions. Fourier integral theorem (statement) -Fourier sine and cosine integrals. Fourier Transforms - Fourier sine and cosine Transforms.

UNIT-V

PARTIAL DIFFERENTIAL EQUATIONS: Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions - Method of separation of variables - solution of one-dimensional wave equation, heat equation and two – dimensional Laplace's equation. **RANSFORMS:** Inverse Z- transforms – Properties - Damping rule- Shifting rule - Initial and final value theorems. Convolution theorem - Solution of difference equations by Z- transforms.

Text Books:

1. Iyengar T.K.V., Krishna Gandhi.B and others, *Mathematical Methods*, New Delhi, S.Chand &company,2012.
2. Sankar rao G.,Kesav Reddy.E, *Mathematical Methods*, International publishing house, Pvt.ltd
3. Sastry .S.S., *Introduction to Numerical analysis*.New Delhi,Prentice Hall of India,2003
4. Dr..Grewal .B.S, *Higher Engineering Mathematics*,New Delhi,Khanna Publishers,2004

References:

1. Erwin Kreyszig ,*Advanced Engineering Mathematics*. John Wiley & Sons.
2. Jain.M.K, IyengarT.K.V,.Jain.R.K. *Numerical Methods for Scientific and Engineering Computation.*
   Newage International publishers.
3. Pal, *Mathematical Methods* ,Oxford University Press,2009.
4. Ranganatham.S,Prasad M.S.S.N.,Ramesh Babu.V, *Numerical Analysis*, S.Chand & company
5. Sankaraiah .C, *Mathematical Methods*, Vijayawada,V.G.S Book links,2007.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	3	-	-	-	-	-	-	1	1	2	3
CO2	3	2	1	1	-	-	-	-	-	-	1	2	3	2
CO3	2	3	2	2	-	-	-	-	-	-	1	1	3	2

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

I B.Tech II Semester

Code:14AHS03

L	T	P	C
3	1	-	3

ENGINEERING CHEMISTRY

(Common to EEE,ECE,CSE & IT)

Outcomes:

After completion of the course students will be able to understand

1. *the impact of hard water and its removal, formation of corrosion, effect of corrosion and designing of corrosion resistance articles.*
2. *selection of suitable engineering materials for specific applications.*
3. *selection of suitable fuels, calculation of air requirements for combustion of fuel, applications of different batteries and fuel cells.*

UNIT – I: WATER TECHNOLOGY

Hardness of Water and its unit of expression – Estimation of hardness in water by EDTA titration method – Numerical problems – Effect of different water impurities (Hardness, Dissolved Oxygen and Chlorides) on boiler troubles – Water softening methods – zeolite process – Ion Exchange process – Demineralization of Brakish Water – Electrodialysis and Reverse Osmosis.

UNIT – II: CHEMISTRY OF CORROSION

Dry and Wet corrosion – causes of corrosion – mechanism of corrosion – Galvanic series – Galvanic and Concentration cell corrosion – Factors influencing the corrosion – Control of corrosion – Cathodic protection – Sacrificial anodic and Impressed current cathodic protection – Electro Plating and Electroless plating (Copper and Nickel).

UNIT – III: MATERIALS CHEMISTRY - <u>Organic (High Polymers & Lubricants)</u>

Plastics: Thermosetting and thermoplastics – Engineering applications and properties of PE, PTFE, PVC, Nylon and Bakelite. **Rubbers:** Processing of Natural Rubbers – Vulcanization – Compounding of Rubber – Synthetic Rubber – Buna S, Buna N, Silicone rubber properties and applications.

Lubricants: Definition – Function of Lubricants – Classification of Lubricants – Properties of Lubricants (Viscosity Index – Flash and Fire point – Cloud and Pour point – Aniline point – Neutralization number – Mechanical strength).<u>**Inorganic (Refractories & Cement)** **Refractories**</u>: Definition – Classification – Important properties of refractories (Refractoriness, RUL, Thermal stability, Porosity, Dimensional stability and Mechanical strength).**Cement:** Definition – Composition – Classification of cements – Setting and Hardening of cement.

UNIT – IV: FUELS AND COMBUSTION

Fuels: Classification of Solid, Liquid and Gaseous fuels – Calorific value – HCV, LCV. Measurement of calorificvalue using Bomb calorimeter and Junkers gas calorimeter – Numerical problems – Fuel rating system – Octane and Cetane numbers and their influence on I.C. Engines.

Combustion: Combustion products and calculation of air requirement (numerical problems) – Flue gas analysis by Orsat's apparatus.

UNIT – V: ELECTROCHEMICAL CELLS

Electrochemical Cells – Standard electrode potential – Working principles and applications of different batteries – Dry cell, Lithium-ion cell, Lead-acid cell and Nickel-cadmium cell. Recharging of Batteries –Battery rating (A-h rating) – Working principles and applications of hydrogen-oxygen and methanol-oxygen fuel cells – Principle of solar cells.

Text Books:

1. Prof. K.N.Jayaveera, Dr.G.V.Subba Reddy and Dr.C. Ramachandraiah, *Chemistry for Engineers* ,McGraw HillHigher Education Hyd., 3rd edition, 2009.
2. S.S. Dara and S.S. Umare, A *text book of Engineering Chemistry*: S. Chand & Co. Ltd., 12th edition, 2010.
3. Jain & Jain*, A text book of Engineering Chemistry:* Dhanpat Rai Publishing Company, 15th edition, New Delhi,2008.

Reference Books:

1. Dr. K. B. Chandrasekhar, Dr. U.N. Dash, Dr. Sujatha Mishra, Engineering *Chemistry*:SciTech Publications (India) Pvt. Limited, Hyderabad, 2009.
2. C.V. Agarwal, C. Parameswara Murthy and Andra Naidu ,*Chemistry of Engineering Materials*: BS
3. Publications, Hyderabad, 9th edition, 2006.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	**3**	**1**	-	-	-	-	-	-	-	-	-	-	-	-
CO2	**3**	**3**	-	-	-	-	-	-	-	-	-	-	**1**	-
CO3	**3**	**3**	-	-	-	-	-	-	-	-	-	-	-	-

I B.Tech II Semester	**L**	**T**	**P**	**C**
Code:14AME01	**2**	**-**	**4**	**4**

ENGINEERING DRAWING
(Common for EEE,ECE, CSE & IT)
(First Angle Projection)

OutComes:

After completion of this course, the student will be able to:

1. Prepare pictorial drawings as per the standards.
2. Communicate his/her ideas effectively by using orthographic projections.
3. Prepare the development of surfaces of engineering objects.

Introduction

Drawing Instruments and their uses, BIS conventions, Lettering, Dimensioning and free hand practicing.

Geometrical constructions – construction of polygons – drawing tangents – dividing a line into number of equal divisions.

UNIT-I

Principles of projection – both first and third angle – Projections of points – Projections of straight lines-linesinclined to both the principal planes, determination of true length and true inclinations.

UNIT-II

Projections of planes – inclined to both the principal planes.
Projection of regular solids – prisms, Pyramids, cylinders, tetrahedron and cones – axis inclined to one plane.

UNIT-III

Sections of solids such as prisms, pyramids, cylinders, tetrahedron and cones (solids in simple position) –True shape of the section.

UNIT-IV

Principles of isometric projection – isometric scale – isometric projection of planes and solids – conversion oforthographic views into isometric views and vice- versa.

UNIT-V

Development of surfaces of simple solids such as prisms, pyramids, cylinders, tetrahedron, cones and partsolids.

Text Books:

1. Narayana K L and Kannaiah P, *Engineering Drawing*, Scitech Publications, Chennai 2012.
2. Bhatt N D and Panchal V M, Engineering Drawing, Revised Edition, Charotar Publications,2010.

References:

1. Engineering Drawing, Johle, Tata McGraw-Hill, 2008.
2. Engineering Drawing, Shah and Rana, 2/e, Pearson Education, 2005.

FINAL EXAMINATION QUESTION PAPER PATTERN

(External Evaluation & Paper setting)

<u>**Paper Setting:**</u>

1. Two questions to be set from each unit in either or choice (All Questions carries equal marks)

2. Student has to answer all questions.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	-	-	-	-	1	-	-	-	-	-	-
CO2	3	1	-	-	1	-	-	-	-	-	-	-	1	-
CO3	3	3	-	-	-	-	-	-	-	-	-	-	-	-

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

	L	**T**	**P**	**C**
I B.Tech II Semester				
Code:14ACS05	**3**	**1**	**-**	**3**

DATA STRUCTURES
(Common to CSE & IT)

Learning Outcomes:

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

1. *Understand different types of advanced abstract data types (ADT), Data structures and their implementation.*
2. *Handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures.*
3. *Apply various techniques for representation and manipulation of the data in the real world.*
4. *Choose appropriate sorting and searching mechanism based on the problem being solved.*

UNIT – I - Introduction

Introduction to Data Structures: Definition, Abstract Data Type, Classification of Data Structures-Linearand Non-Linear, Applications.

UNIT – II - Stacks and Queues

Stacks: Basic Operations, Array and Linked representations of stacks, Stack applications-Reversing Data, Infix to Postfix Transformation, Postfix expression evaluation, Other applications of Stacks.**Queues**: Basic Operations, Array and Linked representations, Circular Queues, Priority Queue, Dequeue,Applications of Queues.

UNIT – III - Linear List

Linear List: Dynamic Memory Allocation, Concepts of Linked Lists, Types of Linked Lists, Basic List Operations, Concatenating two lists, Singly Linked List implementation, Doubly Linked List and its Operations, Circularly Linked List, Application of Linked Lists.

UNIT – IV - Searching and Sorting
Searching: Linear and Binary search methods.

Sorting: Bubble sort, Selection sort, Insertion sort, Quick sort, Merge Sort.

UNIT – V - Trees and Graphs

Trees: Basic Tree Concepts, Binary Trees, Binary Tree Traversals, Applications of Binary Trees, BinarySearch Trees, Spanning Trees.

Graphs: Introduction, Graph Representation in C, Graph Storage Structures- Adjacency Matrix, AdjacencyList, Graph Traversals, Applications.

TEXT BOOKS

1. Richard Gilberg, Behrouz Forouzan, *"Data Structures: A Pseudocode Approach with C (Data StructuresSeries)",* Second Edition, Cengage Learning, 2004.
2. Harry H. Chaudhary*," Data Structures Using C Language. 2014: Perfect Beginners Guide (Best Selling Edition Worldwide)",* Createspace LLC USA, 2014.

REFERENCES

1. A.A.Puntambekar, *"Data Structures Using C",* First Edition, Technical Publications, 2009.
2. E Balagurusamy, *"Data Structures Using C",* Tata McGraw-Hill Education, 2013.
3. Ashok N. Kamthane, *"Introduction to Data Structures in C",* Pearson Education India, 2007.
4. Horowitz, Ellis, Sahni, Sartaj, Anderson-Freed, Susan (2008), *"Fundamentals of Data Structure in C",* Second Edition, University Press, India.
5. http://nptel.ac.in/courses/106105085/ (NPTEL video lectures).

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	1	3	-	-	-	1	-	-	1	2	2
CO2	3	3	3	1	3	-	-	-	1	-	-	1	3	3
CO3	3	3	3	1	3	-	-	-	1	-	-	1	2	1
CO4	3	3	3	1	3	-	-	-	1	-	-	1	3	3

I B.Tech II Semester   **L   T   P   C**
Code:14AHS07   **-   -   3   2**

TECHNICAL ENGLISH LAB-I
(Common to EEE,ECE,CSE & IT)

Outcomes: After completion of the course the student will be able to

1. *The students will be able to recognize English sounds- Monophthongs, diphthongs and consonant sounds.*
2. *The students will appreciate and use correct pronunciation in English.*
3. *The pupils will distinguish between Received Pronunciation and Indian variety.*
4. *The lab course will make the students use English with correct stress and intonation patterns because English is arhythmic language.*

SYLLABUS:

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

UNIT-I   Organs of speech, speech mechanism, vowels, consonants, diphthongs, syllable division, word stress, intonation, phonetic transcription with support of speech solutions, dictionary practice with AHD & CALD software.

UNIT-II Speaking of past, present & Future, Role play-Graded exercise with support of exercises from English Mastery, TOEFL Mastery & CALD Software.

UNIT-III   **FUNCTIONAL ENGLISH-I**

Situational conversation-Grader exercises with support of Rosetta Stone Software

UNIT-IV   **FUNCTIONAL ENGLISH-II**

Situational conversation-Grader exercises with support of Rosetta Stone Software

- Greeting/Self-introduction
- Expressing the cause of something
- Describe a current situation
- Speaking traditions/customs/public issues
- Making plans for vacation
- Expressing of emotions
- Shopping –bargaining price and making purchases
- Making an appointment
- Naming foods and describing tastes
- Reporting other person's messages
- Requesting
- Asking for directions and describing
- Making suggestions, agreements and refusals

UNIT-V   GROUP DISCUSSIONS:

Do's and Don'ts of a G.D, Speaking on Knowledge based, controversial or abstract topics.

Reference Books:

1. English Language lab manual prepared by the Department of English
2. T. Balasubramaniyam, *A Text Book of English Phonetics for Indian students*, Macmillan Ltd., 2000.
3. Sasikumar.V and P.V. Dhamija, *Spoken English: A Self-Learning Guide to Conversation Practice. 34th Reprint*. Tata McGraw Hill. New Delhi,1993.
4. Daniel Jones, English *Pronouncing Dictionary*, Current Edition with CD.
5. R.K. Bansal and J.B. Harrison, Orient Longman*, Spoken English*, 2006 Edn.
6. Krishna Mohan & NP Singh (Macmillan), *Speaking English Effectively*
7. J. Sethi, Kamlesh Sadan and & D.V. Jindal, *A Practical course in English Pronunciation, (with two Audio cassettes)* Prentice- Hall of India Pvt.Ltd., New Delhi.
8. English Dictionary For Advanced Learners, (with CD) international edn. Macmillan 2009.
9. E. Suresh Kumar, P. Sreehari, *A Handbook for English Language Laboratories, Foundation Books,* 2009.
10. Delta's Key to the Next Generation TOEFL Test, 6 audio CDs, New Age International Publishers, 2007.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	-	-	-	2	2	-	-	-	-	2	1	2	3
CO2	-	3	-	2	-	1	-	-	-	-	-	-	2	3
CO3	-	3	-	2	-	3	-	-	3	-	-	-	2	3
CO4	-	-	2	-	-	1	-	2	-	-	-	-	3	-

I B.Tech II Semester	**L**	**T**	**P**	**C**
Code:14AHS08	**-**	**-**	**3**	**2**

ENGINEERING CHEMISTRY LAB
(Common to EEE,ECE,CSE & IT)

Outcomes:

After completion of practical's student will be able to

1. *use volumetric analysis for the estimation of metal ions, hardness of water, dissolve oxygen in water, chlorides in water, oxygen demand for water, alkalinity and acidity of water,*
2. *the importance of viscosity index, flash point and fire point of lubricants,*
3. *evaluation of eutectic temperature of binary system, the use of conductometer and potentiometer.*

Any **TEN** of the following experiments

1. Estimation of Hardness of water by EDTA method.

2. Estimation of Dissolved Oxygen in Water.

3. Estimation of Chlorides in Water sample.

4. Determination of Chemical Oxygen Demand.

5. Determination of Acidity of Water sample.

6. Determination of Alkalinity of Water sample.

7. Estimation of Copper by EDTA method.

8. Estimation of Ferrous Ion by Potassium Dichromate method.

9. Determination of Flash and Fire point by using Pensky Marten's apparatus.

10. Determination of viscosity of oils through Redwood viscometer No.1.

11. Determination of viscosity of oils through Redwood viscometer No.2.

12. Determination of Eutectic temperature of Binary system (Urea-Benzoic acid).

13. Acid- Base titration by Conductometric method.

14. Redox titrations by Potentiometry.

15. Titration of Strong acid vs Strong base by Potentiometry.

Text Books:

1. Chemistry Pre-lab manual by Dr K. N. Jayaveera and K.B. Chandra Sekhar, S.M. Enterprizes Ltd.,2007.
2. Vogel's Textbook of Quantitative Inorganic Analysis, ELBS Edition, 1994.

Equipment Required:

1. Glassware: Burettes, Pipettes, Standard Flasks, Beakers, Measuring jars, BOD bottles and Reagentbottles.
2. Analytical balance,
3. Reflux Condensers,
4. Pensky Marten's apparatus,

5. Redwood viscometer,
6. Bomb calorimeter,
7. Conductometer, Potentiometer.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	-	2	-	-	-	-				-
CO2	3	3	1	3	3	-	-	-				-
CO3	2	-	1	-	2	-	-	-				-

			L	T	P	C
I B.Tech II Semester						
Subject Code:14ACS06			-	-	3	2

DATA STRUCTURESLAB
(Common to CSE & IT)

Lab Outcomes:

After Completing this lab the student must demonstrate the Knowledge and ability to:
1. *Demonstrate the application of software engineering principles in design, coding , and testing of large programs..*
2. *Emphasize the specification of each data structure as an abstract data type before discussing implementationsand application of the structure.*
3. *Aware of the importance of structured programming methods in developing the software.*
4. *Know the systematic approach to study algorithms , by focuses first on understanding the action of the algorithmthen analyzing it*

Week 1

Write a C program that implements Stack operations using

a)Arrays b) Pointers

Week 2

Write a C program that uses Stack operations to perform the following
a) Converting Infix expression to Postfix expression.
b) Evaluating the Postfix expression.

Week 3

Write a C program that implements Queue operations using
a) Arrays   b) Pointers

Week 4

Write a C program that implements Circular Queue operations using Arrays.

Week 5

Write a C program that implements Dequeue operations using Arrays.

Week 6

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 7

Write a C program that uses functions to perform the following operations on doubly linked list.
i) Creation   ii) Insertion   iii) Deletion   iv) Traversal

Week 8

Write a C program that uses functions to perform the following operations on circular linked list.
i) Creation   ii) Insertion   iii) Deletion   iv) Traversal

Week 9

Write C programs that use both recursive and non-recursive functions to perform the following searchingoperations for a Key value in a given list of integers:
      i) Linear search   ii) Binary search

Week 10

Write a C program that implements the following sorting methods to sort a given list of integers in ascendingorder
      i) Bubble sort   ii) Selection sort   iii) Insertion sort

Week 11

Write a C program that implements the following sorting method to sort a given list of integers in ascendingorder:
      i) Merge sort   ii) Quick sort

Week 12

Write a C program that uses functions to perform the following Binary Tree Traversals
      a) Inorder   b) Preorder   c) Postorder

Week 13

Write a C program to implement the following graph traversals
      a) Depth-First Search   b) Breadth-First Search

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1	1	3	-	-	-	1	-	-	-	2	2
CO2	2	2	1	1	2	-	-	-	1	-	-	-	3	3
CO3	2	2	2	1	3	-	-	-	1	-	-	-	2	1
CO4	3	2	1	1	2	-	-	-	1	-	-	-	3	3

II B.Tech I Semester CSE	**L**	**T**	**P**	**C**
14AHS12 MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS	**3**	**1**	**-**	**3**

(Common to All Branches)

Outcomes:
After the completion of the course student will be able to
1. *Gain knowledge on managerial economics.*
2. *Develop an understanding of economic principles and to enhance skills in high-level problem solving and criticalthinking.*
3. *Evaluate the economic environment and the impact of governmental economic policies on consumers andfinancial institutions.*
4. *Know the application of financial accounting in the field of Engineering.*

UNIT – I
INTRODUCTION TO MANAGERIAL ECONOMICS

Managerial Economics: Definition, Nature and Scope – Demand analysis: Law of demand, Demand determinants, Elasticity of Demand: Definition, Types, Measurement and Significance – Demand forecasting methods (Survey methods, Statistical methods, Expert opinion method, Test marketing, Controlled experiments, Judgmental approach).

UNIT – II
THEORY OF PRODUCTION AND COST ANALYSIS
Production function – Cobb Douglas Production function – Laws of Returns – Internal and External economies of scale
COST ANALYSIS: Cost concepts, Fixed vs. Variable costs, Explicit vs. Implicit Costs, Out of Pocket costs Vs Imputed costs, Opportunity Cost and Sunk costs
BREAK EVEN ANALYSIS: Concept of Break Even Point (BEP) – Break Even Chart – Assumptions underlying and Practical significance of BEP (Simple Problems).

UNIT – III
INTRODUCTION TO MARKETS AND BUSINESS ORGANIZATIONS:
Market structures – Types of Competition – Features of perfect competition, Monopoly, Monopolistic competition – Price-Output Determination under perfect competition and Monopoly –Types of Business organization – Features, Merits and demerits of Sole proprietorship, Partnership and Joint stock companies – Types of companies – Public enterprises –Types and Features – Changing business environment in post – Liberalization scenario.

UNIT – IV
CAPITAL AND CAPITAL BUDGETING:
Capital and its Significance – Types of capital – Estimation of fixed and working capital requirements – Methods and sources of raising capital – Capital Budgeting Methods**:** Payback

Method, Accounting Rate of Return (ARR), and Net Present Value (NPV) Method (Simple Problems).

UNIT –V
FINANCIAL ACCOUNTING AND FINANCIAL ANALYSIS THROUGH RATIOS:
Double entry book keeping – Journal – Ledger – Trial Balance –Trading Account and balance sheet with simple adjustments **Ratio analysis:** Computation of Liquidity Ratios (Current and Quick Ratio), Activity Ratios (Inventory Turnover Ratio and Debtor Turnover Ratio), Capital Structure Ratios (Debt- Equity Ratio and Interest Coverage Ratio) and Profitability Ratios (Gross Profit Ratio, Net Profit Ratio, Operating Ratio, P/E Ratio and EPS).

TEXT BOOKS:
1. A R Aryasri, *Managerial Economics and Financial Analysis*, 4/e, TMH, 2009.
2. Varshney & Maheswari*, Managerial Economics*, Sultan Chand, 2009.
3. Siddiqui S.A and Siddiqui A S, *Managerial Economics and Financial Analysis*, New Age international, 2009.

REFERENCE BOOKS:
1. R.L.Gupta, *Financial Accounting*, Volume I, Sultan Chand, New Delhi, 2001
2. James C. Van Horne, *Financial Management policy*,12th Edition, , PHI
3. Joel Dean, *Managerial Economics*, PHI, 2001.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	1	-	-	2	1	-	-	-	3	-	-	2
CO2	-	-	1	-	-	2	2	-	-	1	-	-	-	3
CO3	-	-	2	-	-	-	2	-	-	2	-	-	-	2
CO4	-	-	1	-	-	3	-	-	-	-	2	-	-	3

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SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

II B.Tech I Semester		**L**	**T**	**P**	**C**
14ACS07	**COMPUTER ORGANIZATION**	**3**	**1**	**-**	**3**

(Common to CSE & IT)

Outcomes:
At the end of the course the student will be able to:
1. *Describe computer architecture and organization, computer arithmetic and CPU design.*
2. *Understand the merits and pitfalls in computer performance measurements.*
3. *Understand memory hierarchy and its impact on computer cost/ performance.*
4. *Obtain technical knowhow of the advantage of instruction level parallelism and pipelining for high performanceprocessor design.*

UNIT I
STRUCTURE OF COMPUTERS: Computer types, functional units, basic operational concepts, Von-Neumann architecture, bus structures, software, performance, multiprocessors andmulticomputer, data representation, fixed and floating point and error detecting codes.

UNIT II
REGISTER TRANSFER AND MICRO-OPERATIONS: Register transfer language, register transfer, arithmetic micro-operations, logic micro-operations, shift micro-operations, arithmetic logic shift unit, computer registers, computer instructions, instruction cycle, instruction formats, addressing modes, data transfer and manipulation instructions.

UNIT III
MICRO-PROGRAMMED CONTROL: Control memory, address sequencing, micro-program example,and design of control unit.
COMPUTER ARITHMETIC: Addition and subtraction, multiplication and division algorithms,floating-point arithmetic operations.

UNIT IV
THE MEMORY SYSTEM: Basic concepts, semiconductor RAM, types of read - only memory (ROM),cache memory, virtual memory, secondary storage, RAID,direct memory access.
INPUT/OUTPUT ORGANIZATION: Accessing I/O Devices, Interrupts, Direct Memory Access,Modes of transfer, Peripheral devices.

UNIT V

PIPELINING: Basic Concepts, Parallel processing, Pipelining, Arithmetic pipelining, Instruction pipelining, RISC pipelining, Data Hazards, Instruction hazards, Vector processing, Array processors, Characteristics of multiprocessors, interconnection structures, inter processor communication and synchronization.

TEXT BOOKS:

1. M. Moris Mano, *Computer System Architecture*, 3rd edition,PHI, India,2006.
2. Carl Hamacher, ZvonksVranesic, SafeaZaky, *Computer Organization*, 5th edition, McGraw Hill, New Delhi, India,2002.

REFERENCE BOOKS:

1. William Stallings , *Computer Organization and Architecture*- designing for performance, 8th edition, Prentice Hall, New Jersy,2010.
2. Andrew S. Tanenbaum, *Structured Computer Organization*, 5th edition, Pearson EducationInc, New Jersy,2006.
3. Sivarama P. Dandamudi, *Fundamentals of Computer Organization and Design*, SpringerInt. Edition, USA,2003.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	-	-	-	-	-	-	-	-	-	3	3
CO2	2	3	2	-	-	-	-	-	-	-	-	-	3	3
CO3	2	3	2	-	-	-	-	-	-	-	-	-	3	2
CO4	3	3	2	-	-	-	-	-	-	-	-	-	-	-

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

II B.Tech I Semester CSE	L	T	P	C
	3	1	-	3

14ACS08   ADVANCED DATA STRUCTURES
(Common to CSE & IT)

Outcomes:
At the end of the subject, students will be able to:
1. *Understand the properties of various data structures*
2. *Understand basic techniques of algorithm analysis*
3. *Understand advanced abstract data type (ADT) and data structures and theirImplementations,*
4. *Choose appropriate data structure as applied to specified problem definition.*

UNIT I:

The Origins of C++, What is Object Oriented Programming, some C++ fundamentals, C++ Class Overview-Class Definition, Objects, Class Members Access Control, Constructors and Destructors, Inline functions, this pointer, friend functions, Exception handling.

UNIT II:

Function Overloading, Operator Over loading, Generic Programming–Function and Class Templates, Inheritance basics, base and derived classes, inheritance types, base class access control, runtime polymorphism using virtual functions, abstract classes.

UNIT III:

Algorithms, performance analysis - Asymptotic notations - time complexity and space complexity. Review of basic data structures - List ADT– Linked Representation – Singly Linked List – Doubly linked List – Applications of lists-Stack ADT – Queue ADT –Implementation using template classes in C++.

UNIT IV:

Dictionaries-Operations and Implementations-Hashing – General Idea – Hash Function – Separate Chaining – Open Addressing – Linear Probing, quadratic probing- Priority Queues (Heaps) – Simple implementations – Binary Heap – Heap Sort.

UNIT V:

Search trees: Binary tree traversals-Binary search trees, Definition ADT, Implementation-AVL Trees, Implementation- Definition, Red-Black Trees and Splay Trees, B-Trees, Implementations, Comparison of Search Trees.
Graphs: Basic concepts, Graph Representation, Graph traversal (DFS & BFS)

TEXT BOOKS:

1. E Balaguruswamy," Object *oriented Programming with C++*",TMH, 4th Ed,2008.
2. Sahani S," Data *structures Algorithms and Applications using C++*",University Press (India) Pvt. Ltd,2nd edition,2004.
3. *Ananda Rao Akepogu, Radhika Raju Palagiri, "Data structures and Algorithms using C++",*Pearson Education,2010.

REFERENCE BOOKS:
1. Adam Drozdek, " *Data Structures and Algorithms in C++* " India Edition,3rd Edition,2004.
2. Gav Pai, "Data Structures and Algorithms", McGraw Hill Education,2008.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	-	-	-	-	-	-	-	-	-	3	3
CO2	3	3	2	-	-	-	-	-	-	-	-	-	3	3
CO3	3	3	3	-	-	-	-	-	-	-	-	-	3	2
CO4	2	3	3	-	-	-	-	-	-	-	-	-	2	3

II B.Tech I Semester CSE　　　　　　　　　　　　　　　**L　T　P　C**
14AEC07　DIGITAL LOGIC DESIGN　　　　　　　　　　　**3　1　-　3**

(Common to CSE & IT)

Outcomes:
On successful completion of this course students will be able to
1. *Interpret, convert and represent different number systems and binary arithmetic.*
2. *Design and analyze combinational and sequential circuits for various practical problems using basic gates and flipflops*
3. *Implement LSI and MSI circuits using programmable logic devices (PLDs).*
4. *Design different types of counters.*

UNIT I
BINARY SYSTEMS: Digital Systems, Binary Numbers, Number base conversions, Octal and Hexadecimal Numbers, complements, Signed binary numbers, Binary codes, Binary Storage and Registers and Binary logic.
BOOLEAN ALGEBRA AND LOGIC GATES : Basic Definitions, Axiomatic definition of Boolean Algebra, Basic theorems and properties of Boolean algebra, Boolean functions canonical and standard forms, other logic operations, Digital logic gates and Integrated circuits.

UNIT II
GATE – LEVEL MINIMIZATION: The map method, Four-variable map, Five-Variable map, product of sums simplification, Don't-care conditions, NAND and NOR implementation, other Two-level implementations and Exclusive–OR function.

UNIT III
COMBINATIONAL LOGIC : Combinational Circuits, Analysis procedure, Design procedure, Binary Adder and Subtractor, Decimal Adder, Binary multiplier, magnitude comparator, Decoders, Encoders and Multiplexers.

UNIT IV
SYNCHRONOUS SEQUENTIAL LOGIC: Sequential circuits, Latches, Flip-Flops, Analysis of clocked sequential circuits, State Reduction and Assignment, Design Procedure**. REGISTERS AND COUNTERS:** Shift Registers, Ripple counters, synchronous counters and Design of modulo-N Counters, Ring and Johnson Counters.

UNIT – V
MEMORIES:
Random-Access Memory, Memory Decoding, Error Detection and correction, Read-Only Memory, Programmable Logic Array(PLA), Programmable Array Logic(PAL), Sequential Programmable Devices.

TEXT BOOKS:

1. M.Morris Mano and Michael D.Ciletti, *Digital Design*, Fourth Edition, Pearson Education, 2009.
2. Charles Roth, *Fundamentals of Logic Design*, 5th Edition, Thomson, 2008.

REFERENCE BOOKS:

1. Zvi. Kohavi, *Switching and Finite Automata Theory*, Tata McGraw Hill, 2002.
2. C.V.S. Rao, *Switching Theory and Logic Design*, Pearson Education, 2004.
3. Donald D.Givone, *Digital Principles and Design*, Tata McGraw Hill, 2001.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	3	-	-	-	-	-	-	-	-	-	2	3
CO2	3	2	2	-	-	-	-	-	-	-	-	-	2	3
CO3	3	2	3	-	-	-	-	-	-	-	-	-	1	2
CO4	3	2	2	-	-	-	-	-	-	-	-	-	2	3

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

II B.Tech I Semester CSE

L	T	P	C
3	1	-	3

14ACS09   DISCRETE MATHEMATICS

(Common to CSE & IT)

Outcomes:

At the end of the course the student will be able to:
1. *Distinguish between the notion of discrete and continuous mathematical structures.*
2. *Apply Propositional logic and First order logic to solve problems.*
3. *Understand discrete mathematical structures.*
4. *Formulate and solve graph problems and Count discrete event occurrences.*

UNIT I
Mathematical Logic: Statements and Notations, Connectives, Well Formed Formulas, Truth Tables, Tautology, Equivalence Implication, Normal Forms, Quantifiers, Universal Quantifiers. **Predicates:** Predicative Logic, Free & Bound Variables, Rules of Inference, Consistency, Proof of Contradiction, Automatic Theorem Proving.

UNIT II
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 III
Algebraic structures: Algebraic Systems- Examples and general properties, Semi groups and Monoids, Groups, Sub Groups, Cyclic Groups, Cosets, Permutation Groups, Quotient Groups, Rings and Fields, Homomorphism, Isomorphism.
Elementary Combinatorics: Basis of Counting, Enumerating Combinations & Permutations, with Repetitions, Constrained Repetitions, Binomial Coefficients, Binomial Multinomial Theorems, Peano's Axioms, The Principles of Inclusion – Exclusion. Pigeon hole principle and its Applications.

UNIT IV
Recurrence Relations : Generating Functions and Sequences, Calculating Coefficient of Generating Function, Recurrence Relations, Solving Recurrence Relation by Substitution and Generating functions, Repertoire Method, Perturbation Method, Convolutions, Characteristics Roots, Solution of Inhomogeneous Recurrence Relation.

UNIT V
Graph Theory and Applications: Representation of Graph, DFS, BFS, Spanning Trees, Planar Graphs, Cycles, Paths and Connectedness, Vertex and Edge cuts, Basic Concepts Isomorphism and Sub graphs, Multi graphs and Euler Circuits, Hamiltonian Graphs, Chromatic Numbers.

TEXT BOOKS:
1. J.P.Tremblay, R.Manohar, *Discrete Mathematical Structures with Applications to Computer Science* TMH, 1997.
2. D P Mohapatra, *Elements of Discrete Mathematics- A Computer Oriented Approach*- C L Liu, fourth Edition,2012, Tata McGraw Hill.
3. J.L. Mott, A. Kandel, *Discrete Mathematics for Computer Scientists & Mathematicians*, T.P.Baker, PHI, 1999.

REFERENCE BOOKS:
1. Ralph.P.Grimaldi, *Discrete and Combinational Mathematics*- An Applied Introduction-5th Edition, Pearson Education,2014.
2. D.S.Chandrasekharaiah, *Discrete Mathematical structures, Prism Books, 2005.*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	3	-	-	-	-	-	-	-	-	2	3
CO2	3	1	2	2	-	-	-	-	-	-	-	-	3	2
CO3	2	3	2	2	-	-	-	-	-	-	-	-	3	2
CO4	3	3	3	1	-	-	-	-	-	-	-	-	2	2

II B.Tech I Semester CSE

L	T	P	C
3	1	-	3

14AEC01   ELECTRONIC DEVICES AND CIRCUITS

(Common to CSE & IT)

Outcomes: *At the end of the course the student will be able to:*

1. Understand and apply various Semiconductor Devices like Diode, BJT, JFET, MOSFET,SCR & UJT.
2. Design and analyze the DC bias circuitry of BJT and FET.
3. Design and analyze basic transistor amplifier circuits using BJT and FET.

UNIT I
PN Junction Diode and its Applications:
PN Junction Characteristics, biasing- band diagrams and current flow, Diode current equations under forward bias and reverse bias conditions, Junction breakdown in diodes and breakdown voltages, effect of temperature on diode characteristics, Junction capacitance under forward bias and reverse bias, V-I characteristics and Specifications of Zener Diode, simple Zener voltage regulator and its limitation. Half wave, Full wave and Bridge rectifiers - their operation, performance characteristics, various filters and their importance and analysis of C-filter.

UNIT II
Bipolar Junction Transistor:
Construction, Principle of Operation, V-I characteristics, Current components and current flow in BJT, Modes of transistor operation, Early effect, BJT input and output characteristics in CB, CE CC configuration, Various BJT biasing techniques, Thermal runway and Thermal Stabilization, Stability factors, Bias stabilization and Compensation techniques.

UNIT III
Small Signal Transistors equivalent circuits: Small signal low frequency h-parameter model ofBJT, Determination of h-Parameters from Transistor Characteristics, Measurement of h- Parameters, Analysis of CE, CB and CC configurations using exact h-parameters, Comparison of CB, CE and CC amplifier configurations.

UNIT IV
Junction Field Effect Transistors (JFET): JFET Construction, Operation & Current flow, Pinch-off voltage, V-I characteristics of JFET. Various biasing circuits for JFET. Low frequency small signal model of JFET. Analysis of CS amplifier.
MOSFETS: MOSFET Construction, Operation & Current flow, V-I characteristics of MOSFET in Enhancement and Depletion modes.

UNIT V
Special purpose Electronic Devices:
Principle of Operation, and Characteristics of Tunnel Diode, Varactor Diode, Schottky Barrier Diode, Silicon Control Rectifier (SCR), Uni-Junction Transistor (UJT), Semiconductor photo devices - LDR, LED, Photo diodes & Photo transistors.

TEXT BOOKS:
1. J. Millman& Christos C. Halkias, *Integrated Electronics*, TMGH Edition, 2008.
2. R.L. Boylestad and Louis Nashelsky, *Electronic Devices and Circuits,* Pearson/Prentice Hall, 10th Edition, 2009.
3. David A.Bell, *Electronic Devices and Circuits*, 5th edition, Oxford University Press, 2008.

REFERENCE BOOKS:
1. T.F. Bogart Jr., J.S.Beasley and G.Rico, *Electronic Devices and Circuits*, Pearson Education, 6th edition, 2008.
2. J.Millman, C.C.Halkias, and SatyabrathaJit, *Millman'sElectronic Devices and Circuits*, Tata McGraw Hill, 2nd Edition, 2008.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	2		2							2	2
CO2	3	2	2	2		2							3	1
CO3	2	2	1	1		1							2	2

II B.Tech I Semester CSE

L	T	P	C
-	-	3	2

14AEC02   ELECTRONIC DEVICES AND CIRCUITS LAB
(Common to CSE & IT)

Outcomes:

At the end of the course, the student should be able to:
1. Analyze CE, CB and CS amplifiers and its bandwidth calculation.
2. Analyze various parameters from the characteristics of various electronic devices.
3. Analyze the importance of Filters and its calculations.
4. Analyze the bandwidth of the BJT and FET in different configurations.
5. Apply the different application in electronics devices

Electronic Workshop Practice:

1. Identification, Specifications, Testing of R, L, C Components (Colour Codes),Potentiometers,
Coils, Gang Condensers, Relays, Bread Boards.
2. Identification, Specifications and Testing of active devices, Diodes, BJTs, JFETs,LEDs, LCDs,
SCR, UJT.
3. Soldering Practice- Simple circuits using active and passive components.
4. Study and operation of Ammeters, Voltmeters, Transformers, Analog and Digital Multimeter,
Function Generator, Regulated Power Supply and CRO.

List of Experiments (For Laboratory Examination-Minimum of Twelve Experiments)

1. Study of CRO Operation and its Applications.

2. P-N Junction Diode Characteristics
    Part A: Germanium Diode (Forward bias& Reverse bias)
    Part B: Silicon Diode (Forward bias only)

3. Zener Diode Characteristics
    Part A: V-I Characteristics
    Part B: Zener Diode act as a Voltage Regulator

4. Rectifiers (without and with c-filter)
    Part A: Half-wave Rectifier Part
    B: Full-wave Rectifier

5. BJT Characteristics (CE Configuration)
    Part A: Input Characteristics
    Part B: Output Characteristics

6. BJT Characteristics (CB Configuration)
    Part A: Input Characteristics
    Part B: Output Characteristics

7. FET Characteristics (CS Configuration) Part
        A: Drain (Output) Characteristics Part
        B: Transfer Characteristics

8. SCR Characteristics.

9. UJT Characteristics.

10. LDR Characteristics.

11. LED Characteristics.

12. Transistor Biasing.

13. Frequency response of Common Emitter amplifier.

14. Frequency response of Common Collector amplifier.

15. Frequency response of Common Source amplifier.

Equipment required for Laboratory:

1. Regulated Power Supplies.
2. Analog/Digital Storage Oscilloscopes.
3. Analog/Digital Function Generators.
4. Digital Multimeter.
5. Decade Résistance Boxes/Rheostats.
6. Decade Capacitance Boxes.
7. Ammeters (Analog or Digital).
8. Voltmeters (Analog or Digital).
9. Active & Passive Electronic Components.
10. Bread Boards.
11. Connecting Wires.
12. CRO Probes etc.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	2	-	-	-	-				-	2	2
CO2	3	3	1	3	3	-	-	-				-	3	2
CO3	2	-	1	-	2	-	-	-				-	3	2
CO4	2	2											3	2
CO5	2	2		1									3	2

II B.Tech I Semester CSE　　　　　　　　　　　　**L**　　**T**　　*P*　　　**C**

　　　　　　　　　　　　　　　　　　　　　　　　-　　**-**　　**3**　　　**2**

14ACS10　　ADVANCED DATASTRUCTURES LAB
(Common to CSE & IT)

Week 1
   a) Given that an Employee class contains following members: Data members: Employee number, Employee name, Basic, DA, IT, Net salary and print data members. Write a c++ program to read the data of N employees and compute net salary of each employee (DA=52% of Basic and Income Tax (IT)=30% of the gross salary).
   b) Define a STUDENT class with USN, Name and Marks in 3 tests of subjects. Declare an array of 10 student's objects. Using appropriate functions print USN, Name and the average of marks of the all students.

Week 2
   a) Write a C++ program illustrating Constructor overloading (Both parameterized and default).
   b) Write a C++ program illustrating Inheritance (Multiple, Multilevel Hybrid).

Week 3- Write C++ programs to implement the following using an array.
   　　　　　a) Stack ADT　　b) Queue ADT

Week 4-Write C++ programs to implement the following using a singly linked list.
   　　　　　a) Stack ADT　　 b) Queue ADT

Week 5- Write C++ programs to implement the dequeue (double ended queue) ADT Usinga doubly linked list and an array.

Week 6- Write C++ programs for implementing the following sorting methods:
 a) Merge sort　　　　 b) Heap sort

Week 7- Write C++ programs that use non-recursive functions to traverse the given binary tree
a) Preorder　　 b) In order and c) Post order

Week 8- Write 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.

Week 9- Write C++ program to perform the following operations
   　　　　a) Insertion into a B-Tree　　 b) Deletion from B-Tree

Week 10- Write C++ program to perform the following operations
   　　　　a) Insertion into an AVL-tree b) Deletion from an AVL-tree

Week 11- Write C++ program to implement all the functions of a Dictionary (ADT) usingHashing.

Week 12- Write C++ programs for the implementation of bfs and dfs for a given graph.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	3	1	3	-	-	-	-	-	-	-	2	2
CO2	2	2	3	2	2	-	-	-	-	-	-	-	3	3
CO3	2	1	2	1	3	-	-	-	-	-	-	-	2	1
CO4	2	2	3	2	2	-	-	-	-	-	-	-	3	3

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

II B.Tech II Semester CSE		**L**	**T**	**P**	**C**
14AHS10	**PROBABILITY AND STASTISTICS**	**3**	**1**	**-**	**3**

(Common to CSE, IT & AUT)

Outcomes:

After completion of the course the student will be able to

1. *The student is able to sample the data and analyses it.*
2. *Able to optimize a function with two or more variables.*
3. *Student is able to apply suitable tests and evaluate the acceptance of the hypothesis.*
4. *The student is able to apply different estimations and hypothesis to solve the problems*

UNIT-I

PROBABILITY AND RANDOM VARIABLES: Sample space and events – Probability - The axioms ofprobability – Addition theorem of Probability – Conditional probability – Baye's theorem. Discrete and Continuous random variables – Mean and Variance.

UNIT-II:

DISTRIBUTIONS AND SAMPLING THEORY: Distribution Functions – Binomial, Poisson andNormal Distributions.

SAMPLING DISTRIBUTIONS Populations and Samples – Sampling distributions of mean.

UNIT-III

ESTIMATION & TESTING OF HYPOTHESIS
Populations and Samples – Point Estimation – Interval estimation – Bayesian estimation. Type I error and Type II errors, One tail, two tail tests - Hypothesis concerning one and twomeans Hypothesis concerning one and two proportions.

UNIT-IV

TESTING OF SIGNIFICANCE (SMALL SAMPLES)
Student- t-test, F-test, Chi-square $[\chi^2]$ test**:** χ^2 test goodness of fit – the analysis of RxCtables, ANOVA – I way and II way classification.

UNIT-V

QUALITY CONTROL & QUEUEING THEORY: Introduction to Quality Control, Construction of $\overline{X}$ Range chart, C chart and P charts. Pure Birth and Death process- M/M/1 Model – Problems on M/M/1 Model.

Text Books:

1. Iyengar. T.K.V., Krishna Gandhi B., *Probability & Statistics*, New Delhi, S.Chand & Company, 2012.
2. S.C.Gupta and Kapoor, *A text book of Probability and Statistics* , Sultan Chand Publications, New Delhi.

Reference Books :

1. Miller and John Freund. E., *Probability & Statistics for Engineers,* New Delhi, Pearson Education,2004
2. J. L. Devore, *Probability and Statistics for engineering and sciences*, 8th edition, Ceneage Learning, (2011).
3. R.E. Walpole, R.H. Mayers, S.L. Mayers and K. Ye, *Probability and Statistics for engineers and scientists*, 8th Edition, Pearson Education (2007).

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	-	-	-	-	-	-	-	-	1	1	2	3
CO2	3	3	-	1	-	-	-	-	-	-	1	1	3	2
CO3	3	2	-	-	-	-	-	-	-	-	1	1	3	2
CO4	3	2	-	-	-	-	-	-	-	-	1	1	2	2

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

II B.Tech II Semester CSE

L	T	P	C
3	1	-	3

14ACS11   OPERATING SYSTEMS
(Common to CSE & IT)

Outcomes:

At the end of the course Students will be able to

1. *Understand basic operating system concepts: computer and operating system structures, processManagement, storage Management, protection.*
2. *Understand the fundamental elements of thread and process concurrency.*
3. *Solve the deadlock problems that are faced by operating system during the execution.*
4. *Relate modern industrial-strength operating system design and implementation to general operatingsystem concepts*

UNIT I
Introduction:

What Operating Systems Do, Operating System Structure, Operating System Operations, and Overview of Process Management, Memory Management, Storage Management, Protection and Security.
System Structures- Operating System Services, User Operating System Interface, System Calls, Operating System Structure, Virtual machines.

UNIT II
Process Management

Process Management Process Concepts, Process Scheduling, Operations on Processes, Inter process Communication, Examples of IPC Systems, Multithreading Models, Process Scheduling- Basic concepts, Scheduling Criteria, Scheduling Algorithms, Synchronization- Background, The Critical-Section Problem, Peterson's Solution, Semaphores, Monitors.

UNIT III
Memory Management

Background, Swapping, Contiguous Memory Allocation, Paging, Structure of the Page table, Segmentation.
Virtual Memory Management

Background, Demand paging, Page Replacement, Allocation of Frames, Thrashing.

UNIT IV
Storage Management:

File System- File Concepts, Access Methods, Directory and Disk Structure, Implementation of file System Structure- file system Structure, file-system Implementation, Directory Implementation, Allocation Methods, Free-Space Management.
Secondary Storage Structure-Overview of Mass-Storage Structure, Disk Structure, Disk Scheduling, RAID Structure Tertiary Storage Structure, STREAMS, performance.

UNIT V
Deadlocks

System Models, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance –Bankers Algorithm, Deadlock Detection, Recovery from Deadlock.

Protection and Security

Goals of Protection, Domain of Protection, Access Matrix, Implementation of Access Matrix, Access Control, Revocation of access rights, System Security-The Security problem, System and Network Threats.

TEXT BOOK:

Silberschatz and Galvin, *Operating System Concepts*, 8th edition, WILEY INDIA 2008.

REFERENCE BOOKS:

1. Gagne , *Operating System Concepts*, 6th Edition John Wiley & Sons, Inc
   Publishers, 2003.
2. Tanenbaum, *Modern Operating System*, Pearson Education,2000.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2	2	-	-	-	-	-	-	-	-	2	2
CO2	2	3	2	3	-	-	-	-	-	-	-	-	3	2
CO3	2	2	2	2	-	-	-	-	-	-	-	-	1	1
CO4	2	2	1	2	3	-	-	-	-	-	-	-	2	2

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

II B.Tech II Semester CSE

L	T	P	C
3	1	-	3

14ACS12   OBJECT ORIENTED PROGRAMMING THROUGH JAVA

Outcomes:
After Successful completion of this course, students should be able to:
1. *Understand the concept and underlying principles of Object-Oriented Programming.*
2. *Understand how object-oriented concepts are incorporated into the Java programming language*
3. *Develop problem-solving and programming skills using OOP concept.*
4. *Develop the ability to solve real-world problems through software development in high-level programminglanguage like Java*

UNIT I

OBJECT ORIENTED CONCEPTS: OOP principles-Encapsulation, Inheritance and Polymorphism, Class fundamentals, declaring objects, introducing methods, usage of static with data andmethods.

JAVA BASICS: History of Java, Java buzzwords, JVM architecture, data types, variables, scope and life time of variables, arrays, operators, control statements, type conversion and casting, simple java program, constructors, string and String Buffer handling functions.

UNIT II
INHERI
TANCE AND POLYMORPHISM: Basic concepts, types of inheritance, member access rules, usage of this and super key word, method overloading, method overriding, abstract classes, dynamic method dispatch, usage of final keyword, Garbage Collection.

PACKAGES AND INTERFACES: Defining package, access protection, importing packages, defining and implementing interface, and variables in interface and extending interfaces.

UNIT III

EXCEPTION HANDLING: Exception handling fundamentals, exception types, uncaught exceptions, usage of try, catch, throw, throws and finally keywords, built-in exceptions, creating ownexception sub classes.

MULTI THREADING: Concepts of thread, thread life cycle, creating threads using thread class and runnable interface, synchronization, thread priorities, inter thread communication.

UNIT IV

AWT CONTROLS: The AWT class hierarchy, user interface components- labels, button, text components, check box, check box groups, choices, list box, panels - scroll pane, menu, scrollbars. Working with frame windows, color, font.

EVENT HANDLING: Events, event sources, event listeners, relationship between event sources and listeners, delegation event model, handling mouse and keyboard events, adapter classes.

UNIT V

SWINGS: Introduction to swings, hierarchy of swing components. Containers, top level containers
- JFrame, JWindow, JDialog- JPanel, swing components - JButton, JToggleButton, JCheckBox,
JRadioButton, JLabel, JTextField, JTextArea, JList, JComboBox, JTable, JTree, JTabbedPanes,
JScrollPane.

APPLETS: Life cycle of an applet, inheritance hierarchy for applets, differences between applets and
applications, developing applets, simple applet display methods, passing parameters to applets.

TEXT BOOK:

Herbert schildt, "*The complete reference JAVA"*, 7th edition, Tata Mcgraw Hill, New Delhi,2010.

REFERENCE BOOKS:
1. T. Budd, "*An Introduction to Object Oriented Programming"*, 3rd edition, Pearson Education,
   India, 2009.
2. J. Nino, F. A. Hosch, *An Introduction to programming and OO design using Java*, John Wiley &
   sons, New Jersey,2002.
3. Y. Daniel Liang, *Introduction to Java programming,* 7th edition, Pearson education, India,
   2010.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3												3	
CO2	3	3											3	
CO3	2	3	3	3									3	
CO4	3	3		3										3

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

II B.Tech II Semester CSE

L	T	P	C
3	1	-	3

14ACS13   DESIGN AND ANALYSIS OF ALGORITHMS

(Common to CSE & IT)

Learning Outcomes:

At the end of the course the student will be able to:
1. *Analyze time and space complexity*
2. *Identify algorithm design methodology to solve problems.*
3. *Design algorithms for network flows*
4. *Distinguish between P and NP classes of problems*

UNIT I

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

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

UNIT II

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

UNIT III

Dynamic Programming: General method, applications-Matrix chain multiplication, 0/1 knapsack problem, All pairs shortest path problem, Travelling salesperson problem, Reliability design.

UNIT IV

Graph Searching and Traversal: Overview, Traversal methods (depth first and breadth first search), Applications of DFS – connected components, Bi-connected components.

Backtracking: General method, applications-n-queen problem, graph coloring, Hamiltoniancycles.

UNIT V

Branch and Bound: General method, applications - Travelling salesperson problem,0/1 knapsack problem- LC Branch and Bound solution, FIFO Branch and Bound solution.

NP-Hard and NP-Complete problems: Basic concepts, non-deterministic algorithms, NP - Hard and NP Complete classes.

TEXT BOOK:
E. Horowitz, S. Sahni and S.Rajasekran, "*Fundamentals of Computer Algorithms*", Galgotia Publication,2008.

REFERENCE BOOKS:
1. T. H. Cormen, Leiserson, Rivest and Stein, "*Introduction of Computer Algorithm*", PHI,2010.
2. Sara Basse, A.V. Gelder, "*Computer Algorithms*", Addison Wesley,2010.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	3	-	-	-	-	-	-	-	-	-	3	2
CO2	3	1	-	1	-	-	-	-	-	-	-	-	2	3
CO3	2	1	2	-	-	-	-	-	-	-	-	-	3	2
CO4	2	2	-	-	2	-	-	-	-	-	-	-	2	2

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

II B.Tech II Semester CSE

L	T	P	C
3	1	-	3

14ACS14   THEORY OF COMPUTATION

Outcomes:

At the end of the course the student will be able to:
1. *Understand formal machines, languages and computations.*
2. *Design finite state machines for acceptance of strings.*
3. *Design context free grammars for formal languages.*
4. *Develop pushdown automata accepting strings.*

UNIT I
Fundamentals : Strings, Alphabet, Language, Operations, Finite State Machine, Definitions, Finite Automaton Model, Acceptance of Strings, and Languages, Deterministic Finite Automaton andNon Deterministic Finite Automaton, Transition Diagrams and Language Recognizers.

Finite Automata: NFA with Epsilon-transitions - Significance, Acceptance of Languages. Conversions and Equivalence: Equivalence between NFA with and without Epsilon-transitions, NFA to DFA conversion, Minimization of FSM, Finite Automata with Output-Moore and Melay machines.

UNIT II
Regular Expressions: The Operators of Regular Expressions, Building Regular Expressions, Precedence of Regular Expression Operators, Finite Automata and Regular Expressions, Converting DFA's to Regular Expressions by Eliminating States, Converting Regular Expressionsto Automata, Applications of Regular Expressions, Algebraic Laws for Regular Expressions,
UNIT III
Context Free Grammars: Regular Grammars-Right Linear and Left Linear Grammars, Derivations Using a Grammar, Leftmost and Rightmost Derivations, The Language of a Grammar, Sentential Forms, Parse Tress, Constructing Parse Trees, Applications of Context-Free Grammars, Chomsky Normal form, Greiback Normal form, Pumping Lemma for Context Free Languages, , Ambiguous Grammars, Removing Ambiguity From Grammars.

UNIT IV
Push Down Automata: Push Down Automata, Definition, Model, A Graphical Notation for PDA's, Instantaneous Descriptions of a PDA, The Languages of a PDA, Acceptance of CFL by Final State and Acceptance by Empty State and their Equivalence. Equivalence of CFL and PDA, Introduction to DCFL and DPDA.

Turing Machine : Turing Machine, Definition, Model, Design of TM, Computable Functions, Notation for the Turing Machine, Instantaneous Descriptions for the Turing Machines, Transition Diagrams for Turing Machines, The Language of a Turing Machine, Recursively Enumerable Languages, Church's hypothesis, Types of Turing Machines (Proofs not required).

UNIT V
Computability Theory : Chomsky Hierarchy of Languages, Linear Bounded Automata and Context Sensitive Language, LR(0) grammar, An Undecidable Problem That is RE, Complements of Recursive and Recursively Enumerable Languages, Turing Reducibility, The Universal Language, Undecidability of the Universal Language.

TEXT BOOKS:
1. John E. Hopcroft, Rajeev Motwani, Jeffrey D Ullman, "*Introduction to Automata Theory,*
Languages and Computation", 2nd Edition, Pearson, 2008
2. Michael Spiser "*Introduction to Theory of Computation*" 3rd Edition, Course Technology, 2012.

REFERENCE BOOKS:
1. Daniel I.A. Cohen, John Wiley, *Introduction to Computer Theory, 2007*.
2. K L P Mishra and Chandrasekharan an, "Theory of Computer Science: Automata, Languagesand Computation", 2006.
3. John C Martin, TMH, *Introduction to languages and the Theory of Computation, 2007*.
4. Lewis H.P. & Papadimition C.H. *Elements of Theory of Computation*, PHI, 2002.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	3	2									2	3
CO2	3	2	2	2									1	2
CO3	2	2	3	1									2	3
CO4	3	2	2	1									1	3

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

II B.Tech II Semester CSE

L	T	P	C
3	1	-	3

14ACS15   DATABASE MANAGEMENT SYSTEMS

(Common to CSE & IT)

Outcomes:

At the end of the course the student will be able to:

1. *Understand functional components of the DBMS.*
2. *Acquire Capability of maintenance of huge amounts of data along with reducing of redundancy in data.*
3. *Design data base schema, Develop E-R Model, Evaluate and optimize queries.*
4. *Understand transaction processing, concurrency control and recovery techniques.*

UNIT I
INTRODUCTION: History of database systems- Database system applications - Database system vs file systems - Purpose of Database System – Describing and storing data in a DBMS- Structureof a DBMS.
ENTITY-RELATIONSHIP MODEL (E-R MODEL): E-R Diagrams-Features of ER Model-conceptual Database design with the ER model-conceptual design for large enterprises.

UNIT II
RELATIONAL MODEL: Introduction to relational model - Integrity constraints -Querying relationaldata-Logical Database design- Introduction to views- Destroying/Altering Tables and views-Relational Algebra - Relational Calculus.
SQL: The form of a basic SQL query-Union, Intersect and Except operators-Nested queries- Aggregate operators-Null values-Complex integrity constraints in SQL-Triggers and active databases-Designing active databases- Embedded SQL-Triggers – Cursors- Procedures-Functions in PL/SQL.

UNIT III
SCHEMA REFINEMENT AND NORMAL FORMS: Introduction to schema refinement-Functional Dependencies – reasoning about FDs-Normal Forms: 1NF,2NF,3NF,Boyce-Codd Normal Form-Properties of decompositions-Multi-valued Dependencies and Fourth Normal Form – Join Dependencies and Fifth Normal Form.

UNIT IV
TRANSACTIONS: Transaction Concepts – Transaction state- Implementation of Atomicity and Durability-concurrent executions– Implementation of Isolation- Serializability- Recoverability.

CONCURRENCY: Concurrency control: Lock based protocols- Time stamp based protocols-Validation based protocols-Multiple granularity-Deadlock handling.

UNIT V
STORAGE AND FILE STRUCTURE: Overview of Physical Storage Media- Magnetic Disks-RAID-Tertiary storage-Storage Access -File Organization –Organization of Records in Files.
INDEXING AND HASHING: Ordered Indices- B+ Tree Index Files- B- Tree Index Files-Multiple KeyAccess- Static Hashing- Dynamic Hashing- Comparison of Ordered Indexing and Hashing- Bitmap Indices.

TEXT BOOKS:
1. Ragurama Krishnan, Johannes Gehrke, "*Data base Management Systems"* TATA McGraw-Hill 3rd Edition,2007.
2. Abraham Silberschatz, Henry F. Korth, S. Sudharshan, *"Database System Concepts"*,Fifth Edition, Tata McGraw Hill, 2006.

REFERENCE BOOKS:
1. Peter Rob, Carlos Coronel, *Database Systems Design Implementation and Management*,7th edition, 2009.
2. S.K.Singh, "*Database Systems Concepts, Design and Applications*", First edition, Pearson Education, 2006.
3. RamezElmasri, Shamkant B. Navathe, "*Fundamentals of Database Systems*", Fourth Edition, Pearson / Addision wesley, 2007.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	3	-	-	-	-	-	-	-	-	-	3	2
CO2	3	1	-	1	-	-	-	-	-	-	-	-	2	3
CO3	2	1	2	-	-	-	-	-	-	-	-	-	3	2
CO4	2	2	-	-	2	-	-	-	-	-	-	-	2	2

II B.Tech II Semester CSE

L	T	P	C
-	-	3	2

14ACS16   JAVA Programming Lab

Outcomes:
After completion of this course, the students would be able to
1. *Implement Java classes from specifications and effectively create and use objects from predefined class libraries*
2. *Understand the behavior of primitive data types, object references, and arrays*
3. *Apply decision and iteration control structures to implement algorithms and Write simple recursive algorithms*
4. *Implement interfaces, inheritance, and polymorphism as programming techniques, apply Exception Handling*

Week1:
a) Write a Java program that prints all real solutions to the quadratic equation $ax2+ bx + c =0$.Read in a, b, c and use the quadratic formula. If the discriminate b2-4ac is negative, display a message stating that there are no real solutions.
b) The Fibonacci sequence is defined by the following rule: The fir two values in the sequence are1 and 1. Every subsequent value is the sum of the two values preceding it.
c) Write a Java program that uses both recursive and non-recursive functions to print the nthvalue in the Fibonacci sequence.

Week 2:
a) Write a Java program that prompts the user for an integer and then prints out all primenumbers up to that integer.
b) Write a Java Program that reads a line of integers, and then displays each integer, andthe sum of all the integers (Use String Tokenizer class of java.util)

Week 3:
a) Write a Java program that checks whether a given string is a palindrome or not. Ex: MADAM isa 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 aboutwhether the file exists, whether the file is readable, whether the file is writable, the type of fileand 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 numberbefore 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:
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 Valueand 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 forthe 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 conceptof inter thread communication.

Week 10:
Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the text fields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the programwould throw a Number Format Exception. If Num2 were Zero, the program would throw an Arithmetic Exception 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 toa server. The server receives the data, uses it to produce a result, and then sends the result backto the client. The client displays the result on the console. For ex: The data sent from the client isthe 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 methodnamed number of Sides ( ).Provide three classes named Trapezoid, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains.

Week 14:
a) Write a java program to check the compatibility for multiplication, if compatible multiply two matrices and find its transpose.
b) Write a java program that lets users create Pie charts. Design your own user interface (withSwings & AWT).

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	-	2	2	-	-	-	-	-	-	-	3	2
CO2	3	2	2	2	3	-	-	-	1	-	-	-	3	2
CO3	3	2	2	3	2	-	-	-	-	-	-	2	3	2
CO4	2	3	-	2	2	-	-	-	2	-	-	-	2	2

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

II B.Tech II Semester CSE **L** **T** **P** **C**

14ACS17 DATABASE MANAGEMENT SYSTEMS LAB
(Common to CSE & IT)

Outcomes:

At the end of the course the student will be able to:
1. *Create, Modify, and manipulate the data database objects.*
2. *Retrieving the data from the database server.*
3. *Performing database operations in a procedural manner using pl/sql*
4. *Develop Programs using BEFORE and AFTER Triggers.*

1. Creation, altering and dropping of tables and inserting rows into a table (use constraints while creating tables) examples using SELECT command.

2. Queries (along with sub Queries) using ANY, ALL, IN, EXISTS, NOTEXISTS, UNION,INTER SET, Constraints. Example:- Select the roll number and name of the student who secured fourth rank in the class.

3. Using Aggregate functions (COUNT, SUM, AVG, MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.

4. Queries using Conversion functions (to_char, to_number and to_date), string functions (Concatenation, lpad, rpad, ltrim, rtrim, lower, upper, initcap, length, substr and instr), date functions (Sysdate, next_day, add_months, last_day, months_between, least, greatest, trunc, round, to_char, to_date)

5. i) Creation of simple PL/SQL program which includes declaration section, executable section and exception –Handling section (Ex. Student marks can be selected from the table and printed for those who secured first class and an exception can be raised if no records were found)
   ii) Insert data into student table and use COMMIT, ROLLBACK and SAVEPOINT in PL/SQL block.

6. Develop a program that includes the features NESTED IF, CASE and CASE expression.

7. Program development using WHILE LOOPS, numeric FOR LOOPS, nested loops using ERROR Handling, BUILT –IN Exceptions, USE defined Exceptions.

8. Program development using a creation of procedures, passing parameters IN and OUT of PROCEDURES.

9. Program development using the creation of stored functions, invoke functions in SQL Statements and write complex functions.

10. Program development using creation of package specification, package bodies, private objects, package variables and cursors and calling stored packages.

11. Develop programs using features parameters in a CURSOR, FOR UPDATE CURSOR, WHERE CURRENT of clause and CURSOR variables.

12. Develop Programs using BEFORE and AFTER Triggers, Row and Statement Triggers and INSTEAD OF Triggers.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	2	-	-	-	-	-	-	-	-	2	2
CO2	3	2	3	2	-	-	-	-	-	-	-	-	2	2
CO3	3	3	3	1	-	-	-	-	-	-	-	-	2	2
CO4	3	3	3	1	-	-	-	-	-	-	-	-	2	2

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY

(AUTONOMOUS)

II B.Tech II Semester CSE

L	T	P	C
3	**-**	**-**	**-**

14AHS15   QUANTITATIVE APTITUDE AND REASONING – I

(Audit Course)(Common to All Branches)

Outcomes:

After completion of the course the student will be able to

1. *Strengthen their ability to meet the challenges in solving Time and distance problems.*
2. *Apply Data interpretation to solve the problems on Line, Bar, Pie graphs.*
3. *Develop the thinking ability and apply Venn diagram and binary logic.*
4. *Apply the number series and letter analogies in problems on verbal analogy*

Syllabus for Quantitative Aptitude

Competency 1:

Numbers

Classification of numbers   - Divisibility rules - Finding the units digit - Finding remainders in divisions involving higher powers -LCM and HCF Models.
Decimal Fractions
Simplification
Square Roots & Cube Roots

Average

Definition of Average - Rules of Average - Problems on Average - Problemson Weighted Average - Finding Average using assumed mean method.

Problems on Numbers
Problems   on   Ages
Surds & Indices

Percentage

Introduction - Converting a percentage into decimals - Converting a Decimal into a percentage - Percentage equivalent of fractions - Problems on Percentages

Profit And Loss & True Discount

Problems on Profit and Loss percentage - Relation between Cost Price and Selling price - Discount and Marked Price –Two different articles sold at same Cost Price - Two different articles sold at same Selling Price - Gain% / Loss% on Selling.

Ratio and proportion

Definition of Ratio - Properties of Ratios - Comparison of Ratios - Problems on Ratios - Compound Ratio - Problems on Proportion, Mean proportional and Continued Proportion .

Competency 2:

Partnership

Introduction-Relation between capitals, Period of Investments and Shares.

Chain Rule

Time & work

Problems on Unitary method - Relation between Men, Days, Hours and Work - Problems on Man-Day-Hours method – Problems on alternate days - Problems on Pipes and Cisterns.

Time & Distance

Relation between speed, distance and time – Converting kmph into m/s and vice versa - Problems on average speed -Problems on relative speed – Problems on trains -Problems on boats and streams - Problems on circular tracks – Problems on races .

Mixtures and Allegations

Problems on mixtures - Allegation rule - Problems on Allegation

Simple Interest

Definitions - Problems on interest and amount – Problems when rate of interest and time period are numerically equal.

Compound Interest

Definition and formula for amount in compound interest - Difference between simple interest and compound interest for 2 years on the same principle and time period.

Logarithms

Syllabus for Reasoning

Competency 3:

Cubes

Basics of a cube - Formulae for finding volume and surface area of a cube - Findingthe minimum number of cuts when the number of identical pieces are given - Finding the maximum number of pieces when cuts are given - Problems on painted cubes of same and different colors - Problems on cuboids - Problems on painted cuboids - Problems on diagonal cuts

Venn diagrams

Representing the given data in the form of a Venn diagram –Problems on Venn diagrams with two sets - Problems on Venn diagrams with three sets –Problems on Venn diagrams with four sets

Binary Logic

Definition of a truth-teller - Definition of a liar - Definition of an alternator –Solving problems using method of assumptions - Solving analytical puzzles using binary logic.

Competency 4:

a.   Number and letter series
Difference series - Product series - Squares series - Cubes series - Alternate series - Combination series - Miscellaneous series - Place values of letters.

b.   Number and Letter Analogies
Definition of Analogy -Problems on number analogy -Problems on letter analogy - Problems on verbal analogy.

Odd man out
Problems on number Odd man out -Problems on letter Odd man out –Problems on verbal Odd man out.

Competency 5:

Coding and decoding

Coding using same set of letters - Coding using different set of letters –Coding into a number - Problems on R-model.

Direction sense

Solving problems by drawing the paths-Finding the net distance travelled – Finding the direction - Problems on clocks - Problems on shadows - Problemson damaged compass - Problems on direction sense using symbols and notations

Critical Reasoning

Problems on assumption - Problems on conclusions –Problems on inferences –Problems on strengthening and weakening of arguments - Problems on principle -Problems on paradox

Lateral reasoning puzzle

Problems on common balance -Problems on digital balance -Problems on coins - Problems on lockers -Problems on heights -Digit puzzles using basic arithmetic operations .

Text Books:

1. GL Barrons,Tata Mc Graw Hills, *'Thorpe's Verbal reasoning'*, LSAT Materials.
2. R S Agarwal, '*A Modern approach to Logical reasoning'* , S chand Company Ltd 2002.

Reference Books:
1. Abhjit Guha *'Quantitative Aptitude'* Tata Mc Graw Hills, 4th Edition, 2011.
2. R S Agarwal, '*Quantitative Aptitude'* S. Chand Company Ltd 2008.
3. G.L BARRONS '*Quantitative Aptitude'.* Tata Mc Graw Hills.

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

14ACS18	COMPILER DESIGN	L	T	P	C
III B.Tech. I Semester CSE		3	1	-	3

Outcomes:
At the end of the course the student will be able to:

1. Comprehend various phases of a compiler and implement the Lexical Analyzerusing Lex tool.
2. Articulate top-down and bottom-up parsers.
3. Perform type checking and choose best storage allocation technique.
4. Analyze various intermediate forms of source programs.
5. Perform code optimization and do code generation of a given programming *language.*

UNIT I
Overview of Compilation: Phases of Compilation – Lexical Analysis, Pass and Phases of Translation, Interpretation, Bootstrapping, Data Structures in Compilation.
Lexical analyzer: The Role of the Lexical Analyzer, Input Buffering, Specification of Tokens, Recognition of Tokens, LEX- A Language for Specifying Lexical Analyzers.

UNIT II
Parsing: The Role of the Parser, Context-Free Grammars, Top-Down Parsing, Bottom-Up Parsing, Operator-Precedence Parsing, LR Parsers, Using Ambiguous Grammars, Parser Generators.
Syntax-Directed Translation: Syntax-Directed Definitions, Construction of Syntax Trees, Bottom-Up Evaluation of S-Attributed Definitions, L-Attributed Definitions.

UNIT III
Type Checking: Type Systems, Specification of a Simple Type Checker, Equivalence of Type Expressions, Type Conversions
Run-Time Environments: Source Language Issues, Storage Organization, Storage-Allocation Strategies, Access to Nonlocal Names, Parameter Passing, Symbol Tables, Language Facilities for Dynamic Storage Allocation, Dynamic Storage Allocation Techniques, Storage Allocation in Fortran.

UNIT IV
Intermediate Code Generation: Intermediate Languages, Declarations, Assignment Statements, Boolean Expressions, Case Statements, Back patching, Procedure Calls. Intermediate Forms of Source Programs – Abstract Syntax Tree, Polish Notation and Three Address Codes.

UNIT V
Code Generation: Issues in the Design of a Code Generator, The Target Machine, Run- Time Storage Management, Basic Blocks and Flow Graphs, Next-Use Information, A Simple Code Generator, Register Allocation and Assignment, The DAG Representation of Basic Blocks, Generating Code from DAGs.
Code Optimization: Principle sources of optimization, Peephole Optimization, Optimization of basic blocks Loops in flow graphs, Introduction to global data flow analysis, Code improving transformations.

TEXT BOOK:

"Compilers - Principles, Techniques and Tools", 2nd Edition, Aho, Ravi Sethi, Monica S

Lam, Ullman, Pearson, 2002.

REFERENCE BOOKS:

1. Principles of Compiler Design,3rd Edition, Balakrishnan S, Sai Publisher, 2013.
2. Compiler Construction: Principles and Practice, Kenneth C Louden, *PWS* PublishingCompany, 1997.

Mapping Course Outcomes with Programme outcomes

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1				1	3	-	-	-	-	-	-	-	2	3
CO2	3	1	3	1	3	-	-	-	-	-	-	-	2	3
CO3			3	2	3	-	-	-	-	-	-	-	3	3
CO4	1	1	-	-	-	-	-	-	-	-	-	-	2	3
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
14ACS19   COMPUTER NETWORKS   L   T   P   C

III B. Tech I Semester CSE   3   1   -   3

Outcomes:
After completing this course the student will be able to:
1 Describe various components and topologies of computer networks
2 Use the network reference model layered structure for real time applications.
3 Implement various routing protocols from different layers.
4 Design, implement and test an efficient algorithmic solution for the give problem.
5 Analyze network security mechanics and other issues in the application layer

UNIT 1
Introduction: Uses of Computer Networks, Network Hardware, Network Topologies, Network Software, References Models. Examples of Networks: Internet, ARPANET, Third Generation Mobile Phone Networks.
The Data Link Layer: Data link Layer Design Issues, Error Detection and Correction, Elementary Data Link Protocols, and Sliding Window Protocols.

UNIT II
The Medium Access Control Sublayer: The Channel allocation Problem, Multiple Access Protocols, Ethernet- Ethernet Cabling, The Ethernet MAC Sublayer Protocol. The Binary Exponential Back off Algorithm, Ethernet Performance, Wireless LANs- the 802.11 Protocol Stack, The 802.11 Physical Layer, The 802.11 MAC Sublayer Protocol, The 802.11 Frame Structure, Broad Band Wireless.

UNIT III
The Network Layer: Network Layer Design Issues, Routing Algorithms, Congestion Control Algorithms, Internetworking, the Network Layer in the Internet.

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

UNIT V
The Application Layer: DNS-The Domain Name System, Electronic Mail. The WorldWide web, **Network Security:** Cryptography, Symmetric-Key Algorithms, Public-Key Algorithms.

TEXT BOOK:

Computer Networks, Fifth Edition, Andrew S. Tanenbaum, David J Wetherall PearsonEducation,2011.

REFERENCE BOOKS:

1. Computer *Communications and Networking Technologies*, Michael A. Gallo, William M. Hancock, Cengage Learning.

2. *Data Communications and Networking, Fifth Edition,* Behrouz A. Forouzan ,Tata McGraw Hill.

3. *Computer Networking*: A Top-Down Approach Featuring the Internet, Six Edition, James F.Kurose, K.W.Ross, Pearson Education,2013.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3	3	2	-	-	-	-	3	-	-	-	3	3
CO2	2	2	3	1	-	-	-	3	-	-	-	-	3	1
CO3	3	2	3	2	-	-	-	3	-	-	-	-	2	2
CO4	2	1	2	3	-	-	-	-	-	-	-	-	1	2
CO5	3	3	3	2	-	-	-	-	-	-	-	-	2	1

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

14ACS20	COMPUTER GRAPHICS	L	T	P	C
	(Common to CSE & IT)				
III B.Tech I Semester CSE		3	1	-	3

Outcomes:

At the end of the course the student will be able to:

1. Demonstrate different computer graphics applications.
2. Design algorithms to render different geometric shapes like line, circle, and ellipse.
3. Perform transformations (rotation, scaling, translation, and shearing) on geometric2D and 3D objects.
4. Compare different 2D, 3D viewing and clipping techniques.
5. Implement animation technique using micro and media flash.

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UNIT I

Introduction: Basic concepts, Application areas of Computer Graphics, overview of graphics systems - video-display devices, raster-scan systems, random scan systems, input devices and their logical classifications, Graphics software.

UNIT II

Output primitives: Points and lines, line drawing algorithms – DDA, Bresenham's, mid- point circle and ellipse algorithms, Filled area primitives - Scan line polygon fill algorithm, inside-outside tests, boundary-fill and flood-fill algorithms.

UNIT III

2-D geometrical transforms: Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms,transformations between coordinate systems.

2-D viewing: The viewing pipeline,, window to view- port coordinate transformation, viewing functions, Cohen-Sutherland line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm.

UNIT IV:

Three Dimensional Concepts: 3-D object representation: Polygon surfaces, Curved linesand surfaces, quadric surfaces, spline representation, Bezier curve and surfaces.

3-E Geometric transformations: Translation, rotation, scaling, reflection and shear transformations, composite transformations.

UNIT V

Viewing: Viewing pipeline, viewing coordinates, projections, clipping.

Computer animation: Design of animation sequence, general computer animation functions, raster animation, computer animation languages, key frame systems, motion specifications.

TEXT BOOKS:

1. *Computer Graphics C version*, 2nd edition,Donald Hearn and M.Pauline Baker, Pearson Education,1997.

2. "*Computer Graphics Principles & practice*", second edition in C, Foley, VanDam, Feiner and Hughes, Pearson Education,1995.

REFERENCEBOOKS:
1.”*Computer Graphics*” , Steven Harrington TMH,1983
2.“*Computer Graphics Second edition*”, Zhigandxiang, Roy Plastock, Schaum's outlines, Tata
Mc- Graw hill edition,2000.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	3	1	2	-	-	-	1	-	-	1	2	2
CO2	3	2	2	1	2	-	-	-	1	-	-	1	3	3
CO3	3	2	3	1	2	-	-	-	1	-	-	1	2	1
CO4	3	3	2	1	2	-	-	-	1	-	-	1	3	3
CO5	3	3	2	1	2	-	-	-	1	-	-	1	3	3

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

14AEC22   MICROPROCESSORS AND INTERFACING   L   T   P   C
(Common to CSE & IT)
III B.Tech I Semester CSE   3   1   -   3

Outcomes:

After completion of this course the student will be able to:
1. Study and understand the architecture and programming of any other microprocessoror microcontroller.
2. Know how to interface various peripherals.
3. Able to understand the special features of latest microprocessors.
4. Do any type of VLSI, Embedded systems, Industrial and real time application.
5. Know how to use the built- in devices of 8051 Microcontroller in any application.

UNIT-I:
8086 MICROPROCESSOR

History of Microprocessors, Memory Segmentation, 8086 Microprocessor: Architecture, special functions of general-purpose registers, flag register and functions of flags, addressing modes and instruction set of 8086. **ASSEMBLY LANGUAGE PROGRAMING** Assembler directives, procedures and macros. Assembly language programs (8086) for addition, subtraction, multiplication, division, sorting, searching, Evaluation of arithmetic**expressions.**

UNIT-II:
INTERFACING MEMORY AND DMA CONTROLLER

Pin diagram of 8086-Minimum mode and maximum mode of operation. Timing diagram. Memory Interfacing to 8086 (Static RAM & EPROM). Need for DMA. DMA data transfer Method and 8257 DMA Controller.

INTERFACING I/O PORTS AND APPLICATIONS

Keyboard display controller (8279) and interfacing to 8086, PPI 8255 – various modes of operation and interfacing to 8086, , Stepper Motor interfacing.

UNIT-III
INTERRUPTS: 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. **SERIAL DATA TRANSFER:** Asynchronous and Synchronous Serial Data Transferschemes. 8251 USART architecture.

UNIT-IV ADVANCED MICROPROCESSORS: Introduction to 80286, Salient Featuresof 80386, Real and Protected Mode Segmentation & Paging, Salient Features of Pentium, Branch Prediction and Overview of RISC Processors.

UNIT-V:

8051 MICROCONTROLLER:

8051 Microcontroller Architecture, Register set of 8051, Memory organization, Addressing modes and Instruction set, simple programs. Interrupt Structure of 8051, Timer modes, Serial Port Operation.

TEXT BOOKS:

1. *Advanced Microprocessor and Peripherals*, A.K.Ray and K.M.Bhurchandi, TMH, 2000.
2. *Micro Controllers*, Deshmukh, Tata McGraw Hill Edition,2005.

REFERENCES:

1. *Micro Processors & Interfacing*, Douglas V. Hall, 2007.
2. The 8088 and 8086 Micro Processors Walter, A.Triebel & Avtar Singh, 4th Edition – PHI, 2003.
3. *Micro Computer System 8086/8088 Family Architecture, Programming and Design*, Liu and G.A. Gibson, 2nd Edition, PHI, 1987.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	2	-	-	-	-				-		3
CO2	2	3	1	3	3	-	-	-				-		3
CO3	3	-	1	-	2	-	-	-				-		3
CO4	-	2	1	2	2	-	-	-				-		2
CO5	-	3	-	3	2	-	-	-				-		3

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

14ACS21	SOFTWARE ENGINEERING	L	T	P	C
	(Common to CSE & IT)				

III B.Tech I Semester CSE   **3   1   -   3**

Outcomes:

After Successful completion of this course, students should be able to

1. Identify and evaluate the scope and necessity of software engineering and life cycle models
 2. Apply requirement and design engineering concepts.
 3. Design the product and process metrics in software quality towards application in software projects.
4. Identify the necessity of risk management in software quality assurance.

UNIT I
INTRODUCTION TO SOFTWARE ENGINEERING: The evolving role of software, software Myths. A Generic View of Process: Software Engineering-A layered Technology, A process framework, The Capability Maturity Model Integration (CMMI). Process Models: The waterfall model, Incremental process model, Evolutionary process models, The Unified process.
SOFTWARE REQUIREMENTS: Functional and non-functional requirements, user requirements, system requirements, Interface specification, the software requirements document.

UNIT-II
REQUIREMENTS ENGINEERING PROCESS: Requirements Engineering Tasks, Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management. System Models: Context models, Behavioral models, Data models, Object models, structured methods.
DESIGN ENGINEERING: Design process and Design quality, Design Concepts, The Design Model.

CREATING AN ARCHITECTURAL DESIGN: Software Architecture, Data Design, Architectural Styles and patterns.

UNIT-III
PERFORMING USER INTERFACE DESIGN: The Golden Rules, User Interface Analysis and Design, Design Evolution.
TESTING STRATEGIES: A strategic Approach to Software Testing, Test strategies for conventional software, Black-Box and White Box Testing, Validation Testing, System Testing.

UNIT –IV
PRODUCT METRICS: Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for Source Code, Metrics for Testing, Metrics for Maintenance.
METRICS FOR PROCESS AND PROJECTS: Software Measurement, Metrics for Software Quality.

UNIT-V
RISK MANAGEMENT: Software Risks, Risk Identification, Risk Projection, Risk Refinement, RMMM, RMMM plan.

QUALITY MANAGEMENT: Quality concepts, Software Quality Assurance, Software Reviews, Formal Technical Reviews, Statistical software quality assurance, The ISO 9000 quality standards.

Text Books:

1. *Software Engineering- A practitioner's Approach*,6th Edition ,Roger S. Pressman, . McGrawHill International Edition,2005.
2. *Software Engineering*, 7th edition, Sommerville, ,Pearson education,2004.

Reference Books:

1. *Software Engineering*, K.K.Agarwal&Yogesh Singh, New Age International Publishers.
2. *Software Engineering an Engineering approach*, James F.Peters, Witold Pedrycz, ,1999.
3. *Software Engineering principles and practice*, Waman S Jawadekar, The McGraw-Hill companies,2004.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1				1	3	-	-	-	-	-	-	-	2	3
CO2	3	1	3	1	3	-	-	-	-	-	-	-	2	3
CO3			3	2	3	-	-	-	-	-	-	-	3	3
CO4	1	1	-	-	-	-	-	-	-	-	-	-	2	3

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY
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14ACS22	UNIX Shell Programming	L	T	P	C
III B.Tech I Semester CSE		3	1	-	3

Outcomes:

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

1. Execute various UNIX Commands in shell environment.
2. Experiment file handling, Process and networking commands in Shell programming.
3. Use Standard Streams, Redirection, Pipes, Command Execution in Shell programming.
4. Implement shell programs on Korn Shell Environment.
5. Execute system calls for file management.

Unit I:

Introduction to Unix:- Architecture of Unix, Features of Unix , Unix Commands – PATH,man, echo, printf, script, passwd, uname, who, date, stty, pwd, cd, mkdir, rmdir, ls, cp, mv, rm,cat, more, wc, od, tar, gzip.

Unit II:

Unix Utilities:-Introduction to unix file system, vi editor, file handling utilities, security byfile permissions, process utilities, disk utilities, networking commands, unlink, du, df, mount, umount, find, unmask, ulimit, ps, w, finger, arp, ftp, telnet, rlogin.Text processing utilities and backup utilities , detailed commands to be covered are tail, head , sort, nl, uniq, grep, egrep, fgrep, cut, paste, join, tee, pg, comm, cmp, diff, tr

Unit III:

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

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

Unit IV :

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

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

Unit V :

File Management : File Structures, System Calls for File Management – create, open, close,read, write, lseek, fstat, lstat, chmod, chown, Directory API – opendir, readdir, closedir, mkdir,rmdir.

Text Books:

1. *Unix and shell Programming*, Behrouz A. Forouzan, Richard F. Gilberg,Thomson

learning,2003.

2. *Your Unix the ultimate guide*, 2nd Edition.,Sumitabha Das, TMH,2001.

References:

1. *Unix for programmers and users*, 3rd edition, Graham Glass, King Ables, Pearson Education,2003.

2. *Unix programming environment*, Kernighan and Pike, PHI. / Pearson Education,1983.

3. *The Complete Reference Unix*, Second Edition, Rosen,Host,Klee,Farber,Rosinski, ,TMH,2007.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	2	-	-	-	-				-	2	2
CO2	3	3	1	3	3	-	-	-				-	3	2
CO3	2	-	1	-	2	-	-	-				-	3	2
CO4	-	2	1	2	2	-	-	-				-	2	3
CO5	-	2	1	2	2	-	-	-				-	2	3

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

14AEC25   MICROPROCESSORS AND INTERFACING LAB
              (Common to CSE & IT)   L   T   P

III B.Tech I Semester CSE   -   -   4

Outcomes:

At the end of the course, student will be
   1. Able to write 8086 Assembly Language Programs.
   2. Able to use different peripheral devices.
   3. Able to use keyboard display controller.
   4. Able to write 8051 Assembly Language Programs.
   5. Able to use the built in devices of 8051 Microcontroller in any application.

*Minimum **Ten** Experiments to be conducted*
*(Minimum **Eight** from Part A and **Two** from Part B)*

Part A

MICROPROCESSORS:

   1. ALPs (8086) for addition and subtraction.
   2. ALPs (8086) for multiplication and Division.
   3. ALPs (8086) for sorting and searching.
   4. ALPs(8086) to evaluate arithmetic expressions
   5. Logic operations–Shift and rotate–Converting packed BCD to unpacked BCD, BCD to ASCII conversion.
   6. String operations – Move block, reverse string, string comparison, Length of string.
   7. ALPs (8086) for (i) DOS interrupts (ii) BIOS interrupts
   8. ALPs (8086) for square wave and rectangular wave generation using 8255 in I/O mode and BSR mode.
   9. Key Board Display Controller (8279)-Write a small program to display a string of characters.
   10. Serial communication implementation using USART (8251).
   11. Interrupt Controller (8259)-ALP using interrupt request pins of 8259.
   12. ALP (8086) for stepper motor control.

Part B

MICRO CONTROLLERS:

   2. ALP (8051) to determine the largest and smallest of N bytes.
   3. (a) ALP (8051) to multiply a 16-bit number by an 8-bit number.
      (b) ALP (8051) to find square root of an 8-bit number.
   4. (a) ALP (8051) to determine LCM of two 8- bit numbers.
      (b) ALP (8051) to determine GCD of two 8- bit numbers.
   5. Timer/Counters (8051) in different modes.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	-	-	-	-	-	-	-	-	-	3	3
CO2	-	-	2	-	-	-	-	-	-	-	-	-	2	1
CO3	-	2	1	-	-	-	-	-	-	-	-	-	3	1
CO4	3	2	2	-	-	-	-	-	-	-	-	-	1	2
CO5	-	3	-	-	-	-	-	-	-	-	-	-	3	2

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

14ACS23   **Computer Graphics & Compiler Design LAB**   **L   T   P   C**
(Common to CSE & IT)
III B.Tech I Semester CSE   **-   -   4   2**

Outcomes:

At the end the students will be able to

1. Demonstrate the graphical models with suitable algorithms
2. Implement graphics related programs in C language
3. Demonstrate the working of compiler at various stages
4. Demonstrate the working nature of compiler tools.
5. Evaluate the distinction between various platforms and tools.

PART-A

1. Write a program to draw a line using a midpoint Bresenham algorithm.
2. Write a program to draw a line using a the DDA algorithm.
3. Write a program to draw a Circle using the Bresenham algorithm.
4. Write a program to draw a Ellipse using a midpoint ellipse algorithm.
5. Implement 2D transformations.
6. Implement Cohen-Sutherland 2D Clipping and window view port mapping.
7. Implement translation, scaling, using 3D transformations.
8. Write a program to draw a hut using simple graphics functions.
9. Write a program to fill a polygon.

PART-B

1. Design a Lexical analyzer for the given language. The lexical analyzer should ignore redundant spaces, tabs and newlines. It should also ignore comments. Although the syntax specification states that identifiers can be arbitrarily long, you may restrict the length to some reasonable value.

2. Implement the lexical analyzer using JLex, flex or lex or other lexical analyzer generating tools.

3. Design Predictive parser for the given language

4. Design LALR bottom up parser for the given language.

5. Convert the BNF rules into YACC form and write code to generate an abstract syntax tree.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3	2	2	-	-	-	-	2	-	-	-	3	2
CO2	3	3	2	2	-	-	-	-	2	-	-	-	2	3
CO3	3	3	1	3	-	-	-	-	3	-	-	-	2	2
CO4	3	1	3	3	-	-	-	-	3	-	-	-	2	2
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

14AHS16   Quantitative Aptitude and Reasoning –II   L   T   P   C
(Audit Course)
(Common to CSE & IT)
III B.Tech I Semester CSE   3   -   -   -

Outcomes:

After completion of the course the student will be able to
1. Strengthen their ability to meet the challenges in solving real life problems.
2. The student will preserve maturity of the mind in solving linguistic problems.
3. Develop the thinking ability and apply Quadratic equations.
4. Apply the Analytical Reasoning puzzles to solve linear and circular arrangements
5. Analyze the blood relation puzzles in a family tree.

Syllabus for Quantitative Aptitude

Competency 1:

1. **Area**
   - *Formulas for Areas*
   - *Problems on Areas*

2. Volumes & Surface Areas
   - *Problems on Volumes*
   - *Problems on Surface Areas*

3. Races & Games of Skill

4. **Calendars**
   - *Definition of a Leap Year*
   - *Finding the number of Odd days*
   - *Framing the year code for centuries*
   - *Finding the day of any random calendar date*

5. **Clocks**
   - *Finding the angle when the time is given*
   - *Finding the time when the angle is known*
   - *Relation between Angle, Minutes and Hours*
   - *Exceptional cases in clocks*

6.   Stocks & Shares

7.   Permutation and Combinations
- *Definition of permutation*
- *Problems on Permutations*
- *Definition of Combinations*
- *Problems on Combinations*

Competency 2:

8.   Probability
- *Definition of Probability*
- *Problems on coins*
- *Problems on dice*
- *Problems on Deck of cards*
- *Problems on Years*

9.   True Discount

10.   Banker's Discount

11.   Heights & Distances

12.   Odd man out & Series

- *Problems on number Odd man out*
- *Problems on letter Odd man out*
- *Problems on verbal Odd man out*

13.   Data Interpretation

- *Problems on tabular form*
- *Problems on Line Graphs*
- *Problems on Bar Graphs*
- *Problems on Pie Charts*

Syllabus for Reasoning

Competency 3:
Deductions

- *Finding the conclusions using Venn diagram method*
- *Finding the conclusions using syllogism method*

Connectives

- Definition of a simple statement
- Definition of compound statement
- Finding the Implications for compound statements
- Finding the Negations for compound statements

Competency 4:

Analytical Reasoning puzzles

- Problems on Linear arrangement
- Problems on Circular arrangement
- Problems on Double line-up
- Problems on Selections
- Problems on Comparisons

Competency 5:

Blood relations
- Defining the various relations among the members of a family
- Solving Blood Relation puzzles
- Solving the problems on Blood Relations using symbols and notations

Text Books:

1. *Thorpe's Verbal reasoning*, LSAT Materials GL Barrons,Tata Mc Graw Hills,.
2. *A Modern approach to Logical reasoning*, R S Agarwal, S chand Company Ltd 2002.
Reference Books:
1. *'Quantitative Aptitude'* 4th Edition. Abhjit Guha Tata Mc Graw Hills, 2011.
2. '*Quantitative Aptitude'* R S Agarwal, Chand Company Ltd 2008.
3. '*Quantitative Aptitude'* G.L BARRONS, Tata Mc Graw Hills.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	-	-	-	-	-	-	-	3	-	-	-	2
CO2	2	2	-	-	-	-	-	-	-	2	-	-	-	3
CO3	1	3	-	-	-	-	-	-	-	2	-	-	-	3
CO4	2	2	-	-	-	-	-	-	-	3	-	-	-	2
CO5	3	3	-	-	-	-	-	-	-	2	-	-	-	3

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

14AHS13	Technical English -II	L	T	P	C
	(Common to EEE, ECE , CSE & IT)				
III B.Tech II Semester CSE		3	1	-	3

Preamble:

English is an international language as well as a living and vibrant one. People have found that knowledge of English is a passport for better career and for communication with the entire world. As it is a language of opportunities in this global age, English is bound to expand its domain of use everywhere. The syllabus has been designed to enhance communication skills of the students of Engineering and Technology. The prescribed book serve the purpose of preparing them for everyday communication and to face global competitions in future.

The prescribed text focuses on LSRW skills and vocabulary development. The teachers should encourage the students to use the target language. The classes should be interactive and student-centered. They should be encouraged to participate in the classroom activities keenly.

Outcomes: After completion of the course the student will be able to

1 The students will enrich their communication skills both in academic and socialarena.
2 The students will master LSRW skills.
3 The students will become proficient in English language and make use of it to begood in his subject.
4 The students will cultivate skills for societal service and inculcate passion for work.
5 The students will understand the human values of life and work.

UNIT – I
Chapter entitled 'Humour' from "Using English"

Listening - Techniques - Importance of phonetics
L- Meet & Greet and Leave taking, Introducing Oneself and Others (Formal andInformal situations)
R- Reading Strategies -Skimming and Scanning
W- Writing strategies- sentence structures
G-Parts of Speech –Noun-number, pronoun-personal pronoun, verb-analysisV-Affixes-prefix and suffix, root words, derivatives

UNIT –II
Chapter entitled 'Inspiration' from "Using English"
L- Listening to details
S- Apologizing, Interrupting, Requesting and Making polite conversations
R- Note making strategies
W- Paragraph-types- topic sentences, unity, coherence, length, linking devices
G-Auxiliary verbs and questiontags
X- synonyms-antonyms, homonyms, homophones, homographs, words often confused

UNIT –III
Chapter entitled 'Sustainable Development' from "Using English"
L- Listening to themes and note taking
S- Giving instructions and Directions, making suggestions, Accepting ideas, fixing a timeand Advising

R- Reading for details -1
W- Resume and cover letter
G- Tenses – Present tense, Past tense and Future tense
V-Word formation and One-Word Substitutes
UNIT –IV
Chapter entitled 'Relationships' from "Using English"

L- Listening to news
S- Narrating stories, Expressing ideas and opinions and telephone skills
R- Reading for specific details and Information
W- Technical Report writing-strategies, formats-types-technical report writing
G- Voice and Subject – Verb Agreement
X- Idioms and prepositional Phrases
UNIT –V
Chapter entitled 'Science and Humanism' from "Using English"

L- Listening to speeches
S- Making Presentations and Group Discussions
R- Reading for Information
W- E-mail drafting
G- Conditional clauses and conjunctions
V- Collocations and Technical Vocabulary and using words appropriately
Remedial Grammar:
  1. Adjectives and Adverbs.
  2. Use of Articles.
  3. Review of prepositions and conjunctions.
  4. Transformation of sentences
    (a) Active and Positive Voice.
    (b) Synthesis and analysis.
    (C) Direct and indirect speech.
  5. Common errors in English.

Vocabulary:
  1. Synonyms and antonyms.
  2. One word substitutions.
  3. Phrasal verbs and idioms.
  4. Commonly confused words
  5. Verbal ability.

Writing practice (composition):
  1. Essay writing
  2. Report writing
  3. Resume writing
  4. Creative writing
  5. Letter writing

Text Book:

"Using English; A Course book for Undergraduate Learners" published by Orient Black Swan, 2013.

Reference Books:

1. *Raymond Murphy's English Grammar with CD, Murphy, Cambridge University Press, 2012.*
2. English Conversation Practice –Grant Taylor, Tata McGraw Hill, 2009.

3. Communication SKILLS, Sanjay Kumar & Pushpalatha Oxford University Press, 2012.

4. A Course in Communication Skills- Kiranmai Dutt & co. Foundation Books, 2012.

MAPPPING OF COs WITH POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	2	-	-	-	-				-	2	2
CO2	3	3	1	3	3	-	-	-				-	3	2
CO3	2	-	1	-	2	-	-	-				-	3	2
CO4	-	2	1	2	2	-	-	-				-	2	3
CO5	-	2	1	2	2	-	-	-				-	2	3

Question Paper pattern: **Max Marks: 70**

PART – I

From the prescribed text book without leaving any lesson

1. 2 marks questions – 5   (Any five out of eight)   5 x 2 = 10M

2. 8 marks questions – 2   (Any two out of four)   2 x 8 = 16M

PART – II

3. General essay – 1   (Any one out of three)   1 x 8 = 8.M

4. Report Writing – 1   (Any one out of two)   1 x 8 = 8.M

5. Resume Writing – 1   (No choice)   1 x 8 = 8.M

6. Idioms – 5   (Any five out of eight)   5 x 1 = 5.M

7. Vocabulary - 5   (Any five out of eight)   5 x 1 = 5.M

8. Correction of sentences - 10   (Any ten out of fifteen)   10 x1 = 10.M

                                                            _____

                                                            Total = 70Marks

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

14ACS25	OBJECT ORIENTED ANALYSIS AND	L	T	P	C
	DESIGN (Common to CSE & IT)				
III B.Tech II Semester CSE		3	1	-	3

Outcomes:

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

1. Represent the various elements using UML notation
2. Design the specific problem domain using suitable elements.
3. Apply class and object diagram for design solutions.
4. Apply use case and advanced behavioral modeling diagram for designing solutions.
5. Develop solutions to complex problems using behavioral and architecture modeling concepts.

Unit – I
Introduction to UML: Importance of modeling, principles of modeling, object-oriented modeling, conceptual model of the UML, Architecture, and Software Development LifeCycle.

Unit – II
Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams.
Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.

Unit – III
Class & Object Diagrams: Terms, concepts, modeling techniques for Class & ObjectDiagrams.
Basic Behavioral Modeling-I: Interactions, Interaction diagrams.

Unit- IV
Basic Behavioral Modeling-II: Use cases, Use case Diagrams, Activity Diagrams. **Advanced Behavioral Modeling:** Events and signals, state machines, processes andThreads, time and space, state chart diagrams.

Unit – V
Architectural Modeling: Component, Deployment, Component diagrams and Deployment diagrams.
Case Study: The Unified Library application

Text Books:

1. *The Unified Modeling Language User Guide*, Grady Booch, James Rumbaugh, Ivar Jacobson, Pearson Education, 1997.
2. UML 2 Toolkit, Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado,WILEY-Dreamtech India Pvt. Ltd,2003.

Reference Books:

1. *Fundamentals of Object Oriented Design in UML, Meilir Page-Jones,,Pearson Education,1999.*
2. *Modeling Software Systems Using UML2, Pascal Roques, WILEY Dreamtech India Pvt. Ltd,2004.*
3. *Object Oriented Analysis & Design*, Atul Kahate, The McGraw-Hill Companies,2004

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1			3		3		2		1		2		2	2
CO2					3			2					3	3
CO3			3				3	2						
CO4			3					2						
CO5														

14ACS26   INTERNET AND WEB TECHNOLOGIES   L   T   P   C
(Common to CSE & IT)
III B.Tech II Semester CSE   3   1   -   3

Outcomes: After completion of the course the student will be able to
1. Analyze and apply the role of languages HTML, DHTML, JavaScript, database access in the working of the web and web applications.
2. Build dynamic web pages using java scripts (client side programming)
3. Create XML documents and XML Schemes.
4. Build interactive web applications using JSP and Servlets.
5. Use JDBC for database programs

UNIT - I
Introduction to Web Technology:
Fundamentals of Web: A brief introduction to the Internet, the World Wide Web, Web Browsers, Web Servers, Uniform Resource Locators, Multipurpose Internet Mail Extensions, The Hyper Text Transfer Protocol, Security, The Web Programmers Toolbox.
Introduction to XHTML: Origins and evolution of HTML and XHTML, Basic syntax, Standard XHTML document structure, Basic text markup, Images, Hypertext Links, Lists, Tables, Forms, Frames, Syntactic differences between HTML and XHTML.

UNIT - II
Cascading Style Sheets : Introduction, Levels of style sheets, Style specification formats, Selector forms, Property value forms, Font properties, List properties, Color, Alignment of text, The Box model, Background images, The< span > and< div > tags, Conflict resolution. **Java Script:** Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script

UNIT - III
Extensible Markup Language (XML): Standard generalized markup language (SGML), basics of XML, XML parsers, the need for the standard Web Servers: PWS, IIS, Tomcat and Apache.

UNIT – IV
Java Based Web Technologies
Java Servlets: Introduction to Java Servlets, Servlet Life Cycle, Http Servlet Class, Http Servlet Request & Response interfaces, Deploying a web application, Session Tracking, Cookies.
Java Server Pages (JSP): Introduction to JSP, JSP elements, JSP Directives: Page Directive, Include Directive, Introduction to Java Beans, Action Elements: Use Bean Element, Custom Tag Libraries.

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

TEXT BOOKS:

1. "Programming the world wide web ", Fourth edition, Robert W Sebesta, Pearson Education,2008.
2. "The complete Reference Java 2", Fifth Edition, Patrick Naughton and Herbert Schildt, TMH,1999.
3. "Java Server Pages", Hans Bergsten,"SPD O'Reilly ,2001.

REFERENCE BOOKS:

1. "Internet and World wide Web How to Program", 4th edition, Dietel and Nieto ,PHI/Pearson Education Asia, New Jersey, 2008.
2. "The Complete Reference JAVA 2", 5th edition, H. Schild, Tata McGraw Hill, New Delhi, India,2002.
3. "XML by Example", 5th edition, S. M. Grath ,Prentice Hall of India / Pearson Education, India,1998.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1											3			
CO2		3		3										1
CO3	3	3			3								2	
CO4		3												
CO5					3						3			1

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

14ACS27	DATA WAREHOUSING & DATA MINING	L	T	P	C
	(Common to CSE & IT)				
III B.Tech II Semester CSE		3	1	-	3

Outcomes:

At the end of this course, students should be able to:

1 Acquire a thorough knowledge in Data Warehousing architecture and implementation.
2 Apply data prepressing techniques using modern tools.
3   Create association rule for mining the data in real time.
4 Design and deploy appropriate classification and cluster high dimensional data for better organization of data.
5 Evaluate various mining techniques on complex data objects.

UNIT-I
INTRODUCTION

Introduction, Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Implementation, Further Development, Data Warehousing to Data Mining

UNIT-II
DATA PREPROCESSING, LANGUAGE, ARCHITECTURES, AND CONCEPT DESCRIPTION:

Why Preprocessing, Cleaning, Integration, Transformation, Reduction, Discretization, Concept Hierarchy Generation, Data Mining Primitives,Query Language, Graphical User Interfaces, Architectures, Concept Description, Data Generalization, Characterizations, Class Comparisons, Descriptive StatisticalMeasures.

UNIT-III
ASSOCIATION RULES: Association Rule Mining, Single-Dimensional Boolean Association Rules from Transactional Databases, Multi-Level Association Rules fromTransaction Databases.

UNIT-IV
CLASSIFICATION AND CLUSTERING: Classification and Prediction, Issues, Decision Tree Induction, Bayesian Classification, Association Rule Based, Rule-Based Classification, Classification by Back propagation Prediction, Classifier Accuracy, Cluster Analysis, Types of data, Partitioning methods, Hierarchical methods, Density based methods, Grid based methods, Model based clustering.

UNIT-V
RECENT TRENDS : Multidimensional Analysis and Descriptive Mining of Complex Data Objects, Spatial Databases, Multimedia Databases, Time Series and Sequence Data, Text Databases, World Wide Web, Applications and Trends in Data Mining.

TEXT BOOK:
 "Data Mining: Concepts and Techniques", J. Han, M. Kamber, Harcourt India / Morgan Kauffman, 2001.

REFERENCE BOOKS:

1. "*Data Mining: Introductory and Advanced Topics*", MargaretH.Dunham, Pearson Education

2004.

2. "*Data Warehousing in the real world*", Sam Anahory, Dennis Murry, Pearson Education 2003.

3. "*Data Warehousing, Data Mining & OLAP*", Alex Bezon, Stephen J.Smith, MeGraw-Hill Edition, 2001.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	3	3				2						3
CO2	3	3	3	3					2					3
CO3	3	2	2	2				3						3
CO4	3	1	1	2					1					2
CO5	3	2	3	1				2						3

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

14ACS28	Advanced Computer Networks	L	T	P	C
III B.Tech II Semester CSE		3	1	-	3

Outcomes:

After completing this course the student will be able to:

1 Implement various network switching mechanisms and layered IP reference models.
2 Use networking devices and LAN protocols for wired and wireless networks.
3 Select and implement best routing protocols for given network.
4 Analyze wide-area routing protocols and IPv6.
5 Create VPNs, and analyze Tunneling and Overlay Networks

UNIT I

Review of Computer Networks and the Internet: The Network edge- Access Networks and Physical media, Packet switched Networks-Basic definition in Networks, Types of Packet switched networks, packet size and optimization, **Foundation of Networking Protocols:** 5-layer TCP/IP Model, 7-Layer OSI Model, Internet Protocols and Addressing.

UNIT II

Networking Devices: NIC**,** wireless Switching and Routing Devices, Modems, and Multiplexers.

LANs and Network of LANS: LAN and Basic Topologies, LAN Protocols, Networks of LAN,MAC/IP Address conversion Protocol ,Spanning Tree Protocol, Virtual LANS

UNIT III

Wide area Routing and Internetworking: IP Packet and basic routing Polices, Intra domain Routing Protocols, Inter domain Routing Protocols, Internet Protocol IPv6 Congestion Control at Network Layer.

Multicasting Techniques and Protocols: Basic Definitions and Techniques, Intra domain Multicast Protocols, Inter domain Multicast Protocols, Node-Level Multicast algorithms

UNIT IV Transport and End-to-End Protocols: overview of Transport Layer, Transmission Control Protocol (TCP), User Datagram Protocol (UDP), Mobile Transport Protocols, TCP Congestion Control

Wireless Networks and Mobile IP: Infrastructure of Wireless Networks, Cellular Networks, Mobile IP Management in Cellular Networks, LTE Technology, Wireless Mesh Networks (WMNs).

UNIT V

VPNs, Tunneling and Overlay Networks: Virtual Private Networks (VPNs), Multiprotocol Label Switching (MPLS), overlay networks.

Voice over IP Signaling: Public Switched Telephone Network, overview of VoIP, H.323 Protocol, SIP, VoIP and Multimedia Internetworking.

TEXT BOOKS:

"Computer and Communication Networks", Second Edition, *Nader F. Mir*, Pearson Education, 2015

REFERENCE BOOKS:

1. *"Computer Networking: A Top-Down Approach Featuring the Internet"*, Sixth Edition, *James F. Kurose, Keith W.Ross,* Pearson Education, 2013
2. "Computer Network −A System approach" ,Fourth Edition, Larry L Peterson & Bruce S Davie ,Elsevier ,2007

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	3	-	-	-	-	-	3	-	-	-	-	-
CO2	-	-	-	-	-	-	-	3	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	3	-	-	-	-	-	-
CO4	-	-	-	3	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**SRI VENKATESWARA COLLEGE OF ENGINEERING AND
TECHNOLOGY, CHITTOOR.
(AUTONOMOUS)**

14AEC36	**DIGITAL IMAGE PROCESSING**	**L**	**T**	**P**	**C**
(Common to CSE & IT)					
III B.Tech-II Semester CSE		**3**	**1**	**-**	**3**

Learning Outcome:
After completing this course the student will be able to:

1   Describe various components and topologies of computer networks
2   Use the network reference model layered structure for real time applications.
3   Implement various routing protocols from different layers.
4   Design, implement and test an efficient algorithmic solution for the give problem.
5   Analyze network security mechanics and other issues in the application layer

UNIT I
Digital Image fundamentals: Digital Image representation – Digital image processing System –Visual Perception- Sampling and Quantization - Basic relationships between pixels, and imaging geometry.

UNIT II
Image Transforms: Discrete Fourier Transform – Properties of 2 – D Fourier Transform – Fast Fourier Transform, Walsh, Hadamard, Discrete cosine transforms.

UNIT III
Image Enhancement: Background enhancement by point processing Histogram processing, Spatial filtering, Enhancement in frequency Domain, Image smoothing, Image sharpening, Colour images

UNIT IV
Image Restoration: Degradation model, Algebraic approach to restoration – Inverse filtering – Least Mean Square filters, Constrained Least square restoration.

UNIT V
Image Coding and Segmentation: Fidelity criteria, Encoding process, transform encoding, Detection and discontinuities, Edge linking and Boundary detection, Boundary description.

TEXT BOOKS:
1. "Digital Image Processing", R. C .Gonzalez & R.E. Woods, Addison Wesley/Pearson education, 3rd Edition, 2010.
2. "Fundamentals of Digital Image processing", A .K. Jain, PHI,1989.

REFERENCE BOOKS:

1. "Digital Image processing using MATLAB", Rafael C. Gonzalez, Richard E woods and Steven L.Eddins Tata McGraw Hill, 2010.
2. "Digital Image processing", S jayaraman, S Esakkirajan, T Veerakumar, Tata McGraw Hill,2014.
3. "Digital Image Processing", 3rd Edition, William K. Pratt, John Wiley, 2004.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	3	1									3	2
CO2	3	2	2	1									3	2
CO3	3	2	2	3									3	1
CO4	3	3	1										3	1
CO5	3	2	1										3	2

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY, CHITTOOR.
(AUTONOMOUS)

(14AME57)   ROBOTICS (Common to CSE ,IT, EEE & AE)   L   T   P   C

III B.Tech-II Semester CSE   3   1   -   3

Outcomes:

After completion of the course, the student will be able to:
1. Describe the basic concepts of robotics.
2. Summarize the perception about robot components and programme in industry.
3. Select the type of robot eco-friendly for typical manufacturing industry and service sector.
4. Analyze the manipulator kinematics, dynamics and trajectory planning for typical robot with the usage of computer aided technology to develop automotive components
5. Choose a program that the robot can integrate with the manufacturing system to produce quality products with minimum cost with optimum usage of resources.
6. Formulate a project team to promote the system integration and enrichment of knowledge with continuous learning and career progress.

UNIT I
INTRODUCTION TO ROBOTICS: Automation versus Robotic technology, Laws of robot, Progressive advancements in Robots, Robot Anatomy, Classification of robots-coordinate method, control method; Specification of robots. End Effectors: Classification of End effectors – Tools as end effectors, Mechanical-adhesive-vacuum-magnetic-grippers.

UNIT II
ROBOT ACTUATORSAND MOTION CONVERSION SYSTEMS: Robot Actuators-hydraulic, pneumatic and electric, its comparison, Motion Conversion: Rotary-to-Rotary motion conversion- Gears, Harmonic Drives, Belt-and- pulley systems, Rotary-to-Linear motion conversion- Lead screws, Rack and Pinion systems, cams.

UNIT III
ROBOTIC SENSORS: Meaning of sensing, selection of sensor for a robot, types of sensors -Position sensors, range sensors, velocity sensors, touch sensors, force and torque sensors.
ROBOT VISION- Block diagram of vision system, lighting techniques and devices, analog to digital conversion, Image storage, Image processing and Analysis, Object recognition, Feature extraction.

UNIT IV
ROBOT ARM KINEMATICS: Homogeneous transformations, Basics of forward kinematics, Inverse kinematics.
ROBOT PROGRAMMING: Requirements of good programming language, Types of Robot programming, Robot programming languages and features- AL, AML, RPL, and VAL.

UNIT V
ROBOTIC APPLICATIONS: Present applications-Material Transfer, Material handling, loading and unloading, processing, welding, spray painting, Assembly and Inspection; Future applications.

Text Books
1. Richard D.Klafter, Robotics Engineering, Bangalore, New Delhi, Prentice Hall, Eastern Economy Edition, 1989.
2. R.K. Mittal & I.J.Nagrath, Robotics and Control, New Delhi, 3rdEdition, Tata McGraw Hill, 2007.

References:
1. Ganesh S. Hegde, Industrial Robotics, Lakshmi Publications (P), LTD
2. M.P. Groover, Industrial Robotics, New Delhi, Tata McGraw Hill, 2008.
3. S. K. Saha, Introduction to Robotics, The McGraw Hill Companies, 2008.

Mapping Of COs with POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		2					1							1
CO2		2		2					1					1
CO3		1				2	2	1					2	
CO4		2	2		2							2		
CO5			3	2	2	1	2				2			2
CO6									3	3		2	1	

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY, CHITTOOR.
(AUTONOMOUS)

14AEC31	MEMS & MICROSYSTEMS	L	T	P	C
	(Common to CSE & IT)				
III B.Tech-II Semester CSE		3	1	-	3

Outcomes:

After the completion of the course, the student will be able to:

1. Understand about various MEMS and Microsystem products.
2. Understand about the construction and functionality of various Micro sensors.
3. Know about the materials used for the construction of MEMS and Microsystems.
4. Understand the entire Microsystems fabrication processes.
5. Understand Micro manufacturing and Microsystems packaging technologies.

UNIT – I
OVERVIEW OF MEMS AND MICROSYSTEMS:

MEMS and Microsystems, Typical MEMS and Microsystems products, Evolution of Microfabrication, Microsystems and Microelectronics, The Multidisciplinary nature of Microsystem design and manufacture, Microsystems and Miniaturization, Applications of Microsystems in the Automotive industry and Applications of Microsystems in other industries.

UNIT-II
WORKING PRINCIPLES OF MICROSYSTEMS:

Introduction, Various Microsensors, Micro actuation, MEMS with Micro actuators, Micro-accelerometers, and Microfluidics.

UNIT-III
MATERIAL FOR MEMS AND MICROSYSTEMS:

Introduction, Substrates and Wafers, Active Substrate Materials, Silicon as a Substrate material, Silicon Compounds, Silicon Piezo resistors, Gallium Arsenide, Quartz, Piezoelectric crystals, Polymers and Packaging materials

UNIT-IV
MICROSYSTEM FABRICATION PROCESSES:

Introduction, Photolithography, Ion Implantation, Difffusion, Oxidation, Chemical Vapor Deposition, Physical Vapor Deposition-Sputtering, Deposition by Epitaxy, and Etching.

UNIT-V
MICROMANUFACTURING AND MICROSYSTEM PACKAGING:

Micromanufacturing: Introduction, Bulk Micromanufacturing, Surface Micromachining and The LIGA process.

Microsystem Packaging: Introduction, Overview of Mechanical Packaging of Microelectronics, Various Microsystem Packaging techniques, Interfaces in Microsystem Packaging and Essential Packaging Technologies.

TEXT BOOKS:

1. "MEMS & Microsystems Design and Manufacture", Tai-Ran Hsu, Tata McGraw Hill edition,2008.
2. "Foundations of MEMS" Chang Liu, Pearson Education India Limited, 2009.

REFERENCE BOOKS:

1. "Fundamentals of Microfabrication" Marc Madou, CRC press 2002.
2. "RF Microelectronics", Stephen D. Senturia, Kluwer Academic Publishers, 2001.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	2	-	-	-	-				-		3
CO2	2	3	1	3	3	-	-	-				-		3
CO3	3	1	1	-	2	-	-	-				-		3
CO4	3	2	1	2	2	-	-	-				-		2
CO5	2	3	2	3	2	-	-	-				-		3

14ACS32 Data Engineering and Web Technologies Lab	L	T	P	C
(Common to CSE & IT)				
III B.Tech-II Semester CSE	-	-	4	2

Outcomes: At the end of the course the student will be able to
1. Analyze data with ROLLAP,CUBE
2. Implement cube Slicing drill down, Roll up and Dicing of data
3. Develop web pages.
4. Program Client side scripting languages
5. Implement Java servlets in web technology

DATA Engineering LAB

Credit Risk Assessment

Description: The business of banks is making loans. Assessing the credit worthiness of an applicant is of crucial importance. You have to develop a system to help a loan officer decide whether the credit of a customer is good, or bad. A bank's business rules regarding loans must consider two opposing factors. On the one hand, a bank wants to make as many loans as possible. Interest on these loans is the banks profit source. On the other hand, a bank cannot afford to make too many bad loans. Too many bad loans could lead to the collapse of the bank. The bank's loan policy must involve a compromise: not too strict, and not too lenient.

To do the assignment, you first and foremost need some knowledge about the world of credit. You can acquire such knowledge in a number of ways.

1. Knowledge Engineering. Find a loan officer who is willing to talk. Interview her and try to represent her knowledge in the form of production rules.

2. Books. Find some training manuals for loan officers or perhaps a suitable textbook on finance. Translate this knowledge from text form to production rule form.

3. Common sense. Imagine yourself as a loan officer and make up reasonable rules which can be used to judge the credit worthiness of a loan applicant.

4. Case histories. Find records of actual cases where competent loan officers correctly judged when, and when not to, approve a loan application.

The German Credit Data:

Actual historical credit data is not always easy to come by because of confidentiality rules. Here is one such dataset, consisting of 1000 actual cases collected in Germany. credit dataset (original) Excel spreadsheet version of the German credit data (Down load from web). In spite of the fact that the data is German, you should probably make use of it for this assignment. (Unless you really can consult a real loan officer !)

A few notes on the German dataset

• DM stands for Deutsche Mark, the unit of currency, worth about 90 cents Canadian (but looks and acts like a quarter).

owns telephone. German phone rates are much higher than in Canada so fewer people own telephones.

• foreign_worker. There are millions of these in Germany (many from Turrkey). It is very hard to get German citizenship if you were not born of German parents.

• There are 20 attributes used in judging a loan applicant. The goal is to classify the applicant

into one of two categories, good or bad.

Subtasks: (Turn in your answers to the following tasks)
1. What attributes do you think might be crucial in making the credit assessment ? Come up with some simple rules in plain English using your selected attributes.

2. One type of model that you can create is a Decision Tree - train a Decision Tree using the complete dataset as the training data. Report the model obtained after training.

3. One approach for solving the problem encountered in the previous question is using cross-validation? Describe what is cross validation briefly. Train a Decision Tree again using cross validation and report your results. Does your accuracy increase/decrease? Why? (10 marks)

4. Check to see if the data shows a bias against "foreign workers" (attribute 20), or "personal-status" (attribute 9). One way to do this (perhaps rather simple minded) is to remove these attributes from the dataset and see if the decision tree created in those cases is significantly different from the full dataset case which you have already done. To remove an attribute you can use the preprocess tab in Weka's GUI Explorer. Did removing these attributes have any significant effect? Discuss.

5. Another question might be, do you really need to input so many attributes to get good results? Maybe only a few would do. For example, you could try just having attributes 2, 3, 5, 7, 10, 17 (and 21, the class attribute (naturally)). Try out some combinations. (You had removed two attributes in problem 7. Remember to reload the arff data file to get all the attributes initially before you start selecting the ones you want.)

6. Associations
Derive associations manually from the following dataset.
@Relation weather. Symbolic

@attribute outlook {sunny, overcast, rainy}
@attribute temperature {hot, mild, cool}
@attribute humidity {high, normal}
@attribute windy {TRUE, FALSE}
@attribute play {yes, no}

@data
sunny,hot,high,FALSE,no

sunny,hot,high,TRUE,no
overcast,hot,high,FALSE,yes
rainy,mild,high,FALSE,yes
rainy,cool,normal,FALSE,yes
rainy,cool,normal,TRUE,no
overcast,cool,normal,TRUE,yes
sunny,mild,high,FALSE,no
sunny,cool,normal,FALSE,yes
rainy,mild,normal,FALSE,yes
sunny,mild,normal,TRUE,yes
overcast,mild,high,TRUE,yes
overcast,hot,normal,FALSE,yes
rainy,mild,high,TRUE,no

7. Clustering
i. Open Weka and Load the data set editor. Get familiarize with the editor operations.
    a. Load the weather. nominal dataset. Use the filter weka. Unsupervised, instance. Remove with Values to remove all instances in which the humidity attribute has the value high. To do this, first make the field next to the Choose button show the text Remove with Values. Then click on it to get the Generic Object Editor window, and figure out how to change the filter settings appropriately.
    b. Undo the change to the dataset that you just performed, and verify that the data has reverted to its original state.
ii. Choosing k-means clustering algorithm for clustering use the Cancer data (.arff) performclustering with a Euclidean distance function and visually inspect the nature of the clusters.

8. Analyzing data with ROLLAP, CUBE.

9. Cube slicing – come up with 2-D view of data.

10. Drill-down or Roll-down- going from summary to more detailed data.

11. Roll up – summarize data along a dimension hierarchy.

12. Dicing – projecting 2-D view of data.

13. Creating Star Schema/snowflake Schema.

WEB TECHNOLOGIES LAB
Week 1:
1. Develop a static web page that demonstrates basic HTML tags.

Week 2:
2. Develop a web page to demonstrate different types of CSS.

Week 3:
3. Develop a web application using Java script to perform the following tasks:
    a. Registration validation
    b. User login

c. User profile and credit card payment.

Week 4:
4. Design an XML document to structure the student data and validate using DTD.

Week 5:
5. Design an XML document to structure and display the data using an XSL.

Week 6:
6. Install TOMCAT web server. Convert the static web pages of assignments 2 into dynamic web pages using servlets and cookies. Hint: User's information (user id, password, credit cardnumber) would be stored in web. Xml. Each user should have a separate shopping cart

Week 7:
7. a. Implement a simple Hello world program using Java Servlets.
   b. Implement User Management application using Java Servlets.

Week 8:
8. a. Implement a simple JSP page to perform simple functions.
   b. Implement User Management application using JSP.

Week 9:
9. Implement session Tracking and cookie Management in JSP.

Week 10:
10.Develop a simple application to create a custom tag using JSP.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		3					3				2		2	2
CO2		3					3				3		3	3
CO3	3				3				3					
CO4	3				3				2					
CO5	3				3				2				3	3

14AHS14   **TECHNICAL ENGLISH LAB-II**   **L   T   P   C**
(Common to **EEE, ECE ,CSE & IT**)
III B.Tech-II Semester CSE   -   -   4   2

Outcomes: After completion of the course the student will be able to

1. The students will use English fluently in communication by following LSRW.
2. The students will develop the art of oral presentation to develop leadership qualities.
3. The students will assimilate the importance of English in the modern world to competewith the career in the challenging world.
4. The students will strengthen the required skills to be employable.
5. The students will face the interviews confidently and improve the chances of getting ajob.

1. Listening comprehension: Listening to passage – Understanding the passage – answering the questions – personal and professional situations.

2. Resume writing: Structure – format style – defining career objective – projecting the strengths – preparing covering letter.

3. Speaking Activities:

Just A Minute (JAM) – importance – rules – etiquette – body language.

Debates – importance – rules - beginning – taking a stand – supporting & defending.

Describing objects/people/situations: how to describe – physical properties – material-functions – features - complexion - Attire - situation – place – time – theme.

4. Interview: Preparing for interview – physically and mentally – answering strategy – face-to-face interview – panel interview - tele interview – video conferencing.

5. Oral & PowerPoint Presentation: Importance – developing and organizing the presentations – verbal and visual support - using body language – how to make it effective.

 MINIMUM REQUIREMENT FOR ELCS LAB:

1) Computer aided language lab for 70 students, 70 systems – one master console software for self-study.

2) T.V, digital stereo – audio – visual system.

3) Computer laboratory with LAN Connectivity of minimum 70 multimedia systems with the following configuration.

a) Intel Pentium® D 3.00GHZ

b) RAM-1GB minimum

c) Hard disk – 160GB

d) Headphones of durable quality.

Prescribed Software – Globarena

e) Suggested Software:

- K-Van Advanced Communication Skills
- TOEFL & GRE (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)
- *DELTA's key to the Next Generation TOEFL Test: Advanced Skill Practice.*
- Lingua TOEFL CBT Insider, by Dreamtech
- Cambridge Advanced Learners' English Dictionary with CD.
- Oxford Advanced Learner's Compass, 8th Edition
- Sanjay Kumar & Pushp Lata. 2011. Communication Skills, OUP

Reference Books:

1. *Technical Communication,2/e, Meenakshi Raman, Oxford University Press, New Delhi.*
2. Developing Communication Skills ,*Krishna Mohan & Meera Benerji, Macmillan*
3. *English Skills for Technical Students*, WBSCTE with British Council, OL
4. *TOEFL & GRE* (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)
5. *Everyday Dialogues in English* , Robert J Dixson, Prentice – Hall of India Ltd.
6. *Professional Communication,* Koneru, by McGraw Hill.

MAPPPING OF COs WITH POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	2	-	-	-	-				-	2	2
CO2	3	3	1	3	3	-	-	-				-	3	2
CO3	2	-	1	-	2	-	-	-				-	3	2
CO4	-	2	1	2	2	-	-	-				-	2	3
CO5	-	2	1	2	2	-	-	-				-	2	3

14AMB01   MANAGEMENT SCIENCE(Audit Course)   **L   T   P   C**
(Common to EEE, ECE ,CSE & IT)

III B.Tech-II Semester CSE   **3   -   -   -**

Outcomes:

After completion of this course students will be able to:

1   Apply various areas of functional management for the prospects of business organization
2   Apply management principles for decision making
3   Handle intricacies of projects efficiently
4   use tools and techniques to become an effective manager
5   Apply production tools and techniques in every area of business

UNIT I

Introduction to Management: Nature, importance and Functions of Management, Approaches to Management - Taylor's Scientific Management - Henry Fayol's Principles of Management, Maslow's Theory of Human Needs, Douglas McGregor's Theory X and Theory Y, Leadership Styles – Introduction to Organization –Types of Mechanistic and organic structures.

UNIT II

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: $\bar{x}$ chart, R chart, c chart, p chart, (simple Problems), Acceptance Sampling, TQM Concept - Deming's principles, Six sigma, Bench marking.

UNIT III

Materials Management: Objectives, Need for Inventory control, EOQ, ABC Analysis, Purchase Procedure, Stores Management and Stores Records, MRP, JIT, **Marketing:** Functions of Marketing, Marketing Mix, Product Life Cycle, Channels of Distribution.

UNIT IV

Human Resources Management (HRM): Basic functions of HR Manager: Manpower planning, Recruitment, Selection, Training and Development, Wage and Salary Administration, Job Evaluation and Merit Rating, Performance Appraisal.

UNIT V

Project Management (PERT/CPM): Network Analysis, Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Identifying critical path, Probability of Completing the project within given time, Project Cost Analysis, Project Crashing. (Simple Problems)

TEXT BOOKS:

1. Management Science, 4/e, Aryasri,TMH, 2009.

2. Management, 6th Edition, Stoner, Freeman, Gilbert, Pearson Education, New Delhi, 2004.

3. Production and Operations Management, 3/e, Panner Selvem, Prentice Hall of India, 2012

REFERENCES:

1., Marketing Management, 12/e, Kotler Philip & Keller Kevin Lane, PHI, 2005.

2. Essentials of Management, 6/e, Koontz & Weihrich, TMH, 2005.

3. Personnel and Human Resource Mangement, Subba Rao. P, Himalaya Publishing House, 2000

Mapping course outcomes with POs

Course outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✓											
CO2		✓										
CO3				✓								
CO4						✓						
CO5								✓		✓		

14ACS34 ARTIFICIAL INTELLIGENCE & EXPERT SYSTEMS	L	T	P	C
IV B.Tech-I Semester CSE	3	1	-	3

Outcomes:

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

1. Understand foundation and basic concepts of AI and Intelligent Agents.
2. Evaluate Searching techniques for problem solving in AI.
3. Apply First-order Logic and chaining techniques for problem solving.
4. Handle knowledge representation techniques for problem solving.
5. Apply supervised learning and Neural Networks for solving problem in AI.

UNIT – I
Introduction: What Is AI, the Foundations of Artificial Intelligence, The History of Artificial Intelligence, The State of the Art
Intelligent Agents: Agents and Environments, Good Behavior: The Concept of Rationality, The Nature of Environments, And The Structure of Agents

UNIT – II
Solving Problems by Searching: Problem-Solving Agents, Uninformed Search Strategies, Informed (Heuristic) Search Strategies, Heuristic Functions
Beyond Classical Search: Local Search Algorithms and Optimization Problems, Searching with Nondeterministic Actions and Partial Observations, Online Search Agents and Unknown Environments
Constraint Satisfaction Problems: Definition, Constraint Propagation, Backtracking Search, Local Search, The Structure of Problems

UNIT – III
Logical Agents: Knowledge-Based Agents, Propositional Logic, Propositional Theorem Proving, Effective Propositional Model Checking, Agents Based on Propositional Logic **First-Order Logic:** Syntax and Semantics, Knowledge Engineering in FOL, Inference in First-Order Logic, Unification and Lifting, Forward Chaining, Backward Chaining, Resolution

UNIT – IV
Planning: Definition, Algorithms, Planning Graphs, Hierarchical Planning, Multiagent Planning
Knowledge Representation: Ontological Engineering, Categories and Objects, Events, Mental Events and Mental Objects, Reasoning Systems for Categories, Reasoning with Default Information, The Internet Shopping World

UNIT – V
Learning from Examples: Forms of Learning, Supervised Learning, Learning Decision Trees, Evaluating and Choosing the Best Hypothesis, The Theory of Learning, Regression and Classification with Linear Models, Artificial Neural Networks.

Expert Systems Architectures: Introduction, Rule Based System Architecture, Non-Production System Architecture, Dealing with uncertainty, Knowledge Acquisition and Validation, Knowledge System Building Tools.

TEXT BOOK:

1. Artificial Intelligence: A Modern Approach, 3rd edition, Pearson , Russel S, Norvig P, Education, 2010.
2. Introduction to Artificial Intelligence and Expert Systems, Dan W. Patterson ,PHI, New Delhi, 2006.

REFERENCE BOOKS:

1. Artificial Intelligence, 3rd edition, Rich E, Knight K, Nair S B, Tata McGraw-Hill, 2009.
2. Artificial Intelligence: Structures and Strategies for Complex problem solving, 6th edition, Luger George F, Pearson Education, 2009
3. Minds and Computers An Introduction to the Philosophy of Artificial Intelligence, Carter M,Edinburgh University Press, 2007.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	3	-	-	-	-
CO2	-	-	-	-	-	-	-	-	3	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	3	-	-	-
CO4	-	-	3	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	3	-	-	-	-	-	-	-

14ACS35 Cloud Computing (Common to CSE & IT)	**L**	**T**	**P**	**C**
IV B.Tech-I Semester CSE	**3**	**1**	**-**	**3**

Outcomes:

At the end of course student should be able to

1. Use practical cloud applications in daily life.
2. Apply various cloud services in real time applications.
3. Collaborate with different practical web applications for business management.
4. Differentiate cloud security services and standards.

UNIT I

Overview of Cloud Computing: Meaning of the terms cloud and cloud computing, cloud based service offerings, Grid computing vs Cloud computing, Benefits of cloud model, limitations, legal issues, Key characteristics of cloud computing, Challenges for the cloud, The evolution of cloud computing.

UNIT II

Web services delivered from the cloud: Infrastructure as a service, Platform-as-a-service, Software-as-a-service. Building Cloud networks: Evolution from the MSP model to cloud computing and software -as-a-service, The cloud data center, SOA as step toward cloud computing, Basic approach to a data center-based SOA.

UNIT-III

CLOUD SERVICES: Collaborating on calendars, Schedules, and Task Management, Exploring online scheduling applications, Exploring online planning and task management. Collaborating on Word Processing, Storing and sharing files and Other Online Content. Exploring Online Photo-Editing Applications.

UNIT IV

 INTRODUCTION TO VIRTUALIZATION History of virtualization, objectives of virtualization, benefits of virtualized technology, VIRTUALIZATION TECHNOLOGIES VMware, Microsoft Hyper-V, Virtual Iron, Xen, Ubuntu (Server Edition), Software

Virtualization, Para Virtualization, OS Virtualization, Oracle Virtualization, Storage Virtualization Technologies, Virtualization and Storage Management.

UNIT V

 Security in the Cloud: Cloud security challenges, Software-as-a-service security. Common Standards in Cloud computing: The open cloud consortium, The distributed management task force, standards for application developers, standards for messaging, standards for security.

TEXT BOOKS:

1.“*Cloud Computing implementation, management and security*”, John W. Rittinghouse, James

F. Ransome ,CRC Press, Taylor &Francis group, 2010.
2. "Cloud Computing Virtualization Specialist Complete Certification Kit - Study Guide Book"
,Ivanka Menken and Gerard Bl okdi j k, , Emereo Pvt Ltd, April 2009.
3. Michael Miller, Cloud Computing: Web-Based Applications That Change the Way You
Work and Collaborate Online, Que Publishing, August 2008.

REFERENCES:

1. Cloud Application Architectures Building Applications and Infrastructure in the Cloud,
George Reese, and O'Reilly Media Released, April 2009.

2. Cloud Computing and SOA convergence in your enterprise", David S. Linthicum, Addison-
Wesley, 2009.

3. "Cloud Computing: A practical approach", Anthony T.velte, TobJ.velte Robert Elsenpeter
,Tata Mc Graw Hill , 2010.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	1	-	-	-	-	-	-	-	2	3
CO2	-	2	-	1	-	-	-	-	-	-	-	-	3	2
CO3	-	-	3	-	-	-	-	-	-	-	-	-	2	3
CO4	2	-	-	3	-	-	-	-	-	-	-	-	3	2

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY, CHITTOOR.
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14ACS36   **SOFTWARE TESTING**   **L   T   P   C**
                  (Common to CSE & IT)

 IV B.Tech-I Semester CSE   **3   1   -   3**

Outcomes:

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

 1 Develop and analyze the importance of testing and debugging cases and transaction flowtesting on various applications

 2. Design the applications of domain testing and regular expressions.

 3. Apply logic based testing techniques.

 4. Demonstrate automation test tools like IBM rational functional tester and IBM Rational quality manager.

UNIT I
Introduction: Purpose of testing, Dichotomies, model for testing, consequences of bugs,taxonomy of bugs.

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

UNIT II
Transaction Flow Testing: Transaction flows, transaction flow testing techniques.

Data flow testing: Basics of data flow testing, strategies in data flow testing.

UNIT III
Domain Testing: Domains and paths, Nice & ugly domains, domain testing, domains and interface testing, domain and interface testing, domains and testability.

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

UNIT IV
Logic Based Testing: overview, decision tables, path expressions, kv charts, specifications, building tools (The student should be given an exposure to a tool like IBM Rational Functional Tester).

UNIT V
Graph Matrices and Application: Motivational overview, matrix of graph, relations, power of a matrix, node reduction algorithm, building tools (The student should be given an exposure to a tool like IBM Rational Quality Manager).

TEXT BOOKS:
1. *Software Testing techniques*, Second Edition, Boris Beizer, Dreamtech,2003.
2. *Software Testing Tools*, Dr.K.V.K.K.Prasad, Dreamtech,2004.

REFERENCE BOOKS:
1. *The craft of software testing*, Brian Marick, Pearson Education,1995.
2. *Software Testing*, Third Edition, P.C.Jorgensen, Aurbach Publications,1995.

3. *Software Testing*, N.Chauhan, Oxford University Press,2010.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3				3									3
CO2								3					3	
CO3											3			3
CO4										3			3	

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14ACS37 CRYPTOGRAPHY AND NETWORK SECURITY	**L**	**T**	**P**	**C**
IV B.Tech-I Semester CSE	**3**	**1**	**-**	**3**

Outcomes:
After the completion of this course the student will able to:

1. Apply knowledge of mathematics for analyzing the fundamental cryptography and encryption techniques.
2. Design, implement and Test the Encryption and decryption Algorithms using appropriate modern tools.
3. Evaluate the performance of different Hash algorithm.
4. Produce network security applications for small scale business.
5. Perform secure electronic transaction at network level.

UNIT I
Overview: Services, Mechanisms and Attack, The OSI Security Architecture: Security Services, and Security Attacks, A model for Network Security.
Classical Encryption Techniques: Symmetric Cipher Model, Substitution Techniques: Caesar Cipher, Mono alphabetic Cipher, Play fair Cipher, Hill Cipher,

UNIT II
Block Ciphers and the Data Encryption Standard: Simplified DES, Block Cipher Principles, The DES, The Strength of DES, Block Cipher Design Principles, Block Cipher modes of Operation
Public Key Cryptography: Principles of Public Key Cryptosystems, The RSA Algorithm, Diffie – Hellman Key Exchange

UNIT III
Message Authentication and Hash Functions: Authentication Requirements, Authentication Functions, Message Authentication Codes, Hash Functions, Secure of Hash Functions (SHA) and MACs.
Hash Algorithms: MD5 Message Digest Algorithm: MD5 Logic, MD5 Compression function, MD4,Whilpool

UNIT IV
Digital Signatures and Authentication Protocols: Digital Signatures, Authentication Mechanism
Authentication Applications: Kerberos: Motivation, Kerberos, And X.509
Authentication Service: Certificates, Authentication Procedures, X.509 Version 3.

UNIT V
IP Security: IPsec overview, architecture, Authentication Header and Encapsulating security pay load, combining security associates.

Web Security: web security considerations, secure socket layer and secure electronic truncations.

TEXT BOOK:
"*Cryptography and Network Security*: *Principles and Practices*", 4th Edition, WilliamStallings Low Price Edition, Pearson Education, 2008.
REFERENCE BOOK:
"Network Security Essentials *(Applications and Standards)*", 3rd Edition, William Stallings, Pearson Education, 2008.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	2	-	-	-	-	-	-	-	3	3
CO2	3	2	3	2	1	-	-	-	-	-	-	-	3	1
CO3	3	3	2	2	2	-	-	-	-	-	-	-	2	2
CO4	3	2	2	3	2	-	-	-	-	-	-	-	2	2
CO5	3	3	1	3	2	-	-	-	-	-	-	-	3	1

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14ACS38 MOBILE COMPUTING   **L   T   P   C**

IV B.Tech-I Semester CSE   **3   1   -   3**

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

1 Solve various MAC issues in data link layer and networking principles that support connectivity to cellular networks
2 Design the protocols for network layer and transport layer in mobile environment. 3 Develop push and pull based data dissemination techniques and to solve database issues in mobile computing
4 Work in mobile computing environment to address various issues in MANETs.
5 Use and Evaluate WAP and Bluetooth techniques.

UNIT I

Mobile Computing: Introduction, history, architecture, devices and applications, limitations.
Global System for Mobile Communications (Gsm): Mobile services, system architecture, radio interface, protocols, localization and calling, handover, security, and new data services. **Medium Access Control:** Motivation for a specialized MAC (Hidden and exposed terminals,near and far terminals), SDMA, FDMA, TDMA, CDMA.

UNIT II
Mobile Network Layer: Mobile IP (goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, Rrk registration, tunneling and encapsulation, optimizations), dynamic host configuration protocol (DHCP).
Mobile Transport Layer: Traditional TCP, indirect TCP, snooping TCP, mobile TCP, fast retransmit/ fast recovery, transmission /time-out freezing, selective retransmission, and transaction oriented TCP.

UNIT III
Data Dissemination: Push based mechanisms, pull based mechanisms, hybrid mechanisms, selective tuning (indexing) techniques.
Database Issues: Hoarding techniques, caching invalidation mechanisms, client server computing with adaptation, power-aware and context-aware computing, transactional models, query processing, recovery, and quality of service issues.

UNIT IV
Mobile Ad hoc Networks (MANETs):
Overview, Properties of a MANET, spectrum of MANET applications, routing and various routing algorithms, security in MANETs.

UNITV
Protocols and Tools:
Wireless Application Protocol-WAP. (Introduction, protocol architecture, and treatment of protocols of all layers), Bluetooth (User scenarios, physical layer, MAC layer, networking, security, link management) and J2ME.

TEXT BOOKS:
1. "Mobile Communications", 2nd Edition, Jochen Schiller, PHI/Pearson Education, 2003.
2. Mobile Computing, 2nd edition, Raj kamal, Oxford University Press, USA, 2007.

REFERENCE BOOKS:
1. "Wireless Communications and Networks", William Stallings, Pearson Education, 2002
2. "Handbook of Wireless Networks and Mobile Computing", Stojmenovic and Cacute, Wiley, 2002,.
3. "Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML", Reza Behravanfar, Cambridge University Press, October 2004,

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	2	1	2	1	-	-	-	-	-	2	2
CO2	3	2	1	3	2	2	1	1	1	-	1	-	2	1
CO3	3	2	1	2	1	2	1	1	1	1	-	-	2	1
CO4	3	2	2	3	2	2	1	-	1	-	1	-	2	2
CO5	3	2	2	3	2	2	1	-	-	-	-	-	2	2

14ACS39 Big Data Analytics(Common to CSE & IT)	**L**	**T**	**P**	**C**
IV B.Tech-I Semester CSE	**3**	**1**	**-**	**3**

Outcome:

At the end of the course the student will be able to:

1. Analyze the real time data using any appropriate data analytic tools.
2. Evaluate the performance of Data Model used in big data.
3. Developing applications for Real time Analytics Platform
4. Apply different clustering techniques for forming clusters, analysis of outlier and formation of association.
5. Optimize the performance of a social network.

UNIT I
Introduction To Big Data:

Introduction to Big Data Platform Traits of Big data -Challenges of Conventional Systems -Web Data –Evolution of Analytic Scalability -Analytic Processes and Tools -Analysis vs Reporting -Modern Data Analytic Tools -Statistical Concepts: Sampling Distributions -Re- Sampling -Statistical Inference -Prediction Error.

UNIT II
Data Analysis:

Regression Modeling -Multivariate Analysis -Bayesian Modeling -Inference and Bayesian Networks -Support Vector and Kernel Methods -Analysis of Time Series: Linear Systems Analysis -Nonlinear Dynamics -Rule Induction -Neural Networks: Learning And Generalization -Competitive Learning -Principal Component Analysis and Neural Networks -Fuzzy Logic: Extracting Fuzzy Models from Data -Fuzzy Decision Trees -Stochastic Search Methods.

UNIT III
Mining Data Streams:

Introduction To Streams Concepts –Stream Data Model and Architecture -Stream Computing -Sampling Data in a Stream –Filtering Streams –Counting Distinct Elements in a Stream – Estimating Moments –Counting Oneness in a Window –Decaying Window -Real time Analytics Platform(RTAP) Applications -Case studies -Real Time Sentiment Analysis, Stock Market Predictions.

UNIT IV
Frequent Item sets And Clustering:

Mining Frequent Item sets -Market Based Model –Apriori Algorithm –Handling Large dataSets in Main Memory –Limited Pass Algorithm –Counting Frequent Item sets in a stream –Clustering Techniques –Hierarchical –K-Means –Clustering High Dimensional Data –CLIQUE And PROCLUS –Frequent Pattern based Clustering Methods –Clustering in Non-Euclidean Space –Clustering for Streams and Parallelism.

UNIT V
Frameworks and Visualization:
Map Reduce – Hadoop, Hive, MapR –Sharding –No SQL Databases -S3 -Hadoop Distributed File Systems –Visualizations -Visual Data Analysis Techniques -Interaction Techniques; Systems and Analytics Applications -Analytics using Statistical packages-Approaches to modeling in Analytics –correlation, regression, decision trees, classification, association-Intelligence from unstructured information-Text analytics-Understanding of emerging trends and technologies-Industry challenges and application of Analytics.

TEXT BOOKS:

1. *"Intelligent Data Analysis", Michael Berthold, David J. Hand, Springer, 2007.*

2. *"Mining of Massive Datasets", Anand Rajaraman and Jeffrey David Ullman,*

   Cambridge University Press, 2012.

REFERENCE BOOKS:

1. *"Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with*

   Advanced Analytics", Bill Franks, John Wiley & sons, 2012.

2. *"Making Sense of Data", Glenn J. Myatt, John Wiley & Sons, 2007*

3. *"Data Mining Concepts and Techniques", Second Edition, Jiawei Han, Micheline*

   Kamber ,Elsevier, Reprinted 2008.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	2	-	-	1	-	-	-	-	-	2	2
CO2	3	2	1	3	-	-	2	-	1	-	3	-	2	1
CO3	3	2	1	2	-	-	1	-	2	1	-	-	2	1
CO4	3	2	2	3	-	-	1	-	1	-	2	-	2	2
CO5	3	2	2	3	-	-	2	-	-	-	-	-	2	2

14ACS40   **SOFTWARE PROJECT MANAGEMENT**   **L   T   P   C**
(Common to CSE & IT)
IV B.Tech-I Semester CSE   **3   1   -   3**

Outcomes:

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

1. Implement a project to develop the scope of work, provide accurate cost estimates andto plan the various activities.
2. Analyze the various artifacts of the process and technical perspectives.
3. Evaluate the resources required for a project and to produce a work plan and resource schedule.
4. Implement emerging trends in software engineering.
5. Apply various models for software architectures

UNIT I
Introduction to Software Project Management:
Project Management Concepts: The management spectrum - People, The product, The process, The project; The W5HH principle, Critical Practices.
Process and Project Metrics: Introduction, Software measurement, Software quality metrics,integrating metrics within the software process, Metrics for small organizations.

UNIT II
Project Evaluation:
Strategic Assessment – Technical Assessment – Cost Benefit Analysis –Cash FlowForecasting – Cost Benefit Evaluation Techniques – Risk Evaluation.

UNIT III
Artifacts and Model Based Software Architectures:
Artifacts of the process - the artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.

Model based software architectures: A Management perspective and technical perspective. Workflows of the process - Software process workflows, Iteration workflows.

UNIT IV
Future Software Project Management:
Modern Project Profiles, Next generation Software economics, modern process transitions.

UNIT V:
Emerging Trends in Software Engineering:
Technology evolution, Software engineering trends, Identifying soft trends, Technology directions, and Tools-related trends.

TEXT BOOKS:

1. "*Software Project Management*", Walker Royce ,Pearson Education, 2005.
2. "*Software Project Management*", Henrey ,Pearson,2003.

REFERENCE BOOKS:

1. *Software Project Management*, Bob Hughes, Mike Cottrell, Tata McGraw-Hill   Edition, India, 2006.
2. "*Software Project Management*: A Concise Study", S. A. Kelkar, PHI,2004.
3. "*Software Project Management*", Second Edition, Hughes Cotterell, TMH,2009.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	-	-	-	-	-	-	-	-	-	2	2
CO2	3	2	1	-	-	-	-	-	-	-	3	-	3	1
CO3	3	2	1	-	-	-	-	-	-	-	2	-	2	1
CO4	3	2	2	-	-	-	-	-	-	-	3	-	3	2
CO5	3	2	2	-	-	-	-	-	-	-	-	-	3	2

14ACS41 Web Services (Common to CSE & IT)	**L**	**T**	**P**	**C**
IV B.Tech-I Semester CSE	**3**	**1**	**-**	**3**

Outcomes:
At the end of the course the student will be able to:
1. Apply OOP Concepts through C#.
2. Design classes and objects in C#.
3. Design windows applications on .NET
4. Use .NET components in C# programs and develop web application.
5. Use .NET framework for elaborate and complex building web application.

UNIT I
Introduction to Web services
Business motivations of Web Services-B2B-B2C-Service Oriented Architecture (SOA)-Architecting Web Services-Web Services Technology stack-logical view-composition of web services-deployment view-from application server to peer to peer-procees view-life in runtime

UNIT II

Introduction to C#:
Introducing C#, Understanding .NET, Overview of C#, Literals, Variables, Data types, Expressions, Branching, Looping, Methods, Arrays, Strings, Structures, Enumerations.

UNIT III
Object oriented aspects of C#:
Classes, Objects, Inheritance, Polymorphism, Interfaces, Operator Overloading, Delegates, Events, Errors and Exceptions.

UNIT IV
Application Development on .NET:
Building Windows Applications, Accessing Data with ADO.NET

UNIT V
Web Based Application Development on .NET
Programming Web applications with Web Forms, Programming Web Services.
The CLR and the .NET Framework:
Assemblies, Versioning, Attributes, Reflection, Viewing Meta Data, Type Discovery, Reflecting on a type, Marshalling, Remoting, Understanding Server Object Types, Specifying a server with an Interface, Building a server, Building the Client, Using Single Call, Threads.

TEXT BOOKS:

1. "Programming in C#: A Primer",3rd edition, E. Balagurusamy,TMH,2010.

2."Developing Enterprise web Services:An Architect's guide, Sandeep chatterjee and James webber ,Prentice hall,2004

REFERENCE BOOKS:

1. "Programming in C#", 2nd Edition ,J Liberty – O'Reilly ,2001.

2. "*Learning Web App Development: Build Quickly with Proven*

JavaScript Techniques", Semmy Purewal, O'Reilly Media, February 2014.

3. "CLR via C#**",** Dreamtech Press, Fourth edition, June 2013.

4. "*Beginning C# Object-Oriented Programming*" 2nd edition, Dan Clark, Apress, March 2013.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	2	2	-	-	-	-	-	-	-	2	2
CO2	3	2	1	3	2	-	-	-	3	-	3	-	2	1
CO3	3	2	1	2	2	-	-	-	2	1	3	-	2	1
CO4	3	2	2	3	2	-	-	-	3	-	2	-	2	2
CO5	3	2	2	3	2	-	-	-	-	2	-	-	2	2

14ACS42	E Commerce	L	T	P	C

IV B.Tech-I Semester CSE   3   1   -   3

Outcomes:

At the end of the course the student will have the ability to:

1. Comprehend and analyze about Electronic Commerce catalogs and information filtering on business models

2. Implement electronic data interchange and value added networks.

3. Evaluate the use and techniques of advertising and marketing on the internet.

4. Evaluate the use of multimedia and digital video in E-Commerce.

UNIT I
Welcome to Electronic Commerce: Electronic Commerce Framework, E-Commerce Consumer Applications, E-Commerce Organization Applications.
Consumer Oriented Electronic Commerce: Mercantile Process Models from the Consumer's Perspective, Mercantile Process Models from the Merchant's Perspective.

UNIT II
Electronic Payment Systems: Designing Electronic Payment Systems, Types of Electronic Payment Systems, Digital Token-Based Electronic Payment Systems, Smart Cards, Credit Cards.

UNIT III
Inter organizational Commerce and EDI: Electronic Data Interchange, EDI Applications in Business, Value Added Networks.
Intra organizational Commerce: Work-flow Automation and Coordination, Customization and Internal Commerce, Supply chain Management.

UNIT VI
The Corporate Digital Library: Document Library, Types of Digital Documents, Corporate Data Warehouses.
Advertising and Marketing on the Internet: The New Age of Information-Based Marketing, Advertising on Internet, Market Research.

UNIT V
Consumer Search and Resource Discovery: Information Search and Retrieval, Commerce Catalogues and Directories, Information Filtering.
Multimedia and Digital Video: key Multimedia Concepts, Digital Video and Electronic Commerce, Desktop Video Processing.

TEXT BOOKS:
1. "Frontiers of Electronic Commerce" ,1/e , Ravi Kalakata and Andrew B.Whinston. Pearson Education,1995.
REFERENCE BOOKS:
1."E-Commerce, Fundamentals and Applications" by Hendry Chan, Raymond Lee,Tharam Dillon, Ellizabeth Chang. John Wiley & Sons Publications,2001.
2."Doing Business on the Internet : E – Commerce" by S.Jaiswal. Galgotia Publications,2003.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	3	-	-	-	-	-	3	-	-	-	-	-
CO2	-	-	-	-	-	-	-	3	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	3	-	-	-	-	-	-
CO4	-	-	-	3	-	-	-	-	-	-	-	-	-	-

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		L	T	P	C
14ACS43 INTERNETWORKING WITH TCP/IP					
(Common to CSE & IT)					
IV B.Tech-I Semester CSE		3	1	-	3

Learning Outcomes:

At the end of the course the student will be able to:

1. Differentiate the different network architectures by comparing the basic network model.
2. Identify the networking, internetworking requirements and networking protocols.
3. Apply the requirements of routing and choose appropriate routing methods using appropriate modern tools.
4. Ascertain and handle the selection of applications and protocols for transferringdata across the internet.
5. Analyze and control the passage of user information over the network by using appropriate network protocols.

UNIT I

The OSI Model and the TCP/IP Protocol suite:
TCP/IP Protocol Suite, Addressing. Internet Protocol Version 4 (IPv4): Datagrams, Fragmentation, Options, Checksum.**IPv4 Addresses:** Introduction, Classful Addressing, Classless Addressing, Special Addresses, NAT.

UNIT II
Address Resolution Protocol (ARP): Address Mapping, The ARP Protocol, ATM ARP, ARP PACKAGE. Internet Control Message Protocol Version 4: Introduction, Messages, DebuggingTools, ICMP Package.
Unicast Routing Protocols (RIP, OSPE, and BGP): Introduction, Intra- and Inter-Domain Routing, Distance Vector Routing, RIP, Link State Routing, OSPF, Path Vector Routing, BGP.

UNIT III
User Datagram Protocol (UDP): Introduction, User Datagram, UDP Services, UDPApplications, UDP Package.
Transmission Control Protocol (TCP): TCP Services, TCP Features, Segment, A TCPConnection.

UNIT IV
Windows in TCP: Flow Control, Error Control, Congestion Control,TCP Timers, Options,TCP Package.

UNIT V
Remote Login:TELNET and SSH:TELNET, Secure Shell (SSH). **File Transfer:** FTP, TFTP.
Internet Protocol Version 6: Introduction, Advantages of IPv6, IPv6 Addressing Format, IPv6 Header, IPv6 Extension Headers, ICMPv6.

TEXT BOOKS:
1. *TCP/IP Protocol Suite*, Fourth Edition,Behrouz A Forouzan- TATAMcGraw-Hill,1999.
2. *Introduction to Data Communications and Networking*, Wayne Tomasi, Pearson,2005.
REFERENCES:
1. *Internetworking with TCP/IP*, Second Edition, Douglas E. Comer, Stevens, PHI,1996.
2. *TCP/IP Network Administration,* Third Edition, Craig Hunt, O'Reilly,1992.

Mapping Course Outcomes with Programme outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3	3	2	-	-	-	-	3	-	-	-	3	3
CO2	2	2	3	1	-	-	-	-	-	1	-	-	3	1
CO3	3	2	3	2	-	-	-	1	-	-	-	-	2	2
CO4	2	1	2	3	-	-	-	-	2	1	-	-	1	2
CO5	3	3	3	2	-	-	-	2	-	-	-	-	2	1

14ACS44   CASE Tools and Computer Networks Lab   L   T   P   C

IV B.Tech-I Semester CSE   -   -   4   2

Outcomes:

After completion of the course the student will be able to

1. Understand the difference between object-oriented design approach and traditional approach for system analysis and design.

2. Apply Object oriented modeling concepts for system analysis and design in complex problem solving.

3. Evaluate the importance of modeling the way the UML represents an object oriented system using number of modeling views

4. Use Network programming concepts in distributed applications.

5. Able to analyze different networking protocols and its modeling concepts to evaluate network performances.

PART -A

Case Tools

Students has to draw the following diagrams using UML for an ATM system whose description is given below.

UML diagrams to be developed are:

1. Use Case Diagram.

2. Class Diagram.

3. Sequence Diagram.

4. Collaboration Diagram.

5. State Diagram

6. Activity Diagram.

7. Component Diagram

8. Deployment Diagram.

9. Test Design.

Description for an ATM System

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

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

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

1. A customer must be able to make a cash withdrawal from any suitable account linked to the card, in multiples of Rs. 100 or Rs. 500 or Rs. 1000. Approval must be obtained from the bank before cash is dispensed.

2. A customer must be able to make a deposit to any account linked to the card, consisting of cash and/or checks in an envelope. The customer will enter the amount of the deposit into the ATM, subject to manual verification when the envelope is removed from the machine by an operator. Approval must be obtained from the bank before physically accepting the envelope.

3. A customer must be able to make a transfer of money between any two accounts linked to the card.

4. A customer must be able to make a balance inquiry of any account linked to the card.

5. A customer must be able to abort a transaction in progress by pressing the Cancel key instead of responding to a request from the machine.

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

If the bank determines that the customer's PIN is invalid, the customer will be required to re-enter the PIN before a transaction can proceed. If the customer is unable to successfully

enter the PIN after three tries, the card will be permanently retained by the machine, and the customer will have to contact the bank to get it back.

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

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

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

PART -B

1. Implementation of the Data Link Layer Framing methods Character Stuffing and Bit stuffing.
2. Implementation of CRC polynomials - CRC 12, CRC 16 and CRC CCIP.
3. Implementation of Sliding Window Protocol Select Repeat ARQ.
4. Implementation of Dijkstra's algorithm for Shortest Path.
5. Implementation Link State Routing algorithm.
6. Program to obtain Routing table for each node using the Distance Vector Routing algorithm of a given subnet.
7. Implementation of encryption & decryption using DES algorithm.
8. Implementation of encryption & decryption mechanisms using RSA algorithm.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	1	-	-	-	3	-	-	-	2	3
CO2	-	2	-	1	-	-	2	-	-	-	2	-	3	2
CO3	-	-	3	-	-	-	-	-	2	-	1	-	2	3
CO4	2	-	-	3	-	-	2	-	3	-	-	-	3	2
CO5	2	-	-	3	-	-	-	-	-	-	2	-	3	2

14ACS45	**Cloud Computing and Software Testing Lab**	**L**	**T**	**P**	**C**
	(Common to CSE & IT)				
IV B.Tech-I Semester CSE		**-**	**-**	**4**	**2**

Outcomes:
After completion of the course the student will be able to

1. Understand the key dimensions of challenges of cloud computing.
2. Designing and implementing applications of cloud computing.
3. Able to analyze and implement practical cloud applications.
4. Understand the software development lifecycle in developing a software
5. Evaluating various testing tools

PART -A

1. Implement the following in Cloud Environment
a) Storing the data
b) Accessing the data
c) Updating the data
2. Working on google drive to make spread sheets and notes.
3. Installation and configuration of dropbox
4. Desktop synchronization with dropbox.
5. Business management using cloud services.
6. Cloud mail services.
7. Cloud applications for Family.

PART –B

1. Write programs in 'C' Language to demonstrate the working of the following constructs:

   i) do...while ii) while….do iii) if…else iv) switch v) for

2. "A program written in 'C' language for Matrix Multiplication fails" Introspect the causes for its failure and write down the possible reasons for its failure.

3. Take any system (e.g. ATM system) and study its system specifications and report the various bugs.

4. Write the test cases for any known application (e.g. Banking application)

5. Create a test plan document for any application (e.g. Library Management System)

6. Study of any testing tool (e.g. Win runner)

7. Study of any web testing tool (e.g. Selenium)

8. Study of any bug tracking tool (e.g. Bugzilla, bugbit)

9. Study of any test management tool (e.g. Test Director)

10. Study of any open source-testing tool (e.g. Test Link)

11. Take a mini project (e.g. University admission, Placement Portal) and executes it. During the Life cycle of the mini project create the various testing documents* and final test report document.

Mapping CO's with PO's & PSO's

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	-	-	-	2	2	-	-	-	-	2	1	2	3
CO2	-	3	-	2	-	1	-	-	-	-	-	-	2	3
CO3	-	2	-	2	-	1	-	-	1	-	-	-	2	3
CO4	-	-	2	-	-	1	-	2	-	-	-	-	3	-
CO5	-	-	2	2	-	-	-	-	-	-	-	-	1	2

14AMB02 **PROFESSIONAL ETHICS** L T P C
(Audit Course)
IV B.Tech-I Semester CSE 3 - - -

Outcomes:
After the completion of the course the students shall be able to

1. Understand human values and ethical standards to lead career accordingly.
2. Able to incorporate appropriate safety measures in designing systems.
3. Play the role of "responsible engineer" in the society.
4. Use natural resources in a sustainable manner and be conscious of environment.
5. Incorporate safety measures in engineering and product design aspects.

Unit-I Introduction 7

Professionalism-models of professionalism-Ethics-Types of ethics and morality-Engineering ethics-Positive and negative faces of ethics-Responsibility for safety-Technology pessimism and perils of technological optimism.

Unit-II Ethical Concepts 12

Human Values – morals-integrity-work ethics-Respect for others-respect for authority-conflicts of interests-moral dilemmas-honesty- courage-cooperation-valuing time-commitment-collegiality-loyalty-self -interest-Professional accountability-royalty-Problem of bribery, extortion and grease payments-problem of nepotism, excessive gifts-confidentiality-uses of ethical theories-Kohlberg`s Theory- Gilligan`s Theory-Ethical codes of IEEE and Institution of Engineers –

Unit III Engineers Role in Safety 10

Safety and risks-risk and costs-risk benefit analysis-Testing methods for safety-The promise of technology-Computer Technology Privacy-Social policy-Engineering standards-the standards care-Social and value dimensions of technology-communicating risk and public policy-occupational crime-professional rights and employee rights-whistle blowing`

Unit IV Roles of Engineers 10

Engineers asmanagers, Advisors, Consultants, Experts and witnesses- Engineers role in industry and society- models of professional roles-Theories about right action-paternalism-different business practices-Moral leadership- Cases - Bhopal gas tragedy, Nuclear power plant disasters-

Unit V Environmental Ethics 11

Global Issues-Multinational corporations-Living in harmony with NATURE-Holistic technology-Eco friendly production system-sustainable technology and development-weapon

development-Four orders of living, their interconnectedness-Eco system-Ozone depletion-,pollution

Text Books

1. Subramanian R, Professional Ethics,1st Edition, Oxford University Press. 2013.
2. Naagarazan , R.S., A Textbook on Professional Ethics and Human Values,1st edition, New Age International (P) Limited, Publishers New Delhi..2014

Reference Books

1. Fundamentals of Ethics for scientists and Engineers, Edmond G Seebauer and Robert L. Barry, 1st edition Oxford University Press, 2008.
2. Human Values and Professional Ethics, R. R. Gaur, R. Sangal and G. P. Bagaria, Eecel Books, New Delhi.2010.
3. Professional Ethics and Human Values – M.Govindrajan, S.Natarajan and V.S. Senthil Kumar, PHI Learning Pvt. Ltd. Delhi,2013.
4. Professional Ethics and Human Values: Prof. D.R. Kiran, TATA McGraw Hill Education.2007
5. "Engineering Ethics", Charles D Fleddermann ,Prentice Hall,2011.
6. "Engineering Ethics, Charles E Harris, Micheal J Rabins, Cengage Learning,1995

Mapping course outcomes with POs

Course outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1						✓						
CO2								✓				
CO3												
CO4										✓		
CO5												✓

14ACS55	**PROJECT WORK & SEMINAR**	**L**	**T**	**P**	**C**

IV B.Tech-I Semester CSE   **-**   **-**   **-**   **12**

CO1	**Demonstrate in – depth knowledge on the project topic.**
CO2	**Identify, analyze and formulate complex problem chosen for project work to attain substantiated conclusions.**
CO3	**Design solutions to the chosen project problem.**
CO4	**Undertake investigation of project problem to provide valid conclusions.**
CO5	**Use the appropriate techniques, resources and modern engineering tools necessary for project work.**
CO6	**Apply project results for sustainable development of the society.**
CO7	**Understand the impact of project results in the context of environmental Sustainability.**
CO8	**Understand professional and ethical responsibilities while executing the project work.**
CO9	**Function effectively as individual and a member in the project team.**
CO10	**Develop communication skills, both oral and written for preparing and presenting project work.**
CO11	**Demonstrate knowledge and understanding of cost and time analysis required for carrying out the project.**
CO12	**Engage in lifelong learning to improve knowledge and competence in the chosen area of the project.**