ACADEMIC REGULATIONS COURSE STRUCTURE AND DETAILED SYLLABUS

COMPUTER SCIENCE AND ENGINEERING

FOR

B.TECH. FOUR YEAR DEGREE PROGRAMME (Applicable for the batches admitted from 2015-2016)

I,II, III & IV-Year



VAAGDEVI COLLEGE OF ENGINEERING (Autonomous)

Bollikunta, Warangal-506 005 Telangana State, India

VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

Bollikunta, Warangal – 506 005. T.S. ***

Academic Regulations-2015 of B.Tech (Regular) Programme under Choice Based Credit System (CBCS)

(Effective for the students admitted into I-Year from the Academic year 2015-2016)

1. Eligibility for Admission:

- 1.1 Admission to the Bachelor of Technology (B.Tech) Programme shall be made to a qualified candidate on the basis of the merit rank obtained by him/her at an Entrance Test conducted by the Telangana State Government (TSEAMCET) OR the Jawaharlal Nehru Technological University OR on the basis of any other order of merit approved by the authorized University by the Government, subject to the Rules of Reservations in force on the Telangana State from time to time.
- 1.2 The medium of instruction for the entire B.Tech programme is in English language.

2. Branches of B.Tech Programme:

U	<u> </u>
Code	Branch
01	Civil Engineering
02	Electrical & Electronics Engineering
03	Mechanical Engineering
04	Electronics & Communication Engineering
05	Computer Science & Engineering

The following branches of B.Tech Programme are offered for study.

3. Credit Courses:

All subjects/ courses are to be registered by a student in a semester to earn credits. Credits shall be assigned to each subject/course in a L:T:P:C (Lecture Periods: Tutorial Periods: Practical Periods: Credits) structure, based on the following table.

	For I-Year-I/II	per Semester		
	Periods/Week	Credits	Periods/Week	Credits
Lecture	04	04	04	04
	03	03	03	03
	02	02	02	02
Tutorial	02	01	02	01
Practical	03	02	03	02
Drawing	02T & 04D	04	03	02
Mini Project	-	-	-	04
Comprehensive Viva Voce	-	-	-	04
Seminar	-	-	02	04
Major Project	-	-	15	08

4. Subject/Course Classification:

All the Subjects/Courses offered for the B.Tech are broadly classified as (a) Foundation Courses (FC), (b) Core Courses (CC) and (c) Elective Courses (EC).

- i. Foundation Courses (FC) are further categorized as
 - a. BSH (Basic Sciences, Humanities and Social Sciences),
 - b. ES (Engineering Sciences).
- ii. Core Courses (CC) and Elective Courses (EC) are categorized as PS (Professional Subjects), which are further subdivided as
 - a. PC (Professional/Departmental Core) subjects,
 - b. PE (Professional/Departmental Elective)
 - c. OE (Open Electives)
 - d. PW (Project Work)
- iii. Minor Courses (1 or 2 Credit Courses, belonging to BSH/ES/PC as per relevance); and
- iv. Mandatory Courses (MC-non-credit oriented).
- 4.1 Course Nomenclature:

The Curriculum Nomenclature or Course-Structure Grouping for B.Tech programme is given below:

S. No.	Broad Course Classification	Course Group/ Category	Course Description	Range of Credits
1.	BSH-Basic Sciences,Includes-Mathematics, Physic and Chemistry subjects and subjects related to Humanities Social SciencesFoundation Courses (FC)Social SciencesSocial SciencesSocial Sciences and Managem			20%-30%
2.		ES-Engineering Sciences	Includes fundamental engineering subjects	15%-20%
3.	Core Courses (CC)PC-Professional CoreIncludes core subjects related to the parent Discipline/ Department 			
4.		PE-Professional Electives	Includes Elective subjects related to the Parent Discipline/ Department/Branch of Engineering	10%-15%
5.	Elective Courses (EC)	OE-Open Electives	Elective subjects which include inter-disciplinary subjects or subjects in an area outside the parent Discipline/Department /Branch of Engineering	5%-20%
6.		PW-Project Work	B.Tech. Major Project Work	
7.	Core Courses	Mini-Project	Industrial Oriented Training/ Internship /Mini-Project	10%-15%
8.		Seminar	Seminar based on core contents related to parent Discipline/ Department/Branch of Engineering	
9.		Minor Courses	1 or 2 Credit Courses (Subset of BSH)	Included
10.		Mandatory Courses (MC)	Mandatory Courses (Non-Credit)	-
Tota	l Credits for B.T	ech. Programme		192 (100%)

5. Course Registration:

- 5.1 Each student, on admission shall be assigned to a Faculty Advisor/Counselor who shall advise her/him about the academic programmes and counsel on the choice of courses in consideration with the academic background and student's career objectives.
- 5.2 Faculty advisor shall be only from the engineering departments. With the advice and consent of the Faculty Advisor the student shall register for a set of courses he/she plans to take up for each Semester.
- 5.3 The student should meet the criteria for prerequisites to become eligible to register for that course.
- 5.4 A student shall be permitted to register the prescribed credits per semester with a variation of \pm 4 credits excluding Laboratories/Seminar/Project. However, registration for Repeat courses of previous semesters (Odd to Odd and Even to Even semesters) is allowed in excess of this limit. This is to encourage the average student to complete 1st year before going to 3rd year and/or complete 2nd year before going to 4th year.
- 5.5 If a student finds that he/she has registered for more courses than possible to study in a semester, he/she can drop one or more courses before the end of 3^{rd} week of the semester.
- 5.6 A student is allowed to register for more than 192 credits in completion of B.Tech programme. However, additional credits scored shall not be considered for award of division and also not considered for calculation of Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA). For such extra subject(s) registered a letter grade alone will be indicated in the Grade card as a performance measure.

6. Subjects / Courses to be offered:

- 6.1 Students shall have to register for the courses during the preparation and practical examinations of the previous semester. However for the first year, the students have to register for courses one week after the commencement of class work.
- 6.2 The maximum number of students to be registered in each course shall depend upon the physical facilities available.
- 6.3 The information on list of all the courses offered in every department specifying the credits, the prerequisites, a brief description of syllabus or list of topics and the time slot shall be made available to the student in time.
- 6.4 In any department, preference for registration shall be given to those students of that department for whom the course is a core course.
- 6.5 The registration for the inter departmental and/or open elective courses shall be on first come first served basis, provided the student fulfills prerequisites for that course, if any. The number of students to be registered shall be based on the class room and laboratory capacity. Every effort shall be made by the Department/Centre to accommodate as many students as possible.
- 6.6 More than one teacher may offer the same course in any semester.
- 6.7 No course shall be offered unless there is a minimum of 20 students or one third of the class strength specified.

7. Distribution and Weightage of Marks:

- 7.1 The Performance of a student in each semester shall be evaluated subject-wise with a maximum of 100 marks for theory and 100 marks for practical subjects. In addition, Industry oriented mini-project, Seminar, Comprehensive Viva-Voce and Major Project Work shall be evaluated for 100, 100, 100 and 200 marks respectively.
- 7.2 For theory subjects the distribution shall be 30 marks for Internal Evaluation and 70 marks for the End-Examination.
- 7.3 For theory subjects, during the semester there shall be 2 mid-term examinations (internal exams) and two assignments carrying 5 marks each.
- 7.4 Each mid-term examination of 90 minutes consists of Part-A (objective type) for 10 marks and Part-B (subjective paper) for 15 marks. Mid-term examination paper shall contain 5 questions out of which the student has to answer 3 questions of each 5 marks. First mid-term examination shall be conducted for first 2.5 units (50%) of syllabus and second mid-term examination shall be conducted for remaining 2.5 units (50%) of syllabus. Objective type may be with multiple choice questions, true/false, match type questions, fill in the blanks etc,
- 7.5 First Assignment should be submitted before the conduct of the first mid-term examination and the second Assignment should be submitted before the conduct of the second mid-term examination. The assignments shall be as specified by the concerned subject teacher.
- 7.6 The first mid-term examination marks and first assignment marks make first set of internal evaluation and second mid-term examination marks and second assignment marks make second set of internal evaluation marks, and the better of these two sets of marks shall be taken as the final mid-term marks secured by the student towards internal evaluation in that theory subject.
- 7.7 If a student is absent for any test/assignment, he is awarded zero marks for that test/assignment. However a candidate may be permitted on genuine grounds provided he has taken permission before the mid-term examinations from the Head of the Department. Moreover he has to apply for makeup examinations within a week after completion of mid-term examinations. A subcommittee will be constituted by the College Academic Council to look into such cases. The subcommittee constituted by the College Academic Council may conduct improvement for the internal examinations for theory subjects for the interested candidates.
- 7.8 For practical subjects there shall be a continuous internal evaluation during the semester for 30 sessional marks and 70 end examination marks. Out of the 30 sessional marks, day-to-day work in the laboratory shall be evaluated for 20 marks and internal examination for practical shall be evaluated for 10 marks conducted by the concerned laboratory teacher. The end examination shall be conducted with one external examiner and one internal examiner. The external examiner shall be appointed from the panel of examiners as recommended by the Board of Studies in respective Branches.
- 7.9 For the subject having design and/or drawing, (such as Engineering Graphics Engineering Drawing, Machine Drawing) and estimation, the distribution shall be 30 marks for internal evaluation (20 marks for day-to-day work and 10 marks for internal test) and 70 marks for end examination.

- 7.10 There shall be a mini project preferably suggested by the industry of their specialization, to be taken up during the vacation after III year II semester examination. However, the mini project and its report shall be evaluated in IV Year I-Semester. The mini project shall be submitted in a report form and should be presented before the committee, which shall be evaluated for 100 marks. The committee consists of an External Examiner, Head of the Department, Supervisor of mini project and a senior faculty member of the department. There shall be no internal marks for mini project.
- 7.11 There shall be a seminar presentation in IV year II semester. For the seminar, the student shall collect the information on a specialized topic and prepare a technical report, showing his understanding over the topic, and submit to the department, which shall be evaluated by the departmental committee consisting of Head of the Department, seminar supervisor and a senior faculty member. The seminar report and presentation shall be evaluated for 100 marks. There shall be no external examination for seminar.
- 7.12 There shall be comprehensive Viva-Voce in IV Year II-Semester. The Comprehensive Viva-Voce will be conducted by a Committee consisting of (i) Head of the Department (ii) two Senior Faculty Members of the Department. The Comprehensive Viva-Voce is aimed to assess the student's understanding in various subjects he/she studied during the B.Tech Programme. The Comprehensive Viva-Voce is evaluated for 100 marks by the Committee. There are no internal marks for the Comprehensive Viva-Voce.
- 7.13 Out of a total of 200 marks for the major project work, 60 marks shall be for internal evaluation and 140 marks for the end semester examination. The end semester examination (Viva-Voce) shall be conducted by a committee. The committee consists of an External Examiner, Head of the Department and the Project Supervisor. The internal evaluation shall be on the basis of two seminars given by each student on the topic of his major project.
- 7.14 The topics for industry oriented mini project, seminar and major project work shall be different from each other.

8. Attendance Requirements:

- 8.1 A student shall be eligible to appear for the end examinations if he acquires a minimum of 75% of aggregate attendance in all the subjects.
- 8.2 Condonation of shortage of attendance in each subject up to 10% on genuine grounds in each semester may be granted by the College Academic Council on recommendation by the Principal.
- 8.3 Shortage of attendance below 65% shall in no case be condoned.
- 8.4 Student falling short of attendance as specified above will be detained.
- 8.5 A student will not be promoted to the next semester unless he satisfies the attendance requirement of the present semester. They may seek-re-admission for that semester when offered next. They may seek re-registration for all those subjects registered in that semester in which he got detained, by seeking re-admission for that semester as and when offered; in case there are any professional electives and/or open electives, the same may also be re-registered if offered. However, if those electives are not offered in later semesters, then alternate electives may be chosen from the same set of elective subjects offered under that category.

A stipulated fee decided by the College Academic Council shall be payable towards condonation of shortage of attendance.

9. Academic Requirements:

The following academic requirements have to be fulfilled in addition to the attendance requirements mentioned in item no.08.

- 9.1 A student shall be deemed to have fulfilled the minimum academic requirements and earned the credits allotted to each theory or practical or design or drawing subject or project if he secures not less than 35% of marks in the end examination and a minimum of 40% of marks in the sum total of the internal evaluation and end examination taken together.
- 9.2 A student shall be promoted from I year to II year only if he fulfills the academic requirement of 24 credits out of 48 credits up to the end of I year from the relevant regular and supplementary examinations, whether he takes those examinations or not.
- 9.3 A student shall be promoted from II year to III year only if he fulfills the academic requirement of 43 credits out of 72 credits up to II year I semester or 57 credits out of 96 credits secured from all the examinations both regular and supplementary conducted up to end of II year II semester, whether or not the candidate takes the examinations and secures prescribed minimum attendance in II year II semester.
- 9.4 A student shall be promoted from III year to IV year only if he fulfills the academic requirements of 72 credits out of 120 credits secured from all the examinations both regular and supplementary conducted up to end of III Year I semester or 86 credits out of 144 credits secured from all the examinations both regular and supplementary conducted up to end of III year II semester, whether or not the candidate takes the examinations and secures prescribed minimum attendance in III year II semester.
- 9.5 A student should earn all credits with an exemption of 8 credits in elective subjects. The marks obtained in the subjects excluding the subjects exempted shall be considered for the final calculation of CGPA and SGPA.
- 9.6 Student who fails to earn credits with an exemption of eight credits as indicated in the Programme structure within eight academic years from the year of admission shall forfeit his seat in B.Tech. Programme unless an extension is given by College Academic Council to complete the Programme for a further period.
- 9.7 A student shall register for all subjects covering 192 credits as specified and listed (with the relevant course/subjects classifications as mentioned) in the course structure, put up all the attendance and academic requirements and securing a minimum of P Grade (Pass Grade) or above in each subject, and earn 184 credits securing Semester Grade Point Average (SGPA)≥4.5 in each semester, and Cumulative Grade Point Average (CGPA) ≥ 4.5 at the end of each successive semester, to successfully complete the B.Tech Programme.
- 9.8 When a student is detained due to shortage of attendance in any semester, he may be re-admitted into that semester, as and when offered, with the Academic Regulations of the batch into which he gets readmitted. However, no grade allotments of SGPA/CGPA calculations will be done for that entire semester in which he got detained.
- 9.9 When a student is detained due to lack of credits in any year, he may be readmitted in the next year, after fulfillment of the academic requirements, with the academic regulations of the batch into which he gets readmitted.

9.10 A student is eligible to appear in the end semester examination in any subject/course, but absent at it or failed (thereby failing to secure P Grade or above), may reappear for that subject/course at the supplementary examinations as and when conducted. In such cases, his internal marks assessed earlier for that subject/course will be carried over, and added to the marks to be obtained in the supplementary examination, for evaluating his performance in that subject.

10. Grading Procedure

- 10.1 Marks will be awarded to indicate the performance of each student in each Theory Subject, or Lab/Practicals or Seminar or Project or Mini-Project, Minor Course etc., based on the % of marks obtained in End examination, both taken together as specified in item no. 07 above and a corresponding Letter Grade shall be given.
- 10.2 As a measure of the student's performance, a 10-point Absolute Grading System using the following Letter Grades (UGC Guidelines) and corresponding percentage of marks shall be followed.

% of Marks obtained in a Course	Letter Grade	Grade Point		
>=80 to 100	O (Outstanding)	10		
>=70 to < 80	A+ (Excellent)	9		
>=60 to < 70	A (Very Good)	8		
>=55 to < 60	B+(Good)	7		
>=50 to < 55	B (Above Average)	6		
>=45 to < 50	C (Average)	5		
>=40 to < 45	P (Pass)	4		
Less than 40	F (Fail)	0		
0	Ab (Absent)	0		

Grades and Grade Points

- 10.3 A student obtaining 'F' Grade in any subject shall be considered 'failed' and will be required to reappear as 'Supplementary Candidate' in the End Semester Examination, as and when offered. In such cases, his Internal Marks in those Subject(s) will remain same as those he obtained earlier.
- 10.4 A Letter Grade does not imply any specific % of Marks.
- 10.5 In general, a student shall not be permitted to repeat any Subject/Course(s) only for the sake of 'Grade Improvement' or 'SGPA/CGPA Improvement'. However, he has to repeat all the Subjects/Courses pertaining to the Semester, when he is detained (as listed in Item No. 9.8-9.9).
- 10.6 A student earns Grade Point (G.P.) in each Subject/Course, on the basis of the Letter Grade obtained by him in that Subject/Course (excluding Mandatory non-credit Courses). Then the corresponding 'Credit Points' (C.P.) are computed by multiplying the Grade Point with Credit Points (C.P.) for that particular Subject/Course.

Credit points (C.P.) = Grade Points (G.P.) X Credits For a Course

- 10.7 The student passes the Subject/Course only when he gets G.P.≥4 (P Grade or above).
- 10.8 The Semester Grade Point Average (SGPA) is calculated by dividing the Sum of Credit Points (\sum C.P.) Secured from All Subjects/Courses registered in a

semester, by the total number of credits registered during that semester. SGPA is rounded off to Two Decimal Places. SGPA is thus computed as

$$\left\{\sum_{i=1}^{N} C_{i}G_{i}\right\} / \left\{\sum_{i=1}^{N} C_{i}\right\} \dots$$
 For each semester

Where "i" is the subject indicator index (taken into account all subjects in a semester), 'N' is the number of subjects 'REGISTERED' for the Semester (as specifically required and listed under the Course Structure of the parent Department), and C_i is the number of Credits allotted to the ith subject and G_i is represents the Grade Points (G.P.) corresponding to the Letter Grade awarded for that ith Subject.

10.9 The Cumulative Grade Point Average (CGPA) is a measure of the overall cumulative performance of a student over all Semesters considered for registration. The CGPA is the ratio of the Total Credit Points secured by a student in all registered Courses (with an exemption of 8 credits in electives subjects) in all semesters. CGPA is rounded off to two decimal places. CGPA, is thus computed from the I year, Second- Semester onwards, at the end of each semester, as per the formula.

$$\left\{\sum_{j=1}^{M} c_{j} G_{j}\right\} / \left\{\sum_{j=1}^{M} c_{j}\right\} \dots$$
 for all 'S' semesters registered

(i.e., upto and inclusive of 'S' semester, $S \ge 2$)

Where "M" is the total no. of Subjects (as specifically required and listed under the Course Structure of the parent Department) the student has 'REGISTERED' from the 1st Semester onwards upto and inclusive of the semester S (obviously M>N), 'j' is the subject indicator index takes into account all subjects from 1 Subject and G_i represents the Grade Points (GP) corresponding to the Letter Grade awarded for that jth subject. After registration and completion of I year I semester however, the SGPA of that Semester itself may be taken as the CGPA, as there are no cumulative effects.

- 10.10 For Merit Ranking or Comparison purpose or any other listing only the rounded off values CGPAs will be used.
- 10.11 For calculation listed in item no.10.6-10.10, performance in failed subjects/Courses (Securing F Grade) will also be taken into account and the credits of such Subjects/Courses will also be included in the multiplications and summations.

11. Passing Standards:

- 11.1 A student shall be declared successful or 'passed' in a Semester only when he gets a SGPA≥4.5 (at the end of that particular Semester); and a student shall be declared successful or 'passed' in the B.Tech Programme, only when he gets a CGPA≥4.5; subject to the condition that he secures a GP≥4 (P Grade or above) in every registered Subject/Course in each Semester (during the B.Tech Programme) for the Degree Award, as required.
- 11.2. In spite of securing P Grade or above in some (or all) Subjects/Courses in any Semester, if a Student receives a SGPA<4.5 and /or CGPA<4.5 at the end of such a Semester, then he may be allowed on the following specific

recommendations of the Head of the Department and subsequent approval from the Principal.

- i. to go into the next subsequent Semester (Subject to fulfilling all other attendance and academic requirements as listed under items no.8-9);
- ii. to 'improve his SGPA of such a Semester (and hence CGPA to 4.5 or above', by reappearing for one or more as per student's choice or the same subject (s)/courses(s) in which he has secured P Grade (s) in that semester, at the supplementary examinations to be held in the next subsequent semester(s).

In such cases, his internal marks in those subject(s) will remain same as those he obtained earlier. The newly secured letter grades will be recorded and taken into account for calculation of SGPA and CGPA, only if there is an improvement.

- 11.3. A Student shall be declared successful or 'passed' in any Mandatory (noncredit) Subject /Course, if he secures a 'Satisfactory Participation Certificate' for that course.
- 11.4 After the Completion of each semester, a Grade Card or Grade Sheet (or Transcript) shall be issued to all the Registered Students of that Semester, indicating the Letter Grades and Credits earned. It will show the details of the Courses Registered (Course Code, Title, Number of Credits, Grade earned etc.), credits earned, SGPA and CGPA.

12. Declaration of Results:

- 12.1 Computation of SGPA and CGPA are done using the procedure listed in item no.10.6 10.10.
- 12.2 For Final % of Marks equivalent to the computed final CGPA, the following formula may be used:

% of Marks = (Final CGPA - 0.5) X 10

13. Award of Degree:

- 13.1 A student will be declared eligible for the award of the B.Tech. Degree if he fulfills the following academic regulations:
 - i. Pursued a course of study for not less than four academic years and not more than eight academic years.
 - ii. Register for 192 credits and secure 184 credits with an exemption of 8 credits in elective subjects only.
 - iii. Secures Cumulative Grade Point Average (CGPA) \geq 4.5.
 - iv. Students, who fail to fulfill all the academic requirements for the award of the degree within eight academic years from the year of their admission, shall forfeit their seat in B.Tech course unless extension is granted for a further period by College Academic Council (CAC) to complete the course.
- 13.2 A student who qualifies for the Award of the Degree as listed in **item 13.1** shall be placed in the following classes.

Award of Division:

S.No	Division	CGPA
1	First Class with Distinction	≥7.5
2	First Class	\geq 6.5 but less than 7.5
3	Second Class	\geq 5.5 but less than 6.5
4	Pass Class	\geq 4.5 but less than 5.5

13.3 A student with final CGPA (at the end of the Course) < 4.5 will not be eligible for the Award of the Degree.

14. Withholding of Results:

If the student has not paid fees to University/College at any stage or has pending dues against his name due to any reason whatsoever, or if any case of indiscipline is pending against him, the result of the student may be withheld, and he will not be allowed to go into the next higher semester. The Award or issue of the Degree may also be with held in such cases.

15. Transitory Regulations:

Student who has discontinued for any reason, or has been detained for want of attendance or lack of required credits as specified, or who has failed after having undergone the degree programme, may be considered eligible for readmission to the same subject/course (or equivalent subjects/courses, as the case may be), and same Professional Electives/Open Electives (or from set/category of electives or equivalents suggested, as the case may be) as and when they are offered (within the time-frame of 8 years from the date of commencement of his I year I Semester).

16. Programme Pattern:

- i. The entire course of study is of four academic years. All years shall be on semester pattern i.e two semesters per year. For each semester there shall be a minimum of 90 instruction days.
- ii. A student is eligible to appear for the end examination in a subject, but absent at it or has failed in the end examination may appear for that subject at the supplementary examination.
- iii. There shall be no branch transfers after the completion of admission process.

17. General:

- i. Where the words "he", "him", "his", occur in the regulations, they include "she", "her", "hers".
- ii. Where the words "subject" or "subjects", occur in these regulations, they also imply "course" or "courses".
- iii. The academic regulations should be read as a whole for the purpose of any interpretation.
- iv. In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Chairman, College Academic Council is final.
- Note: The College may change or amend the academic regulations or syllabi at any time and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the College Authorities.

Academic Regulations for B.Tech. (Lateral Entry Scheme)

(Effective for the students getting admitted into II-Year from the academic year 2016-2017 and on wards)

- 1. The students have to acquire all credits from II to IV year of B.Tech. Program (Regular) for the award of the degree. Register all credits and secure all credits with the exemption of 8 credits in elective subjects.
- 2. Student, who fails to fulfill the requirements for the award of the degree in six consecutive academic years from the year of admission, shall forfeit his seat unless extension is granted by the College Academic Council to complete the Programme for a further period.
- 3. The same attendance regulations are to be adopted as that of B.Tech. (Regular).

4. Promotion Rule:

- i. A student shall be promoted from II year to III year only if he fulfills the academic requirement of 14 credits out of 24 credits up to II year I semester or 29 credits out of 48 credits secured from all the examinations both regular and supplementary conducted up to end of II year II semester, whether or not the candidate takes the examinations and secures prescribed minimum attendance in II year II semester.
- ii. A student shall be promoted from III year to IV year only if he fulfills the academic requirements of 43 credits out of 72 credits secured from all the examinations both regular and supplementary conducted up to end of III Year I semester or 57 credits out of 96 credits secured from all the examinations both regular and supplementary conducted up to end of III year II semester, whether or not the candidate takes the examinations and secures prescribed minimum attendance in III year II semester.
- 5. All other regulations as applicable for B.Tech. IV year degree course (Regular) will hold good for B.Tech. (Lateral Entry Scheme)
 - Note: The College may change or amend the academic regulations or syllabi at any time and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the College Authorities.

MALPRACTICES RULES

DISCIPLINARY ACTION FOR / IMPROPER CONDUCT IN EXAMINATIONS

	Nature of Malpractices/Improper Conduct	Punishment
	<i>If the candidate:</i>	
1. (a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, Cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which he is appearing but has not made use of (material shall include any marks on the body of the candidate which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other candidate orally or by any other body language methods or communicates through cell phones with any candidate or persons in or outside the exam hall in respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that subject only of all the candidates involved. In case of an outsider, he will be handed over to the police and a case is registered against him.
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or 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 the subjects of that Semester. The Hall Ticket of the candidate is to be cancelled.
3.	Impersonates any other candidate in connection with the examination.	The candidate who has impersonated shall be expelled from examination hall. The candidate is also debarred and forfeits the seat. The performance of the original candidate, who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of

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

	any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the College campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.	
7.	Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
8.	Possess any lethal weapon or 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 the seat.
9.	If student of the college, who is not a candidate for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	Student of the colleges expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat. Person(s) who do not belong to the College will be handed over to police and, a police case will be registered

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

VAAGDEVI COLLEGE OF ENGINEERING AUTONOMOUS COMPUTER SCIENCE & ENGINEERING

COURSE STRUCTURE

(Applicable from the batch admitted from 2015-16 onwards)

Ι	I YEAR I SEMESTER					STER
S No	CODE	Subject	L	Т	Р	Credits
1	A9001	Mathematics-I	4	0	0	4
2	A9007	Applied Physics	4	0	0	4
3	A9012	English	3	0	0	3
4	A9303	Engineering Graphics	2	0	4	4
5	A9501	Problem Solving and Computer programming	4	0	0	4
6	A9008	Applied Physics Lab	0	0	3	2
7	A9502	Problem Solving and Computer programming Lab	0	0	3	2
8	A9503	Information Technology workshop	0	0	3	2
		Total Credits	17	0	13	25

I YEAR

II SEMESTER

S No	CODE	Subject	L	Т	Р	Credits
1	A9002	Mathematics-II	3	1	0	4
2	A9203	Basic Electrical & Electronics Engineering	3	1	0	4
3	A9011	Engineering Chemistry	3	0	0	3
4	A9506	Data Structures through C++	4	0	0	4
5	A9013	English Language Communication Skills	0	0	3	2
6	A9204	Basic Electrical & Electronics Engineering Lab	0	0	3	2
7	A9306	Engineering Workshop	0	0	3	2
8	A9507	Data Structures through C++ Lab	0	0	3	2
		Total Credits	13	2	12	23

II YEA	R		I SEM	IEST	ER	
S No	Code	Subject	L	Т	Р	Credits
1	A9510	Mathematical Foundations of Computer Science	4	0	0	4
2	A9450	Digital Logic Design & Micro Processors	3	0	0	3
3	A9511	Database Management Systems	4	0	0	4
4	A9512	Object Oriented Programming Through Java	4	0	0	4
5	A9513	Computer Organization & Architecture	3	1	0	3
6	A9452	Digital Logic Design & Micro Processor Lab	0	0	3	2
7	A9514	Database Management Systems Lab	0	0	3	2
8	A9515	Object Oriented Programming Through Java Lab	0	0	3	2
9	A9014	Environmental studies	2	0	0	0
		Total	20	1	9	24

II YEAR

II SEMESTER

S No	Code	Subject	L	Т	Р	Credits
1	A9016	Statistical Methods for Engineers	3	0	0	3
2	A9516	Design and Analysis of Algorithms	3	1	0	3
3	A9517	Formal Languages and Automata Theory	4	0	0	4
4	A9518	Operating Systems	4	0	0	4
5	A9519	Advanced Java Tools	4	0	0	4
6	A9520	Advanced Java Tools Lab	0	0	3	2
7	A9521	Operating Systems Lab	0	0	3	2
8	A9522	Web Technologies Lab—I	0	0	3	2
9	A9019	Gender Sensitization	2	0	0	0
		Total	20	1	9	24

III YEAR

I SEMESTER

No	Group	Code	Subject	L	Т	Р	Credits
1	CSE	A9523	Data Communications & Computer Networks31		0	3	
2	CSE	A9524	Compiler Design	4 0		0	4
3	CSE	A9525	Software Engineering	4	0	0	4
4	CSE	A9526	Data Warehousing and Data Mining	3	1	0	3
5	CSE	A9559	Object Oriented Analysis and Design	3	1	0	3
6	Open Elective-I	A9626 A9121 A9621 A9022	 Intellectual Property Rights Disaster Management Managerial Economics and Financial Analysis Human Values and Professional Ethics 	3	0	0	3
7	CSE	A9528	Computer Networks and Compiler Design Lab	0	0	3	2
8	CSE	A9529	Case Tools and Data mining Lab		0	3	2
	Hrs:29		Total	20	3	6	24

III YEAR

II SEMESTER

S No	Group	Code	Subject 1		Т	Р	Credits
1	CSE	A9530	Network Programming	4	4 1		4
2	CSE	A9531	Software Testing41Methodology4		0	4	
3	CSE	A9532	Mobile Computing	4	1	0	4
		A9533	1. Advanced DBMS				
	CSE Electives-I	A9534	2. Design Patterns	2	0	0	2
4		A9535	3. Embedded Systems	3	0	0	5
		A9527	4.Principles of Programming				
			Languages				
		A9122	1. Air pollution Control*				
_	Inter Department	A9426	2. Biomedical				
5	Elective		Instrumentation**	3	0	0	3
		A9433	3.Digital Image Processing**				
		A9622	4.Management Science***				
6	BSH	A9024	Technical Communications Skills Lab	0 0		3	2
7	CSE	A9536	Network Programming Lab		0	3	2
8	CSE	A9537	Software Testing Lab		0	3	2
	Hrs:30		Total	18	3	9	24

The subject offering branch is indicated by "*'s" in the suffix.

Civil Engineering indicated by *. Electronics and Communications Engineering

indicated by **. MBA department indicated by ***.

	V YEAR					l	SEMESTER
S No	Group	Code	Subject	L	Т	Р	Credits
1	CSE	A9538	Network Security & Cryptography	3 1 0		0	3
2	CSE	A9539	Web Services	4 0		0	4
		A9540	1. Cloud Computing				
		A9541	2. Information Systems and Auditing				4
		A9542	3. Distributed Databases				
3	CSE Elective-II	A9543	4.Artificial Intelligence	4	4 0	0	
		A9562	5.Multimedia & Rich Internet				
		10500	Applications				
		<mark>A9563</mark>	6. Scripting Languages				
	CSE Elective-III	A9544	1. Soft Computing				4
		A9545	2. Business Intelligence and Big				
			Data	4 0			
4		A9546	3. Software Project Management		0	0	
		A9547	4. Computer Graphics				
		A9560	5.Distributed Systems				
		A9561	6. Database Security				
		A9330	1. Nano Technology *				
	Open Elective-II	Open Elective-II A9624 ^{2.}	2. Entrepreneurship	3 0			
5			Development**		0	3	
		A9424	3. Telecommunications &				
			Switching Networks***				
6	CSE	A9548	Industry Oriented Mini Project	0	0	0	2
7	CSE	A9549	Network Security &	0	0	3	2
,		10550	Cryptography Lab				2
8	CSE	A9550	Web Technologies Lab-II	0	0	3	2
	Hrs:25		Total	18	1	6	24

IV VEAD

The subject offering branch is indicated by "*'s" in the suffix.

Mechanical Engineering indicated by *. Department of MBA indicated by *.

Electronics and Communications Engineering indicated by ***.

IV YEAR					II SEMESTER		
S No	Group	Code	Subject	L	Т	Р	Credits
1	CSE	A9551	Internet of Things	4	0	0	4
		A9552	1. Internet Technologies				
	CSE Elective- IV	A9553	2. Service Oriented Architecture				
		A9554	3. Information Retrieval Systems	4 (0	0	4
2		A9555	4. Computer Forensics				
		<mark>A9563</mark>	5. Machine Learning				
		A9564	6. Ad hoc Sensor Networks				
3	CSE	A9556	Seminar	0	0	3	4
4	CSE	A9557	Comprehensive Viva	0	0	0	4
5	CSE	A9558	Major Project	0	0	15	8
	Hrs:26		Total	8	0	18	24

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9001) MATHEMATICS-I

I Yr. I Sem: Common to all branches

L	Т	Р	С
4	0	0	4

Course Objective:

The main aim of teaching Engineering Mathematics-I is to emphasize the relevance of fundamentals and applications of Mathematics in Engineering field. Mathematics is the basic of all branches of modern business and science and technology. It deals with using the constructive results of mathematics to solve a problem in applied science or Engineering field. It helps the students in choosing a technique that improve the quality and efficiency of actual computation.

UNIT-I:

Ordinary differential equations of first order:

Formation of differential equations, solution of differential equations of First order and First degree. Exact differential equations, Non exact differential equations, Bernouli's Differential equations, Orthogonal Trajectories.

UNIT-II:

Ordinary linear differential equations of higher order:

Homogenous, Non Homogenous linear differential equations of higher order of the form e^{ax} , Sinax, Cosax, Polynomials in x, $e^{ax} v(x)$, $x^k v(x)$, Method of variation of parameters.

UNIT – III:

Differential calculus:

Rolle's Mean Value theorem, Lagrange's Mean Value Theorem, Cauchy's Mean Value Theorem, Taylor's Theorem (without proof). Jacobian, Maxima and Minima of functions of two variables.

UNIT – IV:

Improper integration and multiple integrals:

Multiple integrals - Double & Triple integrals. Change of variables and Change of order of integration.

UNIT - V:

Laplace Transformation:

Laplace transform - Inverse Laplace transform - properties of Laplace transforms - Laplace transforms of unit step function, impulse function & periodic function, convolution theorem (without proof), applications of ordinary differential equations.

Course Outcomes: After the completion of this course the students should be able to :

1. Identify order and linearity of differential equation for classical problems

2. Develop different models for first order and higher order differential equations manually and technological based methods.

3. Judge the consequences and geometrical approach to the mean value theorems and engineering applications to mathematical problems

4. Formulate, test different geometries using integral form to compute areas and volumes.

5. Deduce general solution for initial and boundary value problems using Laplace transform technique and developing advanced aspects in Laplace transform, Adopt Laplace transform techniques to solve second order ordinary differential equations

Recommended Text Books:

1. R. K. Jain and S. R. K. Iyengar: Advanced Engineering Mathematics, Narosa Publishing House, 2008

2. B. S. Grewal: Higher Engineering Mathematics, Khanna Publications, 2009.

Reference Book:

- 1. Erwyn Kreyszig : Advanced Engineering Mathematics, John Wiley and Sons, 8th Edition.
- 2. T. K. V. Iyengar: Engineering Mathematics-I, S. Chand and Company.
- 3. A textbook of Engineering Mathematics Vol-I by P.B.Bhaskara Rao, S.K.V.S. Rama chary.
- 4. A textbook of Engineering Mathematics Vol-I by C. Shankaraiah, VGS Book Link.

VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A9007) APPLIED PHYSICS

I year B. Tech. I-SEM, ECE, CSE & EEE

L T P C 4 0 0 4

Objectives:

• Physics is the mother of engineering and technology. Without the applications of concepts of physics there can be no technological developments. Hence physics is the foundation on which stands the elaborate structure of technology. The main purpose of teaching physics to engineering under graduates is to acquaint the budding engineers with a thread of development. The aim of Physics is to provide an adequate exposure and develop insight about the basic principles of physics along with the engineering applications. The acquaintance of basic physics principles would help the engineers to understand the tools and techniques used in the industry and provide the necessary foundations for inculcating innovative approaches.

UNIT-I:

Elements of Statistical Mechanics & Quantum Mechanics

Elements of Statistical Mechanics: Phase space, Ensembles & their types, Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics (qualitative treatment), Density of states, Fermi level.

Quantum Mechanics: Waves and Particles, de Broglie hypothesis, Davisson and Germer's experiment, Heisenberg's uncertainty principle, Schrodinger time independent wave equation, Physical significance of the wave function, Particle in one dimensional potential box (discussion of results only).

UNIT-II:

Electron theory of metals & Band theory of solids.

Electron theory of metals: The classical free electron theory of metals, Electrical conductivity, Mean free path, Relaxation time and Drift velocity, Successes and drawbacks of free electron theory.

Band theory of solids: Electrons in a periodic potential, Bloch theorem, Kronig-Penny model (Qualitative treatment), E-k, curve. Origin of band formation in solids, Classification of materials into conductors, semi conductors and insulators.

UNIT-III:

SEMI-CONDUCTOR PHYSICS & SEMI-CONDUCTOR DEVICES.

Semi-conductor Physics: Calculation of carrier concentration in intrinsic semiconductors and extrinsic semi conductors (N type), Direct and Indirect band gap semi conductors, Hall effect and its applications.

Semi-conductor devices: Energy diagram of P-N diode, I-V characteristics of P-N junction diode, LED, Photo diode & solar cell.

UNIT-IV: DIELECTRICS & MAGNETIC MATERIALS

Dielectrics: Electric dipoles, Dipole moment, Polarizability, Electric susceptibility, Displacement vector, Electronic, Ionic and Orientational polarizations and calculations of electronic and ionic polarizabilities, Internal fields in solids, Piezo-electricity, Ferro electricity & Pyro electricity (elements only).

Magnetic Materials: Origin of magnetic moment, Bohr magneton, Classification of dia, para and ferro magnetic materials on the basis of magnetic moment, Hysteresis curve, Soft and hard magnetic materials, Properties of anti-ferro and ferri magnetic materials & their applications in engineering.

UNIT-V:

LASERS & FIBRE OPTICS

Lasers: Characteristics of lasers, Spontaneous and stimulated emission of radiation, Einstein's coefficients (qualitative treatment), Population inversion, Lasing action, Semi conductor diode laser (homo-junction), Applications of lasers in engineering and medicine. Fibre Optics: Acceptance angle and acceptance cone, Numerical aperture, Step index and graded index fibres, Applications of optical fibres in communication system.

Course Outcomes:

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

- **1.** Expertise statistical mechanics and quantum mechanics and apply for new innovations.
- **2.** Develop classical free electron theory of metals and its successes along with its drawbacks. Interpret to calculate number of charge carriers in a semi conductor.
- **3.** Compare dielectrics and magnetic materials along with their engineering applications
- **4.** Compare different types of lasers, their construction and applications in engineering field.
- 5. Understand fundamentals of optical fibres and apply their applications.

Recommended Text Books:

- 1. Applied Physics for Engineers P. Madhusudana Rao, Academic Publishing Company, 2013.
- 2. Engineering Physics, P.K Palanisamy, Scitech Publications.
- 3. A Text Book of Engg Physics M. N. Avadhanulu & P. G. Khsirsagar, S. Chand & Co. (for acoustics).

Reference Books:

- 1. Engineering Physics, V. Rajandran, Tat Mc. Graw Hill Book Publishers.
- 2. Solid State Physics M.Armugam, Anuradha Publications.
- 3. Introduction to Solid State Physics, C. Kittel (Wiley Eastern).
- 4. Solid State Physics, A.J. Dekker (Macmillan).
- 5. Applied Physics, Mani Naidu Pearson Edition.
- 6. Engineering Physics, Dr. K. Bhattacharya, A. Bhaskaran, Oxford Press.
- 7. Engineering Physics, K. Vijay Kumar, T. Sreekanth, S. Chand Publications.
- 8. Engineering Physics, D.K. Bhattacharya, Poonam Tandon, Oxford University Press

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9012) ENGLISH

I year B. Tech. I Sem common to all branches

L T P C 3 0 0 3

Introduction:

In view of the growing importance of English as a tool for global communication and the consequent emphasis on training students to acquire communicative competence, the syllabus has been designed to develop linguistic and communicative competencies of Engineering students. The prescribed books and the exercises are meant to serve broadly as students' handbooks.

In the English classes, the focus should be on the skills of reading, writing, listening and speaking and for this the teachers should use the text prescribed for detailed study. For example, the students should be encouraged to read the texts/selected paragraphs silently. The teachers can ask comprehension questions to stimulate discussion and based on the discussions students can be made to write short paragraphs/essays etc.

The text for non-detailed study is for extensive reading/reading for pleasure. Hence, it is suggested that they read it on their own the topics selected for discussion in the class. The time should be utilized for working out the exercises given after each section, as also for supplementing the exercises with authentic materials of a similar kind for example, from newspaper articles, advertisements, promotional material etc.. However, the stress in this syllabus is on skill development, fostering ideas and practice of language skills.

Course Objectives:

- To improve the language proficiency of the students in English with emphasis on LSRW skills.
- To equip the students to study academic subjects more effectively using the theoretical and practical components of the English syllabus.
- To develop the study skills and communication skills in formal and informal situations.

SYLLABUS: Listening Skills:

Objectives

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

Students should be given practice in listening to the sounds of the language to be able to recognise them, to distinguish between them to mark stress and recognise and use the right intonation in sentences.

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

Speaking Skills:

Objectives

- To make students aware of the role of speaking in English and its contribution to their success.
- To enable students to express themselves fluently and appropriately in social and professional contexts.
- Oral practice
- Describing objects/situations/people
- Role play Individual/Group activities (Using exercises from all the six units of the prescribed text: *Skills Annexe: Functional English for Success.*)
- Just A Minute(JAM) Sessions.

Reading Skills:

Objectives

To develop an awareness in the students about the significance of silent reading and comprehension.

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

NOTE : *The students will be trained in reading skills using the prescribed text for detailed study.*

They will be examined in reading and answering questions using 'unseen' passages which may be taken from authentic texts, such as magazines/newspaper articles.

Writing Skills:

Objectives:

- To develop an awareness in the students about writing as an exact and formal skill
- To equip them with the components of different forms of writing, beginning with the lower order ones. Writing sentences
- Use of appropriate vocabulary
- Paragraph writing
- Coherence and cohesiveness
- Narration / description
- Note Making
- Formal and informal letter writing
- Describing graphs using expressions of comparison.

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Equip the components of different forms of communication skills.
- 2. Guess meanings of words from context and grasp the effective vocabulary.
- 3. Recall the enrichment of comprehension and fluency will be adaptable.
- 4. Gain confidence in using language in varied situations.
- 5. Develop and Communicate by stating main ideas relevantly and coherently in speaking & amp; writing

TEXTBOOKS PRESCRIBED:

For Detailed study

- First Textbook entitled "*Skills Annexe -Functional English for Success*", Published by Orient Black Swan, Hyderabad
- The Second Textbook entitled "*Epitome of Wisdom*", published by Maruthi Publications, Hyderabad.

The course content and study material is divided into Five Units.

Unit – I:

Importance of communication in English-Globalisation-changing trends-barriers to communication

Unit –II:

- Chapter entitled '*Wit and Humour*' from 'Skills Annexe' -Functional English to Success Published by Orient Black Swan, Hyderabad
- Chapter entitled '*Mokshagundam Visvesvaraya*' from "*Epitome of Wisdom*", Published by Maruthi Publications, Hyderabad.

and

G-Types of Nouns and Pronouns

V- Homonyms, homophones synonyms, antonyms

Unit –III

- Chapter entitled "Advances in Science and Technology" from "Skills Annexe Functional English for Success" Published by Orient Black Swan, Hyderabad.
- Chapter entitled '*Three days To See*' from "*Epitome of Wisdom*", Published by Maruthi Publications, Hyderabad.

G- Verb forms

and

V- Noun, verb, adjective and adverb

Unit –IV

- Chapter entitled '*Risk Management*' from "*Skills Annexe -Functional English for Success*" Published by Orient Black Swan, Hyderabad.
- Chapter entitled '*Leela's Friend*' by R.K. Narayan from "*Epitome of Wisdom*", Published by Maruthi Publications, Hyderabad.

and

G – Present tense

V – Synonyms and Antonyms

Unit –V

- Chapter entitled '*Human Values and Professional Ethics*' from "*Skills Annexe Functional English for Success*" Published by Orient Black Swan, Hyderabad.
- Chapter entitled '*The Last Leaf*' from "*Epitome of Wisdom*", Published by Maruthi Publications, Hyderabad.

and

G- Past and future tenses

V- Vocabulary - idioms and Phrasal verbs

* Exercises from the texts not prescribed shall also be used for classroom tasks.

Suggested Reading:

- 1. *Contemporary English Grammar Structures and Composition* by David Green, MacMillan Publishers, New Delhi. 2010.
- 2. Innovate with English: A Course in English for Engineering Students, edited by T Samson, Foundation Books.
- 3. English for Employability-K. Purushotham, Orient Blackswan (with CD).
- 4. Listening & Speaking Skills Book I and Book II, Cambridge Publishers (with CD's).
- 5. English Grammar Practice, Raj N Bakshi, Orient Longman.
- 6. Technical Communication by Daniel Riordan. 2011. Cengage Publications. New Delhi.
- 7. Effective English, edited by E Suresh Kumar, A RamaKrishna Rao, P Sreehari, Published by Pearson
- 8. Handbook of English Grammar and Usage, Mark Lester and Larry Beason, Tata Mc Graw –Hill.
- 9. Spoken English, R.K. Bansal & JB Harrison, Orient Longman.
- 10. Technical Communication, Meenakshi Raman, Oxford University Press
- 11. Objective English Edgar Thorpe & Showick Thorpe, Pearson Education
- 12. Grammar Games, Renuvolcuri Mario, Cambridge University Press.
- 13. Everyday Dialogues in English, Robert J. Dixson, Prentice Hall India Pvt Ltd.,
- 14. ABC of Common Errors Nigel D Turton, Mac Millan Publishers.
- 15. Basic Vocabulary Edgar Thorpe & Showick Thorpe, Pearson Education
- 16. Effective Technical Communication, M Ashraf Rizvi, Tata Mc Graw-Hill.
- 17. An Interactive Grammar of Modern English, Shivendra K. Verma and Hemlatha Nagarajan, Frank Bros & CO
- 18. A Communicative Grammar of English, Geoffrey Leech, Jan Svartvik, Pearson Education
- 19. Enrich your English, Thakur K B P Sinha, Vijay Nicole Imprints Pvt Ltd.,
- 20. A Grammar Book for You And I, C. Edward Good, MacMillan Publishers.
- 21. Practical English Usage (ELBS) Michael Swan.
- 22. Examine Your English Margaret Maison.
- 23. The Parts of Speech: Prof. P. Satyanarayana, P.C. Ray Publications, Warangal, 2003.
- 24. The Tense: Prof. P. Satyanarayana, P.C. Ray Publications, Warangal 2003

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9303) ENGINEERING GRAPHICS

I Year-I-Sem: EEE, CSE II-Sem: ECE

COURSE OBJECSTIVES:

- 1. Use various engineering drawing instruments.
- 2. Learn the basic conventions of drawings, dimensioning, scales and conic sections like ellipse, parabola and hyperbola.
- 3. Learn projections of points, lines viewed in different positions
- 4. Learn projections of plane surfaces and solids viewed in different positions.
- 5. Gain knowledge of sections of solids and their usage in real time applications.

UNIT - I

INTRODUCTION TO ENGINEERING DRAWING: Principles of Engineering Drawing and their significance-Drawing Instruments and their use. Principle of Dimensioning. Geometrical Constructions of regular polygons.

Conic Sections: Ellipse, parabola & Hyperbola (General Method only)

Cycloidal Curves: Cycloid, Epi – cycloid & hypo – cycloid.

Involutes: Circle, square, pentagon & hexagon.

Scales: Plain scale, Diagonal scale & Vernier scale.

UNIT-II

ORTHOGRAPHIC PROJECTIONS IN FIRST ANGLE PROJECTION:

Principles of Orthographic Projections – Conventions – First and Third Angle Projections **PROJECTIONS OF PLANES**: Ortho Graphic Projections of Regular Planes-Surface inclined to both the principal planes.

PROJECTIONS OF RIGHT REGUALR SOLIDS: Prism, Cylinder, Pyramid, Cone -Axis inclined to both the principal planes.

UNIT-III

SECTIONS AND SECTIONAL VIEWS: Right Regular Solids – Prism, Cylinder, Pyramid, Cone & Auxiliary views.

DEVELOPMENT OF SURFACES: Right Regular Solids – Prism, Cylinder, Pyramid, Cone and their parts.

UNIT-IV

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

UNIT-V

TRANSFORMATION OF PROJECTIONS: Conversion of Isometric Views to Orthographic Views & Vice versa.

Course Outcomes: After the completion of this course the students should be able to :

L T P C 2 0 4 4

- 1. Understand the development of surfaces.
- 2. Indicate the intersection of solids and their Applications.
- 3. Associate the isometric and orthographic Projections.
- 4. Gain knowledge of intersections of solids and their usage in real time applications.
- 5. Apply the applications of the ideas in fabrication of machne parts.

TEXT BOOKS

- 1. Engineering Drawing. N.D.Bhatt
- 2. Engineering Drawing Besant, Agrawal, TMH

REFRENCES:

- 1. Engineering Graphics. P I Varghese Tata McGraw Hill Education Pvt. Ltd.
- 2. Engineering drawing P.J.Shan S.Chand Publihers.
- 3. Engineering Drawing Johle/Tata Macgraw Hill Book Publishers.
- 4. Engineering Drawing M.B.Shah and B.C.Rana, pearson.
- 5. Engineering Drawing by K.Venu Gopal & V.Prabu Raja New Age publications.
- 6. Engineering Drawing by John. PHL Learning Publisher.

VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A9501) PROBLEM SOLVING & COMPUTER PROGRAMMING

IYear I-Sem: ECE & CSE II-Sem: EEE

L/T/P C 4/0 /0 4

Objectives:

To provide the necessary knowledge on general engineering problem solving methodologies and to provide necessary foundations for step by step computer program development and to present the basic concepts in C programming language and to prepare the students to write modular and readable C Programs. Also the Course introduces the essential concepts like abstract data types, user defined data types, to analyze the performance of algorithms and how to use such knowledge for later processing with the help of files and aims to train the students to write working programs to solve problems.

Syllabus Content

Unit-1 (20%)

Meaning of Problem Solving – Polya's 4 Steps: Understanding the problem, Devising a plan, Carrying out the Plan, Looking back–Examples. (5%)

Introduction to programming, Algorithms and Flowcharts. Basics of C Language. Input and Output. Elementary problems and program writing. (15%)

Unit-2 (20%)

Control Statements in C: Conditional Execution and Selection, Iterative and Repetitive Execution, Termination. Nested Loops.

Arrays and Strings: Working with One-Dimensional Arrays, String Manipulation. Working with Multidimensional Arrays, Manipulating String Arrays.

Functions: Prototypes and Definition, Working with Functions, Passing Parameters To Functions. Introduction to Recursion. Scope and Storage Classes.

Unit-3 (20%)

Pointers in C: Preliminary Concepts–One-Dimensional Arrays and Pointers, Pointers and Strings, Pointer Arithmetic, Pointers to Pointers, Arrays of Pointers, Pointers to an Array, Multidimensional Arrays and Pointers, Pointers to Functions, Arrays of Function Pointers, Dynamic Memory Handling and Problems.

Unit-4 (20%)

User Defined Data Types and Variables. Structures, Unions, Enumeration Types, Bitwise Operators, Command-Line Arguments, C Preprocessor, Memory Models and Pointers.

Unit-5 (20%)

Files In C: Using Files in C, Working with Text Files, Working with Binary Files, Direct File Input and Output. Files of Records, Random Access into Files of Records–File Management Functions.

Course Outcomes:

After the completion of this course the students should be able to :

- **1.** Perceive how problems are posed and how they can be analyzed for obtaining solutions.
- 2. Learn of sequencing, branching, looping and decision making statements to solve scientific and engineering problems.
- 3. Implement different operations on Arrays and Pointers and creating and using of functions to solve problems.
- 4. Exercise user defined datatypes such as structures and union.
- 5. Design and implement different types of file structures using standard methodology.

Text Book:

1. Programming in C, Pradip Dey& Manas Ghosh, 2ndEd, Oxford University Press,2013 (Chapters 1, 2, 3, 4, 5 excluding 5.2.6, 6.1 to 6.8, 6.10.1, 7, 8, 9, 11)

Reference Books:

- 1. How to Solve it-A New Aspect of Mathematical Method-G.Polya, 1945, Princeton University Press, (Pages 1-29)
- 2. How to Solve it by Computer–R.G. Dromey, Prentice Hall of India, 1999, (Pages 1- 39)
- 3. Computer Programming, E. Balaguruswamy, McGraw Hill India (Pvt Ltd), 2014 (Pages 1.1 to 6.19)
- 4. Problem Solving and Program Design in C, Jeri R. Hanly, Elliot B. Koffman,7thEdition, Pearson Education, 2013.
- 5. C Programming–A Modern Approach,K. N. King, 2ndEdition, W. W. Norton & Company; New York, 2008.
- 6. Programming in C–A Complete Introduction To The C Programming Language, Stephen G. Kochan 3rdEd., Sams Publishing,2005.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9008) APPLIED PHYSICS LAB

I Year B. Tech. I-SEM, ECE, CSE & EEE

L T P C 0 0 3 2

Objectives:

The purpose of doing the experiments in laboratory is not simply to verify a principle but also to explore the other related phenomena and to find their applicability. The students are suggested to work in this direction and get benefit out of it.

- 1. To get practical knowledge which is related to the engineering course in the development of new technologies.
- 2. To impart fundamental knowledge in handling the equipment in Physics laboratory.
- 3. To offer practical experience on the basic equipment related to engineering Physics.
- 4. For practical understanding of the theoretical concepts of Physics.
- 5. To develop inquisitiveness in handling physics equipment leading to new technologies.

S. No. Name of the Experiment

- 1. Study of LED and LASER diode characteristics.
- 2. Torsional Pendulum-determination of rigidity modulus of material of a wire.
- 3. Determination of energy gap of material of p-n junction.
- 4. Bending losses of optical fibres and evaluation of numerical aperture of a given optical fibre.
- 5. Study of Decay of charge & determination of time constant of an RC circuit.
- 6. Determination of resonant frequency and quality factor of LCR circuit.
- 7. Study of Characteristics of solar cell
- 8. Determination of wavelength of Laser source Diffraction grating.
- 9. Determination of frequency of AC supply-sonometer.
- 10. Determination of dispersive power of a material of a prism-spectrometer.

Laboratory Manual:

The Laboratory manual of Engineering Physics by Dr. Y. Aparna & Dr. K. Venkateshwar Rao, VGS Publications.

Course Outcomes: After the completion of this course the students should be able to :

1. Co relate principles with applications of CR, LCR, Circuits.'

2. Enlighten the student about modern equipment like solar cell, optical fibre etc.,

3. Have the exposure to these experiments, and the student can compare the theory and correlate with experiment.

4. Meliorate the knowledge of Lasers, & amp; Light properties.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9502)PROBLEM SOLVING & COMPUTER PROGRAMMING LAB

I Year I-Sem: ECE & CSE	L/T/P/C
II-Sem: EEE	0/0-/3/2

Objectives:

To provide the necessary knowledge and practical training on general engineering problem solving methodologies and to provide necessary foundations for step by step computer program development and to present the basic concepts in C programming language and to prepare the students to write modular and readable C Programs. Also the Lab Course implements the essential concepts like abstract data types, user defined data types, to analyze the performance of algorithms and how to use such knowledge for later processing with the help of files and aims to train the students to write working programs to solve problems.

Syllabus Content

- 1.a Analyze the problem of finding areas of shapes like circle, square, rectangle and triangle. Draw a flow chart.
- 1.b Analyze the problem of finding the area of a quadrilateral assuming that we know how to find the area of a triangle. Draw a flow chart.
- 2.a Analyze the problem of finding, in shortest time, the sum of first n natural numbers, sum of squares of first n natural numbers, sum of cubes of first n natural numbers and sum of squares of squares of first n natural numbers. Draw a flow chart.
- 2.b Analyze the problem of finding the second largest number in a set of n numbers. Draw a flow chart.
- 3. Write a C program to implement Problems 1.a and 1.b (given above).
- 4.a Write a C program to find the sum of individual digits of a positive integer.
- 4.b 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.
- 4.c Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
- 5.a Write a C program to find the roots of a quadratic equation.
- 5.b Write a C program to find the factorial of a given integer.
- 5.c Write a C program to find the GCD (greatest common divisor) of two given integers.
- 6.a Write a C program to solve Towers of Hanoi problem.
- 6.b Write a C program, which takes two integer operands and one operator from the user, performs the operation and then prints the result. (Consider the operators +,-,*, /, % and use Switch Statement)
- 7.a Write a C program to find both the largest and smallest number in a list of integers.
- 7.b Write a C program to reverse the elements of an array (i.e., the first value should become last value etc.)
- 8. Write a C program that uses functions to perform all of the following:
 - i. Reading of a matrix.
 - ii. Printing a matrix in a formatted form.
 - iii. Adding two compatible matrices to produce a result matrix
 - iv. Multiplying two compatible matrices to produce a result matrix.
- 9. 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.
 - iii. Write a C program to determine if the given string is a palindrome or not.
- 10.a Write a C program using pointer to create a two dimensional matrix, to input values in to the matrix and to display the matrix and its transpose. Free the memory properly.
- 10.b Write a C program to demonstrate calling of a function (like add,subtract,multiply) using a function pointer.
- 11.a Write a C program that displays the position or index in the string S where the string T begins, or -1 if S doesn't contain T.
- 11.b Write a C program to count the lines, words and characters in a given text.
- 12. Write a menu driven C program that uses functions to perform the following operations on complex numbers stored in a structure:
 - i. Reading a complex number
 - ii. Writing a complex number
 - iii. Addition of two complex numbers
 - iv. Multiplication of two complex numbers
- 13.a Write a C program which copies one text file to another text file and verify the correctness.
- 13.b Write a C program which copies one binary file to another binary file and verify the correctness.
- 13.c Write a command-line C program to reverse the first n characters in a file. (Note: The file name and n are specified on the command line.)
- 14.a Write a C program to display the contents of a file.
- 14.b Write a C program to produce reverse of the content of a text fie into another text file and verify the result.
- 14.c Write a C program to merge two text files into a third text file (i.e., the contents of the

first file followed by those of the second are put in the third file) and verify the correctness.

- 15. Write an interactive C program that will maintain a list (roll,name,totalmarks) of student records. The menu shall have options like
 - i. Add a new record
 - ii. Delete a record
 - iii. Modify a record
 - iv. Display a selected record
 - v. Display all records
 - vi. Quit

16. Write a C Program that removes all comment lines from a C source file.

Course Outcomes:

After the completion of this course the students should be able to :

1. Perceive basic structure of the C Programming ,declaration and usage of variables.

2. Exercise conditional and iterative statements to solve scientific and engineering problems.

3. Implement different operations on arrays and creating and using of functions to solve problems.

4. Exercise pointers, file structures to write C programs.

Text Book

1. *Programming in C*, Pradip Dey & Manas Ghosh, 2nd Ed., Oxford University Press, 2013 (Chapters 1, 2, 3, 4, 5 excluding 5.2.6, 6.1 to 6.8, 6.10.1, 7, 8, 9, 11)

Reference Books:

- 1. *How to Solve it A New Aspect of Mathematical Method -* G.Polya, 1945, Princeton University Press, (Pages 1-29)
- How to Solve it by Computer R.G. Dromey, Prentice Hall of India, 1999, (Pages 1-39)
- 3. *Computer Programming*, E. Balaguruswamy, McGraw Hill India (Pvt Ltd), 2014 (Pages 1.1 to 6.19)
- 4. *Problem Solving and Program Design in C*, Jeri R. Hanly, Elliot B. Koffman, 7th Edition, Pearson Education, 2013.
- 5. *C Programming A Modern Approach,* K. N. King, 2nd Edition, W. W. Norton & Company; New York, 2008.
- 6. *Programming in C A Complete Introduction To The C Programming Language,* Stephen G. Kochan 3rd Ed., Sams Publishing, 2005.

(A9503) INFORMATION TECHNOLOGY WORKSHOP

I Year B.Tech. I Sem: CSE

L/T/PC 0/0/3 2

Objectives:

- 1. The modules include training on PC Hardware, Internet & World Wide Web and Productivity tools including LaTex. PC Hardware introduces the students to a personal computer and its basic peripherals, the process of assembling a personal computer, installation of system software like, Linux and the required device drivers. Also hardware and software level troubleshooting process, tips and tricks would be covered.
- 2. Internet & World Wide Web module introduces the different ways of hooking the PC on to the internet from home and workplace and effective usage of the internet. Usage of web browsers, email, newsgroups and discussion forums would be covered. Also, awareness of cyber hygiene, i.e., protecting the personal computer from getting infected with the viruses, worms and other cyber attacks would be introduced.
- 3. Productivity tools module would enable the students in crafting professional text processed documents, spread sheets, slide shows and personal web sites using FOSS (Free and Open Source Software) and LaTeX.

Syllabus Content

Machine Issues: (2 problems)

- **Problem 1:** Hardware Troubleshooting: Students have to be given a PC which does not boot due to improper assembly or defective peripherals. They should identify the problem and fix it to get the computer back to working condition. The work done should be verified by the instructor followed by a viva.
- **Problem 2:** Software Troubleshooting: Students have to be given a malfunctioning CPU due to system software problems. They should identify the problem and fix it to get the computer back to working condition. The work done should be verified by the instructor and followed by a viva.

Internet & World Wide Web (4 Problems)

- **Problem 3:** Orientation & Connectivity Boot Camp: Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally students should demonstrate, to the instructor, how to access the websites and email. If there is no internet connectivity preparations need to be made by the instructors to simulate the WWW on the LAN.
- **Problem 4:** Web Browsers, Surfing the Web: Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop up blockers.

Also, plug-ins like Macromedia Flash and JRE for applets should be configured.

- **Problem 5:** Search Engines & Netiquette: Students should know what search engines are and how to use the search engines. A few topics would be given to the students for which they need to search on Google. This should be demonstrated to the instructors by the student.
- **Problem 6:** Cyber Hygiene: Students would be exposed to the various threats on the internet and would be asked to configure their computer to be safe on the internet. They need to first install antivirus software, configure their personal firewall and windows update on their computer. Then they need to customize their browsers to block pop ups, block active x downloads to avoid viruses and/or worms.

Productivity Tools: LaTeX and FOSS Text Processing Tools (4 Problems)

- **Problem 7: Document Preperation:** The mentor needs to give an overview of LaTeX and FOSS tools: Importance of LaTeX and FOSS tools for text processing, Details of the four tasks and features that would be covered in each, Using LaTeX and text Processor Accessing, overview of toolbars, saving files, Using help and resources, rulers, format painter.
- **Problem 8:** Using LaTeX and FOSS Text Processing Tools to create project certificate. Features to be covered: Formatting Fonts, Drop Cap, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in both LaTeX and FOSS Text Processing Tools.
- **Problem 9:** Text Layouts :abstract Features to be covered:-Formatting Styles, Inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check, Track Changes.
- **Problem 10:** Creating a Newsletter: Features to be covered:- Table of Content, Newspaper columns, Images from files and clipart, Drawing toolbars and text highlights, Formatting Images, Textboxes and Paragraphs using FOSS.
- **Spreadsheet: (3 Problems)**
- **Problem 11:** Spreadsheet Orientation : The mentor needs to tell the importance of FOSS Spreadsheet tools, give the details of the four tasks and features that would be covered in each.
- **Problem 12:** Using Spreadsheet –Accessing, overview of toolbars, saving files, Using help and resources, Creating a Scheduler, Gridlines, Format Cells, Summation, auto fill and Formatting Text.
- Problem 13: Calculating GPA Features to be covered:- Cell Referencing, Formulae in spreadsheet average, standard deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Aggregates and lookups, Sorting, , Conditional formatting

LaTeX and FOSS Slide shows(3 Problems)

- **Problem 14:** Students will be working on basic slide show utilities and tools which help them create basic power point presentation. Topic covered during this problem includes: Slide Layouts, Inserting Text, Text high lighting Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows in both LaTeX and FOSS Tool. Students will be given model slide shows which need to be replicated. (Exactly how it's asked).
- Problem 15: Second Problem helps students in making their presentations interactive. Topic covered during this problem includes: Hyperlinks, Inserting –Images, Image galleries, Audio, Video, Objects, Tables and Charts

Problem 16: Concentrating on the in and out of FOSS Slide shows and presentations in LaTeX. Helps them learn best practices in designing and preparing slide shows. Topic covered during this problem includes: Master Layouts (slide, template, and notes), Types of views (basic, presentation, slide slotter, notes etc), Inserting – Background, textures, Design Templates, Hidden slides.

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Learn Troubleshooting of Hardware and Software
- 2. Use of Web browsers to access Internet, Search Engines.
- 3. Make use of MS Word, MS Excel, MS Power Point.
- 4. Learn LATEX Tools.

Text Books:

- 1. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education.
- 2. LaTeX Companion Leslie Lamport, PHI/Pearson.
- 3. Introduction to computers, Peter Norton, 6/e Mc Graw Hill.
- 4. Upgrading and Repairing, PC's 18th e, Scott Muller QUE, Pearson Education.
- 5. Complex Information Technology course tool kit Vikas Gupta, WILEY Dreamtech
- 6. IT Essentials PC Hardware and Software Companion Guide Third Edition
- 7. PC Hardware and A+ Handbook Kate J. Chase PHI

(A9002) MATHEMATICS – II

I Yr. II Sem: Common to all branches

L	Т	Р	С
3	1	0	4

Course Objective:

The main aim of this subject is to improve the mathematical knowledge of the student. When the student study the mathematics-II he should get the impression that mathematics is a systematic science of practical importance, resting on a relatively small number of basic concepts and involving powerful unifying methods. He should soon convince himself of the necessity for applying mathematical procedures to engineering problem.

By studying the mathematics the students translating the given physical information into mathematical model. This model may be a differential equation, a system of equation or some other mathematical expression.

Unit-I:

Solution of Linear System:

Matrix and types of Matrices Elementary row and column operations on a matrix, Rank of matrix –Echelon and Normal form, Linear dependence and independence of vectors, solutions of systems of linear equations using elementary operations.

Unit-II:

Eigen values and Eigen vectors:

Eigen values and Eigen vectors of a matrix and their properties, Cayley-Hamillton theorem and its applications, Complex matrices-Hermitian, Skew-Hermitian and Unitary matrices.

Unit – III:

Fourier series:

Determination of Fourier Coefficients, Even and Odd functions, Half Range Fourier Sine and Cosine expansions Fourier series in an arbitrary interval.

Unit - IV:

Vector Calculus:

Scalar and Vector fields; directional derivatives - Gradient of scalar field, Divergence and Curl of a vector field -Vector integration: Green's theorem, Gauss Divergence theorem, Stoke's theorem (without proof).

Unit – V:

Partial differential equation:

Formation of partial differential Equation by elimination of arbitrary constants and arbitrary functions, solutions of first order linear and

non-linear Equations. Method of separation of variables.

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Find rank of the matrix by solve system of simultaneous linear system equations.
- 2. Find Eigen values and Eigen vectors and analyze the properties of matrix.
- 3. Find Fourier Series and Fourier Transforms. Apply Fourier Series and Fourier Transforms con interpret in respective engineering fields.
- 4. Evaluate physical quantities involving in engineering fields related to vector valued functions. Categorize the basic properties of vector valued functions and able to solve line, surface and volume integration.
- 5. Apply a range of techniques to find solutions from standard partial differential equations to diverse situations in Physics, Engineering and other Mathematical contents.

Recommended Text Books:

- 1. R.K.Jain and S.R.K.Iyengar : Advanced Engineering Mathematics, Narosa Publishing House, 2008
- 2. B. S. Grewal : Higher Engineering Mathematics, Khanna Publications, 2009.

Reference Book:

- 1. T.K.V.Iyengar:Mathematical Methods, S.Chand and Company.
- 2. Erwyn Kreyszig : Advanced Engineering Mathematics, John Wiley and Sons, 8th Edition.
- 3. A textbook of Engineering Mathematics Vol-I by P.B.Bhaskara Rao, S.K.V.S. Rama chary
- 4. A textbook of Engineering Mathematics Vol-I by C. Shankaraiah, VGS Book Link

(A9203) BASIC ELECTRICAL & ELECTRONICS ENGINEERING

I Year B.Tech CSE II SEM

Course Objectives:

This course introduces the concepts of basis electrical engineering parameters, quantities, analysis of AC and DC circuits, the construction operation and analysis of transformers, DC and AC machines. It also gives knowledge about operation of diode and transistor, characteristics and its applications.

UNIT-I

Electrical Circuits: Circuits concept, R-L-C Parameters, Voltage and Current sources, Source Transformation, V–I relationship for Passive elements, Kirchoff's Laws, Network reduction techniques – series, parallel, series parallel, star-delta & star-delta transformations, Nodal Analysis, Mesh analysis with DC excitations.

Network Theorems - Thevenin's, Norton's, Maximum Power Transfer, Superposition, Reciprocity Theorems with DC excitation.

UNIT-II

Single Phase AC Circuits - R.M.S. and Average values, Form Factor, steady state analysis of series, Parallel and Series parallel Combinations of R, L and C with Sinusoidal excitation, concept of reactance, Impedance, Susceptance and Admittance – phase and phase difference, Concept of Power Factor, j-notation, complex and Polar forms of representation.

Three Phase AC Circuits: Production of $3 - \phi$ Voltages, Voltage & Current relationships of Line and Phase values for Star and Delta connections.

UNIT-III

D.C.Machines: Constructional features, Methods of Excitation, E.M.F. Equation and Applications, Torque development in D.C motor, Characteristics of DC motors, losses, Efficiency, Swinburne's test, Speed control of DC Shunt motors

Single Phase Transformers: Construction and principle of operation, Development of No Load & On Load Phasor diagrams (Basic fundamentals only)

3-Phase Induction Motor: Constructional features, Principle of Operation (Basic fundamentals only)

UNIT-IV

P-N Junction Diode - Diode equation, Energy Band diagram, V-I characteristic, Temperature dependence, Ideal versus practical, Static and dynamic resistances, Equivalent circuit.

L/T/P/D/C 3/ 1/0/0 / 4

Rectifiers and Filters - The P-N junction as a rectifier - A Half Wave Rectifier, Ripple Factor, Full Wave Rectifier, Bridge Rectifier, Filters – Inductor Filters, Capacitor Filters, L-section Filters, π -section Filters.

UNIT- V

Bipolar Junction Transistor (BJT) - Construction, Principle of Operation, CB, CE and CC configurations.

Junction Field Effect Transistor - Construction, Principle of Operation, V-I Characteristic, Comparison of BJT and FET,

Zener Diode and SCR Devices- Zener diode characteristics, Use of Zener diode as simple regulator, Breakdown Mechanisms in Zener diode, Principle of Operation of SCR.(Basic fundamentals only)

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Learn Basic circuit concepts such as electrical parameters, quantities, laws and network reduction techniques and apply the network theorems with DC excitation in the systems.
- 2. Analyze the steady state operation of single phase and three phase AC circuits and study the relationship between voltage and current for delta and star connections.
- 3. Explore the construction, working , control and testing of various DC and AC Machines.
- 4. Gain knowledge on basic electronic devices such as P-N junction Diode, rectifiers and filter with their V-I characteristics.
- 5. Acquire extended knowledge on next generation of electronic devices such transistors, zener diode and SCR devices.

TEXT BOOKS:

- 1. Electronic Devices and Circuits R.L. Boylston and Louis Nashelsky, PEI/PHI, 9th Ed, 2006.
- 2. Engineering circuit analysis- by William Hayt and Jack E. Kemmerly, Mc Graw Hill Company, 6th edition.
- 3. Electrical Machines by P.S.Bimbra

REFERENCES:

- 1. Introduction to Electronic Devices and Circuits-Rober T. Paynter, Pearson Education.
- 2. Electronic Devices and Circuits K. Lal Kishore, B.S. Publications, 2nd Edition, 2005.
- 3. Electrical Machines by J.B.Gupta.
- 4. Network Theory by N.C.Jagan & C.Lakshminarayana, B.S. Publications.
- 5. Network Theory by Sudhakar, Shyam Mohan Palli, TMH.

(A9011) ENGINEERING CHEMISTRY

I Year B. Tech. I-SEM CIVIL, MECH. & EEE II-SEM ECE & CSE

L T P C 3 0 0 3

Course Objectives:

The purpose of these courses is to emphasize the relevance of fundamentals and applications of chemical sciences in the field of engineering. Thus, the courses have been conceived in such a way that they take into account appropriate combinations of old and new emerging concepts in the chemical sciences area and their current and potential uses in engineering. The Courses attempt to address the principles of general chemistry and specific topics relevant to various engineering disciplines, wherein the students can apply this learning in their respective areas of expertise.

The syllabus has sought to fulfill the objective of making the student of engineering and technology realize that chemistry like other subjects is the real base of their profession and that therefore they must have a good understanding of chemistry before they can use it in their profession.

UNIT-1:

Electro Chemistry

Ohm's law, conductance, specific, equivalent and molar conductance, units and their relation. Numerical Problems. EMF: Electrochemical and Electrolytic cells, Galvanic cell, Electro chemical series, measurement of emf and single electrode potential, Nernst's equation and its applications,

UNIT-2:

Electrodes and Battery Chemistry

Introduction, Types of electrodes: Reference electrodes (SHE, SCE and QH). Determination of PH. Numerical Problems. Batteries: Primary cells-Dry cell, Secondary cells - Pb-Acid storage cell, Fuel cells- Hydrogen-Oxygen fuel cell.

UNIT-3:

Corrosion and Its control

Introduction, Causes of corrosion, Types of corrosion- Dry and Wet corrosion (Galvanic & concentration). Factors affecting on corrosion, Corrosion controlling methods- Cathodic protection and Surface coatings (anodic and Cathodic), Methods of applications of metal coatings- Hot dipping and electroplating.

UNIT-4: Polymer Chemistry Introduction, Functionality of Monomers, classification of polymers, Types of polymerization, Mechanism of polymerization: Chain and step. Plastics: Chemistry of Thermoplastic resins (PE, PVC & PS) and thermosetting resins (Nylon & Bakelite).

UNIT – 5:

Water Chemistry

Introduction, Types of hardness, units and Numerical problems, Estimation of hardness of water-EDTA method. Boiler Troubles, caustic embrittlement & Boiler corrosion. Treatment of Boiler feed water- Zeolite and Ion-exchange process.

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Design polymeric engineering materials.
- 2. Construct batteries and Classify different electronics and electrical like cells , electrodes, etc., help them to construct different electrical/ electronic parts.
- **3.** Examine which types of impurities are present in water, specification of drinking water.
- 4. Apply phase rule and absorption to construct the materials by analyzing their compositions.
- **5.** Explain the corrosion behavior of metals/ activity of metals.

Text Books:

- 1. Text Book of Engineering Chemistry by C. Parameshwara Murthy. B.S. Publications
- 2. Text Book of Engineering Chemistry by Y. Bharathi kumari and Jyotsna Cherikuri, VGS Publications.
- 3. Text Book of Engineering Chemistry by Shashi Chawla
- 4. Text Book of Engineering Chemistry by B. Ramadevi & Ch. Venkata Ramana Reddy, CENGAGE Learning 2012.

Reference Books:

- 1. Elementary principles of Physical Chemistry by P.W. Atkins, Oxford University Press.
- 2. Physical Chemistry by Puri & Sharma
- 3. Engineering Chemistry by Jain & Jain
- 4. Engineering Chemistry by Shashi Chawla.
- 5. Polymer Chemistry by Gourikar.
- 6. Physical Chemistry Glastone.

(A9506) DATA STRUCTURES THROUGH C++

I Year II-Sem: CSE

L/T/P C

4

4/0/0

Objectives:

To provide a comprehensive working knowledge on the object oriented language C++ and to implement abstract data types, linear and nonlinear data structures for problem solving. To provide a foundation on generic programming based on over loading concepts, inheritance and virtuality. To inculcate ability to grasp the behaviour of data structures such as stacks, queues, trees, hash tables, search trees, graphs and their representation and to apply them in problem solving. To provide a working knowledge on searching and sorting techniques and to write programs to solve problems on arrays, linked lists, stacks, queues, trees, graphs, hash tables and search trees.

Syllabus Content

UNIT-1

C++ Class Overview- Class Definition, Objects, Class Members, Access Control, Class Scope, Constructors and destructors, parameter passing methods, Inline functions, static class members, this pointer, friend functions, dynamic memory allocation and deallocation (new and delete), exception handling. Function Over Loading, Operator Overloading, Generic Programming- Function and class templates, Inheritance basics, base and derived classes, inheritance types, base class access control, runtime polymorphism using virtual functions, abstract classes, streams I/O.

UNIT-2

Algorithms, performance analysis- time complexity and space complexity. Review of basic data structures- The list ADT, Stack ADT, Queue ADT, Implementation using template classes in C++. Dictionaries, linear list representation, skip list representation, operations insertion, deletion and searching, hash table representation, hash functions, collision resolution-separate chaining, open addressing-linear probing, quadratic probing, double hashing, rehashing, extendible hashing, comparison of hashing and skip lists.

UNIT-3

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

UNIT-4

Search Trees: Binary Search Trees, Definition, ADT, Implementation, Operations- Searching, Insertion and Deletion, AVL Trees, Definition, Height of an AVL Tree, Operations _ Insertion, Deletion and Searching. Trees definitions, B-Trees, B-Tree of order m, height of a B-Tree, insertion, deletion and searching, Comparison of Search Trees

Graphs: Basic terminology, representations of graphs, graph search methods DFS, BFS.

UNIT-5

Text Processing : Pattern matching algorithms-Brute force, the Boyer _Moore algorithm, the Knuth-Morris-Pratt algorithm, Standard Tries, Compressed Tries, Suffix tries.

Course Outcomes:

After the completion of this course the students should be able to :

Compare the structured programming and object oriented programming language.
Apply basic knowledge to handle operations like insertions, deletions, searching, and

traversing mechanisms in linear data structures.

3. Examine with advanced data structure such as hash tables and priority queue data structures.

4. Implement searching and sorting techniques for various problems.

5. Illustrate the Text processing algorithm on real time problems.

Text Books:

- 1. *Data Structures: A Pseudocode Approach with C++*, Richard F Gilberg, Behrouz A Forouzan, Cengage Learning
- 2. Data structures, Algorithms and Applications in C++, S.Sahni, University Press (India) Pvt.Ltd, 2nd edition, Universities Press Orient Longman Pvt. Ltd.
- 3. Data structures and Algorithms in C++, Michael T.Goodrich, R.Tamassia and Mount, Wiley student edition, John Wiley and Sons.

References:

- 1. Problem solving with C++, The OOP, Fourth edition, W.Savitch, Pearson education.
- 2. Data structures and Algorithm Analysis in C++, Mark Allen Weiss, Pearson Education. Ltd., Second Edition.
- 3. Data structures and algorithms in C++, 3rd Edition, Adam Drozdek, Cengage Learning.
- 4. Data Structures Using C++, D.s. Malik, Cengage Learning, India Edition.
- 5. Mastering Algorithms with C,K.Loudon,O'Reilly,SPD PVT.Ltd.
- 6. An introduction to Data structures and algorithms, J.A.Storer, Springer.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9013) ENGLISH LANGUAGE COMMUNICATION SKILLS LAB

I year B. Tech. I Sem EEE, ECE, CIVIL & MECH II Sem CSE L T P C 0 0 3 2

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

Course Objectives:

- To facilitate computer-aided multi-media instruction enabling individualized and independent language learning
- To sensitise the students to the nuances of English speech sounds, word accent, intonation and rhythm
- To bring about a consistent accent and intelligibility in their pronunciation of English by providing an opportunity for practice in speaking
- To improve the fluency in spoken English and neutralize mother tongue influence
- To train students to use language appropriately for interviews, group discussion and public speaking

Syllabus:

English Language Communication Skills Lab shall have two parts:

- a. Computer Assisted Language Learning (CALL) Lab
- b. Interactive Communication Skills (ICS) Lab

The following course content is prescribed for the English Language Communication Skills Lab

Exercise-I

CALL Lab: Introduction to Phonetics – Speech Sounds – Vowels and Consonants **ICS Lab**: Ice-Breaking Activity and JAM Sessions

Intensive Practice in Articles, Prepositions, Word Formation- Prefixes & Suffixes, Synonyms & Antonyms with Software/Handouts

Exercise-II

CALL Lab: Structure of Syllables - Past Tense Marker and Plural Marker – Weak Forms and Strong Forms - Consonant Clusters.

ICS Lab: Situational Dialogues – Role-Play- Expressions in Various Situations – Selfintroduction and Introducing Others – Greetings – Apologies – Requests – Social and Professional Etiquette - Telephone Etiquette.

Concord (Subject in agreement with verb) and Words Often Misspelt- Confused/Misused

Exercise-III

CALL Lab: Minimal Pairs- Word Accent and Stress Shifts- Listening Comprehension.

ICS Lab: Descriptions- Narrations- Giving Directions and Guidelines.

Sequence of Tenses, Question Tags and One Word Substitutes.

Exercise-IV

CALL Lab: Intonation and Common Errors in Pronunciation.

ICS Lab: Extempore- Public Speaking

Active and Passive Voice, –Common Errors in English, Idioms and Phrases

Exercise-V

CALL Lab: Neutralization of Mother Tongue Influence and Conversation Practice **ICS Lab**: Information Transfer- Oral Presentation Skills Reading Comprehension and Job Application with Resume Preparation

Reading Comprehension and Job Application with Resume Preparation.

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Capable in Better Understanding of nuances of language through audio-visual experience and group activities.
- 2. Develop Neutralization of accent for intelligibility.
- 3. Capable to Speak out with clarity and confidence thereby enhances the employability skills of the students by acquiring knowledge and techniques.
- 4. Extends to speak fluent English, through advanced vocabulary to improve quality in speaking.

Minimum Requirement of Infrastructural Facilities for ELCS Lab:

1. Computer Assisted Language Learning (CALL) Lab:

The Computer Aided Language Lab for 40 students with 40 systems, one master console, LAN facility and English language software for self- study by learners.

System Requirement (Hardware Component):

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

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

2. Interactive Communication Skills (ICS) Lab :

The Interactive Communication Skills Lab: A spacious room with movable chairs and audio-visual aids with a Public Address System, a T. V., a digital stereo –audio & video system, camcorder etc.

Prescribed Lab Manual: A Manual entitled "*English Language Communication Skills* (*ELCS*) *Lab Manual- cum- Work Book*", published by Cengage Learning India Pvt. Ltd, New Delhi. 2013.

• In addition to the prescribed lab manual, all the listening and speaking activities mentioned in Text-1 and Text-2 can be conducted in the English Language Communication Skills Lab.

Suggested Software:

- Macmilan Dictionary Modern English (with CD).
- Oxford Advanced Learners' Dictionary (with CD).
- Cambridge Advanced Learners' English Dictionary with CD.
- Grammar Made Easy by Darling Kindersley
- Punctuation Made Easy by Darling Kindersley
- Clarity Pronunciation Power Part I
- Clarity Pronunciation Power part II
- Oxford Advanced Learner's Compass, 8th Edition

- DELTA's key to the Next Generation TOEFL Test: Advanced Skill Practice.
- Lingua TOEFL CBT Insider, by Dreamtech
- TOEFL & GRE (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)
- English in Mind (Series 1-4), Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge
- English Pronunciation in Use (Elementary, Intermediate, Advanced) Cambridge University Press
- Raman, M & Sharma, S. 2011. Technical Communication, OUP
- Sanjay Kumar & Pushp Lata. 2011. Communication Skills, OUP

Suggested Reading:

- 1. Situational Enlgish, Prof. Damodar 33 situations BIE Publications (with CD)
- 2. Radio lessons, Prof. G. Damodar.
- 3. Rama Krishna Rao, A. *et al. English Language Communication Skills A Reader cum Lab Manual Course Content and Practice.* Chennai: Anuradha Publishers
- 4. Suresh Kumar, E. & Sreehari, P. 2009. *A Handbook for English Language Laboratories*. New Delhi: Foundation
- 5. *Speaking English Effectively* 2nd Edition by Krishna Mohan and N. P. Singh, 2011. Macmillan Publishers India Ltd. Delhi.
- 6. Sasi Kumar, V & Dhamija, P.V. *How to Prepare for Group Discussion and Interviews*. Tata McGraw Hill
- 7. Hancock, M. 2009. English Pronunciation in Use. Intermediate. Cambridge: CUP
- 8. Spoken English: A Manual of Speech and Phonetics by R. K. Bansal & J. B. Harrison. 2013. Orient Blackswan. Hyderabad.
- 9. Hewings, M. 2009. English Pronunciation in Use. Advanced. Cambridge: CUP
- 10. Marks, J. 2009. English Pronunciation in Use. Elementary. Cambridge: CUP
- 11. Nambiar, K.C. 2011. Speaking Accurately. A Course in International Communication. New Delhi : Foundation
- 12. Soundararaj, Francis. 2012. Basics of Communication in English. New Delhi: Macmillan
- 13. Spoken English (CIEFL) in 3 volumes with 6 cassettes, OUP.
- 14. English Pronouncing Dictionary Daniel Jones Current Edition with CD.
- 15. A Textbook of English Phonetics for Indian Students by T.Balasubramanian (Macmillan)
- 16. Topical Thoughts (A Textbook of Reading and Writing Skills) Dr.P. Satyanarayana, Vaagdevi College of Engineering, Warangal Publications, 2013.

DISTRIBUTION AND WEIGHTAGE OF MARKS

English Language Laboratory Practical Examination:

• The practical examinations for the English Language Laboratory shall be conducted as per the University norms prescribed for the core engineering practical sessions.

For the Language lab sessions, there shall be a continuous evaluation during the year for 25 sessional marks and 50 year-end Examination marks. Of the 25 marks, 15 marks shall be awarded for day-to-day work and 10 marks to be awarded by conducting Internal Lab Test(s). The year- end Examination shall be conducted by the teacher concerned with the help of another member of the staff of the same department .of the same institution.

(A9204) BASIC ELECTRICAL & ELECTRONICS ENGINEERING LAB

Class: I Year B.Tech II Semester. Branch: CSE Duration of University Examination: 3 Hrs Practicals: 3hrs Tutorials: 0 hrs University Examination: 75 Sessionals: 25 Marks

Course Objective:

- 1. To learn concepts of law of conservation of energy and its application by Kirchhoff's Laws
- 2. To simplify complex network & to identify optimum loading conditions.
- 3. To analysis the performance of DC machine.
- 4. To Analysis nature of semi conductor devices & its performance.
- 5. To analysis the operation of rectifiers.

List of Experiments:

- 1. Verification of Kirchhoff's Laws.
- 2. Verification of superposition and Reciprocity Theorems.
- 3. Verification of Maximum Power transfer theorem.
- 4. Verification of Thevenin's theorem.
- 5. Magnetization characteristics of DC Shunt Generator.
- 6. Swinburne's Test on DC shunt machine.
- 7. Brake test on DC shunt motor.
- 8. OC & SC tests on single phaseTtransformer.
- 9. PN Junction Diode characteristics (Forward bias & Reverse bias).
- 10. Zener Diode Characteristics.
- 11. Transistor CE Characteristics (Input and Output)
- 12. Rectifier without filters (Full wave & Half wave)
- 13. Rectifier with filters (Full wave & Half wave)

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Learn to simplify complex electric and electronic circuits by applying the KVL and KCL laws
- 2. Identify the optimal loading on the system.
- 3. Analyze the performance of DC machines
- 4. Identify and analyze the performance and operation of semi conducting devices. ***

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9306) ENGINEERING WORKSHOP

I Year II Sem: CSE

L T P C 0 0 3 2

COURSE OBJECSTIVES:

- 1. Know the usage of various tools and their application in carpentry, tin smithy.
- 2. Know the usage of various tools and their application in black smithy, foundry, welding and house wiring.
- 3. Make lap joint and dove tail joint in carpentry.
- 4. Make scoop, funnel and tray like items in tin smithy.
- 5. Use one way, two-way switches, parallel and series connections in house wiring.
- 6. Know the basics of welding.

UNIT - I

- **TRADES FOR EXERCISES:** (Any six trades from the following for Mechanical Engineering Branch & Any four trades for all other Branches with minimum of two exercises in each trade)
- 1. Carpentry
- 2. Fitting
- 3. Tin Smithy
- 4. Black Smithy
- 5. House wiring
- 6. Foundry
- 7. Plumbing
- 8. Soldering

UNIT - II TRADES FOR DEMONSTRATION & EXPOSURE

- 1. Demonstration of Power tools & wiring
- 2. Welding.
- 3. Machine Shop

TEXTBOOKS:

- 1. Workshop Manual P.Kannaiah / K.L.Narayana/Scitech Publishers.
- 2. Workshop Manual Venkat Reddy/BS Publication / 6th Edition.

COURSE OUTCOMES:

After the completion of this course the students should be able to :

- 1. Know the usage of various tools and their application in carpentry, tin smithy.
- 2. Make lap joint and dove tail joint in carpentry.
- 3. Prepare scoop, funnel and tray like items in tin smithy.

(A9507) DATA STRUCTURES THROUGH C++ Lab

I Year II-Sem: CSE

L/T/P C 4/0/0 4

Objectives:

To provide a comprehensive working knowledge on the object oriented language C++ and to provide implementation experience on abstract data types, linear and nonlinear data structures for problem solving. To provide a working knowledge on generic programming based on over loading concepts, inheritance and virtuality. To inculcate ability to grasp the behaviour of data structures such as stacks, queues, trees, hash tables, search trees, graphs and their representation and to apply them in problem solving. To provide an application oriented working knowledge on searching and sorting techniques and to write programs to solve problems on arrays, linked lists, stacks, queues, trees, graphs, hash tables and search trees.

Syllabus Content

- 1. Write a C++ program to implement all the functions of a dictionary ADT.
- 2. Write a C++ program for skip lists.
- 3. Write a C++ program for hashing with quadratic programming.
- 4. C++ programs using class templates to implement the following using an array.a) Stack ADT b) Queue ADT
- 5. Write C++ programs using class templates to implement the following using a singly linked list.
 - a) Stack ADT b) Queue ADT
- 6. Write C++ programs using class templates to implement the deque (double ended queue) ADT using a doubly linked list and an array.
- 7. Write C++ programs, using class templates, that use non-recursive functions to traverse the given binary tree in
 - a) preorder b) inorder and c) postorder.
- 8. Write C++ programs, using class templates, that use recursive functions to traverse the given binary tree in

a) preorder b) inorder and c) postorder.

- 9. Write a C++ program using class templates 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.

- 10. Write C++ programs using class templates for the implementation of bfs and dfs for a given graph.
- 11. Write C++ programs using class templates for implementing the following sorting methods:

a) Merge sort b) Heap sort

- 12. Write a C++ program using class templates to perform the following operations a) Insertion into a B-tree b) Deletion from a B-tree
- 13. Write a C++ program using class templates to perform the following operationsa) Insertion into an AVL-tree b) Deletion from an AVL-tree
- 14. Write a C++ program using class templates to implement Kruskal_s algorithm to generate a minimum cost spanning tree.
- 15. Write a C++ program using class templates to implement Prim_s algorithm to generate a minimum cost spanning tree.
- 16. Write a C++ to implement Knuth-Morris-Pratt pattern matching algorithm.

COURSE OUTCOMES:

After the completion of this course the students should be able to :

- 1. Design and implement Object Oriented Programming concepts.
- 2. Select the appropriate Data Structure for given problem.
- 3. Explain operations like searching, insertion, deletion and traversing mechanism on various Data Structures.
- 4. Build practical knowledge on the applications of Linear and Non-Linear Data Structure.

Text Books:

- 1. Data structures a pseudo code approach with c++, Indian edition, R.F.Gilberg and B.A.Forouzan Cengage Learning.
- 2. Programming Prinicples and Practice using C++, B.Stroustrup, Addition-Wiesly (Pearson Education)
- 3. Data Structures and STL,W.J.Collins,mc Graw Hill,International Edition.
- 4. Data Structures and Algorithms with OODesign patterns in C++,B.R.Priess,John Wiley &sons.
- 5. The Art, Philosophy and Science of OOP with C++, Rick Miller, SPD.
- 6. C++ for Programmers ,P.J.Deitel and H.M.Deitel,PHI/Pearson.

(A9510) MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE

II Year B. Tech.(CSE) I Semester

LTPC 4004

Pre-Requisites: None

Course Objectives:

This course is designed to introduce students to the techniques, algorithms, and reasoning processes involved in the study of Mathematical Foundation of Computer Science. Students will be introduced to set theory, elementary and advanced counting techniques, equivalence relations, recurrence relations, graphs, and trees. Through their study of these topics students will develop a greater understanding of the breadth of mathematics and will acquire a familiarity with concepts, structures and algorithms that are essential to the field of computer science and applied mathematics.

UNIT-I

Mathematical Logic: Statements and notations, Connectives, Well formed formulas, Truth Tables, tautology, equivalence implication, Normal forms. **Predicates :** Predicative logic, Free & Bound variables, Rules of inference, Consistency, proof of contradiction, Automatic Theorem Proving.(Refer:Text Book1.P.g.Nos.1,2,7-18,23,24,26,30,32,50-58,68-74,79-88).

UNIT-II

Relations: Properties of binary Relations, equivalence, transitive closure, compatibility and partial ordering relations. **Functions:** Inverse Function, Composition of functions, recursive Functions, Lattice and its Properties, **Algebraic structures**: Algebraic systems Examples and general properties, Semi groups and monads, groups sub group's homomorphism, Isomorphism..(Refer: Text Book1.P.g.Nos.149,153,154,164-183,198-201,232,270,271-292,329,379-382).

UNIT-III

Elementary Combinatorics: Basis of counting, Combinations & Permutations, with repetitions, Constrained repetitions, Binomial Coefficients, Binomial Multinomial theorems, the principles of Inclusion –Exclusion. Pigeon hole principles and its application...(Refer:Text Book2.P.g.Nos.125,126,143,162,172,189,201,211).

UNIT-IV

Recurrence Relation : Generating Functions, Function of Sequences Calculating Coefficient of generating function, Recurrence relations, Solving recurrence relation by substitution and Generating functions. Characteristics roots solution of In- homogeneous Recurrence Relation...(Refer:Text Book2.P.g.Nos.237,247,264,280,300,306).

UNIT-V

Graph Theory:Basic Concepts,Isomorphisms and Subgraphs,Trees and Their Properties Spanning Trees, Directed Trees,Binary Trees,Planar Graphs,Euler's Formula,Multigraphs and Euler Circuits,Hamiltonian Graphs,Chromatic Numbers,The Four-Color Problem...(Refer:Text Book2.P.g.Nos.437,449,468,480,498,507,523,530,535,452,558,569).

Course Outcomes:

After the completion of this course the students should be able to :

1. Evaluate the notions of propositions, predicate formulae, Rules of inference.

2. Illustrate and describe various types of Relations and Functions.

3. Apply knowledge of Mathematics, Combinations & Permutations, Binomial Multinomial theorems, Pigeon hole principles.

4. Develop to solve the recurrence relations by using various methods.

5. Perceive the basic concepts of graph theory and apply for real time examples.

Text Books:

1. Discrete Mathematical Structures with Applications to Computer Science-J.P.Tremblay R.Manoharn, Tata McGraw Hill.

2. Discrete mathematics for computer scientists & mathematicians JL Mott, A Kandel,

T.P.Baker PHI.

Reference Books:

1. Discrete Mathematics and its Applications, Kenneth H.Rosen, Fifth Edition. TMH.

2. Discrete Mathematical Structures Theory and application-Malik & Sen, Cengage.

- 3. Discrete Mathematics with Applications, Thomas Koshy, Elsevier.
- 4. Logic and Discrete Mathematics, Grass Man & Trembley, Pearson Education.

(A9450) DIGITAL LOGIC DESIGN & MICROPROCESSORS

II Year B.Tech. CSE I- Sem

L T P C 3 0 0 3

Pre-Requisites: None Course Objectives:

This course provides in depth knowledge of switching theory and the design techniques of digital circuits, which is the basis for design of any digital circuit, and to develop an in-depth understanding of the operation of microprocessors. Machine language programming.

UNIT – I

Number systems, conversion, signed binary numbers, floating point number representation, binary codes, digital logic gates, Boolean algebra, basic theorems & properties, Boolean functions, canonical and standard forms

UNIT – II

Gate level minimizations, K-Map - three variable, four variable and five variable, SOP, POS simplifications, NAND and NOR implementation and other two level implementation.

Unit – III

Combinational circuits for code converters, Binary adders, subtractor, basic multiplier, comparator, decoders, encoders, multiplexers and demultiplexers, latches, flip-flops counters and shift registers

Unit – **IV:** 8086 Architecture and Register Organization, Memory Organization & Segmentation, 8086 flag register, Minimum Mode & Maximum Mode with Timing Diagrams, Signal description of 8086 common function signals.

Unit – V

Addressing Modes of 8086, instruction set & formats, Assembly language programs involving Branch & Call instructions, sorting, evaluation of arithmetic expressions.

Course Outcomes:

After the completion of this course the students should be able to :

1. Understand the basic concepts of different Number systems and basic theorems using in Boolean algebra.

- 2. Design the logic circuits using basic logic gates by reducing the Boolean expressions with the help of Karnaugh Map.
- 3. Analyze various types of combinational and sequential circuits.
- 4. Understand the internal organization of popular 8086microprocessors.
- 5. Learn the design of microprocessors based systems

Text books:

- 1. Digital Design. M. Morris Mano.
- 2. Advanced microprocessors and peripherals A. K. Ray & K. M. Bhurchandani, TMH, 2nd Edition 2006
- 3. Digital logic and state machine design David. J Comer Oxford University Press
- 4. Microprocessor and interfacing N. Senthil Kumar, M. Saravanan S. Jeevananthan s. K. Shah Oxford University Press

Reference books

- 1. D. V. Hall, microprocessor and interfacing, TMGH, 2nd Edition 2006.
- 2. Micro computer system 8086/8088 Family Architecture, Programming and Design Liu and GA Gibson, PHI, 2nd Ed.
- 3. Switching and Finite Automata Theory by Zvi. Kohavi, Tat McGraw Hill.
- 4. Switching and logic design, C.V.S. Rao. Pearson Education.

(A9511) DATABASE MANAGEMENT SYSTEMS

II Year B.Tech.(CSE) I Semester

LTP C 4 10 4

Pre-Requisites: None

Course Objectives:

This Course provides an emphasis on how to organize, maintain and retrieve information efficiently and effectively from a Database and it presents an introduction to database management systems (DBMS) and relational data model. Also the course introduces the concepts of transactions and transaction processing and the issues and techniques relating to concurrency and recovery in multi-user database environments

UNIT-I

Introduction - Database system Applications - Database System versus File Systems - View of Data– Instances and schema - Data Models - Database Languages -DDL-DML - Database Users and Administrator – Transaction Management - Database System Structure-Application Architectures – History of Database Systems. (Chapter 1:-Refer Pg.No 1-21)

UNIT-II

Database Design and ER model – Basic concepts - Entity sets and Relationship Sets – Constraints - Keys - Design Issues - Entity-Relationship Diagram- Weak Entity Sets - Extended E-R Features - Designing of an E-R Database Schema-Reduction of an E-R Schema to Tables.

(Chapter 2:-Refer Pg.No 27-68)

UNIT – III

Introduction to the Relational Model – Structure of Relational Databases - Relational Algebra –Relational Calculus – Domain relational Calculus , Touple Relational Calculus - Integrity and Security –Domain Constraints ,Referential Integrity Constraints-Triggers-security and Authorization – SQL- Basic Structure, Set operations ,Aggregate Operations –Null values-

Nested Sub queries – Views –Modification of Database- Joined relations ,Data Definition Language, Embedded SQL, Dynamic SQL. (Chapter 3:-Refer Pg.No 79-122,Chapter 6:-Refer Pg.No 222-248, Chapter 4:-Refer Pg.No 135-180)

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

First Normal Form ,Pitfalls in Relational Database Design-Functional Dependencies– Decomposition – Desirable properties of Decomposition – Boyce-Codd Normal Form — Third Normal Form- Fourth Normal Form. Transactions-Transaction Concept- Transaction state- Implementation of atomicity and Durability- Concurrent Executions – Serializability, Recoverability-Implementation of Isolation (Chapter 7:-Refer Pg.No 257-293,Chapter 15:-Refer Pg.No 565-584)

UNIT-V

Concurrency Control-Lock Based Protocols, Timestamp Based Protocols, Validation Based Protocols, Multiple Granularity, Dead Lock Handling-Recovery System – Failure Classification, Storage Structure, Recovery and Atomicity, Log Based recovery ,Shadow Paging, Recovery with concurrent transactions.

Storage and File Structure - File Organization – Organization of records in file - Data Dictionary Storage – Indexing and Hashing – Basic Concepts , Ordered Indices, B+Tree Index files, B- tree index files – Static Hashing – Dynamic Hashing – Comparison of Indexing and Hashing.

Chapter 16:-Refer Pg.No 591-620, Chapter 17:-Refer Pg.No 639-660, Chapter 11:-Refer Pg.No 415-428, Chapter 12:-Refer Pg.No 445-480)

Course Outcomes:

After the completion of this course the students should be able to :

1. Perceive the fundamental concepts of database management.

2. Analyze database models & Entity Relationship models and to draw the E-R diagram for the given case study.

3. Apply relational Database Theory, and be able to write relational algebra expressions for queries.

4. Apply Normalization Process to construct the database and Explain Basic Issues of transaction processing

5. Compare the basic Database storage structures and access techniques: File Organization indexing methods including B- Tree and Hashing.

Text Books.

1. Database System Concepts, Silberschatz, Korth , Fourth Edition, McGraw hill (Chapters 1,2 excluding 2.10,3,4 excluding 4.8,4.14,6 excluding 6.6, 6.7,7 excluding 7.9, 7.10,11 excluding 11.1 to 11.5,12 excluding 12.8, 12.9, 15 excluding 15.8, 15.9, 16 excluding 16.5, 16.7, 17 excluding 17.7 to 17.10).

References :

- 1. Fundamentals of Database Systems, Elmasri Navrate Pearson Education
- 2. Database Management Systems, Raghuramakrishnan, Johannes Gehrke, TATA Mc Graw
 - Hill

3. Data base Systems design, Implementation, and Management, Peter Rob & Carlos Coronel 7th Edition.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9512) OBJECT ORIENTED PROGRAMMING THROUGH JAVA

II Year B. Tech CSE I SEM

LTPC 4004

Pre-Requisites: (A9506) Data Structures through C++.

Course Objectives:

Modern Computerization methods have matured in the problem solving aspects and presently use the concepts of object oriented treatment of issues. Data sets are used with more functional aspects using the concept of classes and objects with a distinct programming methodology which has become predominant. Many other important software development techniques are based upon the fundamental ideas employed in object-oriented programming. The CSE students are already exposed to preliminaries using C++. Now this course introduces Java and OOPs programming at a higher platform.

UNIT-I

OOP Concepts: Data Abstraction, Encapsulation, Inheritance, Benefits of inheritance, Polymorphism, Classes and Objects, Procedural and Object oriented Programming paradigms.

Java Programming: History of Java, Comments, Data Types, Variables, Constants, Scope and Life Time of Variable, Operators, Operator Hierarchy, Expressions, Type Conversion and Casting, Enumerated Types, Control Flow-Block Scope, Conditional Statements, loops, break, continue statements, simple java stand alone programs, arrays, console input and output, formatting output, constructors, methods, parameter passing, static fields and methods, access control, this reference, overloading methods and Constructors, recursion, garbage collection, Nested Classes, Inner Classes.

(Text Book-1, Page Number:3-159)

UNIT-II

Inheritance: Inheritance hierarchies super and sub classes, Member access rules, super keyword, method over riding, preventing Inheritance: final classes and methods, the Object class and its methods.

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

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

(TetBook-1, Page Numbers:161-205).

UNIT-III

Exception Handling- Dealing with Errors, benefits of Exception Handling, the classification of exceptions-exception Hierarchy, checked exceptions and unchecked exceptions, Usage of

try, catch, throw, throws and finally, re-throwing exceptions, exception specification, built in exceptions, creating own exception sub classes.(TextBook-1: PageNumber:207-225) **Files-** streams-byte streams, character streams, text Input/output, binary input/output random access file operations, File management using File class, exploring String Class.

UNIT-IV

Collection Framework in Java- Introduction to Java Collections, Overview of Java Collection Frame work, Generics, Commonly used Collection classes-Array List, Vector, Hash Table, Stack, Enumeration, Iterator, String Tokenizer, Random, Scanner, calendar and Properties.(TextBook-1 PageNumbers: 453-492).

Multi Threading- Differences between multiple processes and multiple threads, thread states, creating threads, interrupting threads, thread priorities, synchronizing threads, inter-thread communication, producer consumer pattern. (TextBook-1 PageNumbers: 227-249).

UNIT-V

GUI Programming with Java- The AWT class Hierarchy, Introduction to Swing, Swing vs. AWT, Hierarchy for Swing Components, Containers- JFrame, JApplet, JDialog, JPanel, Overview of some swing components- JButton, JLabel, JTextField, JTextArea, simple swing applications, Layout Management-Layout manager types-border, grid and flow. (TextBook-1 PageNumbers: 735-820, 965-990).

Event Handling- Events, Event Sources, Event classes, Event Listeners, Relationship between Event sources and Listeners, Delegation event model, Examples: handling a button click, handling mouse events, Adapter classes. (TextBook-1 PageNumbers: 707-729).

Applets: Inheritance hierarchy for applets, differences between applets and applications, Life Cycle of an applet, passing parameters to applets, applet security issues. (TextBook-1 PageNumbers: 687-706).

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Describe the concepts of Java Programming language
- 2. Demonstrate the concepts of Polymorphism and Inheritance
- 3. Develop robust applications using Exception handling.
- 4. Develop multithreaded applications with synchronization.
- 5. Design GUI based applications and Applets for web applications.

Text Books:

1. Java The Complete Reference, 8th Edition. Hebert Schildt. Indian edition.

Reference Books:

- 1. Java for Programmers, P.J. Dietel and H.M Dietel, Peearson Education (OR) JAVA: How to Program P.J. Dietel and H.M. Dietel, PHI.
- 2. Object Oriented Programming through Java, P. Radha Krishna, University Press.
- 3. Thinking in Java, Bruce Ecel, Pearson Education
- 4. Programming in Java, S. Malhotra and S. Choudary, Oxford Univ. Press.

(A9513) COMPUTER ORGANIZATION AND ARCHITECTURE

II Year B.Tech CSE I Semester

LTPC 3103

Pre-Requisites: None

Course Objectives:

To make the students learn the fundamentals of computer organization and its relevance to classical and modern problems of computer design, make them understand the structure and behavior of various functional modules of a computer, understand the techniques that computers use to communicate with I/O devices, understand the concepts of pipelining and the way it can speed up processing and to understand the basic characteristics of multiprocessors.

UNIT-I

STRUCTURE OF COMPUTERS: (Text book 1: pg: 1 – 18)

Computer types, Functional units, Basic Operational concepts, Von-Neumann Architecture, Bus Structures, Software, Performance, Multiprocessors and Multicomputer.

REGISTER TRANSFER AND MICRO-OPERATIONS: (Text book 2: pg: 93 – 117) Register Transfer Language, Register Transfer, Bus and Memory transfers, Arithmetic microoperations, Logic micro operations, Shift micro-operations, Arithmetic logic shift unit.

UNIT-II

BASIC COMPUTER ORGANIZATION AND DESIGN: (Text book 2: pg: 125 – 168)

Instruction codes, Computer registers, Computer instructions, Timing and Control, Instruction cycle, Memory-reference instructions, Input-Output and Interrupt, Complete Computer Description, Design of Basic Computer, Design of Accumulator Logic.

MICRO-PROGRAMMED CONTROL: (Text book 2: pg: 215 - 236)

Control memory, Address sequencing, Micro program example, Design of Control Unit

UNIT-III

CENTRAL PROCESSING UNIT: (Text book 2: pg: 243 – 292)

General Register Organization, Stack organization, Instruction formats, Addressing modes, Data Transfer and Manipulation, Program control, Reduced Instruction Set Computer (RISC).

COMPUTER ARITHMETIC: (Text book 2: pg: 335 – 354)

Addition and Subtraction, Multiplication and Division Algorithms

UNIT-IV

COMPUTER ARITHMETIC: (Text book 2: pg: 356 - 378)

Floating-Point Arithmetic Operation, Decimal Arithmetic Unit, Decimal Arithmetic Operations.

INPUT-OUTPUT ORGANISATION: (Text book 2: pg: 383 – 421)

Peripheral devices, Input-Output Interface, Asynchronous Data Transfer, Modes of Transfer, Priority Interrupt, Direct Memory Access(DMA)

UNIT –V

MEMORY SYSTEM: (Text book 2: pg: 447 – 477)

Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memory, cache memory, virtual memory.

PIPELINE: (Text book 2: pg: 301 – 320) Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline, RISC Pipeline

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Perceive basics Computer types, buses, registers.
- 2. Understand basic design of Computer, addressing modes, Micro Program Example.
- **3.** Perceive control unit operations and arithmetic Operations
- 4. Understand various Peripheral devices.
- 5. Design memory organization that use banks for different word size operations.

Text Books:

1. "Carl Hamacher, Zvonks Vranesic, SafeaZaky", Computer Organization, 5th edition, McGraw Hill, New Delhi, India 2002 (Unit-I).

2. "Computer Systems Architecture", 3/e, M. Moris Mano, PEA, 2007 (Unit-II, III, IV, V).

Reference Books:

1. "Computer Organization and Architecture", 8/e, William Stallings, PEA, 2010.

2. "Andrew S. Tanenbaum , Structured Computer Organization", 5th edition, Pearson Education Inc, New Jersy 2006.

3. Sivarama P. Dandamudi, "Fundamentals of Computer Organization and Design", Springer Int. Edition, USA 2003.

(A9452) DIGITAL LOGIC DESIGN & MICROPROCESSORS LAB

II Year B.Tech. CSE I- Sem

LTP C 003 2

Pre-Requisites: (A9450) Digital Logic Design & Microprocessors

Course Objectives:

- Understand need of microprocessors, microcontrollers and to know complete architectural, programming, details of 8086 microprocessor
- This course provides in depth knowledge of switching theory and the design techniques of digital circuits

Verify the functionality of the following

- 1. Logic gate (AND, OR, NOT, NAND, NOR, XOR, XNOR)
- 2. Flip flops (SR, D, JK, T)
- 3. Half adder and full adder circuits.
- 4. 3 to 8 Decoder
- 5. Multiplexer/Demultiplexer
- 6. Counters (ripple/sync)

The following programs are to be written for assembler and execute the same with 8086 kits.

- 1. 16 bit addition and subtraction.
- 2. 16 bit multiplication.
- 3. 16 bit division.
- 4. Greatest common devisor(GCD)
- 5. Fibonacci series.
- 6. Sorting of numbers (ascending and descending order)
- 7. String manipulation.
- 8. Searching of numbers(largest and smallest)

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Demonstrate various types of logic gates (AND, OR, NOT, NAND, NOR, XOR, XNOR) and flip flops.
- 2. Analyze and design various types of combinational and sequential circuits.
- 3. Develop microprocessor based programs for Arithmetic and Logical Operations
- 4. Develop microprocessor based programs for various problems.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9514) DATABASE MANAGEMENT SYSTEMS LAB

II Year B.Tech. CSE I Sem

LTP C 0 0 3 2

Pre-Requisites: None

Course Objectives:

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

Roadway Travels

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

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

- Reservations and Ticketing
- Cancellations

Reservations & Cancellation: Reservations are directly handled by booking office. Reservations can be made 30 days in advance and tickets issued to passenger. One Passenger/person can book many tickets (to his/her family).

Cancellations are also directly handed at the booking office. In the process of computerization of Roadway Travels you have to design and develop a Database which

consists the data of Buses, Passengers, Tickets, and Reservation and cancellation details. You should also develop query's using SQL to retrieve the data from the database.

The above process involves many steps like

- 1. Analyzing the problem and identifying the Entities and Relationships
- 2. E-R Model
- 3. Relational Model
- 4. Normalization
- 5. Creating the database
- 6. Querying.

Students are supposed to work on these steps week wise and finally create a complete "Database System" to Roadway Travels. Examples are given at every experiment for guidance to students.

WEEK 1: E-R Model

Analyze the carefully and come up with the entities in it. Identify what data has to be persisted in the database. This contains the entities, candidate attributes etc.

Identify the primary keys for all the entities. Identify the other keys like keys, partial keys, if any.

Example: Entities:

- 1. BUS
- 2. Ticket
- 3. passenger

Relationships:

- 1. Reservation
- 2. Cancellation

PRIMARY KEY ATTRIBUTES:

- 1. Ticket ID (Ticket Entity)
- 2. Passport ID (Passenger Entity)
- 3. Bus_NO(Bus Entity)

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

Note: The student is required to submit a document by writing the Entities and Keys to the lab teacher.

WEEK 2: Concept design with E-R Model

Relate the entities appropriately. Apply cardinalities for each relationship. Identify strong entities and weak entities (if any). Indicate the type of relationships (total / partial). Try to incorporate generalization, aggregation, specialization etc wherever required.

Note: The student is required to submit a document by drawing the E-R Diagram to the lab teacher.

WEEK 3: Relational Model

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

Example: The passenger tables look as below. This is an example. You can add more attributes based on E-R model. This is not a normalized table.

Name	Age	Sex	Address	Ticket_id	Passport ID

Note: The student is required to submit a document relationships in a tabular fashion to the lab teacher.

WEEK 4: Normalization

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

For the above table in the First normalization we can remove the multi valued attribute Ticket_id and place it in another table along with the primary key of passenger.

First Normal Form: The above table can be divided into two tables as shown below. Passenger

Name	Age	Sex	Address	Passport_ID

Passport_ID	Ticket_id

You can do the second and third normal forms if re wired. Any ht)* given Normalized tables are at the end.

WEEK 5: installation of Mysql and practicing DDL commands

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

Example for creation of a normalized "Passenger" table. CREATE TABLE Passenger (Passport_id INTEGER PRIMARY KEY, Name VARCHAR (50) Not NULL, Age Integer Not NULL, Sex Char, Address VARCHAR (50) Not NULL); Similarly create all other tables. Note: Detailed creation of tables is given at the end.

WEEK 6: Practicing DML commands

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

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

Inserting values into "Bus" table:

Insert into Bus values (1234,'hyderabad', lirupathi'); Insert into Bus values (2345,1hyderabd,Banglore'); Insert into Bus values (23,'hyderabd','Kolkata'); Insert into Bus values (45,11rupathi,'Banglore'); Insert into Bus values (34,1h derab yc11,1Chennar); **Inserting values into ''Passenger'' table:** Insert into Passenger values (1, 45,'ramesh', 45,'M','abc123'); Insert into Passenger values (2, 78,'geetha', 36,'F','abc124'); Insert into Passenger values (45, 90,'ram', 30,'M',1abc12'); Insert into Passenger values (67, 89,'ravi', 50,'M','abc14'); Insert into Passenger values (56, 22,'seetha', 32,'F','abc55');

Few more Examples of DML commands:

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

WEEK 7: Querying

In this week you are going to practice queries (along with subquries) Using queries ANY, ALL, IN, Exists, NOT EXISTS, UNION, INTERSECT, Constraints etc.

Practice the following Queries:

- 1. Display unique PNR_no of all passengers.
- 2. Display all the names of male passengers.
- 3. Display the ticket numbers and names of all the passengers.
- 4. Find the ticket numbers of the passengers whose name start with and ends with 'h'.
- 5. Find the names of passengers whose age is between 30 and 45,
- 6. Display all the passengers names beginning with 'A'
- 7. Display the sorted list of passengers names

WEEK 8 and WEEK 9: Querying (continued...)

You are going to practice queries using Aggregate functions (COUNT, Sum, AVG, and MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.

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

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

3. Find number of tickets booked for each PNR_no using GROUP BY CLAUSE. Hint: Use GROUP BY on PNR No.

- 4. Find the distinct PNR numbers that are present.
- 5. Find the number of tickets booked by a passenger where the number of seats is greater than
- 1. Hint: Use GROUP BY, WHERE and HAVING CLAUSES.
- 6. Find the total number of cancelled seats.

WEEK 10: Triggers

In this week you are going to work on Triggers. Creation of insert trigger, delete trigger, update trigger. Practice triggers using the above database. Eg: CREATE TRIGGER updcheck BEFORE UPDATE ONpassenger FOR EACH ROW BEGIN IF NEW.TickentNO > 60 THEN SET New.Tickent no = Ticket no; ELSE SET New.Ticketno:at 0; END IF; END;

WEEK 11: Procedures

This session you are going to learn Creation of stored procedure, Execution of procedure and modification of procedure. Practice procedures using the above database. Eg: CREATE PROCEDURE myProc() BEGIN SELECT COUNT(Tickets) FROM Ticket WHERE age>=40; End;

WEEK 12: Cursors

In this week you need to do the following: Declare a cursor that defines a result set. Open the cursor to establish the result set. Fetch the data into local variables as needed from the cursor, one row at a time. Close the cursor when done CREATE PROCEDURE myProc(in_customer_id INT) BEGIN DECLARE v_id INT; DECLARE v_name VARCHAR (30); DECLARE c1 CURSOR FOR SELECT stdld,stdFirstname FROM students WHERE stdId=in customer id; OPEN c1; FETCH cl into v_id, v_name; Close c1: END: **Tables BUS** Bus No: Varchar: PK (public key) Source : Varchar **Destination : Varchar** Passenger PPNO: Varchar(15)) : PK Name: Varchar(15) Age int (4) SexIChar(10) : Male / Female Address: VarChar(20) **Passenger_Tickets** PPNO: Varchar(15)) : PK Ticket No: Numeric (9) Reservation PNR_No: Numeric(9):
FK Journey_date : datetime(8) No_of_seats : int (8) Address : Varchar (50) Contact No: Numeric (9) --> Should not be less than 9 and Should not accept any other character other than Integer Status: Char (2) : Yes / No Cancellation PNR No: Numeric(9) : FK Journey_date : datetime(8) No of seats : int (8) Address : Varchar (50) Contact_No: Numeric (9) --> Should not be less than 9 and Should not accept any other character other than Integer Status: Char (2) : Yes / NoTicket Ticket No: Numeric (9): PK Journey date : datetime(8) Age : int (4)Sex:Char(10) : Male / Female Source : Varchar **Destination : Varchar** Dep_time : Varchar

COURSE OUTCOMES:

After the completion of this course the students should be able to :

- 4. Design database schema for given Application.
- 5. Transform ER Model to Relational Model.
- 6. Apply the normalization techniques for development of application software to realistic problems.
- 7. Construct SQL queries to retrieve information from databases.

Reference Books:

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- 1. Introduction to SQL, Rick F.Vander Lans, Pearson education.
- 2. Oracle PL/SQL, B.Rosenzweig and E.Silvestrova, Pearson education
- 3. Oracle PL/SQL Programming, Steven Feuerstein, SPD.
- 4. SQL & PL/SQL for Oracle 10g, Black Book, Dr. P. S. Deshpande, Dream Tech.
- 5. Oracle Database 11g PL/SQL Programming, M. Mc Laughlin, TMH.
- 6. SQL Fundamentals, J.J. Patrick, Pearson Education.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9515) OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB

II Year B.Tech.(CSE) I Semester

LTPC 0032

Pre-Requisites: None

Course Objectives:

This course introduces basic concepts of Object oriented Programming concepts, apply them in Problem solving and to learn the basics of java Console and GUI based Programming. Understand the basic and some advanced issues related to writing classes and methods such as data, visibility, scope, method parameters, object references, and nested classes. Develop solid Java programming skills and the ability to put in practice they acquired knowledge and understanding of the Java language and object-oriented design in relatively simple case studies.

Syllabus Content

Week 1. a) Write a program to demonstrate class.

- b) Write a Java program that prompts the user for an integer and then prints outall prime numbers up to that integer.
- c) Write a program on parameterized constructor.
- d) Write a java program to implement matrix multiplication.
- Week 2. a) Write a java program to implement constructor overloading
 - b) Write a program on this keyword.
 - c) Write a program on multiple inheritance using interfaces.

- d) Write a program using keyword 'super'.
- e) Write a program on static & dynamic binding.
- Week 3. a) Write a Java program that illustrates how run time polymorphism is achieved.b) Write a program on abstract class.
- Week 4. Write a Java program to create an abstract class named Shape that contains two integers and an empty method named print Area (). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contains only the method print Area () that prints the area of the given shape.
- Week 5. Write a java program that illustrates the following:
 - a) Creation of simple package.
 - b) Accessing a package.
 - c) Implementing interfaces.
- Week 6. Write a java program to implement following exception types
 - a) try catch .
 - b) throw .
 - c) user defined exceptions.
 - d) Multiple exceptions
- Week 7. Write a Java program that implements a multi-thread application that has three threads. First thread generates random integer every 1 second and if the value is even, second thread computes the square of the number and prints. If the value is odd, the third thread will print the value of cube of the number.
- Week 8. Write a Java program that loads names and phone numbers from a text file where the data is organized as one line per record and each field in a record are separated by a tab (). It takes a name or phone number as input and prints the corresponding other value from the hash table (hint: use hash tables).
- Week 9. a) Write a Java program for handling mouse and keyboard events.b) Write a Java program for handling menu events.
- Week 10. Write a Java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow, or green with radio buttons. On selecting a button, an appropriate message with "Stop" or "Ready" or "Go" should appear above the buttons in selected color. Initially there is no message shown.
- **Week 11.** Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -, *, % operations. Add a text field to display the result. Handle any possible exceptions like divided by zero.
- Week 12. a) Write an applet that displays a simple message.b) Write a java program for passing parameters to applets.
- Week 13. Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines correspond to rows in the table. The elements are separated by commas. Write a java program to display the table using Labels in Grid Layout.
- Week 14. Write a Java program that: a) Implements stack ADT.

- b) Converts infix expression into Postfix form
- Week 15. a) Develop an applet in Java that displays a simple message.
 - b) Develop an applet in Java that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named "Computer" is clicked.

Course Outcomes:

After the completion of this course the students should be able to :

1. Develop applications for a range of problems using object-oriented programming techniques

- 2. Design and develop applications with multithreading and implement exception handling.
- 3. Develop applications using Console I/O and File I/O
- 4. Design simple Graphical User Interface applications

Text Books:

- 1. Java Fundamentals- A comprehensive Introduction, Hebert Schildt and Dale Skrien, TMH.
- 2. The Complete Reference Java J2SE 5th Edition, Herbert Schildt, TMH Publishing Company Ltd, New Delhi.

Reference Books:

- 1. Java for Programmers, P.J. Dietel and H.M Dietel, Pearson Education (OR) JAVA: How to Program P.J. Dietel and H.M. Dietel, PHI.
- 2. Object Oriented Programming through Java, P. Radha Krishna, University Press.
- 3. Thinking in Java, Bruce Ecel, Pearson Education
- 4. Programming in Java, S. Malhotra and S. Choudary, Oxford Univ. Press.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9014) ENVIRONMENTAL STUDIES

II Yr I Sem: CSE

L T P C 2 0 0 0

Pre-Requisites: None

Course Objectives:

- 1. Understanding the importance of ecological balance for sustainable development.
- 2. Understanding the impacts of developmental activities and mitigation measures.
- 3. Understanding the environmental policies and regulations.

UNIT-I:

Ecosystems

Definition, Scope and Importance of ecosystem. Classification, structure and function of an ecosystem, Food chains, food webs and ecological pyramids. Flow of energy, Biogeochemical cycles, Bioaccumulation, Biomagnification, ecosystem value, services and carrying capacity.

UNIT-II:

Natural Resources:

Classification of Resources, Living and Non-Living resources, water **resources:** use and over utilization of surface and ground water, floods and droughts, Dams: benefits and problems. **Energy resources:** growing energy needs, renewable and non renewable energy sources, use of alternate energy source, case studies.

UNIT-III:

Biodiversity And Biotic Resources:

Introduction, Definition, genetic, species and ecosystem diversity. Value of biodiversity; consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega diversity nation, Hot spots of biodiversity. Threats to biodiversity: habital loss, poaching of wildlife, man-wildlife conflicts; conservation of biodiversity: In-Situ and Ex-situ conservation. National Biodiversity act.

UNIT-IV:

Environmental Pollution and Control Technologies: Environmental Pollution: Classification of pollution, **Air Pollution:** Primary and secondary pollutants, Automobile and Industrial pollution, Ambient air quality standards. **Water pollution:** Sources and types of pollution, drinking water quality standards. **Soil Pollution:** Sources and types, Impacts of modern agriculture, degradation of soil. **Noise Pollution:** Sources and Health hazards, standards, **Solid waster:** Municipal Solid Waste management, composition and characteristics of e-Waste and its management. **Pollution control technologies:** Wastewater Treatment methods: Primary, secondary and Tertiary. **Global Environmental Problems and Global Efforts:** Climate change and impacts on human environment. Ozone depletion and Ozone depleting substances (ODS). Deforestation and desertification. International conventions / Protocols: Earth summit, Kyoto protocol and Montreal Protocol.

UNIT-V

Environmental Policy, Legislation & EIA: Environmental Protection act, Legal aspects Air Act-1981, Water Act, Forest Act, Wild life Act, Municipal solid waste management and handling rules, biomedical waste management and handling rules, hazardous waste management and handling rules. EIA: EIA structure, methods of baseline data acquisition. Overview on Impacts of air, water, biological and Socio-economical aspects. Strategies for risk assessment, Concepts of Environmental Management Plan (EMP). **Towards Sustainable Future:** Concept of Sustainable Development, Population and its explosion, Crazy Consumerism, Environmental Education, Urban Sprawl, Human health, Environmental Ethics, Concept of Green Building, Ecological Foot Print, Life Cycle assessment (LCA), Low carbon life style.

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Recall previously learned ecosystem and find how the biodiversity changes went in the environment.
- 2. Demonstrate outlines of types of pollutions and explain in related to day to day life.
- 3. Organize important seminars on natural resources.
- 4. Apply models of food chains and energy flow models to solve the identified parameters.
- 5. Classify the types of pollutants and distinguish the functions of sustainable development that take part in the environment.

Suggested Text Books:

- 1. Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha for University Grants Commission.
- 2. Environmental Studies by R. Rajagoplalan, Oxford University Press.

Reference Books:

- 1. Environmental Science: towards a sustainable future by Richard T.Wright. 2008 PHL Learning Private Ltd. New Delhi.
- 2. Environmental Engineering and science by Gilbert M. Masters and Wendell P. Ela 2008 PHI Learning Pvt. Ltd.

- 3. Environmental Science by Daniel B. Botkin & Edward A. Keller, Wiley INDIA edition.
- 4. Environmental Studies by Anubha Kaushik, 4th Edition, New age international publishers.
- 5. Text book of Environmental Science and Technology Dr. M. Anji Reddy 2007, BS Publications.
- 6. The syllabus of Environmental Studies prescribed by UGC/JNTUH is approved for adoption.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9016) STATISTICAL METHODS FOR ENGINEERS

II Year B.Tech.(CSE) II Semester

LTPC 3003

Pre-Requisites: None.

Course Objective:

This Course provides a thorough understanding of mathematical probability-related theory and statistics concepts and their applications with special emphasis on computational algorithms. The students will be taught many relevant topics on statistical methods involving numerical computation which form the basis for decision making for further study in various processes. It also exposes the student to theory of estimation and testing of hypothesis, various sampling tests, and analysis of variance, parameter estimations, theory of queues and stochastic process which help in many scientific, engineering and business activities.

UNIT-I: Probability, Random Variables and Related Concepts

Sample space and events – Probability – The axioms of probability – Some Elementary theorems – Conditional probability – Baye's theorem, Random variables – Discrete and continuous random variables, Probability distributions, mass function/ density function of a probability distribution. Mathematical Expectation,

UNIT-II: Probability distributions and Concepts.

Distributions- Binomial distribution, Poisson distribution, normal distributions and their properties.

UNIT-III: Correlation & Regression and their Concepts

Covariance of two random variables, Correlation -Coefficient of correlation, The rank correlation. Regression- Regression Coefficient, The lines of regression.

UNIT-IV: Testing of Hypothesis in Large and Small Samples

Null hypothesis, Alternate hypothesis, type I, & type II errors – critical region, confidence interval, Level of significance. One sided test, two sided test.

Large sample tests- related to significance of sample's means; populations various sample means – significance of samples standard deviations; population various sample standard deviations – significance of samples' proportions; population various sample proportions.

Small sample tests- based on t-distribution for testing of various means, F-distribution for testing of variances, χ^2 distribution for testing of goodness of fitting of Binomial and Poisson distributions.

UNIT- V:Queuing Theory

Queuing Theory: Notation and Assumption, Queuing Models with Poisson Input - Exponential

Service, Infinite Queue-Infinite Source, Single Server Model, Infinite Queue-Infinite Source,

Arrival Theorem – Pure Birth process and Death process M/M/1 Model, Finite Queue-Infinite

Source, Single Server Model

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Summarize the importance of probability and statistics and Apply the concept of probability application in real life.
- 2. Utilize the Probability Distributions in realistic situations.
- 3. Construct a Linear Regression lines and estimate the values of variables.
- 4. Choose the appropriate Testing of Hypothesis.
- 5. Solve the queuing models to analyze the real world problems.

Text Books:

- 1. Fundamentals of mathematical statistics by s c gupta and v.k.kapoor
- 2. Probability and statistics for engineers and scientists by sheldon m.ross,academic press
- 3. Probability and statistics for engineering and the sciencec by jay l.devore.

References:

- 1. Mathematics for engineers series –probability statistics and stochastic process by k.b.datta and m.a s.srinivas, cengage publications
- 2. Probability, statistics and stochastic process by prof.a r k prasad., wiely india
- 3. Probability and statistics by t.k.v.iyengar &b.krishna gandhi
- 4. A text book of probability and statistics, shahnaz bathul, cengage learning

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9516) DESIGN AND ANALYSIS OF ALGORITHMS

II Year B. Tech.(CSE) II Semester

L T P C 3 1 0 3

Pre-Requisites: (A9506) Data Structures through C++..

Course Objectives:

This course trains the students to study a few known methods of solution processes, build new solution algorithms, analyze the asymptotic performance of algorithms and to write rigorous correctness proofs for algorithms. Focus would be to make the students to choose the appropriate data structures and algorithm design methods for specified classes of applications; to understand how the choice of data structures and algorithm design methods would impact the performance of programs and how to compare them. Design methods such as the greedy method, divide and conquer, dynamic programming, backtracking and branch and bound; and methods to deal with logarithmic type, polynomial type and non polynomial type of classes of problems; synthesis of efficient algorithms in common engineering design situations would be discussed.

UNIT – I

Data Structure Oriented Approach:

Algorithm Specification – Performance Analysis – Randomized Algorithms. Elementary Data Structures: Stacks and Queues – Trees – Dictionaries – Priority Queues – Sets and Disjoint Set Union – Graphs. (Topics 1.1 to 1.4, 2.1 to 2.6)

UNIT – II

Divide–and–Conquer Approach: The General Method – Binary Search – Finding the Maximum and Minimum – Merge Sort – Quick Sort – Selection – Strassen's Matrix Multiplication. (Topics 3.1 to 3.7)

UNIT – III

Greedy Approach:

The General Method – Knapsack Problem – Tree Vertex Splitting – Job Sequencing With Dead Lines – Minimum Cost Spanning Trees – Single Source Shortest Path.

(Topics 4.1 to 4.5, 4.8). Dynamic Approach: The General Method of Dynamic Programming – Multistage Graphs – All Pairs Shortest Paths – Single Source Shortest Paths – Optimal Binary Search Trees – 0/1 Knapsack – Reliability Design - Travelling Sales Person Problem (Topics 5.1 to 5.5, 5.7 to 5.9)

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

Basic Traversal and Search: Techniques for Binary Trees – Techniques for Graphs – Connected Components and Spanning Trees – Bi-connected Components and DFS. (Topics 6.1 to 6.4)

Backtracking: The General Method – The 8-Queens Problem – Sum of Subsets – Graph Coloring – Hamiltonian Cycle. (Topics 7.1 to 7.5)

UNIT – V

Branch and Bound: The General Method – Examples – Travelling Sales Person Problem. (Topics 8.1, 8.3). NP–Hard and NP–Complete Problems:Basic Concepts. General Description of "Cook's Theorem", NP–Hard Graph Problems. (Topics 11.1 to 11.3)

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Expose student's to few known methods of solution processes, build new solution algorithms, analyze the asymptotic performance of algorithms and to write rigorous correctness proofs for algorithms.
- 2. Identify appropriate data structures and algorithm design methods for specified classes of applications;
- 3. Perceive how the choice of data structures and algorithm design methods would impact the performance of programs and how to compare them.
- 4. Design methods such as the greedy method, divide and conquer, dynamic programming, backtracking and branch and bound
- 5. Perceive methods to deal with logarithmic type, polynomial type and non-polynomial type of classes of problems and Synthesis of efficient algorithms in common engineering design situations would be discussed.

Text Books:

1. Ellis Horowitz, Sartaj Sahni & Sanguthevar Rajasekharan: Fundamentals of Computer

Reference Books:

1. Baase S. & Gelder A.V. : Computer Algorithms [Addison Wesley]

- 2. Cormen Th et al : Introduction To Algorithms [PHI]
- 3. Brassard & Bratley : Fundamentals of Algorithms [PHI]

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9517) FORMAL LANGUAGES AND AUTOMATA THEORY

II Year B.Tech.(CSE) II Semester

L T P C 4 0 0 4

Pre-Requisites: (A9510) Mathematical Foundation & Computer Science..

Objectives:

The purpose of the course is to make students

- 1. Understand all basic concepts in theoretical computer science and its application language-theory ideas, such as regular expressions and context free grammers, in the design of software, such as compliers and text processors.
- 2. Understand various Computing models like Finite State Machine, Pushdown Automata, and Turing Machine.
- 3. Understand Decidability and Undecidability of various problems.
- 4. Classify machines by their power to recognize languages
- 5. Comprehend the hierarchy of problems arising in the computer sciences.
- 6. Qualified to have an insight of the software for a better and efficient utilization of time and resources
- 7. Eligible of understanding the given CFL and defining a new Lemma.

Syllabus Content

Unit-I

Fundamentals: Strings, Alphabet, Language, Set Notations, Relations, transition diagrams and Language recognizers(1, 6, 16)

Finite Automata: Finite State System, Basic definitions, Deterministic Finite Automata(DFA) Nondeterministic Finite Automata (NFA), Equivalence and Conversion of

NFA to DFA, NFA with ε -moves, Equivalence and Conversion of NFA's with and without ε moves, Equivalence between two FSM's. Finite Automata with output- Moore Machines, Mealy Machines

(13, 16, 19, 22, 24, 26, 45)

Unit-II

Regular expression & Regular Languages: regular expressions, Regular sets, identity rules, equivalence and Conversion of Regular expressions to Finite Automata & vice-versa, pumping lemma of regular sets, minimization of Finite Automata. (28, 29, 29, 34)

Context Free Grammars – I: Regular Grammar– Right linear grammar, Left Linear Grammar, Equivalence between Regular Grammar and Finite Automata & Inter Conversion. Derivations – Light Most Derivation (RMD), Left Most Derivation (LMD) Derivation Trees.(*217, 219*)

(Ref .Introduction to Theory of Computation –Sipser 2nd edition Thomson Pg.No:66-76)

Unit-III

Context Free Grammars – II: Simplification of Context Free Grammars, Chomsky Normal Form, Greibach normal form, Pumping Lemma for Context Free Languages, Enumeration of properties of CFL(without Proof) (87, 92, 94, 125, 177)

Pushdown Automata: Informal descriptions, Definitions, Model, Acceptance of CFL – Acceptance by final State, Acceptance by empty stack. Pushdown Automata Versus CFL's – equivalence & conversions. (107,108, 112, 114)

Unit-IV

Turing Machine: Introduction, The Turing Machine Model, Computable Languages and Functions, Techniques for Turing Machine Construction, Modifications of Turing Machine, Variants of Turing Machine(*146*, *147*, *150*)

(Ref. Introduction to Theory of Computation –Sipser 2nd edition Thomson Pg.No:150-155)

Unit-V

Computability Theory: Universal Turing Machine and an Undecidable Problem, Undecidability of Post's Correspondence problem, Chomsky Hierarchy of Languages, Linear Bounded Automata and Context Sensitive language, LR(0) grammar, LR(0) Grammars and PDA's (181, 193, 271, 255), 223, 248, 107)

Formal Languages and Automata Theory

Course Outcomes:

After the completion of this course the students should be able to :

1. Explain basic concepts in formal language theory, grammars, automata theory, computability theory, and complexity theory.

2. Demonstrate abstract models for language recognizers like deterministic (DFA), nondeterministic (NFA) models.

3. Know the production rules of regular expressions and grammars, including context-free and context-sensitive grammars.

4. Explain the application of machine models and descriptors to compiler theory and parsing.

5. Construct a pushdown automata and context free, regular, normal form grammars to design computer languages

6. Evaluate solution for various problems using a theoretical computer (Turing machine) for a computer language.

7. Explain the relationship among language classes and grammars with the help of Chomsky Hierarchy.

8. Distinguish between decidability and undesirability.

Text Books:

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

Reference Books:

- 1. Theory of Computer Science Automata languages and computation -Mishra and Chandrashekaran, 2nd edition, PHI
- 2. Introduction to Computer Theory, Daniel I.A. Cohen, John Wiley.
- 3. Introduction to languages and the Theory of Computation ,John C Martin, TMH

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9518) OPERATING SYSTEMS

II Year B.Tech. (CSE) II Semester

L	Т	Р	С
4	0	0	4

Pre-Requisites: (A9513) Computer Organization & Architecture.

Objectives: To provide an introduction of operating system concepts as reference to real systems. To give exposure to the professional responsibilities that are part of operating system design and development.

Syllabus Content

UNIT -I

Operating System Introduction: Batch, iterative, time sharing, multiprocessor, distributed, cluster and real-time systems, Unix system introduction and commands.

Operating system structures: Computer system structure, Network structure, I/O Structure, Storage Structure, Dual mode operation, System components, Operating-System Services, System Calls, System Programs, System structure, Virtual Machines, System Design and Implementation, System Generation.(page no 3-19&27-88).

UNIT -II

Process Management: Process concepts threads, scheduling-criteria algorithms, their evaluation, Thread scheduling, Process synchronization, the critical- section problem, synchronization Hardware, semaphores, classic problems of synchronization, monitors, Synchronization examples, atomic transactions.

Memory Management: Swapping, contiguous memory allocation, paging, structure of the page table , segmentation, virtual memory, demand paging, page-Replacement, algorithms, Thrashing.

(page no 95-135&189-225&273-348).

UNIT –III

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

File system Interface: The concept of a file, Access Methods, Directory structure, File system mounting, file sharing, protection, File System implementation-File system structure, file system implementation, directory implementation, directory implementation, allocation methods, free-space management, efficiency and performance, Recovery. (page no 243-264&&371-437).

UNIT –IV

Mass-storage structure: Overview of Mass-storage structure, Disk structure, disk attachment disk scheduling, swap-space management, RAID structure, stable-storage implementation, Tertiary storage structure. (page no 491-516).

UNIT –V

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

Security: The Security problem, program threats, system and network threats cryptography as a security tool, user authentication, implementing security defenses, firewalling to protect systems and networks, computer –security classifications. (page no 629-686).

Course Outcomes:

After the completion of this course the students should be able to :

1. Compare various Operating Systems architectures, IO structures, Network Structure.

2. Analyze the virtual memory ,paging and memory allocation techniques for various applications.

3. Apply Deadlock prevention and Deadlock Detection algorithms and Perceive the working of an operating system as a File manager, I/O manager, Process manager.

4. Understand the overview of Disk Storage Structure.

5. Analyze assess access controls to protect files.

Text Books:

1. Operating System Concepts- Abraham Silberchatz, Peter B. Galvin, Greg Gagne 7th Edition, John Wiley.

Reference Books :

1. Operating Systems' – Internal and Design Principles Stallings, Fifth Edition–2005, Pearson education/PHI

- 2. Operating System A Design Approach-Crowley, TMH.
- 3. Modern Operating Systems, Andrew S Tanenbaum 2nd edition Pearson/PHI.
- 4. Operating systems- A Concept based Approach-D.M.Dhamdhere, 2nd Edition, TMH

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9519) ADVANCED JAVA TOOLS

II Year B.Tech.(CSE) II Semester

L T P C 4 0 0 4

Pre-Requisites: (A9512) Object Oriented through JAVA.

Course Objectives:

The goal of this course is to equip students with advanced design and programming techniques in the object-oriented programming paradigms. To this end, specific objectives are to increase students knowledge of object-oriented design concepts. To get knowledge and skills needed to develop reusable, quality programs. To instruct students on the use of object-oriented design tools for modeling problem solutions and complex systems. And to increase student's proficiency in programming in object-oriented environments.

UNIT-I

Networking: Introduction, Manipulating URLs, Reading a File on a Web Server, Establishing a Simple Server (Using Stream Sockets), establishing a simple Client (Using Stream Sockets), Client/Server Interaction with Stream Socket Connections, Connectionless Client/Server Interaction with Datagram's.(TextBook-1 *Pg.No*:1146-1177).

UNIT-II

Remote Method Invocation (RMI): Introduction, Case Study: Creating a Distributed System with RMI, Defining the Remote Interface Implementing the Remote Interface, Define the Client, Compile and Execute the Server and the Client. (TextBook-1 *Pg.No*:980-995). **Connecting to Data Base-** JDBC Type 1 to 4 drivers, connecting to a data base, querying a data base and processing the results, updating data with JDBC.

UNIT-III

Servlets: Introduction, Overview of Servlet Technology, Downloading the Java Servlet Development Kit, Handling HTTP GET requests, Handling HTTP POST requests, Session Tracking, Multi tier Applications: Using JDBC from a Servlet, Electronic Commerce, Servlet Internet and World Wide Web Resources, Understanding MVC Architecture. (TextBook-1 Pg.No:935-974).

UNIT-IV

Java Server Pages (JSP): Introduction to JSP, JSP Overview, Generating Dynamic Content, Using Java Bean Component in JSP, Using Custom Tag Libraries and JSTL, Error Handling in JSP, Acessing DataBase.(Text Book-2 *Pg.No*: 3-10, 23-30, 45-73, 106-119, 171-206).

UNIT-V

Struts: Introduction to Struts, Building a simple strut Application, Validation Frame Work. (Text Book3- *Pg.No*:1-39,92-135).

COURSE OUTCOMES

After the completion of this course the students should be able to :

- **1.** How to develop and run enterprise software and large scale multi-tiered scalable reliable and secure network applications.
- 2. **D**emonstrate distributed applications.
- 3. Make use of these technologies to build dynamically generated web pages.
- 4. Explain integrated development environment to create debug and run enterprise level applications.
- 5. Designing applications using pre-built struts framework.

Text Books

- 1. JAVA How to Programming by DIETEL & DIETEL. 3rd Edition
- 2. Java Server Pages 3rd Edition. by Hans Bergsten.
- 3. Struts- The Complete Reference, Second Edition.

Reference Books

- 1. Java Server Pages- Hibert Schiltz.
- 2. HTML Black book- 1st Edition by Steven Holzner.

VAAGDEVI COLLEGE OF ENGINEERING AUTONOMOUS

(A9520) ADVANCED JAVA TOOLS LAB

II Year B.Tech II Sem CSE

L T P C 0 0 3 2

Pre-Requisites: (A9515) Object Oriented through JAVA Lab..

Course Objectives:

The goal of this course is to equip students with advanced design and programming techniques in object oriented programming paradigms. To this end, specific objectives are to increase students knowledge of object-oriented design concepts. To get knowledge and skills needed to develop reusable, quality programs. To instruct students on the use of object-oriented design tools for modelling problem solutions and complex systems and to increase student's proficiency in programming in object-oriented environments.

Week-1:

1. Write a client/server application using stream sockets

2. Write a client/server application using datagram sockets

Week-2:

3. Write a client/server program with form designing (Text field, labels, Text Area, Buttons).

4. Write a program for on RMI Application.

Week-3:

5. Write a program to implement Remote Interface.

6. Write a program to invoke a method at client side.

Week-4:

7. Write a program to invoke a method at server side.

8. Write a program to invoke a method at server side using multiple clients.

Week-5:

9. Write a Java program that connects to a database using JDBC and does add, delete, modify and retrieve operations.

Week-6:

10. Write a java program that prints the meta-data of a given table.

Week-7:

- 11. Write servlet program for displaying a message in a browser using generic servlet
- 12. Write a servlet program to retrieve the initial arguments.

Week-8:

- 13. Write a servlet program to insert the values into database, values should read as a client request.
- 14. Write a servlet program to .Retrieve the results from database depends on client request.

Week-9:

15. Write a servlet program for communicating first servlet to second servlet

16. Write a servlet program for invoking the get and post methods.

Week-10:

17. Write a servlet program for session tracking using http session.

Week-11:

18. Write a servlet program for session tracking using cookies

Week-12:

19 Write a servlet program in the format using http servlet.

20. Write a program to display a message using JSP.

Week-13:

21. Write a program to insert Values in to Data Base using JSP pages.

22. Write a program to retrieve Values from Data Base using JSP pages.

Week-14:

23. Write a program to handle errors in JSP pages.

Week-15:

24. Write a program to create simple user interface using struts framework.

25. Write a program to provide validation using struts framework.

COURSE OUTCOMES

After the completion of this course the students should be able to :

1. How to connect a java program with the mysql database.

2. Extend student's knowledge and practice in analysis and design of computer networks by focusing on computer programming.

3. Develop web pages using advanced server side programming through Servlets and JSP.

4. Demonstrate their ability to use different tools on complex projects

Text Books

- JAVA How to programming by DIETEL&DIETEL.
 Struts-2 Black Book-2nd Edition by Kogent Solutions Inc.

Reference Books

- 1. Java Server Pages-Hilbert Schiltz.
- 2. HTML Black book- 1st Edition by Steven Holzner.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9521) OPERATING SYSTEMS LAB

II Year B. Tech. CSE II- Semester

LTP C 0 0 3 2

Pre-Requisites: (A9501) **Problem Solving & Computer Programming.**

Objective: To provide an understanding of the language translation peculiarities by designing a complete translator for a mini language and understanding the design aspects of operating system. It introduces the basic principles in Operating System and covers all the management modules present in the OS like process management, Memory management, File management, Disk management, Network management, I/O management.

Syllabus Content

Week1. Simulate the following CPU scheduling algorithms c) Pre-emption SJF a) FCFS b) SJF Week2: Simulate the following CPU scheduling algorithms a) Priority b) Round Robin Week3: Simulate all file allocation strategies a) Sequential b) Indexed c) Linked Week4: Simulate MVT and MFT Week5: Simulate all File Organization Techniques a) Single level directory b) Two level c) Hierarchical d) DAG Week6: Simulate Bankers Algorithm for Dead Lock Avoidance Week7: Simulate Bankers Algorithm for Dead Lock Prevention Week8: Simulate all page replacement algorithms a) FIFO b) LRU c) Optimal Week9: Simulate Paging Technique of memory management. Week10: Simulate Shared memory and IPC Week11: Simulate all Disk scheduling Technique. Week12: Implement Thread Scheduling. Weel13: Implement all Synchronization Techniques. Week14: How do create directories using dos-h command and io.h commands? Week15: Simulate all file accessing methods a) Sequential access method b)Random access method Week16: Change File protection modes using commands. **Course Outcomes:**

After the completion of this course the students should be able to :

1. Apply CPU scheduling algorithms, Page replacement algorithms.

- 2. Explain Bankers Algorithm for Dead Lock Avoidance & Dead Lock Prevention
- **3.** Describe the concepts of paging and segmentation.
- **4.** Make use of Linux commands.

TEXT BOOKS: 1.

- 1. Operating System Concepts- Abraham Silberchatz, Peter B. Galvin, Greg Gagne 7th Edition, John Wiley.
- 2. Operating Systems' Internal and Design Principles Stallings, Sixth Edition–2005, Pearson education.

REFERENCES:

- 1. Operating Systems' Internal and Design Principles Stallings, Sixth Edition–2005, Pearson education.
- 2. Operating systems- A Concept based Approach-D.M.Dhamdhere, 2nd Edition, TMH

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9522) WEB TECHNOLOGIES LAB-I

II Year B.Tech.(CSE) II Semester	L	ΓР	С
	0	03	2

Pre-Requisites: (A9515) Object Oriented through JAVA Lab.

Objectives : To develop awareness and appreciation of the many ways that people access the web and to create standards-based websites that can be accessed by the full spectrum of web access technologies. To provide a comprehensive working knowledge on Internet, World Wide Web. To get exposure to implementation process using HTML, DHTML, JAVASCRIPTS and XML. To provide application oriented working knowledge on static and dynamic web pages using these technologies. To get hands on experience to develop a fully functional website using a variety of strategies and tools .To develop awareness on web designing tools like front page and Content Management System like Joomla. To gain the skills and project-based experience needed for entry into web design and development careers

Syllabus Content

WEEK 1. Write a html program with all basic tags <h1>, <h2>, <h3>, <h4>, <h5>, and <h6> and display it.

Write a html program with Paragraph Tag,Line Break Tag,Centering Content,Horizontal Lines ,Preserve Formatting

	Write a HTML Formatting program using Bold Text, Italic Text, Underlined, Text and Strike Text.
WEEK 2.	Write a html program to fomatt the text to "Superscript, SubScript and Inserted Text
	Write a html program for Adding Meta Tags to Your Documents and Specifying Keywords
	Write a html program using HTML Comments single line and Multiline
	Write a html program for displaying HTML Images
WEEK 3.	Write a html program on tables with Cellpadding, spacing Attributes and Colspan, Rowspan Attributes
	Write a html program to display HTML Lists both Unordered Lists and
WEEK 4.	Ordered Lists Write a html program to use Hyperlinks using Text and establish link to a Page Section in same Page and other page.
	Write a html program for setting Link Colors
	Write a html program to use Image as Links
	Write a html program to display HTML Marquees
WEEK 5.	Write a html program on Frames vertical and horizontal
	Write a html program using the Font tag.
WEEK 6.	Write a html program on Form Controls for Creating a user registration form containing all the form
	controls like Text Input Controls,□ Checkboxes Controls,□ Radio Box Controls,□ Select Box Controls,□ File
	Select boxes, \Box Hidden Controls, \Box Clickable Buttons, Submit and Reset Button etc.
WEEK 7.	Write a html program on Stylesheet using External Style Sheet, \Box Internal Style Sheet , Inline Style Sheet
WEEK 8.	Write a html program on layers.
WEEK 9.	Write a javaScript to display hello world using write method.
	Write a javaScript using functions and display alert message.

WEEK 10. Write a javaScript to read two values using prompt and display sum of two

numbers.

Write a javaScript to display Factorial of a number.

- **WEEK 11.** Write a javaScript on single dimention array for search program. Write a javaScript for sorting an array of elements
- **WEEK 12.** Write a javascript program on binary search. Write a javaScript on multidimentional array Eg:Matrix Addition
- **WEEK 13.** Write *JavaScript* to validate the following fields of the above registration page.

a.Name (Name should contains alphabets and the length should not be less than 6 characters).

b.Password (Password should not be less than 6 characters length).

c.E-mail id (should not contain any invalid and must follow the standard pattern <u>name@domain.com</u>)

d. Phone number (Phone number should contain 10 digits only). Note : You can also validate the login page with these parameters.

WEEK 14. Design a Calculator using Html and use Javascripts to perform calculations

Enter a Numb Enetr a Numb	ber			
Result				
Add	Sub	Multi	div	Clear

WEEK 15. Write an XML file which will display the Book information which includes the following:

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

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

Display the XML file as follows.

The contents should be displayed in a table. The header of the table should be in color GREY. And the

Author names column should be displayed in one color and should be capitalized and in bold. Use your

own colors for remaining columns.

WEEK 16. 1. Hands on Experience on html tools like the frontpage design and Joomla

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Define working knowledge of Internet and World Wide Web.
- 2. Demonstrate the implementation process using HTML, DHTML, JavaScripts and XML.
- 3. Build Static and Dynamic Web Pages using HTML, DHTML, JavaScripts, and XML.
- 4. Design and Develop a fully functional Web Page.

Text Books:

- 1 HTML Black Book (English) 1st Edition by Steven Holzner
- 2 Internet and World Wide Web How to program , Dietel and Nieto PHI/Pearson.

Reference Books:

- 1. Programming the world wide web,4th edition,R.W.Sebesta,Pearson
- 2. Internet and World Wide Web How to program , Dietel and Nieto PHI/Pearson.
- 3. Web Warrior Guide to Web Programming-Bai/Ekedaw-Cengage Learning.
- 4. Beginning Web Programming-Jon Duckett ,WROX

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9019) GENDER SENSITIZATION (Mandatory Elective)

II Year B.Tech. II-Sem,	L	Т	Р	С
	2	0	0	0
Pre-Requisites: None				

Course Objectives:

- To develop students sensibility with regard to issue of gender in contemporary India.
- To provide a critical perspective on the socialization of men and women.
- To introduce students to information about some key biological aspects of genders.
- To expose the students to debates on the politics and economics of work.
- To help students reflect critically on gender violence.
- To expose students to more egalitarian interactions between men and women.

Unit – 1 Gender: Why Should We Study It?

Unit – 2

Socialization: Making Women, Making Men

- 2.1 Introduction
- 2.2 Preparing for womanhood
- 2.3 Growing up male
- 2.4 First lessons in caste
- 2.5 Different masculinities

Unit – 3

Housework: The Invisible Labour

- 3.1 "My mother does not work"
- 3.2 "Share the load"

Unit – 4

Missing Women: Sex Selection and Its consequences

- 4.1 Declining sex ratio
- 4.2 Demographic consequences

Unit – 5

Knowledge: Through the Lens of Gender

- 5.1 Point of view
- 5.2 Gender and the structure of knowledge
- 5.3 Further reading: Unacknowledged women artists of Telangana

Unit – 6

Sexual Harassment: Say No!

- 6.1 Sexual harassment, not eve-teasing
- 6.2 Coping with everyday harassment
- 6.3 Further reading: "Chupulu"

Unit – 7

Women' Work: Its Politics and Economics

- 7.1 Fact and fiction
- 7.2 Unrecognized and unaccounted work
- 7.3 Further reading: Wages and conditions of work

Unit – 8

Domestic Violence: Speaking Out

- 8.1 Is home a safe place?
- 8.2 When women unite [Film]
- 8.3 Rebuilding lives
- 8.4 Further reading: New forums for justice

Unit – 9

Whose History? Questions for Historians and Others

- 9.1 Reclaiming a past
- 9.2 Writing other histories
- 9.3 Further reading: Missing pages from modern Telangana history

Unit – 10

Gender Spectrum: Beyond the Binary

- 10.1 Two or many?
- 10.2 Struggles with discrimination

Unit – 11

Thinking about Sexual Violence

- 11.1 Blaming the victim
- 11.2 "I fought for my life..."
- 11.3 Further reading: The caste face of violence

Unit – 12

Just Relationships: Being Together as Equals

- 12.1 Mary Kom and Onler
- 12.2 Love and acid just do not mix
- 12.3 Love letters
- 12.4 Mothers and fathers
- 12.5 Further Reading: Rosa Parks The braveheart

Unit – 13

Additional Reading: Our Bodies, Our Health

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Define the need and importance of women empowerment.
- 2. Extend the levels of understanding and classification of gender disparities.
- 3. Identify the need of equal distribution of work in all the sector irrespective of gender.
- 4. Construct the emergency needs of saving girl child.
- 5. Improves thinking levels to find solution to the missing women and bring realization in the society.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

3103

(A9523) DATA COMMUNICATIONS AND COMPUTER NETWORKS III year B. Tech I- Semester L T P C

Prerequisites: None

Course Objectives:

The objective of this course is to expose the students to the basic principles of the technology of data communications and networking. To give good working knowledge of the concept of data communication and its components, comprehend the use of different types of transmission media and network devices, flow control, error control, error detection and correction during data transmission. Also to understand the concept of LAN protocols and functions performed by Network Management System.

UNIT-I

Introduction: Data Communications, Networks, The Internet, Protocols and Standards, Network Models, Layered Tasks, The OSI Model, TCP/IP Protocol Suite, Addressing, Physical Layer and Media: Data and Signals, Analog and Digital, Periodic Analog Signals, Digital Signals, Transmission impairment, Bandwidth utilization: Multiplexing, Spread Spectrum Transmission Media: Guided Media, Unguided Media: Wireless, Switching. Telephone Networks, Dialup Modems, Digital Subscriber Line. (Page No : 1-94 & 161-255) UNIT-II

Data link layer: Error Detection and Correction, Framing, Flow and Error Control, Protocols, Noiseless Channels, Noisy Channels, HDLC, Point to Point Protocol, Multiple Access, Random Access, Controlled Access, Channelization, **Wired LANs** :Ethernet, IEEE Standards, Standard Ethernet, Changes in the Standard, Fast Ethernet, Gigabit Ethernet, **Wireless LANs** :IEEE 802.11, Bluetooth. **Connecting LANs, Backbone Networks, and Virtual LANs:** Connecting Devices, Backbone Networks, Virtual LANs, **Sonet/SDH:** Architecture, Sonet Layers, Sonet Frames, **Virtual Circuit Networks:** Frame Relay and ATM, Frame Relay, ATM, ATM LANs.(**Page No: 267-540**)

UNIT-III

Network Layer: Logical Addressing, IPv4 Addresses, IPv6 Addresses, Network Layer: Internet Protocol, Internetworking, IPv4, IPv6, Transition from IPv4 to IPv6, Network Layer: Address Mapping, Error Reporting and Multicasting, Address Mapping, ICMP, IGMP, ICMPv6, Network Layer: Delivery, Forwarding and Routing, Delivery, Forwarding, Unicast Routing Protocols, Multicast Routing Protocols. (Page No: 547-693)

UNIT-IV

Transport Layer: Process to Process Delivery: UDP, TCP and SCTP, Process to Process Delivery, User Datagram Protocol (UDP), TCP, SCTP, Congestion Control and Quality of Service, Data Traffic, Congestion, Congestion Control, Two Examples, Quality of Service, Techniques to improve QoS. (**Page No: 701-841**)

UNIT-V

Networks Application Layer: Domain Name System, Name Space, Domain Name Space, Distribution of Name Space, DNS in the Internet, Resolution, DNS Messages, Types of Records, Registrars, Dynamic Domain Name System (DDNS), Encapsulation, Remote Logging, Electronic Mail and File Transfer, Telnet, Electronic Mail, File Transfer, WWW and HTTP: Architecture, Web Documents, HTTP, Network Management: SNMP, Network Management System, Simple Network Management Protocol (SNMP). (Page No: 851-877)

Course Outcomes:

After the completion of this course the students should be able to :

1. Illustrate basic computer network technology.

2. Identify the different types of network topologies and protocols.

3. Categorize the hardware and software commonly used in data communications and networking.

4. Interpret Design and Evaluate subnet masks and addresses to fulfill networking requirements.

5. Analyze the features and Operations of TCP/UDP, FTP, HTTP, SMTP,SNMP etc. **Text Book:**

1. Data Communications and Networking, Fourth Edition by Behrouza A.Forouzan, TMH.

Reference Books:

- 1. Computer Networks, A.S. Tanenbaum, 4th Edition, Pearson Education.
- 2. Introduction to Data communications and Networking, W.Tomasi, Pearson Education.
- 3. Data and Computer Communications, G.S.Hura and M.Singhal, CRC Press, Taylor and Francis Group.
- An Engineering Approach to Computer NetworksS. Keshav, 2nd Edition, Pearson Education.

5. Understanding Communications and Networks, 3rd Edition, W.A.Shay, Cengage Learning.

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VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9524) COMPILER DESIGN

Prerequisites: (A9517) Formal Languages and Automata Theory

Course Objectives:

The main objective of this course is to provide the foundation for understanding the theory and practice of compilers. Learning programming language translation and compiler design concepts, language recognition, symbol table management, semantic analysis and code generation. Topics include specification of languages and its relation to automata, lexical analysis, finite state machines, context free languages, LL and LR parsing methods, syntax directed translation, error recovery, code generation, and portability.

UNIT – I

Overview of Compilation: Phases of compilation, lexical analysis, regular grammar and regular expression for common programming language features. pass and phases of translation, interpretation, bootstrapping, data structures in compilation, LEX lexical analyzer generator.

(Page No: 22-27,95-117, 95-117, 106-109,32-33,15-16, 432, 23, 117-125)

$\mathbf{UNIT}-\mathbf{II}$

Top Down Parsing: Context free grammars, top down parsing, backtracking, LL(1), recursive descent parsing, predictive parsing, pre-processing steps required for predictive parsing.

(Page No:97-106) Bottom up parsing: Shift reduce parsing, LR and LALR parsing, error recovery in parsing, handling ambiguous grammar, YACC – automatic parser generator. (Page No:207-215, 227-278).

UNIT – III

Semantic Analysis: Intermediate forms of source programs – abstract syntax tree, polish notation and three address codes. Attributed grammars, syntax directed translation, conversion of popular programming languages language constructs into intermediate code forms, type checker.

(Pg. No: 475-484, 92&592, 335)

$\boldsymbol{UNIT-IV}$

Symbol Tables: Symbol table format, organization for block structures languages, hashing, tree structures representation of scope information. Block structures and non block structure storage allocation: static, runtime stack and heap storage allocation, storage allocation for arrays, strings and records. (Page No:441-452, 413-435) Code optimization: Consideration

- 147 -

for optimization, scope of optimization, local optimization, loop optimization, frequency reduction, folding, DAG representation. (Page No:595-614, 302-305)

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

Data Flow Analysis: Flow graph, data flow equation, global optimization, redundant sub expression elimination, induction variable elements, live variable analysis, copy propagation.

(Page No:540-545, 620-635, 643-664) Object Code Generation: Object code forms, machine dependent code optimization, register allocation and assignment, generic code generation algorithms, DAG for register allocation.

(Pg. No: 610-614,553, 579, 558)

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Apply the knowledge of modern phases of compiler and its features
- 2. Identify the similarities and differences among various parsing techniques .
- **3.** Explain semantic analysis in the context of the compilation process.
- 4. Design a symbol table format for the language defined by a grammar
- **5.** Analyze the code generation algorithms.

Text Book:

1. Principles of Compiler Design -A.V. Aho . J.D.Ullman; Pearson Education.

References:

- 1. lex &yacc , John R. Levine, Tony Mason, Doug Brown, O'reilly
- 2. Modern Compiler Design- Dick Grune, Henry E. Bal, Cariel T. H. Jacobs, Wiley Dreamtech.
- 3. Engineering a Compiler, Cooper & Linda, Elsevier.
- 4. Compiler Construction, Louden, Thomson.
- 5. Modern Compiler Implementation in C, Andrew N. Appel, Cambridge University Press.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9525) SOFTWARE ENGINEERING

III year B. Tech I- Semester

LTPC 4004

Prerequisites: None

Course Objectives:

The students learn the concepts and methods required to develop software systems and also develop a broad understanding of the discipline of software engineering. They get a detailed knowledge of software engineering practices such as requirements gathering, to produce a plan for estimation, scheduling and tracking mechanisms, analysis and design of software, different types of testing and deployment of software. They get exposed to quality concepts and different types of metrics used in software development life cycle.

UNIT-1

Introduction to Software Engineering: The evolving role of software, Changing Nature of Software, legacy software, Software myths. A Generic view of process: Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment (**Text Book1, Page No: 33-47, 51-68, 77-98**)

Process models: The waterfall model, Incremental process models, Evolutionary process models, specialized process models & Unified process. **Software Requirements**: Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document. (**Text Book2, Page No: 137-161**)

UNIT-II

Requirements Engineering Process: Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management. System Models: Context Models, Behavioral models, Data models, Object models, structured methods. (Text Book1 Page No: 258-281) Design Engineering: Design process and Design quality, Design concepts, the design model, pattern based software design. (Text Book2, Pg. No: 164-189,191-212)

UNIT-III

Creating an Architectural Design: software architecture, Data design, Architectural styles and patterns, Architectural Design, assessing alternative architectural designs, mapping data flow into software architecture. **Modeling Component-Level Design:** Designing class-based

components, conducting component-level design, object constraint language, designing conventional components, Performing User interface design.

(Text Book1, Page No: 286-320,324-353,356-382)

UNIT-IV

Testing Strategies: A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging. Product metrics: Software Quality, Frame work for Product metrics, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance. (**Text Book1, Page No: 386-392,423-425,394-403,406-416,461-492**)

UNIT-V

Metrics for Process and Products: Software Measurement, Metrics for software quality.

Risk management: Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan. **Quality Management**: Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards. (Text Book1, Page No: 654-663,726-740,744-768).

Course Outcomes:

After the completion of this course the students should be able to :

1. Define Software Engineering and listing core principles of software engineering and analyse various process models.

2. Explain personal software process and team software process.

3. Differentiate the techniques of Verification and Validation in the process of software development.

4. Apply the testing strategies for various programming codes.

5. Develop a Software Quality Assurance Plan for a Software Development Project

Text Books:

- Software Engineering: A practitioner's Approach, Roger S Pressman, Sixth Edition, McGraw Hill International Edition, 2005
- 2. Software Engineering, Ian Somerville, Seventh Edition, Pearson Education, 2004.

Reference Books:

- 1. Software Engineering, A Precise Approach, Pankaj Jalote, Wiley India, 2010
- 2. Software Engineering : A Primer, Waman S Jawadekar, Tata McGraw-Hill, 2008
- 3. Fundamentals of Software Engineering, Rajib Mall, PHI, 2005
- 4. Software Engineering, Principles and Practices, Deepak Jain, Oxford University Press.
- 5. Software Engineering: Abstraction and Modeling, Diner Bjorner, Springer International Edition, 2006.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9526) DATA WAREHOUSING AND DATAMINING

III year B. Tech I- Semester

LTP C

3 1 0 3

Prerequisites: (A9511) Database Management Systems

Course Objectives:

To enable students to make more effective use of data stored in databases. The students shall also learn to create a clean and consistent repository of data within a data warehouse. They shall understand to utilize various levels and types of summarization of data and how these support management decision making. They will also learn how to discover patterns and knowledge that is embedded in the huge quantities of data records using different data mining techniques.

UNIT -I

Data Mining: Types of Data, Data Mining Functionalities, Classification of Data Mining systems, Data Mining Task Primitives, Integration of a Data Mining System with a Database or a Data Warehouse System, Major issues in Data Mining. **Data Preprocessing**-Data cleaning, Data Integration and Transformation, Data Reduction: Data cube aggregation, Dimensionality Reduction. (**Page No: 1-30,105-119**).

UNIT -II

Data Warehouse and OLAP Technology: Introduction to Data Warehouse, Difference between operational database systems and data warehouses ,**Multidimensional Data Model**star, snowflake and Fact constellation schemas, Data Warehouse Architecture, Data Cube and OLAP Technology, Data Warehouse Implementation (**Page No: 39-84**).

UNIT -III

Association Rule Mining and Classification: Mining Frequent Patterns, Associations and Correlations, Mining Methods, Mining various kinds of Association Rules, Correlation Analysis, Constraint based Association Mining. (Page No:225-265)

UNIT-IV

Classification and Prediction: Basic Concepts, Decision Tree Induction, Bayesian Classification, Rule-Based Classification, Classification by Back propagation, Associative Classification, Lazy Learners, Other Classification Methods, Prediction. (**Page No: 279-319**)

UNIT -V

Clustering and Applications: Types of Data in Cluster Analysis, Categorization of Major Clustering Methods, Partitioning Methods, Hierarchical Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Constraint-Based Cluster Analysis, Data mining applications. (Page No:335-379,451-456)

Course Outcomes:

After the completion of this course the students should be able to :

1. Introduce data mining concepts and develops understanding of data mining application.

2. Develop an understanding of data warehouse, designing and using data in data warehouse using various operations.

3. Develop an outlook of Association rule mining, association rule mining methods and their application on some sample data sets, evaluate these methods based on need.

4. Develop an understanding of classification and prediction, classification methods and their application on some sample data sets, evaluate these methods based on need.

5. Develop conceptual understanding of clustering, various clustering methods and their application on some sample data sets, evaluate these methods based on need. **Text Book:**

1. Data Mining – Concepts and Techniques, Jiawei Han & Micheline Kamber, Morgan Kaufmann Publishers, Elsevier, 2nd Edition, 2006.

Reference Books:

1. Data Mining Techniques, Arun K Pujari, 2nd edition, Universities Press.

2. Data Warehousing in the Real World – Sam Aanhory & Dennis Murray Pearson Education Asia.

3. Insight into Data Mining, K.P.Soman, S.Diwakar, V.Ajay, PHI, 2008.

- 4. Data Warehousing Fundamentals Paulraj Ponnaiah Wiley Student Edition
- 5. Introduction to Data Mining Pang-Ning Tan, Michael Steinbach and Vipin Kumar,

Pearson Education.

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VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9559) OBJECT ORIENTED ANALYSIS AND DESIGN

III year B. Tech I- Semester

LTP C 3 10 3

Prerequisites: none

Objectives

- Concisely define the following key terms: class, object, state, behaviour, object class, class diagram, object diagram, operation, encapsulation, constructor operation, query operation, update operation, scope operation, association, association role, multiplicity, association class, abstract class, concrete class, class-scope attribute, abstract operation, method, polymorphic, overriding, multiple classification, aggregation, and composition.
- Describe the activities in the different phases of the object-oriented development life cycle. State the advantages of object-oriented modelling vis-a-vis structured approaches.Compare and contrast the object-oriented model with the E-R and EER models.
- Model a real-world application by using a UML class diagram.
- Provide a snapshot of the detailed state of a system at a point in time using a UML (Unified Modeling Language) object diagram.
- Recognise when to use generalisation, aggregation, and composition relationships.
- Specify different types of business rules in a class diagram.

UNIT-I

Introduction to UML: Importance of modelling, principles of modelling, object oriented modelling, conceptual model of the UML, Architecture, Software Development Life Cycle.

UNIT-II

Basic Structural Modelling: Classes, Relationships, common Mechanisms, and diagrams. Advanced Structural Modelling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages. Class & Object Diagrams: Terms, concepts, modelling techniques for Class & Object Diagrams.

UNIT-III

Basic Behavioural Modelling-I: Interactions, Interaction diagrams. Basic Behavioural Modelling-II: Use cases, Use case Diagrams, Activity Diagrams.

UNIT-IV

Advanced Behavioural Modelling: Events and signals, state machines, processes and Threads, time and space, state chart diagrams Architectural Modelling: Component, Deployment, Component diagrams and Deployment diagrams.

UNIT-V

Patterns and Frameworks, Artificer Diagrams. Case Study: The Unified

library application.

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Perceive of the principles of modeling and importance of modeling in design works.
- 2. Perceive basic Structural concepts in modeling.

3. Identify the difference between structural and behavioral concepts in modeling and their importance.

4. Implement the visualized views of different systems with modeling-CASE STUDY.

5. Identify design requirements by creating design model

TEXT BOOKS

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

REFERENCE BOOKS

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

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9626) INTELLECTUAL PROPERTY RIGHTS

(Open Elective-I)

III year B. Tech I- Semester

LTPC 3003

Prerequisites: None

Course Objectives:

The course covers all aspects of the intellect: Images, names, inventions, literary works, artistic works etc. It also addresses new and upcoming areas of intellectual property (IP) like Bio Technology, domain names, creative commons, etc.

UNIT-I

Introduction to Intellectual Property Law – Types of property Intellectual Property, Agencies Responsible, The increasing importance of intellectual property Rights. The law of trademark-Purpose and functions of Trade Marks, Types of Marks, and Acquisition of trade mark Rights.(Page No: 1-22)

UNIT-II

Trade mark selection and searching – Trade mark Registration Process – Post registration Procedures

Trade mark maintenance - Transfer of Rights - Inter partes Proceeding – Infringement -Dilution New developments in Trade mark –International Trade mark Law. (Page No: 42-169)

UNIT-III

Introduction to Copyrights – Principles of Copyright Principles -The subjects Matter of Copy right – The Rights Afforded by Copyright Law – Copy right Ownership, Transfer and duration – Right to prepare Derivative works – Rights of Distribution – Rights of Perform the work Publicity Copyright Formalities and Registrations - Limitations - Copyright disputes and International Copyright Law – Semiconductor Chip Protection Act (**Page No: 173-312**)

UNIT -IV

The law of patents-patent searches –Patent ownership and transfer-Patent infringement International Patent Law. (Page No: 319-438)

UNIT-V

Introduction to Trade Secret – Maintaining Trade Secret – Physical Security – Employee Limitation - Employee confidentiality agreement - Trade Secret Law - Unfair Competition – Trade Secret Litigation – Breach of Contract – Applying State Law. (Page No: 439-488)

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Perceive the basics of types of intellectual property rights.
- 2. Compare and contrast the different forms of intellectual property protection in terms of their key differences and similarities.
- 3. Learn the basics of copyrights.
- 4. Assess and critique some basic theoretical justifications for each form of intellectual property protection.
- 5. Analyze the basic concepts of trade marks and law of patents.

Text Book:

1. Debirag E.Bouchoux: "Intellectual Property" 4. Cengage learning, New Delhi

References:

- 1. M.Ashok Kumar and Mohd.Iqbal Ali: "Intellectual Property Right" Serials Pub.
- 2. Cyber Law. Texts & Cases, South-Western's Special Topics Collections
- 3. Prabhuddha Ganguli: ' Intellectual Property Rights'' Tata Mc-Graw -Hill, New Delhi
- 4. J Martin and C Turner "Intellectual Property" CRC Press
- 5. Richard Stimm "Intellectual Property" Cengage Learning

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VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9121) DISASTER MANAGEMENT (Open Elective-I)

III year B. Tech I- Semester

LT PC 3003

Prerequisites: None

Course Objectives:

Student will be able to understand the difference between a hazard and disaster and to know about various disasters and their impacts. To understand different approaches of disaster risk reduction and disaster risks in India

UNIT 1:

Understanding Disaster: Concept of Disaster - Different approaches - Concept of Risk - Levels of Disasters - Disaster Phenomena and Events (Global, national and regional).
Hazards and Vulnerability: Natural and man-made hazards; response time, frequency and forewarning levels of different hazards - Characteristics and damage potential or natural hazards; hazard assessment - Dimensions of vulnerability factors; vulnerability assessment - Vulnerability and disaster risk - Vulnerabilities to flood and earthquake hazards.

UNIT 2:

Disaster Management Mechanism: Concepts of risk management and crisis managements -Disaster Management Cycle - Response and Recovery - Development, Prevention, Mitigation and Preparedness - Planning for Relief.

UNIT 3:

Capacity Building: Capacity Building: Concept - Structural and Nonstructural Measures -Capacity Assessment; - Strengthening Capacity for Reducing Risk - Counter-Disaster Resources and their utility in Disaster Management - Legislative Support at the state and national levels.

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UNIT 4:

Coping with Disaster: Coping Strategies; alternative adjustment processes - Changing Concepts of disaster management - Industrial Safety Plan; Safety norms and survival kits -Mass media and disaster management.

UNIT 5:

Planning for disaster management: Strategies for disaster management planning - Steps for formulating a disaster risk reduction plan - Disaster management Act and Policy in India - Organizational structure for disaster management in India - Preparation of state and district disaster management plans.

Course Outcomes:

After the completion of this course the students should be able to :

- 1. Perceive the various types of disaster.
- 2. Interpret the various types of Hazards and Vulnerability.
- 3. Perceive different approaches of disaster risk reduction.
- 4. Describe the disaster management and safety plan.
- 5. Discuss the various disaster risks in India.

Text Books :

- 1. Alexander, D. Natural Disasters, ULC press Ltd, London, 1993.
- Carter, W.N. Disaster Management: A Disaster Management Handbook, Asian Development Bank, Bangkok, 1991.
- 3. Manual on Natural Disaster Management in India, NCDM, New Delhi, 2001.

References

- Abarquez I. & Murshed Z. Community Based Disaster Risk Management: Field Practitioner's Handbook, ADPC, Bangkok, 2004.
- 2. Goudie, A. Geomorphological Techniques, Unwin Hyman, London 1990.
- 3. Goswami, S.C Remote Sensing Application in North East India, Purbanchal Prakesh, Guwahati, 1997.
- Chakrabarty, U.K. Industrial Disaster Management and Emergency Response, Asian Book Pvt. Ltd., New Delhi 2007.
- Disaster Management in India, Ministry of Home Affairs, Government of India, New Delhi, 2011.
- 6. National Policy on Disaster Management, NDMA, New Delhi, 2009

- Disaster Management Act. (2005), Ministry of Home Affairs, Government of India, New Delhi, 2005.
- 8. District Disaster Management Plan-Model Template, NIDM, New Delhi, 2005.
- Disaster Management, Future challenge and opportunities, Edited by Jagbir singh, I.K. International publishing home Pvt, Ltd.

.**** VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9621) MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS (Open Elective-I)

III year B. Tech I- Semester	LTP	С
	300	3

Prerequisites: None

Course Objectives:

To enable the student to understand and appreciate, with a practical insight, the importance of certain basic issues governing the business operations namely. Demand and supply, production function, cost analysis, markets forms of business organizations, capital budgeting and financial accounting and financial analysis by using ratios.

UNIT – I

Introduction to Managerial Economics: Definition, Nature and Scope Managerial Economics Demand Analysis: Demand Determinants, Law of Demand and its exceptions, Definition, Types, Measurement and Significance of Elasticity of Demand. Demand Forecasting, Factors governing demand forecasting, methods of demand forecasting (survey methods, statistical methods, expert opinion method, test marketing, controlled experiments, judgmental approach to demand forecasting)

UNIT – II

Production and Cost Analysis: Production Function – Isoquants and Isocosts, MRTS, Least Cost Combination of Inputs, Production function, Laws of Returns, Internal and External Economies of Scale. Cost Analysis: Cost concepts, Opportunity cost, Fixed Vs. Variable

costs, Explicit costs Vs.Implicit costs, Out of pocket costs vs. Imputed costs. Break-even Analysis (BEA)-Determination of Break-Even Point (simple problems)-Managerial Significance and limitations of BEA.

UNIT – III

Introduction to Markets & Pricing strategies: Market structures: Types of competition, Features of Perfect competition, Monopoly and Monopolistic Competition. Price-Output Determination in case of Perfect Competition and Monopoly. Pricing Strategies, Business & New Economic Environment: Characteristic features of Business, Features and evaluation of Sole Proprietorship, Partnership, Joint Stock Company, Public Enterprises and their types, Changing Business Environment in Post-liberalization scenario.

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

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

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

Introduction to Financial Accounting & Financial Analysis: Double-Entry Book Keeping, Journal, Ledger, Trial Balance – Final Account (Trading Account, Profit and Loss Account and Balance Sheet with simple adjustments.) Computation, Analysis and Interpretation of Liquidity Ratios (Current Ration and quick ratio), Activity Ratios (Debt-Equity ratio, Interest Coverage ratio), and Profitability ratios (Gross Profit Ratio, Net Profit ratio, Operating Ratio, P/E Ratio and EPS).

Course Outcomes:

After the completion of this course the students should be able to :

- 1 Understand the nature, scope and importance of Managerial Economics.
- 2. Know what is demand, analyze demand and how elasticity of demand is used for pricing decisions and to evaluate methods for forecasting demand.
- 3. Know how production function is carried out to achieve least cost combination of Inputs and how to analyze cost.

- 4. Understand the characteristics of different kinds of markets and outline different form of business organization and analyze how capital budgeting techniques are used for investment decisions.
- 5. Know how to prepare final accounts and how to interpret them, analyze and interpret financial statements using ratio analysis.

Text Books:

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

References:

- 1) Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi, 2004.
- 2) Shim & Siegel: Financial Accounting (Schaum's Outlines), 2/e TMH, 2004
- 3) Chary: Production and Operations Management, 3/e, TMH, 2004.
- Domnick Salvatore: Managerial Economics In a Global Economy, 4th Edition, Thomson, 2003.
- 5) Narayanaswamy: Financial Accounting-A Managerial Perspective, PHI, 2005.
- 6) Peterson & Lewis: Managerial Economics, 4th Edition, Pearson Education, 2004.
- Raghunatha Reddy & Narasimhachary: Managerial Economics & Financial Analysis, Scitech, 2005.
- 8) S.N.Maheswari & S.K. Maheswarial, Financial Accounting, Vikas, 2005.
- 9) Truet and Truet: Managerial Economics: Analysis, Problems and Cases, Wiley, 2004.
- 10) Dwivedi: Managerial Economics, 6th Ed., Vikas, 2002.
- 11) Yogesh Maheswari: Managerial Economics, 2nd Ed., PHI, 2005

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VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9022) Human Values and Professional Ethics (Open Elective-I)

III year B. Tech I- Semester

LTPC 3003

Prerequisites: None Course Objectives:

Unit 1

Human Values: Morals, values, ethics – integrity – work ethics –service learning – civic virtue – respect for others- living peacefully - Caring –sharing –honesty – courage – valuing time – cooperation – commitment –empathy – self-confidence –spirituality – character- Mini-Cases

Unit II

Professional Ethics: Profession- and professionalism - Two models of professionalism -Professional etiquette -Three types of Ethics or morality Responsibility in Engineering -Engineering standards –Engineering Ethics – Positive and Negative Faces. Professional Codes and Code of conduct (as given by ASME, ASCE, IEEE, IETE, Institute of Engineers as Guidelines for ethical conduct). Mini-cases.

Unit III

Professional Responsibilities: Ethical standards Vs Professional Conduct – Zero Tolerance for Culpable Mistakes – Hazards and Risks- Risk benefit analysis– congeniality, collegiality and loyalty. Respect for authority – conflicts of interest – occupational crime — Mini-Cases. **Unit IV**

Professional Rights: professional rights and employee rights communicating risk and public policy – Whistle blowing - collective bargaining. Professionals /engineers as managers, advisors, experts, witnesses and consultants – moral leadership- Regulatory compliances, Monitoring and control- Mini-Cases

Unit V

Ethics in global context: Global issues in MNCs- Problems of bribery, extortion, and grease payments – Problem of nepotism, excessive gifts – paternalism – different business practices – negotiating taxes. Mini-Cases.

Mini-projects :

Project 1: The student of this course should invariably attend (or watch on internet/any TV channel/YouTube/social media) two speeches of 30 minutes duration each dealing with spiritual discourse and submit a report on the contents of the lecture proceedings.

Project 2: Visit any organization (including shops/ hotels or shopping malls in your region) of your choice and observe how the professionals perform the given job with a focus on professional ethics and human values.

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Perceive the importance of ethics and values in life and society.
- 2. Develop moral responsibility and mould them as best professionals.
- 3. Create ethical vision and achieve harmony in life.
- 4. Provide a critical perspective on the socialization of men and women.
- 5. Perceive the important issues related to gender in contemporary India.

References:

- 1. Aryasri, Human Values and Professional Ethics, Maruthi Publications.
- 2. S B George, Human Values and Professional Ethics, Vikas Publishing.
- 3. KR Govindan & Saenthil Kumar:Professional Ethics and Human Values, Anuradha

Publications.

- 4. S K Chakraborthy & D.Chakraborthy: Human Values and Ethics, Himalaya.
- M. Govindarajan, S. Natarajan, & V.S. Senthilkumar: Engineering Ethics(Includes Human Values), HI Learning Pvt. Ltd., New Delhi – 110001.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9528) COMPUTER NETWORKS AND COMPILER DESIGN LAB

III year B. Tech I- Semester

LTPC

0 0 3 2

Prerequisites: (A9502)Problem Solving and Computer programming Lab

Course Objectives:

To understand the functionalities of various layers of OSI model and facilitate and understanding of the fundamental concepts of computer networking. To improve the ability of the students to program computer networks using languages like C, C++. The second part of the Course aims to make the students to understand the enumeration of top down and bottom up parsing techniques used in compilation process. Students will have hands-on experience of LEX tool

PART-A

Week 1:

1. Study of different types cables and practical implementation of cross- wired cable and straight through cable using crimping table.

- 2. Connect computer in local area network.
- 3. Implement the data link layer framing methods such as character counting, character stuffing and character destuffing, bit stuffing and bit destuffing.

Week 2:

- 4. Implement on a data set of characters the three CRC polynomials CRC 12.
- 5. Study of network IP and Configure IP address.

Week 3:

6. Implement Dijkstra's algorithm to compute the Shortest path through a graph.

Week 4:

- 7. Introduction to packet tracer and its commands.
- 8. Configuring a network topology using packet tracing software.

Week 5:

9. Configuring a network by using Distance Vector Protocol.

PART-B

Week 6:

1. Consider the following mini Language, a simple procedural high-level language, only operating on Integer data, with a syntax looking vaguely like a simple C crossed with Pascal. The syntax of the language is defined by the following BNF grammar:

<program> ::= <block>

```
<block>::= { <variabledefinition> <slist> }
```

| { <slist> }

<variabledefinition> ::= int <vardeflist> ;

<vardeflist> ::= <vardec> | <vardec> , <vardeflist>

<vardec> ::= <identifier> | <identifier> [<constant>]

<slist> ::= <statement> | <statement> ; <slist>

```
<statement> ::= <assignment> | <ifstatement> | <whilestatement>
```

```
| <block> | <printstatement> | <empty>
```

```
<assignment> ::= <identifier> = <expression>
```

```
| <identifier> [ <expression> ] = <expression>
```

```
<ifstatement> ::= if <bexpression> then <slist> else <slist> endif
```

```
| if <bexpression> then <slist> endif
```

```
<whilestatement> ::= while <bexpression> do <slist> enddo
```

```
<printstatement> ::= print ( <expression> )
```

```
<expression> ::= <expression> <addingop> <term> | <term> | <addingop> <term>
```

```
<br/>
```

```
<relop> ::= < | <= | == | >= | > | !=
```

```
< addingop > ::= + | -
```

```
<term> ::= <term> <multop> <factor> | <factor>
```

```
<multop> ::= * | /
```

<factor> ::= <constant> | <identifier> | <identifier> [<expression>]

(<expression>)

```
<constant> ::= <digit> | <digit> <constant>
```

<identifier> ::= <identifier> <letterordigit> | <letter>

<letterordigit> ::= <letter> | <digit>

 $<\!\!letter\!> ::= a|b|c|d|e|f|g|h|ij|k|l|m|n|o|p|q|r|s|t|u|v|w|x|y|z$

<digit> ::= 0|1|2|3|4|5|6|7|8|9

<empty> has the obvious meaning

Comments (zero or more characters enclosed between the standard C/Java-style comment brackets /*...*/) can be inserted. The language has rudimentary support for 1-dimensional

arrays. The declaration int a[3] declares an array of three elements, referenced as a[0], a[1] and a[2]. Note also that you should worry about the scoping of names.

A simple program written in this language is:

}

Week 7: 1.1 Design a Lexical analyzer for the above 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.

Week 8:1.2. Implement the lexical analyzer using JLex, flex or lex or other lexical analyzer generating tools.

Week 9: 1.3. Design Predictive parser for the given language.

Week 10:1.4. Design LALR bottom up parser for the above language.

Week 11: 1.5. Convert the BNF rules into Yacc form and write code to generate abstract syntax tree.

Week 12: 2. Write program to generate machine code from the abstract syntax tree generated by the parser. The following instruction set may be considered as target code. The following is a simple register-based machine, supporting a total of 17 instructions. It has three distinct internal storage areas. The first is the set of 8 registers, used by the individual instructions as detailed below, the second is an area used for the storage of variables and the third is an area

used for the storage of program. The instructions can be preceded by a label. This consists of an integer in the range 1 to 9999 and the label is followed by a colon to separate it from the rest of the instruction. The numerical label can be used as the argument to a jump instruction, as detailed below. In the description of the individual instructions below, instruction argument types are specified as follows:

R

specifies a register in the form R0, R1, R2, R3, R4, R5, R6 or R7 (or r0, r1, etc.).

L

specifies a numerical label (in the range 1 to 9999).

V

specifies a "variable location" (a variable number, or a variable location pointed to by a register -see below).

A

specifies a constant value, a variable location, a register or a variable location pointed to by a register (an indirect address). Constant values are specified as an integer value, optionally preceded by a minus sign, preceded by a # symbol. An indirect address is specified by an @ followed by a register. So, for example, an A-type argument could have the form 4 (variable number 4), #4 (the constant value4), r4 (register 4) or @r4 (the contents of register 4 identifies the variable location to be accessed).

The instruction set is defined as follows:

LOAD A,R

loads the integer value specified by A into register R.

STORE R,V

stores the value in register R to variable V.

OUT R

Outputs the value in register R.

NEG R

negates the value in register R.

ADD A,R

adds the value specified by A to register R, leaving the result in register R.

SUB A,R

Subtracts the value specified by A from register R, leaving the result in register R.

MUL A,R

multiplies the value specified by A by register R, leaving the result in register R.

DIV A,R

divides register R by the value specified by A, leaving the result in register R.

JMP L

causes an unconditional jump to the instruction with the label L.

JEQ R,L

jumps to the instruction with the label L if the value in register R is zero.

JNE R,L

jumps to the instruction with the label L if the value in register R is not zero.

JGE R,L

jumps to the instruction with the label L if the value in register R is greater than or

equal to zero.

JGT R,L

jumps to the instruction with the label L if the value in register is greater than zero.

JLE R,L

jumps to the instruction with the label L if the value in register R is less than or

equal to zero.

JLT R,L

jumps to the instruction with the label L if the value in register R is less than zero.

NOP

is an instruction with no effect. It can be tagged by a label.

STOP

Stops execution of the machine. All programs should terminate by executing a STOP

Instructions.

Course Outcomes: After the completion of this course the students should be able to:

1. Create any topology using network devices and build a device for sharing on network.

2. Explain the major software and hardware technologies used on computer networks.

3. Demonstrate a working process of lexical analysis, parsing and other compiler design aspects.

4. Interpret the working of lex and yacc compiler for debugging of programs.

Text Books:

- 1. Computer Networks Andrew S Tanenbaum, 4th Edition. PearsonEducation/PHI.
- 2. 1. Principles of compiler design -A.V. Aho . J.D.Ullman; Pearson Education.

References:

- 1. An Engineering Approach to Computer Networks-S.Keshav, 2nd Edition, Pearson Education.
- 2. lex &yacc John R. Levine, Tony Mason, Doug Brown, O'reilly.
- 3. Compiler Construction, Louden, Thomson.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9529) CASE TOOLS AND DATAMINING LAB

III year B. Tech I- Semester

LTPC 0032

Prerequisites: None

Course Objectives:

The first part of this paper is designed to help students to design a data warehouse and implement OLAP operations. This shall give them exposure to application of data warehousing and help the students to perform data mining functionalities such as association rule mining, classification and clustering. The second part of this course will focus on the object-oriented approach for analysis and design. Students will gain an appreciation of the difference between writing programs and doing analysis and design. Problem formulation and decomposition (analysis) and solution building (design) will be covered. Students will work in small groups, each group having the responsibility for analysis, design and implementation of a software system. Case tools will be used in several stages of the development process.

PART-A

- Week 1 Design a data warehouse for auto sales Analysis
- Week 2 Perform OLAP operations on auto sales analysis
- Week 3 Introduction to Weka Explorer and demonstration of preprocessing on dataset student.arff
- Week 4 Implementation of Apriori algorithm using super market data.
- Week 5 Implementation of FP tree algorithm using super market data.
- Week 6 Introduction to Classification and Implementation of Id3 classification algorithm
- Week 7 on sample dataset
- Week 8Implementation of J48 classification algorithm on sample datasetImplementation of Naïve Bayesian classification algorithm
- Week 9 Introduction to clustering and Implementation of K-means clustering algorithm using sample dataset

PART-B

Week 2 Develop a Class Diagram, Usecase Diagram, Sequence Diagram and Collaboration

Diagram for ATM System.

- Week 3 Develop a Class Diagram, Usecase Diagram, Sequence Diagram and CollaborationDiagram for Library Management System
- Week 4 Develop State Diagram, Activity Diagram, Component Diagram and Deployment Diagram for ATM System.
- Week 5 Develop State Diagram, Activity Diagram, Component Diagram and Deployment Diagram for Library Management System.

Course Outcomes:

After the completion of this course the students should be able to:

1. Develop a design of data warehouse and implement OLAP operations.

- 2. Explore WEKA for data mining algorithms and Text mining techniques.
- 3. Identify, analyze, and model structural and behavioral concepts of the system.
- 4. Develop; explore the conceptual model into various scenarios and applications.
- **5.** Apply the concepts of architectural design for deploying the code for software.

Text Books:

1.Data Mining – Concepts and Techniques - Jiawei Han & Micheline Kamber, Morgan Kaufmann Publishers, Elsevier, 2nd Edition, 2006.

2. Introduction to Data Mining – Pang-Ning Tan, Michael Steinbach and Vipin Kumar, Pearson education.

3. Grady Booch, James Rumbaugh, Ivar Jacobson: The Unified Modeling Language user guide, Pearson Education.

4. Hans-Eriksson, Magnus Penker, Brian Lynous, David Fado: UML 2 Toolkit, WILEY-Dreamtech India Pvt.Ltd

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9530) NETWORK PROGRMMING

$4 \ 1 \ 0 \ 4$

Prerequisites: (A9501) Problem Solving and Computer programming, (A9518) Operating Systems.

Course Objectives:

The course introduce students basics of computer networks and internet programming. The students will be focused on various forms of IPC through UNIX, Sockets and using TCP/IP. It motivates them to understand modern network architecture from design and performance perspective.

UNIT-I

Introduction to Network Programming: OSI model, Unix standards, Introduction to Shell, Shell responsibilities, Shell Programming, AWK Scripts, TCP and UDP & TCP connection establishment and Format, Buffer sizes and limitation, standard internet services, Protocol usage by common internet application. (Text Book1, Pg.No: 18-27, Text Book2, Pg.No: 547-604)

UNIT-II

Sockets: Address structures, value – result arguments, Byte ordering and manipulation function and related functions Elementary TCP sockets – Socket, connect, bind, listen, accept, fork and exec function, concurrent servers. Close function and related function. (**Text Book1, Pg.No: 57, 63-107**)

UNIT-III

TCP Client Server: Introduction, TCP Echo server functions, Normal startup, terminate and signal handling server process termination, Crashing and Rebooting of server host shutdown of server host.**I/O Multiplexing and socket options:** I/O Models, select function, Batch input, shutdown function, poll function, TCP Echo server, getsockopt and setsockopt functions. Socket states, Generic socket option IPV6 socket option ICMPV6 socket option IPV6 socket option and TCP socket options. (**Text Book1, Pg.No: 111-135,143-204**)

UNIT-IV

Elementary UDP sockets: Introduction UDP Echo server function, lost datagram, summary of UDP example, Lack of flow control with UDP, determining outgoing interface with UDP. **Elementary name and Address conversions:** DNS, gethost by Name function, Resolver option,

Function and IPV6 support, uname function, other networking information. (Text Book1,

Pg.No: 211-231,237-256)

UNIT-V

IPC: Introduction, File and record locking, Pipes, FIFOs streams and messages, Name spaces, system IPC, Message queues, Semaphores.**Remote Login:** Terminal line disciplines, Pseudo-Terminals, Terminal modes, Control Terminals, rlogin Overview, RPC Transparency

Issues. (Text Book2, Pg.No: 87-137,589-616,692-694)

Course Outcomes: After the completion of this course the students should be able to:

- 1. Demonstrate advanced knowledge of OSI layers, TCP & UDP concepts, Networking.
- 2. Summarize the TCP socket functions and Byte Ordering.
- **3.** Make use of TCP client server applications and analyze I/O Multiplexing and socket options.
- 4. Define about the Elementary UDP sockets and Address conversions.
- **5.** Explain inter process communication consisting of pipes, FIFOs, Semaphores, Message Queues and Remote Procedure Calls.

Text Books:

- 1. UNIX Network Programming, Vol. I, Sockets API, 2ndEdition. W.Richard Stevens, Pearson Edn. Asia.
- 2. UNIX Network Programming, 1st Edition,-W.Richard Stevens. PHI.

References:

- 1. UNIX Systems Programming using C++ T CHAN, PHI.
- 2. UNIX for Programmers and Users, 3rd Edition Graham GLASS, King abls, Pearson Education.
- 3. Advanced UNIX Programming 2nd Edition M. J. ROCHKIND, Pearson Education.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9531) SOFTWARE TESTING METHODOLOGY

Prerequisites: (A9525) Software Engineering

Course Objectives:

The objective of the course is to provide fundamental concepts in software testing, objectives, process, criteria, strategies, and methods. It also provides various software testing techniques, issues and solutions in software. Discussing various paths and its expressions in detail, advanced software testing topics, such as logic based testing methods, KV charts, challenges, and solutions.

UNIT – I

Introduction: Purpose of testing, Dichotomies, model for testing, consequences of bugs, taxonomy of bugs, Basics concepts of path testing, predicates, path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing. (**Pg.No: 1-22, 27-55, 59-117**)

$\mathbf{UNIT} - \mathbf{II}$

Transaction Flow Testing: Transaction flows, transaction flow testing techniques. Dataflow testing:- Basics of dataflow testing, strategies in dataflow testing, application of dataflow testing. (**Pg.No: 121-139, 145-168**)

UNIT – III

Domain Testing:-domains and paths, Nice & ugly domains, domain testing, domains and interfaces testing, domain and interface testing, domains and testability. (**Pg.No: 173-210**)

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

Paths, Path products and Regular expressions : Path products & path expression, reduction procedure, applications, regular expressions & flow anomaly detection, Logic Based Testing Overview, decision tables, path expressions, kv charts, specifications. (Pg.No: 243-281, 320-357)

UNIT – V

State, Stat Graphs and Transition testing: State graphs, good & bad state graphs, state testing, matrix of graph, relations, power of a matrix, node reduction algorithm. (Pg.No: 363-

390, 399-420)

Course Outcomes:

After the completion of this course the students should be able to:

- **1.** List a range of different software testing techniques and strategies and be able to apply specific (automated) unit testing method to the projects.
- 2. Distinguish characteristics of structural testing methods.
- **3.** Demonstrate the Domain testing and Interface Testing.
- 4. Perceive software testing topics, such as logic based testing methods, KV charts, challenges, and solutions.
- **5.** Distinguish good & bad state graphs.

Text Book:

1. Software testing techniques – Boris Beizer, Dreamtech, second edition.

References:

- 1. The craft of software testing Brian Marick, Pearson Education.
- 2. Software Testing,3rd edition,P.C.Jorgensen,Aurbach Publications(Dist.by SPD).
- 3. Software Testing, N. Chauhan, Oxford University Press.
- 4. Introduction to Software Testing, P.Ammann&J.Offutt, Cambridge Univ. Press.
- 5. Effective methods of Software Testing, Perry, John Wiley, ^{2nd} Edition, 1999.
- 6. Software Testing Concepts and Tools, P.Nageswara Rao, dreamtech Press.
- 7. Software Testing, M.G.Limaye, TMH.
- 8. Software Testing, S. Desikan, G. Ramesh, Pearson.
- 9. Foundations of Software Testing, D.Graham & Others, Cengage Learning.
- 10. Software Testing Tools Dr.K.V.K.K.Prasad, Dreamtech.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9532) MOBILE COMPUTING

III year B. Tech II- Semester

LTP C 4104

Prerequisites: (A9523) Data Communications & Computer Networks Course Objectives:

An advanced graduate course based on mobile and pervasive computing. Students will learn the fundamentals and acquire hands-on experience on mobile computing, sensor-based systems and sensor platform technologies. Students will learn how to design and develop mobility-aware systems, also build program sensor- and actuator-based systems. The course also requires knowledge on Java development environments and network-based programming. It require working knowledge on Mobile Java (Java 2 Micro Edition).

UNIT-I

Introduction to Mobile Communications and Computing: Mobile Computing (MC)
Introduction to MC, Novel applications, Limitations, and Architecture. (Text Book1, Pg.No: 35-42) GSM: Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover, Security, and New data services. (Text Book2, Pg.No: 96 -122)

UNIT-II

Wireless Medium Access Control (MAC): Motivation for a Specialized MAC Hidden and Exposed Terminals, Near and Far Terminals, SDMA, FDMA, TDMA, CDMA, MAC Protocols for GSM. (**Text Book2, Pg.No: 69 -91**)

UNIT-III

Mobile IP Network Layer: Mobile IP (Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation, optimizations), Dynamic Host Configuration Protocol (DHCP). (Text Book2, Pg.No: 303 - 329)

UNIT-IV

Mobile Transport Layer: Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission/ time-out freezing, Selective retransmission, Transaction oriented TCP. (Text Book2, Pg.No: 351-365)

UNIT-V

Database Issues: Hoarding techniques, caching invalidation mechanisms.(**Text Book1**, **Pg.No: 328-334**) **Data Dissemination**: Communications asymmetry classification of new data delivery Communications asymmetry, classification of new data delivery mechanisms, push based mechanisms, pull-based mechanisms, hybrid mechanisms, selective tuning (indexing) techniques.(**Text Book1, Pg.No: 351-379**)

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Perceive algorithm/protocols, environments and communication systems in mobile computing.
- 2. Analyze any new technical issue related to this new paradigm and come up with a solution(s).
- 3. Develop new ad hoc network applications and/or algorithms/protocols.
- 4. Perceive & develop any existing or new protocol related to mobile environment.
- 5. Identify the database issues and understand data delivery mechanism.

Text Books:

- 1. Mobile Computing, Raj Kamal, Oxford University Press ,2007
- 2. Mobile Communications, Jochen Schiller, Addison-Wesley, Second Edition, 2004
- Handbook of Wireless Networks and Mobile Computing Stojmenovic and Cacute, Wiley,

2002.

References:

 Handbook of Wireless Networks and Mobile Computing Stojmenovic and Cacute, Wiley,

2002.

- 2. Mobile and Wireless Design Essentials Martyn -Mallick Wiley DreamTech, 2003
- 3. Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML Reza Behravanfar, Cambridge University Press,Oct2004

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9533) ADVANCED DBMS

(CSE Elective-I)

III year B. Tech II- Semester

Prerequisites: (A9511) Database Management Systems

Course Objectives:

The objective aims at features and benefits of Database Management System in Information Technology. It introduces recovery in database system. Various sections explain the basic design and execution of relational databases. It also provides knowledge and understanding of the underlying principles of Relational Database Management Solution. The information about implementing and maintaining an effective, efficient database system with the help of the rising trends are also focused.

UNIT-I

Database System Concepts and Architecture Data Models, Schemas, and Instances- Three-Schema Architecture and Data Independence- Database Languages and Interfaces- The Database System Environment- Centralized and Client/Server Architectures for DBMSs-Classification of Database Management Systems. (**Pg.No: 21-36**)

UNIT-II

Database Recovery Techniques

Recovery Concepts- NO-UNDO/REDO Recovery Based on Deferred Update- Recovery Techniques Based on Immediate Update- Shadow Paging- The ARIES Recovery Algorithm-Recovery in Multidatabase Systems- Database Backup and Recovery from Catastrophic Failures. (**Pg.No: 454-464**)

UNIT-III

The Enhanced Entity-Relationship (EER) Model

Subclasses, Superclasses, and Inheritance- Specialization and Generalization- Constraints and Characteristics of Specialization and Generalization Hierarchies- Modeling of UNION Types Using Categories- A Sample UNIVERSITY EER Schema, Design Choices, and Formal Definitions- Example of Other Notation: Representing Specialization and Generalization in UML Class Diagrams- Data Abstraction, Knowledge Representation, and Ontology Concepts. (**Pg.No: 61-79**)

UNIT-IV

Database Security Introduction to Database Security Issues- Discretionary Access Control Based on Granting and Revoking Privileges- Mandatory Access Control and Role-Based Access Control for Multilevel Security- SQL Injection- Introduction to Statistical Database Security- Introduction to Flow Control- Encryption and Public Key Infrastructures- Privacy Issues and Preservation- Challenges of Database Security- Oracle Label-Based Security.

(Pg.No: 478-494)

UNIT-V

Enhanced Data Models for Advanced Applications

Active Database Concepts and Triggers- Temporal Database Concepts- Spatial Database Concepts- Multimedia Database Concepts- Introduction to Deductive Databases. (**Pg.No:** 568-600)

Course Outcomes: After the completion of this course the students should be able to:

- 1. Define Database Languages, Models along with Client Server Architecture.
- 2. Explain principles of Database Recovery protocols.
- 3. Construct EER model for real world problems.
- 4. Determine various database security issues..
- 5. Adapt with advanced Data models and its applications.

Text Book:

1. Ramez Elmasri , Shamkant B. Navathe, Fundamentals of Database Systems – six edition-TMH

References:

- 1. Raghu Ramakrishnan, Johannes Gehrke- Database Management Systems- Third edition- McGraw-Hill.
- 2. Silberschatz, Korth, Sudarshan- Database System Concepts- Forth edition- McGraw-Hill.

VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A9534) DESIGN PATTERNS (CSE Elective-I)

III year B. Tech II- Semester

LTP C 3003

Prerequisites: (A9525) Software Engineering

Course Objectives:

It focuses on incremental/iterative development and common design patterns. To identify appropriate design patterns for various problems, able to refractor poorly designed program by using appropriate design patterns.

UNIT-I

Introduction: What Is a Design Pattern? Design Patterns in Smalltalk MVC Describing Design Patterns The Catalog of Design Patterns Organizing the Catalog How Design Patterns Solve Design Problems How to Select a Design Pattern, How to Use a Design Pattern. (**Pg.No: 33-76**)

UNIT-II

A Case Study : Designing a Document Editor : Design Problems, Document Structure, Formatting, Embellishing the User Interface, Supporting Multiple Look-and-Feel Standards, Supporting Multiple Window Systems, User Operations Spelling Checking and Hyphenation,

(Pg.No: 33-76)

UNIT-III

Creational Patterns: Abstract Factory Builder Factory Method Prototype Singleton Discussion of Creational Patterns. (**Pg.No: 79-135**)

UNIT-IV

Structural Pattern Adapter Bridge Composite Decorator, Façade Flyweight Proxy.

(Pg.No: 137-219)

UNIT-V

Behavioral Patterns Part-I: Chain of Responsibility Command Interpreter

Iterator Behavioral Patterns Part-II: Mediator, Memento, Observer, State, Strategy, Template Method, Visitor, Discussion of Behavioral Patterns. What to Expect from Design Patterns, A Brief History The Pattern Community An Invitation, A Parting Thought.

(Pg.No: 221-257)

Course Outcomes: After the completion of this course the students should be able to:

1. Identify the appropriate design patterns to solve object oriented design problems.

2. Identify and implement appropriate solutions to recurring programming problems by consulting technical documentation and specifications, including design pattern catalogs and existing source code

3. Develop design solutions using creational patterns.

4. Apply structural patterns to solve design problems.

5. Summarize the advantages and disadvantages of using design pattern variants

Text Books:

1. Design Patterns - Elements of Reusable Object-Oriented Software

Reference Books: No

- 1. Pattern's in JAVA Vol II BY Mark Grand, Wiley Dream Tech.
- 2. JAVA Enterprise Design Patterns Vol III By Mark Grand, Wiley Dream TECH.
- 3. Head First Design Patterns By Eric Freeman Oreilly spd.
- 4. Peeling Design Patterns, Prof Meda Srinivasa Rao, Narsimha Karumanchi, Career Monk Publication.
- 5. Design Patterns Explained By Alan Shallowy, Pearson Education.
- 6. Pattern Oriented Software Architecture, af.Buschman & others, John Wiley & Sons.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9535) EMBEDDED SYSTEMS (CSE Elective-I)

III year B. Tech II- Semester

LTP C

3003

Prerequisites: (A9506) Data Structures through C++, (A9512) Object Oriented Programming through Java

Course Objectives:

The course helps to provide basic principles on developing software for embedded systems. The course surveys the issues and discusses on various techniques to deal them. In particular it also discusses approaches on real time operating system upon which much embedded software are based. It provides an understanding the basic components of embedded systems, steps in designing, knowledge of the assembly instructions, C programming, learning the interfacing of various I/O devices, understanding of the RTOS and its important concepts.

UNIT-I

A First Look at Embedded Systems: Examples of Embedded Systems, Typical Hardware.

(**Pg .No: 21-30**) Hardware Fundamentals for the Software Engineer: Terminology, Gates, a Few Other Basic Considerations, Timing Diagrams, Memory. (**Pg.No: 34-60**)

UNIT-II

Advanced Hardware fundamentals: Microprocessors, Buses, direct memory access, interrupts, built-ins on the microprocessor, conventions used on schematics, a sample schematic.

(Pg No: 65-90) Interrupts: Microprocessor architecture, interrupt basics, the shared-data problem, interrupt latency. (Pg.No: 102-130)

UNIT-III

Survey of Software Architectures: Round-Robin, Round-Robin with Interrupts, Function-Queue-Scheduling Architecture, Real-Time Operating System Architecture, Selecting Architecture. (Pg.No: 135-153) Introduction to Real-Time Operating Systems: Tasks and Task States, Tasks and Data, Semaphores and Shared Data. (Pg.No: 157-188)

UNIT-IV

More Operating System Services: Message Queues, Mailboxes, and Pipes, Timer Functions, Events, Memory Management, Interrupt Routines in an RTOS Environment. (Pg.No: 192-227)

Basic Design Using a Real-Time Operating System: Overview, Principles, an Example, Encapsulating Semaphores and Queues, Hard Real-Time Scheduling Considerations, Saving Memory Space, Saving Power. (**Pg.No: 235-279**)

UNIT-V

Embedded Software Development Tools: Host and Target Machines, Linker/Locators for Embedded Software, Getting Embedded Software into the Target System. (**Pg.No: 281-300**)

Debugging Techniques: Testing on Your Host Machine, Instruction Set Simulators, The assert Macro, Using Laboratory Tools. (**Pg.No: 303-346**) **An Example System:** What the Program Does, Environment in Which the Program Operates. (**Pg.No: 349-356**)

Course Outcomes:

After the completion of this course the students should be able to:

1. Know the fundamentals and hardware components of Embedded Systems.

2. Perceive the microprocessor components and Interrupt basics.

3. Know Operating System services and Debugging Techniques.

4. Explain the purpose of embedded systems and compare microprocessors with microcontrollers.

5. Design and implement debug multithreaded application software that operate under real time constraints on embedded computer systems.

Text Book:

1. An Embedded Software Primer, David E. Simon, Pearson Education.

References:

- 1. Embedded Systems, Raj Kamal, TMH.
- 2. Computers and Components, Wayne Wolf, Elseveir.
- 3. The 8051 Microcontroller, Third Edition, Kenneth J.Ayala, Thomson.
- 4. Embedding system building blocks, Labrosse, via CMP publishers.
- 5. Embedded System Design, Frank Vahid, Tony Givargis, John Wiley.
- 6. Microcontrollers, Raj kamal, Pearson Education.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9527) PRINCIPLES OF PROGRAMMING LANGUAGES (CSE Elective-I)

III year B. Tech II- Semester

LTP C

300 3

Prerequisites: (A9501) Problem Solving and Computer Programming, (A9506)Data Structures through C++, (A9512) Object Oriented Programming Through Java Course Objectives

We will study several issues in programming languages: what is a programming language, how do they work, and why is one language better than another? In answering these questions, it is hoped that the student will: Gain insight into the underlying principles and concepts of Programming languages. Gain an understanding of how some well known programming languages implement these principles and concepts. Gain an overview of programming language translation process. Gain exposure to some important programming paradigms (imperative, object oriented, functional, and logic). Thus course shall help to improve analytical skills.

UNIT-1

Preliminaries: Reasons for Studying Concepts of Programming Languages, Programming Domains ,Language Evaluation Criteria, Influences on Language Design , Language Categories, Programming paradigms-Imperative, Object Oriented, Functional Programming, Logic Programming, Programming Language Implementation –Compilation and virtual Machines , Programming Environments.(**Page No: 19 - 51**)

Syntax and Semantics: General Problem of describing Syntax and Semantics, Formal Methods of Describing Syntax-BNF,EBNF for common Programming Language features, Parse trees, Ambiguous Grammars, Attribute Grammars, Denotational semantics and Axiomatic semantics for common Programming Language features. (**Page No: 133-174**).

UNIT-2

Data Types: Introduction, Primitive, Character, User-Defined, Array, Associative, Record, Union, Pointer and Reference Types, design and Implementation uses related to these types. (**Page No: 265-313**)..Names, Variables, Concept of Binding, Type Checking, Strong Typing, Type Compatibility, Named Constants, Variable Initialization. (**Page No: 219-254**)

Expressions and Statements: Arithmetic, Relational and Boolean Expressions, Short-Circuit Evaluation, Mixed-Mode Assignment, Assignment Statements, Control Structures-Statement Level, Compound Statements, Selection, Iteration, Unconditional Statements, Guarded Commands. (**Page No: 329-390**).

UNIT-3

Subprograms and Blocks: Fundamentals of Subprograms, Scope and Lifetime of Variable, static and Dynamic scope Design Issues for Subprograms and Operations, Local Referencing Environments, Parameter -Passing Methods, Overloaded Subprograms, Generic Subprograms Parameters that are Sub-program names, Design Issues for Functions, User-Defined Overloaded Operators, Co routines.(Page No: 401-449).

UNIT-4

Abstract Data Types: Abstractions and Encapsulation, Introduction to data abstraction, Design Issues, Language examples C++ parameterized ADT, Object Oriented Programming in Small talk, C++, JAVA,C#,ADA 95. (Page No: 487-553)Concurrency: Subprogram-Level Concurrency, Semaphores, Monitors, Message Passing, Java Threads, C# Threads. (Page No: 573-608) Exception Handling: Exceptions, Exception Propagation, Exception handler in ADA, C++ and JAVA. (Page No: 619-638).

UNIT-5

Functional Programming Language: Introduction, Features of LISP, Applications of Functional Languages, Comparison of Functional and Imperative Languages. (Page No: 659-

694)Logic Programming Language: Introduction and overview of Logic Programming, Basic elements of Prolog, application of Logic Programming. (**Page No: 701-731**)

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Analyze syntax-related concepts including context-free grammars, parse trees, recursive descent parsing, printing, and interpretation.
- 2. Perceive the semantic issues associated with function implementations.
- 3. Perceive the concepts of Abstraction and Encapsulation constructs of classes, interfaces, packages of various Language Examples.
- 4. Perceive the implementation of object-oriented languages.
- 5. Compare the Functional Programming Languages and Logic Programming Languages

Text Books:

1 .Concepts of Programming Languages Robert .W. Sebesta 8/e, Pearson Education, 2008.

Reference Books:

- 1. Concepts of Programming Languages Robert .W. Sebesta 10/e, Pearson Education,2012
- 2. Programming Languages, 2nd Edition, A.B. Tucker, R.E. Noonan, TMH.
- 3. Programming Languages, K. C.Louden, 2nd Edition, Thomson, 2003.
- 4. LISP, Patric Henry Winston and Paul Horn, Pearson Education.
- 5. Programming in Prolog, W.F. Clocksin & C.S.Mellish, 5th Edition, Springer.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9122) AIR POLLUTION CONTROL (Professional Elective-III)

III year B. Tech II- Semester

LTP C 3003

Prerequisites: None

Course Objectives:

The objective is to provide Air pollution Concepts, Effects of air pollution and Air pollution Control devices. It also provides an understanding of Air quality monitoring devices.

UNIT – I

Air Pollution-Definitions, Scope, Significance and Episodes, Air Pollutants-Classifications-Natural and Artificial-Primary and Secondary, point and Non-Point, Line and Areal Sources of air pollution- stationary and mobile sources.

UNIT – II

Effects of Air pollutants on man, material and vegetation; Global effects of air pollution – Green House effect, Heat Islands, Acid Rains, Ozone Holes etc.

UNIT-III

Thermodynamics and Kinetics of Air-pollution – Applications in the removal of gases like SO_x ; NO_x ; CO; HC etc., air-fuel ratio. Computation and Control of products of combustion.

Meteorology and plume Dispersion; properties of atmosphere; Heat, Pressure, Wind forces, Moisture and relative Humidity; Influence of Meteorological phenomena on Air Qualitywind rose diagrams.

UNIT-IV

Lapse Rates, Pressure Systems, Winds and moisture plume behaviour and plume Rise Models; Gaussian Model for Plume Dispersion.

Control of particulates – Control at Sources, Process Changes, Equipment modifications, Design and operation of control.

Equipment's – Settling Chambers, Centrifugal separators, filters Dry and Wet scrubbers, Electrostatic precipitators.

UNIT – V

General Methods of Control of NO_x and SO_x emissions – In-plant Control Measures, process changes, dry and wet methods of removal and recycling.

Air Quality Management – Monitoring of SPM, SO_x; NO_x and CO Emission Standards.

Course Outcomes:

After the completion of this course the students should be able to:

1. Perceive Air pollution Concepts.

2. Analyze the Effects of air pollution on the environment.

3. Identify the significance of meteorological factors in pollutant dispersion and to predict the pollutant concentration.

4. Apply plume dispersion modelling and assess the concentrations.

5. Perceive Air quality monitoring devices.

Text Books:

- 1. Air pollution by M.N.Rao and H.V.N.Rao Tata Mc.Graw Hill Company.
- 2. Air pollution by Wark and Warner.- Harper & Row, New York.

References:

- 1. Air Pollution and Control Engineering by Noel de Nevers, McGraw Hill, 2000.
- Environmental Pollution Control Engineering by Rao C.S, Wiley Eastern Limited, India, 1993.
- 3. Air pollution and control By K.V.S.G. Murali Krishna, Kaushal Publishers. Kakinada.

VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS) (A9426) BIOMEDICAL INSTRUMENTATION (Professional Elective-III)

III year B. Tech II- Semester

LTP C 3003

Prerequisites: None.

Course Objectives

The objective is to provide bioamplifier, biosignals and measurement of physiological parameters. It also discusses different bioelectrodes and activities of heart. To understand therapeutic and cardic instrumentation, EEG and EMG machines, recordings and interpretations.

UNIT-I

Components of Medical Instrumentation System: Bloamplifier, Static and Dynamic Characteristics of Medical Instruments, Biosignals and Characteristics, Problems encountered with Measurements from Human beings. Organization of Cell, Derivation of Nernst equation for Membrane Resting Potential Generation and Propagation of Action Potential, Conduction through Nerve to Neuromuscular Junction.

UNIT -II

Bio Electrodes: Biopotential Electrodes-External Electrodes, Internal Electrodes, Biochemical Electrodes. Mechanical Function, Electrical Conduction System of the Heart, Cardiac Cycle, Relation between Electrical and Mechanical Activities of the Heart.

UNIT -III

Cardiac Instrumentation: Blood Pressure and Blood Flow Measurement, Specification of ECG Machine, Einthoven Triangle, Standard 12-Lead Configurations, Interpretation of ECG waveform with respect to Electro Mechanical Activity of the Heart.

UNIT -IV

Therapeutic Equipment: Pacemaker, Defibrillator, Shortwave Diathermy, Hemodialysis Machine.

Respiratory Instrumentation: Mechanism of Respiration, Spirometry, Pnemuotachograph Ventilators.

UNIT -V

Neuro-Muscular Instrumentation: Specification of EEG and EMG Machines, Electrode Placement for EEG and EMG Recording, Interpretation of EEG and EMG.

Course Outcomes:

After the completion of this course the students should be able to:

1. Understand the functions of bio amplifiers, characteristics of medical instruments and bio signals.

2. Discuss the various internal, external Bio electrodes and relations between electrical and mechanical activities of heart.

- 3. Compare various concepts of Cardiac Instrumentation and gain the knowledge about it.
- 4. Analyze the Therapeutic Equipment and their operation.
- 5. Acquires knowledge about neuro-muscular Instrumentation like ECG EMG and EEG.

Text Books:

- Biomedical Instrumentation and Measurements by Leslie Cromwell, F.J. Weibell, E.A. Pfeiffer, PHI.
- 2. Medical Instrumentation, Application and Design by John G.Webster, John Wiley.

References:

- Principles of Applied Biomedical Instrumentation by L.A. Geoddes and L.E. Baker, John Wiley and Sons.
- 2. Hand-book of Biomedical Instrumentation by R.S. Khandpur, McGraw-Hill, 2003.
- 3. Biomedical Telemetry by Mackay, Stuart R., John Wiley.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9433) DIGITAL IMAGE PROCESSING

(Professional Elective-III)

III year B. Tech II- Semester

LTP C

3003

Prerequisites: None

Course Objectives

Provide the student with the fundamentals of digital image processing.

- Give the students a taste of the applications of the theories taught in the subject. This will be achieved through the project and some selected lab sessions. Introduce the students to some advanced topics in digital image processing.
- Give the students a useful skill base that would allow them to carry out further study should they be interested and to work in the field. **UNIT-I**

Digital Image Fundamentals & Image Transforms: Digital Image Fundamentals, Sampling and Quantization, Relationship between Pixels.

Image Transforms: 2-D FFT, Properties, Walsh Transform, Hadamard Transform, Discrete

Cosine Transform, Haar Transform, Slant Transform, Hotelling Transform.

UNIT-II

Image Enhancement (Spatial Domain): Introduction, Image Enhancement in Spatial Domain, Enhancement Through Point Processing, Types of Point Processing, Histogram Manipulation, Linear and Non – Linear Gray Level Transformation, Local or Neighborhood creterion, Median Filter, Spatial Domain High-Pass Filtering. **Image Enhancement (Frequency Domain):** Filtering in Frequency Domain, Low Pass (Smoothing) and High Pass

(Sharpening) Filters in Frequency Domain.

UNIT -III:

Image Restoration: Degradation Model, Algebraic Approach to Restoration, Inverse Filtering, Least Mean Square Filters, Constrained Least Squares Restoration, Interactive Restoration.

UNIT -IV:

Image Segmentation: Detection of Discontinuities, Edge Linking And Boundary Detection, Thresholding, Region Oriented Segmentation. **Morphological Image Processing:** Dilation and Erosion: Dilation, Structuring Element Decomposition, Erosion, Combining Dilation and Erosion, Opening and Closing, Hit or Miss Transformation.

UNIT -V:

Image Compression: Redundancies and their Removal Methods, Fidelity Criteria, Image Compression Models, Huffman and Arithmetic Coding, Error Free Compression, Lossy Compression, Lossy and Lossless Predictive Coding, Transform Based Compression, JPEG 2000 Standards.

Course Outcomes:

After the completion of this course the students should be able to:

- **1.** Gain the knowledge of digital image fundamentals and image transforms.
- 2. Discuss the analysis of image enhancement in spatial and frequency domain.
- 3. Understand the different methods to restore an image.

4. Inspect different image segmentation techniques and understand morphological image processing.

5. Analyze the different image compression techniques.

Text Books:

- Digital Image Processing Rafael C. Gonzalez, Richard E. Woods, 3rd Edition, Pearson, 2008
- 2. Digital Image Processing- S Jayaraman, S Esakkirajan, T Veerakumar- TMH, 2010.

References:

- 1. Digital Image Processing and Analysis-Human and Computer Vision Application with using CVIP Tools Scotte Umbaugh, 2nd Ed, CRC Press, 2011
- Digital Image Processing using MATLAB Rafael C. Gonzalez, Richard E Woods and Steven L. Eddings, 2nd Edition, TMH, 2010.
- 3. Fundamentals of Digital Image Processing A.K.Jain , PHI, 1989
- 4. Digital Image Processing and Computer Vision Somka, Hlavac, Boyle- Cengage Learning (Indian edition) 2008.
- 5. Introductory Computer Vision Imaging Techniques and Solutions- Adrian low, 2008, 2nd Edition
- Introduction to Image Processing & Analysis John C. Russ, J. Christian Russ, CRC Press, 2010.
- 7. Digital Image Processing with MATLAB & Labview Vipula Singh, Elsevier.

Course Outcomes:

1. Upon successfully completing the course, the student should

- 2. Have an appreciation of the fundamentals of Digital image processing including the topics of filtering, transforms and morphology, and imageanalysis and compression.
- 3. Be able to implement basic image processing algorithms in MATLAB
- 4. Have the skill base necessary to further explore advance d topics of Digital Image Processing
- Be in a position to make a positive professional contribution in the field of Digital Image Processing.
- 6. At the end of the course the student should have a clear impression of the breadth and practical scope of digital image processing and have arrived at a level of understanding that is the foundation for most of the work currently underway in this field

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9622) Management Science

(Professional Elective-III)

III year B. Tech II- Semester

LTP C 3003

Prerequisites: None

Course Objectives: This course is intended to familiarize the students with the framework for the managers and leaders available for understanding and making decisions relating to issues related organisational structure, production operations, marketing, human resource management, product management and strategy.

UNIT - I:

Introduction to Management and Organisation: Concepts of Management and organization- nature, importance and Functions of Management, Systems Approach to Management - Taylor's Scientific Management Theory- Fayal's Principles of Management-Maslow's theory of Hierarchy of Human Needs- Douglas McGregor's Theory X and Theory Y - Hertzberg Two Factor Theory of Motivation - Leadership Styles, Social responsibilities of Management, Designing Organisational Structures: Basic concepts related to Organisation - Departmentation and Decentralisation, Types and Evaluation of mechanistic and organic structures of organisation and suitability.

UNIT - II:

Operations and Marketing 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 - Business Process Reengineering(BPR) - Statistical Quality Control: control charts for Variables and Attributes (simple Problems) and Acceptance Sampling, TQM, Six Sigma, Deming's contribution to quality, Objectives of Inventory control, EOQ, ABC Analysis, Purchase Procedure, Stores Management and Store Records - JIT System, Supply Chain Management, Functions of Marketing, Marketing Mix, and Marketing Strategies based on Product Life Cycle, Channels of distribution.

UNIT - III:

Human Resources Management(HRM): Concepts of HRM, HRD and Personnel Management and Industrial Relations (PMIR), HRM vs PMIR, Basic functions of HR Manager: Manpower planning, Recruitment, Selection, Training and Development, Placement, Wage and Salary Administration, Promotion, Transfer, Seperation, Performance

Appraisal, Grievance Handling and Welfare Administration, Job Evaluation and Merit Rating - Capability Maturity Model (CMM) Levels - Performance Management System.

UNIT - IV:

Project Management (PERT/ CPM): Network Analysis, Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Identifying critical path, Probability of Completing the project within given time, Project Cost Analysis, Project Crashing (simple problems).

UNIT - V:

Strategic Management and Contemporary Strategic Issues: Mission, Goals, Objectives, Policy, Strategy, Programmes, Elements of Corporate Planning Process, Environmental Scanning, Value Chain Analysis, SWOT Analysis, Steps in Strategy Formulation and Implementation, Generic Strategy alternatives. Bench Marking and Balanced Score Card as Contemporary Business Strategies.

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Outline the fundamentals of management and contributions to management.
- 2. Define the social Responsibilities of an organization towards stakeholders and build the suitable organization structure and to identify factors influencing plant location and layout decisions.
- 3. Know importance of materials management, evaluate quality of products using SQC techniques and Identify the basic concepts of marketing mix and Human Resource concepts.
- 4. Know how PERT and CPM different and to construct network by proper planning organizing an managing the efforts to accomplish a successful project.
- 5. Appraise all contemporary management practices and analyze how these contemporary management practices one applicable in modern business and service organizations

TEXT BOOKS:

- 1. Aryasri: Management Sciences, 2/e, TMH, 2005.
- 2. Stoner, Freeman, Gilbert, Management, 6th Ed, Pearson Education, New Delhi, 2004.
- 3. P. Vijay Kumar, N. Appa Rao and Ashnab, Chnalill, Cengage Learning India, 2012.

REFERENCE BOOKS:

1. Kotler Philip and Keller Kevin Lane: Marketing Management, Pearson, 2012.

- 2. Koontz and Weihrich: Essentials of Management, McGraw Hill, 2012.
- 3. Thomas N. Duening and John M. Ivancevich Management Principles and Guidelines, Biztantra, 2012.
- Kanishka Bedi, Production and Operations Management, Oxford Uiversity Press, 2012.
- 5. Samuel C. Certo: Modern Management, 2012.
- 6. Schermerhorn, Capling, Poole and Wiesner: Management, Wiley, 2012.
- 7. Parnell: Strategic Management, Cengage, 2012.
- Lawrence R Jauch, R. Gupta and William F. Glueck: Business Policy and Strategic Management Science, McGraw Hill, 2012.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9024) TECHNICAL COMMUNICATIONS SKILLS LAB

III year B. Tech II- Semester

LTP C 0032

1. Introduction

The introduction of the Technical Communication Skills Lab is considered essential at 3^{rd} year level. At this stage, the students need to prepare themselves for their careers which may require them to listen to, read, speak and write in English both for their professional and interpersonal communication in the globalised context.

The proposed course should be a laboratory course to enable students to use 'good' English and perform the following:

- Gathering ideas and information to organize ideas relevantly and coherently.
- Engaging in debates.
- Participating in group discussions.
- Facing interviews.
- Writing project/research reports/technical reports.
- Making oral presentations.
- Writing formal letters.
- Transferring information from non-verbal to verbal texts and vice-versa.
- Taking part in social and professional communication.

Course Objectives:

This Lab focuses on using multi-media instruction for language development to meet the following targets:

 To improve the students' fluency in English, through a well-developed vocabulary and enable them to listen to English spoken at normal conversational speed by educated English speakers and respond appropriately in different socio-cultural and professional contexts.

- 2. Further, they would be required to communicate their ideas relevantly and coherently in writing.
- 3. To prepare all the students for their placements.

Syllabus:

The following course content to conduct the activities is prescribed for the Technical Communication Skills (TCS) Lab:

- Fundamentals of Inter-personal Communication and Building Vocabulary Starting a conversation – responding appropriately and relevantly – using the right body language – Role Play in different situations and Discourse Skills- using visuals - Synonyms and antonyms, word roots, one-word substitutes, prefixes and suffixes, study of word origin, business vocabulary, analogy, idioms and phrases, collocations and usage of vocabulary.
- Reading Comprehension –General Vs Local comprehension, reading for facts, guessing meanings from context, scanning, skimming, inferring meaning, critical reading & effective googling.
- **3.** Writing Skills Structure and presentation of different types of writing *letter writing/Resume writing/ e-correspondence/ Technical report writing/ Portfolio writing –* planning for writing improving one's writing.
- Presentation Skills Oral presentations (individual and group) through JAM sessions/seminars/<u>PPTs</u> and written presentations through posters/projects/reports/ e-mails/assignments etc.
- 5. Group Discussion and Interview Skills Dynamics of group discussion, intervention, summarizing, modulation of voice, body language, relevance, fluency and organization of ideas and rubrics for evaluation- Concept and process, pre-interview planning, opening strategies, answering strategies, interview through tele-conference and video-conference and Mock Interviews.

4. Minimum Requirement:

The Technical Communication Skills (TCS) Laboratory shall have the following infrastructural facilities to accommodate at least 35 students in the lab:

- Spacious room with appropriate acoustics
- Round Tables with movable chairs
- Audio-visual aids

- LCD Projector
- Public Address system
- P IV Processor, Hard Disk 80 GB, RAM–512 MB Minimum, Speed 2.8 GHZ
- T. V, a digital stereo & Camcorder
- Headphones of High quality

5. Prescribed Lab Manual: A book titled *A Course Book of Advanced Communication Skills (ACS) Lab* published by Universities Press, Hyderabad.

6. Suggested Software:

The software consisting of the prescribed topics elaborated above should be procured and used.

- Oxford Advanced Learner's Compass, 8th Edition
- DELTA's key to the Next Generation TOEFL Test: Advanced Skill Practice.
- Lingua TOEFL CBT Insider, by Dreamtech
- **TOEFL & GRE** (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)
- The following software from 'train2success.com'
 - > Preparing for being Interviewed
 - > Positive Thinking
 - > Interviewing Skills
 - > Telephone Skills
 - > Time Management
 - > Skillmate
 - > **Presentation skills, Cambridge** (with VCD)

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Develop effective and appropriate vocabulary to get focussed in the new patterns of learning..
- 2. Infer flair for writing and felicity in written expression.
- 3. Enhance job prospects with basic facts and concepts on the new patterns.
- **4.** Formulate effective speaking abilities to improve quality in their speaking by evaluating and recalling the skills concerned.

7. Books Prescribed:

1. **Technical Communication** by Meenakshi Raman & Sangeeta Sharma, Oxford University Press 2009.

- 2. English Language Communication : A Reader cum Lab Manual Dr A Ramakrishna Rao, Dr G Natanam & Prof SA Sankaranarayanan, Anuradha Publications, Chennai 2008.
- 3. Advanced Communication Skills Laboratory Manual by Sudha Rani, D, Pearson Education 2011.
- 4. **Technical Communication** by Paul V. Anderson. 2007. Cengage Learning pvt. Ltd. New Delhi.
- Business and Professional Communication: Keys for Workplace Excellence. Kelly M. Quintanilla & Shawn T. Wahl. Sage South Asia Edition. Sage Publications. 2011.

Suggested Books:

- The Basics of Communication: A Relational Perspective. Steve Duck & David T. McMahan. Sage South Asia Edition. Sage Publications. 2012.
- 2. English Vocabulary in Use series, Cambridge University Press 2008.
- Management Shapers Series by Universities Press(India)Pvt Ltd., Himayatnagar, Hyderabad 2008.
- **4. Handbook for Technical Communication** by David A. McMurrey & Joanne Buckley. 2012. Cengage Learning.
- 5. Communication Skills by Leena Sen, PHI Learning Pvt Ltd., New Delhi, 2009.
- 6. Handbook for Technical Writing by David A McMurrey & Joanne Buckely CENGAGE Learning 2008.
- 7. Job Hunting by Colm Downes, Cambridge University Press 2008.
- 8. Master Public Speaking by Anne Nicholls, JAICO Publishing House, 2006.
- 9. English for Technical Communication for Engineering Students, Aysha Vishwamohan, Tata Mc Graw-Hil 2009.
- 10. Books on **TOEFL/GRE/GMAT/CAT/ IELTS** by Barron's/DELTA/Cambridge University Press.
- International English for Call Centres by Barry Tomalin and Suhashini Thomas, Macmillan Publishers, 2009.
- Towards Career Advancement Excerpts from a Professor's Folio by P.
 Satyanarayana Prof. of English, Vaagdevi College of Engineering, published by Vaagdevi Group of Colleges Engineering, Warangal (T.S.) India, 2015.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9536) NETWORK PROGRMMAING LAB

III year B. Tech II- Semester

LTP C 0032

Prerequisites: (A9501) Problem Solving and Computer programming

Course Objectives:

To impart a solid foundation on state of art trends in computer networking to provide a hands on experience of the same. The lab work concentrate on insight of all areas in networking and familiarize students with the Linux environment. The experiments may be taken up with the intention to solidify the foundation of the basic networking course such as Unix/Linux environments.

Week 1: a) Write a shell script that accepts a file name, starting and ending line numbers as arguments and displays all the lines between the given line numbers.

b) Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.

Week 2: a) Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.

b) Write a shell script that accepts a list of file names as its arguments, counts and reports the occurrence of each word that is present in the first argument file on other argument files.

Week 3: a) Write a shell script to list all of the directory files in a directory.

b) Write a shell script to find factorial of a given integer.

Week 4: a) Write an awk script to count the number of lines in a file that do not contain vowels.

b) Write an awk script to find the number of characters, words and lines in a file.

Week 5: Implement the following forms of IPC.

a) Pipes b) FIFO

Week 6: Implement file transfer using Message Queue form of IPC.

Week 7:Write a programme to create an integer variable using shared memory concept and increment the variable simultaneously by two processes. Use semaphores to avoid race conditions. Week 8: Design TCP iterative Client and server application to reverse the given input sentence.

Week 9: Design TCP client and server application to transfer file.

Week 10: Design a TCP concurrent server to convert a given text into upper case using multiplexing system call "select".

Week 11: Design a TCP concurrent server to echo given set of sentences using poll functions.

Week 12: Design UDP Client and server application to reverse the given input sentence.

Week 13: Design UDP Client server to transfer a file.

Week 14: Design using poll client server application to multiplex TCP and UDP requests for converting a given text into upper case.

Week 15: Design a RPC application to add and subtract a given pair of integers.

Course Outcomes:

After the completion of this course the students should be able to:

1. Elaborate basic UNIX commands, shell scripts and AWK scripts.

2. Organize and manipulate files and directories.

3. Model TCP and UDP client server applications and outline the I/O multiplexing concepts of Select and Poll functions.

4. Design inter process communication consisting of pipes, FIFOs, Semaphores and message Queues and develop RPC applications.

References:

- 1. Advance Unix Programming Richard Stevens, Second Edition Pearson Education.
- 2. Unix and Shell programming, B.A.Forouzan and R.F.Gillberg, Cengage Learning.
- 3. Unix and Shell Programming, M.G. Venkatesh Murthy, Pearson Education, 2005.
- 4. Advance UNIX Programming, N.B. Venkateswarlu, BS Publication.
- 5. Unix Shells by Example, 4th Edition, Ellie Quigley, Pearson Education.
- 6. Sed and Awk, O.Dougherty&A.Robbins, 2nd edition, SPD.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9537) SOFTWARE TESTING LAB

III year B. Tech II- Semester

LTP C 0032

Prerequisites: (A9501) Problem Solving and Computer programming

Course Objectives:

Testing is a process used to identify the correctness, completeness and quality of developed computer software. The process of executing a program with the intent of finding an error. A good test case is one that has a high probability of finding an as yet undiscovered error.

- **Week 1:** Write a program to demonstrate the working of Do...while construct and write the teat cases.
- **Week 2:** Write a program to demonstrate the working of While...do construct and write the test cases.
- **Week 3:** Write a program to demonstrate the working of If...else construct and write the test cases.
- Week 4: Write a program to demonstrate the working of for loop and write the test cases.
- Week 5: Write a program to demonstrate the working of If condition and write the test cases.
- **Week 6:** Write a program to demonstrate the working of while construct and write the test cases.
- **Week 7:** Write a program to demonstrate the working of Switch construct and write the test cases.
- **Week 8:** A program written in 'C' language for matrix multiplication fails, so "Introspect the causes for its failure and write down the possible reasons for its failure.
- **Week 9:** Take any system (e.g. ATM) and study its system specifications and report the various bugs.
- Week 10: Study any web testing tool(e.g. selenium).
- Week 11: Study any bug tracking tool (e.g. Bugzilla, bugbit).

Week 12: Write the test cases for any known application (e.g. Banking application).

Week 13: Create a test plan document for any applications (e.g. college management system)

Week 14: Study any web based testing tool (e.g. Selenium).

Week 15: Test database stored procedure using MYSQL.

Week 16: Test the transaction controls in MYSQL/SQL

Week 17: Write the test cases for Flight Reservation System.

Week 18: Study of any bug tracking tool (e.g. Bugzilla, Bug bit).

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Apply the knowledge of testings for real time projects.
- 2. Perceive and apply different testing tools.
- **3.** Test the database stored in MYSQL.
- 4. Write the testcases for conditional and iterative statements.

Text Books:

- 1. Dr. K.V.K.K. Prasad (2007), Software Testing Tools, Dream tech Press.
- 2. Boris Beizer(2003), Software Testing Techniques2ndedition, Dream tech Press.

References:

- 1. The craft of software testing-Braian Marick, Eearson Education.
- 2. Software Testing Concepts and tools, P.Nageswara Rao Dreammtech press.
- 3. Introduction to Software Testing, P.Ammamnn &J.Offutt, Cambridge univ.press.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9538) NETWORK SECURITY & CRYPTOGRAPHY

IV Year B.Tech. CSE I-Sem

LTPC 3103

Prerequisites: (A9523) Data Communications and Computer Networks, (A9001) Mathematics-1, (A9002) Mathematics-II.

Course Objectives:

The objectives and the importance of information security include the applications of confidentiality, integrity, authentication and availability by various cryptographic algorithms. Further, it describes the enhancements made to IPV4 & IPSec along with public key cryptosystems, as well as intrusion detection system, web security and fire walls.

UNIT-I

Security attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security, Internet Standards and RFCs. (Text Book-1, Pg No. 13-22) Buffer overflow & format string vulnerabilities, TCP session hijacking, ARP attacks, route table modification, UDP hijacking, and man-in-the-middle attacks. (Text Book-2 Pg No. 243-434)

UNIT-II

Conventional Encryption: Principles, Conventional encryption algorithms, cipher block modes of operation, location of encryption devices, key distribution Approaches of Message Authentication, Secure Hash Functions and HMAC.(**Text Book-1, Pg No. 201-353**)

UNIT-III

Number Theory: Modular Arithmetic, Euclid's Algorithms, Fermat's and Euler's Theorem, Chinese Remainder Theorem, Public key cryptography principles, public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management Kerberos, X.509 Directory Authentication Service. (**Text Book-1, Pg No. 238-419**)

UNIT-IV

Email privacy: Pretty Good Privacy (PGP) and S/MIME. (Text Book-1, Pg No. 438-457)IP Security: Overview, IP Security Architecture, Authentication, Header, Encapsulating Security Payload, Combing Security Association and key Management. (Text Book-1, Pg

UNIT-V

No. 485-506)

Web Security: Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET) (Text Book-1, Pg No. 528-549)

Intruders, Viruses and related threats, Firewall Design principles, Trusted Systems, Intrusion Detection Systems. (Text Book-1, Pg No. 567-630)

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Identifies various types of vulnerabilities, attacks, mechanisms and security services.
- 2. Compare and contrast symmetric and asymmetric encryption algorithms.
- 3. Implementation of message authentication, hashing algorithms and able to understand Kerberos.
- 4. Explore the attacks and controls associated with IP, transport-level, web and E-mail security.
- 5. Develop intrusion detection system, solutions for wireless networks and designing of various types of firewalls.

Text Books:

- 1. Cryptography and Network Security by William Stalling 4th Edition, Person Education.
- Hack Proofing your network by Ryan Russell, Dan Kaminsky, Rain Forest, Joe Grand David Ahmad, Hal Flynn Ido Dubrawsky, Steve W.Manzuik and Ryan Permeh, wiley Dreamtech,

References:

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

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9539) WEB SERVICES

IV Year B.Tech. CSE I-Sem

LTPC 4004

Prerequisites: (A9512) Object Oriented Programming through Java, (A9519) Advance Java Tools, (A9522) Web Technologies LAB-I.

Course Objectives:

The objective is to understand the details of web services technologies like WSDL, UDDI, SOAP. To learn how to implement and deploy web service client and server. And further, exploring interoperability between different frameworks.

UNIT-I

Evolution and Emergence of Web Services – Evolution of distributed computing, Core distributed computing technologies — client/server, CORBA, JAVA RMI, Microsoft DCOM, MOM, Challenges in Distributed Computing, The role of J2EE and XML in distributed computing, emergence of Web Services and Service Oriented Architecture (SOA). (Text Book Pg No. 1-20). Introduction to Web Services -The definition of web services, basic operational model of web services, tools and technologies enabling web services, benefits and challenges of using web services. (Text Book Pg No. 21-34). Web Services Architecture — Web services Architecture and its characteristics, core building blocks of web services, standards and technologies available for implementing web services, web services communication models, basic steps of implementing web services. (Text Book, Pg No. 41-55)

UNIT-II

Fundamentals of SOAP — SOAP Message Structure, SOAP encoding, Encoding of different data types, SOAP message exchange models, SOAP communication and messaging, (Text Book Pg No. 104-130) Java and Axis, limitations of SOAP. (Text Book, Pg No. 199)

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UNIT-III

Describing Web Services — WSDL — WSDL in the world of Web Services, Web Services life cycle, anatomy of WSDL definition document, WSDL bindings, WSDL Tools, limitations of WSDL. (**Text Book, Pg No. 103-222**)

UNIT-IV

Discovering Web Services — Service discovery, role of service discovery in a SQA, service discovery mechanisms, UDDI — UDDI registries, uses of UDDI Registry, Programming with UDDI, UDDI data structures, Publishing API, Publishing, searching and deleting information in a UDDI Registry, limitations of UDD1. (**Text Book, Pg No. 222-269**)

UNIT- V

Web Services Interoperability — Means of ensuring Interoperability, Overview of .NET, Creating a .NET client for an Axis Web Service, creating Java client for a Web service, Challenges in creating Web Services Interoperability. (**Text Book, Pg No. 272-291**)

Interoperability. Web Services Security — XML security frames work, Goals of Cryptography, XML signature, Digital Certificate, XML Encryption. (**Text Book, Pg No. 619 -657**)

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Implement Web service client and server with interoperable systems like core distributed computing, J2EE, SOA, WSDL, UDDI and EBXML.
- 3. Perceive and analyze the principles of SOAP.
- 3. Perceive the implement Web Services life cycle, Anatomy of WSDL definition document.
- 4. How to utilize the semantics of web services. Working with UDDI, programming with UDDI, UDDI data structures.
- 5. Explore interoperability between different frameworks. Design web based applications that use web services.

Text Book:

1. Developing Java Web Services, R. Nagappan, R. Skoczylas, R.P. Sriganesh, Wiley India.

Reference Books:

- 1. Java Web Service Architecture, James McGovern, Sameer Tyagi etal., Elsevier
- 2. Building Web Services with Java, 2 Edition, S. Graham and others, Pearson Edn.
- 3. Java Web Services, D.A. Chappell & T. Jewell, O'Reilly, SPD.
- 4. Web Services, G. Alonso, F. Casati and others, Springer. Outcomes
- 5. Basic details of WSDL, UDDI, SOAP
- 6. Implement WS client and server with interoperable systems.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9540) CLOUD COMPUTING (CSE Elective-II)

IV Year B.Tech. CSE I-Sem

LTPC

4004

Prerequisites: (A9518) Operating System, (A9523) Data Communications and Computer Networks, (A9511) Database Management Systems.

Course Objectives:

The course provides students with the comprehensive and in-depth knowledge of Cloud computing concepts, technologies, architecture and applications. It introduces research stateof-the-art in Cloud computing fundamental issues, technologies, applications and implementations. Another objective exposes the students to frontier areas of Cloud computing and information systems, while providing sufficient foundations to enable further study and research.

UNIT- I

Systems Modeling, Clustering and Virtualization: Distributed System Models and Enabling Technologies (**Text Book 1, Pg No. 1-55**). Computer Clusters for Scalable Parallel Computing (**Text Book 1, Pg No. 65-120**). Virtual Machines and Virtualization of Clusters and Data centers (**Text Book 1, Pg No. 129-179**).

UNIT-II

Foundations: Introduction to Cloud Computing (**Text Book 2, Pg No. 1-37**), Migrating into a Cloud, Enriching the 'Integration as a Service' Paradigm for the Cloud Era (**Text Book 2, Pg No. 57-94**). The Enterprise Cloud Computing Paradigm (**Text Book 1, Pg No. 97-115**).

UNIT- III

Infrastructure as a Service (IAAS) & Platform and Software as a Service (PAAS / SAAS): Virtual machines provisioning and Migration services(**Text Book 2, Pg No. 121-154**), On the Management of Virtual machines for Cloud Infrastructures(**Text Book 2, Pg No. 157-185**), Enhancing Cloud Computing Environments using a cluster as a Service(**Text Book 2, Pg No. 193-218**). Secure Distributed Data Storage in Cloud Computing (**Text Book 2, Pg No. 221-242**). Aneka (**Text Book 2, Pg No. 251-269**), Comet Cloud (**Text Book 2, Pg No. 279-295**), T-Systems' (**Text Book 2, Pg No. 299-314**), Workflow Engine for Clouds (**Text Book 2, Pg No. 279-295**), **Pg No. 321-341**). Understanding Scientific Applications for Cloud Environments (**Text Book 2**)

2, Pg No. 345-363).

UNIT-IV

Monitoring, Management and Applications: An Architecture for Federated Cloud Computing

(Text Book 2, Pg No. 393-407), SLA Management in Cloud Computing (Text Book 2, Pg

No. 413-425), Performance Production for HPC on Clouds (Text Book 2, Pg No. 437-445), Best Practices in Architecture Cloud Applications in the AWS cloud, Building Content

Delivery networks Clouds (Text Book 2, Pg No. 511-527), Resource Cloud Mashups (Text

Book 2, Pg No. 533-545).

UNIT – V

Governance and Case Studies: Organizational Readiness and Change management in the Cloud age (**Text Book 2, Pg No. 551-565**). Data Security in the Cloud, Legal issues in Cloud computing(**Text Book 2, Pg No. 573-588**). Achieving Production Readiness for Cloud Services (**Text Book 2, Pg No. 593-610**)

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Perceive the main concepts, key technologies of virtualization
- 2. Describe the architecture and infrastructure of cloud computing with all services of cloud and deployment models
- 3. Analyze the issues of cloud computing like cloud security. Explain the core issues of cloud computing such as security and privacy.
- 4. Identify problems; analyze various cloud computing solutions using python. Write comprehensive case studies by analyzing different cloud computing solutions.
- 5. Perceive the virtualization and cloud computing concepts. Develop scalable applications using AWS.

Text Books:

- Distributed and Cloud Computing. Kal Hwang. Geoffeiy C.Fox. Jack J. Dongarra. E)sevier. 2012.
- 2. Cloud Computing: Principles and Paradigms by Rajkumar Buyya, James Broberg and Andrej M.Goscinski Willey, 2011.

Reference Books:

- 1. Cloud Application Architectures by George Reese, Oreilly publishers.
- Cloud Computing and SOA convergence in your enterprise, by David S. Linthicum, Addison – Wesely.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9541) INFORMATION SYSTEMS AND AUDITING (CSE Elective-II)

IV Year B.Tech. CSE I-Sem

L T P C 4 0 0 4

Prerequisites: (A9525) Software Engineering, (A9511) Database Management System

Course Objectives:

The objectives are foundations of information systems auditing, the management, and application control framework. It also provides the evidence collection and evidence evaluation process.

UNIT- I

Overview of Information System Auditing, Effect of Computers on Internal Controls, Effects of Computers on Auditing, Foundations of information Systems Auditing, Conducting an Information Systems Audit. The management Control Framework-I: Introduction, Evaluating the planning Function, Evaluating the Leading Function, Evaluating the Controlling Function, Systems Development Management Controls, Approaches to Auditing Systems Development, Normative Models of the Systems Development Process, Evaluating the Major phases in the Systems Development Process, Programming Management Controls, Data Resource Management Controls.(Text Book, Pg No. 3-228)

UNIT-II

The Management Control Framework-II: Security Management Controls, Operations management Controls Quality assurance Management Controls. The Application Control Framework-I: Boundary Controls, Input Controls, Communication Controls. (**Text Book, Pg No. 242-503**)

UNIT-III

The Application Control Framework-II: Processing Controls, Database Controls, output Controls. (Text Book, Pg No. 516-646)

UNIT-IV

Evidence Collection: Audit Software, Code Review, Test Data, and Code Comparison, Concurrent Auditing techniques, Interviews, Questionnaires, and Control Flowcharts. Performance Management tools. (**Text Book, Pg No. 661-838**)

UNIT-V

Evidence Evaluation: Evaluating Asset Safeguarding and Data Integrity, Evaluating System Effectiveness, Evaluating System Efficiency. (**Text Book, Pg No. 849-954**).

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Recognize the propensity of errors and remedies in processes involving Information Technology
- 2. A consummate knowledge of risks and controls in IT operations in Industry.
- 3. Apply the information systems auditing methodology. Identify and manage the security controls.
- 4. Provide protective IT security guidelines for various types of Industries. Analyze the current issues in auditing.
- 5. The necessary wherewithal to become an IS Auditor and/or Security specialist eventually. Evaluate asset safeguarding and data integrity, system effectiveness and system efficiency.

Text Book:

1. Ron Weber, Information Systems Control and Audit, Pearson Education, 2002.

References:

- 1. M.Revathy Sriram, Systems Audit, TMH, New Delhi, 2001.
- 2. Jalote : Software Project Mangement in Practice, Pearson Education
- 3. Royce : Software Project Management, Pearson Education.

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VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9542) DISTRIBUTED DATABASES (CSE Elective-II)

IV Year B.Tech. CSE I-Sem

LTPC 4004

Prerequisites: (A9511) Database Management System

Course Objectives:

It enables a student to understand the foundations of distributed database processing. The objective is to provide how data are gathered, stored, processed, and communicated by organization to obtain information. This develops the ability of student to think in a creative way in the area of data and system analysis.

UNIT-I

Features of Distributed versus Centralized Databases, Principles Of Distributed Databases, Levels Of Distribution Transparency, Reference Architecture for Distributed Databases, Types of Data Fragmentation, Integrity Constraints in Distributed Databases. Translation of Global Queries to Fragment Queries, Equivalence Transformations for Queries, Transforming Global Queries into Fragment Queries, Distributed Grouping and Aggregate Function Evaluation, Parametric Queries. (**Text Book 1, Pg No. 6-118**).

UNIT-II

Optimization of Access Strategies, A Framework for Query Optimization, Join Queries, General Queries. The Management of Distributed Transactions, A Framework for Transaction Management, Supporting Atomicity of Distributed Transactions, Concurrency Control for Distributed Transactions, Architectural Aspects of Distributed Transactions. (Text Book 1 Pg No.128-199).

UNIT-III

Concurrency Control, Foundation of Distributed Concurrency Control, Distributed Deadlocks, Concurrency Control based on Timestamps, Optimistic Methods for Distributed

Concurrency Control. Reliability, Basic Concepts, Non-blocking Commitment Protocols, Reliability and concurrency Control, Determining a Consistent View of the Network, Detection and Resolution of Inconsistency, Checkpoints and Cold Restart, Distributed Database Administration, Catalog Management in Distributed Databases, Authorization and Protection(**Text Book 1, Pg No.210-282**).

UNIT-IV

Architectural Issues, Alternative Client/Server Architectures, Cache Consistency Object Management, Object Identifier Management, Pointer Swizzling, Object Migration, Distributed Object Storage, Object Query Processing, Object Query Processor Architectures, Query Processing Issues, Query Execution , Transaction Management, Transaction Management in Object DBMSs , Transactions as Objects. (**Text Book 2, Pg No. 406-450**).

UNIT-V

Database Integration, Scheme Translation, Scheme Integration, Query Processing Query Processing Layers in Distributed Multi-DBMSs, Query Optimization Issues. Transaction Management Transaction and Computation Model Multidatabase Concurrency Control, Multidatabase Recovery, Object Orientation And Interoperability Object Management Architecture CORBA and Database Interoperability Distributed Component Model COM/OLE and Database Interoperability, PUSH-Based Technologies (**Text Book-2, Pg No. 451-510**).

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Perceive the basics of distributed databases, types of fragmentation. Compare and contrast distributed and centralized databases.
- 2. Evaluate the queries using different optimization strategies.
- 3. How database implementation is affected by different levels of data and process distribution.
- 4. Implement the concurrency control techniques on multi database systems. Apply learned skills to solving practical database related tasks.
- 5. Perceive the Query processor architecture and its execution. Develop applications using CORBA Technology.

Text Books:

- 1. Distributed Database Principles & Systems, Stefano Ceri, Giuseppe Pelagatti McGraw-Hill.
- 2. Principles of Distributed Database Systems, M.Tamer Ozsu, Patrick Valduriez Pearson Education.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9543) ARTIFICIAL INTELLIGENCE (CSE Elective-II)

IV Year B. Tech. CSE I-Semester

LTP C 4004

Prerequisites: (A9510) Mathematical Foundations of Computer Science, (A9516) Design and Analysis of Algorithms, (A9016) Statistical Methods for Engineers.

Course Objectives:

To learn the basics of designing intelligent agents that can solve general purpose problems, represent and process knowledge, plan and act, reason under uncertainty and can learn from experiences.

UNIT-I

Problems and Search: The AI Problems, Criteria for Success.Problems, Problem Spaces and Search-Production Systems, Problem Characteristics Production System Characteristics, Issues in the Design of Search Programs. Heuristic Search Techniques - Generate-and-Test, Hilt Climbing, Best-First Search: OR Graphs, The A* Algorithm, Agendas, Problem Reduction: The AO* Algorithm, Constraint Satisfaction,. Means-Ends Analysis. (**Text Book, Pg No. 1-72**)

UNIT -II

Knowledge Representation: Knowledge Representation Issues - Representations and Mappings, Approaches to Knowledge Representation, Issues in Knowledge Representation, The Frame Problem. Using Predicate logic - Representing Instance and Isa Relationships, Computable Functions and Predicates, Resolution, Natural Deduction. Represention of Knowledge using Rules - Procedural verses Declarative Knowledge, Logic Programming, Forward verses Backward Reasoning, Matching, Control Knowledge. (**Text Book, Pg No. 79-145**)

UNIT -III

Reasoning Structures: Symbolic Reasoning under Uncertainty- Logics for Non-monotonic, Reasoning, Implementation Issues. Augmenting a Problem Solver, Implementation: Depth-First Search, Implementation- Breadth-First Search. Statistical Reasoning: Probability and Bayes' Theorem, Certainty, Factors and Rule Based Systems, Bayesian Networks, DempsterShafer Theory, Fuzzy logic. Weak Slot-and-Filler Structures- Semantic Nets, Frames. Strong Slot-and-Filler Structures- Conceptual Dependency, Scripts. CYC. (Text Book, Pg No. 147-220)

UNIT –IV

Human-Machine Interaction: Game Playing- Overview, The Minimax Search Procedure, Adding Alpha-Beta Cutoffs, Iterative Deepening. Planning- Components of a Planning System, Goal Stack Planning. Hierarchical Planning, Reactive Systems. (Text Book, Pg No.

231-269)

UNIV-V

Machine Oriented Intelligence: Natural Language Processing- Syntactic Processing, Semantic Analysis, Discourse and Pragmatic Processing. Expert Systems- Representing and Usage Domain Knowledge, Expert System Shells, Knowledge Acquisition. (Text Book, Pg

No. 285-321).

Course Outcomes: After the completion of this course the students should be able to:

1. Remember various AI concepts like the AI technique, level of model, there underlying assumptions etc

2. Perceive the concepts of AI search techniques. Solve various problems by applying search methods.

3. Apply knowledge Representation techniques. Analyze different structures of representation 4. Evaluate AI search techniques. Analyze different Planning Techniques.

5. Create Expert systems.

Text Book:

1. Artificial Intelligence - Elaine Rich, Kevin Knight - TMH - Second Edition

Reference Books:

- 1. Artificial Intelligence- George F Luger PHI Fourth Edition
- 2. Artificial Intelligence Russels PEARSON

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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(A9562) Multimedia & Rich Internet Applications (CSE Elective-II)

IV Year B. Tech. CSE I-Semester

LTPC 4004

UNIT - I

Fundamental concepts in Text and Image: Multimedia and hypermedia, World Wide Web, overview of multimedia software tools. Graphics and image data representation graphics/image data types, file formats, Color in image and video: color science, color models in images, color models in video.

UNIT-II

Fundamental concepts in video and digital audio: Types of video signals, analog video, digital video, digitization of sound, MIDI, quantization and transmission of audio. Multimedia Data Compression: Lossless compression algorithms, Lossy compression

algorithms, Image compression standards.

UNIT III

Basic Video compression techniques, Case study: MPEG Video Coding I, Basic Audio compression techniques, Case study: MPEG Audio compression.

Web 2.0 : What is web 2.0, Search, Content Networks, User Generated Content, Blogging, Social Networking, Social Media, Tagging, Social Marking, Rich Internet Applications, Web Services, Mashups, Location Based Services, XML, RSS, Atom, JSON, and VolP, Web 2.0 Monetization and Business Models, Future of the Web.

UNIT - IV

Rich Internet Applications(RIAs) with Adobe Flash : Adobe Flash - introduction,

Flash Movie Development, Learning Flash with Hands-on

Examples, Publish your flash movie, Creating special effects with Flash, Creating a website splash screen, action script, web sources.

Rich Internet Applications(RIAs) with Flex 3 - Introduction, Developing with Flex 3, Working with Components, Advanced Component Development, Visual Effects and Multimedia,

UNIT - V

Ajax- Enabled Rich Internet Application : Introduction, Traditional Web Applications vs Ajax Applications, Rich Internet Application with Ajax, History of Ajax, Raw Ajax example using xmlhttprequest object, Using XML, Creating a full scale Ajax Enabled application, Dojo ToolKit.

Course Outcomes:

After the completion of this course the students should be able to:

1. Develop dynamic and creative graphic solutions for multimedia productions.

2. Develop techniques for interactive authoring, various multimedia systems for real time applications.

3. Use advanced scripting skills necessary for implementing highly interactive, rich internet applications using multimedia technologies and authoring tools.

4. Perceive the fundamental concepts in video and digital audio. Compare different rich internet applications.

5. Develop, Analyze, Design industry-wide software artistic visual style and layout design as well as the editing and integration of graphic images, animation, video, and audio files.

TEXT BOOKS:

1. Fundamentals of Multimedia by Ze-Nian Li and Mark S, Drew PHI Learning, 2004

2. Professional Adobe Flex 3, Joseph Balderson, Peter Ent, et al, Wrox Publications, Wiley India, 2009.

3. AJAX, Rich Internet Applications, and Web Development for Programmers, Paul J

Deitel and Harvey M Deitel, Deitel Developer Series, Pearson Education.

REFERENCE BOOKS:

1. Multimedia Communications: Applications, Networks, Protocols and Standards, Fred Halsall, Pearson Education, 2001, rp 2005.

2. Multimedia Making it work, Tay Vaughan, 7th edition, TMH, 2008.

3. Introduction to multimedia communications and Applications, Middleware, Networks, K.R.Rao, Zoran, Dragored, Wiley India, 2006, rp. 2009.

4. Multimedia Computing, Communications & Applications, Ralf Steinmetz and Klara Nahrstedt, Pearson Education, 2004

5. Principles of Multimedia, Ranjan Parekh, TMH, 2006.

6. Multimedia in Action, James E.Shuman, Cengage Learning, 198, rp 2008.

7. Multimedia Systems design, Prabhat K. Andleigh, Kiran Thakrar, PHI, 1986.
- 8. Multimedia and Communications Technology, Steve Heath, Elsevier, 1999, rp 2003.
- 9. Adobe Flash CS3 Professional, Adobe press, Pearson Education, 2007.
- 10. Flash CS3 Professional Advanced, Russel Chun, Pearson Education, 2007.
- 11. SAMS Teach yourself Adobe flash CS3, Pearson Education, 2007.
- 12. Flex 4 Cookbook, Joshua Noble, et.al, O'Reilly, SPD 2010.
- 13. Flex3 A beginner's guide, Michele E.Davis, Jon A. Phillips, TMH, 2008.
- 14. Mastering Dojo, R.Gill, C.Riecke and A.Russell, SPD.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9563) SCRIPTING LANGUAGEs (CSE Elective-II)

IV Year B. Tech. CSE I-Semester

LTP C 4004

Course Objectives:

UNIT I

Introduction to PERL and Scripting Scripts and Programs, Origin of Scripting, Scripting Today, Characteristics of Scripting Languages, Web Scripting, and the universe of Scripting Languages. PERL- Names and Values, Variables, Scalar Expressions, Control Structures, arrays, list, hashes, strings, pattern and regular expressions, subroutines, advance perl - finer points of looping, pack and unpack, filesystem, eval, data structures, packages, modules, objects, interfacing to the operating system, Creating Internet ware applications, Dirty Hands Internet Programming, security Issues.

UNIT II

PHP Basics PHP Basics- Features, Embedding PHP Code in your Web pages, Outputting the data to the browser, Datatypes, Variables, Constants, expressions, string interpolation, control structures, Function, Creating a Function, Function Libraries, Arrays, strings and Regular Expressions.

UNIT III

Advanced PHP Programming Php and Web Forms, Files, PHP Authentication and Methodologies -Hard Coded, File Based, Database Based, IP Based, Login Administration, Uploading Files with PHP, Sending Email using PHP, PHP Encryption Functions, the Mcrypt package, Building Web sites for the World – Translating Websites- Updating Web sites Scripts, Creating the Localization Repository, Translating Files, text, Generate Binary Files, Set the desired language within your scripts, Localizing Dates, Numbers and Times.

UNIT IV TCL – Tk TCL Structure, syntax, Variables and Data in TCL, Control Flow, Data Structures, input/output, procedures, strings, patterns, files, Advance TCL- eval, source, exec and up level commands, Name spaces, trapping errors, event driven programs, making applications internet aware, Nuts and Bolts Internet Programming, Security Issues, C

Interface. Tk-Visual Tool Kits, Fundamental Concepts of Tk, Tk by example, Events and Binding, Perl-Tk.

UNIT V Python Introduction to Python language, python-syntax, statements, functions, Builtin-functions and Methods, Modules in python, Exception Handling, Integrated Web Applications in Python – Building Small, Efficient Python Web Systems ,Web Application Framework.

Course Outcomes:

After the completion of this course the students should be able to:

1. Perceive of scripting and the contributions of scripting languages. Write simple scripts to automate system administration.

3. Learn basics of PHP and advanced programming of PHP. Perceive of Perl especially evaluates the object oriented concepts.

5. Expose to create advanced applications on web applications. Analyze the basics of TCL and apply the logic on TCL concepts.

7. Expose to basic applications python, create its modules and Web applications.

8. Develop simple applications by various tools.

TEXT BOOKS:

1. The World of Scripting Languages, David Barron, Wiley Publications.

2. Python Web Programming, Steve Holden and David Beazley, New Riders Publications.

3. Beginning PHP and MySQL, 3rd Edition, Jason Gilmore, Apress Publications

(Dreamtech)

REFERENCE BOOKS:

1. Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and

PHP, J.Lee and B.Ware (Addison Wesley) Pearson Education.

2. Programming Python, M.Lutz, SPD.

3. PHP 6 Fast and Easy Web Development, Julie Meloni and Matt Telles, Cengage Learning Publications.

4. PHP 5.1, I. Bayross and S. Shah, The X Team, SPD.

5. Core Python Programming, Chun, Pearson Education.

6. Guide to Programming with Python, M.Dawson, Cengage Learning.

7. Perl by Example, E.Quigley, Pearson Education.

8. Programming Perl, Larry Wall, T.Christiansen and J.Orwant, O'Reilly, SPD.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9544) SOFT COMPUTING (CSE Elective-III)

IV Year B.Tech. CSE I-Sem

L T P C 4004

Prerequisites: (A9516) Design Analysis of Algorithms, (A9526) Data warehousing and Data Mining)

Course Objectives:

Soft computing introduces concepts such as neural networks, supervised learning, unsupervised learning techniques, concepts of neural network basics and the features of fuzzy sets. It familiarize the applications of neural networks and fuzzy logic member function features with the real time applications of internet search techniques.

UNIT-I

Introduction: Neural Networks, Fuzzy Logic, Genetic Algorithms, Hybrid Systems, Soft Computing, Soft Computing Constituents, Soft Computing Characteristics. Artificial Neural Networks: Introduction, Fundamental Concept, Evolution of Neural Networks, Basic models of ANN, Important Terminologies. (Text Book, Pg No. 1-27)

UNIT-II

Supervised Learning Networks: Introduction, Perceptron Networks, Adaptive Linear Neuron, Back propagation Network. Associative Memory Networks: Introduction, Training Algorithms for pattern association and Hopfield Networks.(**Text Book, Pg No. 49-116**)

UNIT-III

Unsupervised Learning Networks: Introduction, Fixed Weight Competitive Nets, Kohonen Self-Organizing Feature Maps, Counter Propagation Networks. Fuzzy Sets: Introduction, Classical Sets, Fuzzy Sets, Classical Relations, Fuzzy Relations (**Text Book, Pg No. 147-286**)

UNIT-IV

Membership functions- Features, Fuzzification, Membership value assignments, Defuzzification Methods, Fuzzy Arithmetic, Fuzzy Measures, Fuzzy Inference Systems, and Fuzzy Logic Control Systems. (**Text Book, Pg No. 295-377**)

UNIT-V

Genetic Algorithms- Introduction, Basic operators and terminology, Traditional, Algorithm vs Genetic Algorithm, Simple GA, General GA, Classification of GA, Genetic Programming,

Applications of GA (Text Book, Pg No. 385-462) , Applications of Soft Computing :(Text

Book, Pg No. 511-681)

Course Outcomes:

After the completion of this course the students should be able to:

1. Learn basics of artificial neural network and soft computing techniques.

2. Perceive various supervised learning networks and training algorithms of various Associative memory networks

3. Perceive the algorithms for pattern association, unsupervised learning networks, Special networks.

4. Apply functional mappings in fuzzy sets. Interpret the Scope of Membership functions and perceive defuzzification methods and discussions on concepts of fuzzy sets

5. Analyze and comprehends the concepts and applications of genetic algorithms, various soft computing techniques for problem solving.

Text Books:

1. Principles of Soft Computing- S N Sivanandam, S N Deepa, Wiley India, 2007

Reference Books:

- 1. Artificial Intelligence and Soft Computing- Behavioral and Cognitive Modeling of the Human Brain- Amit Konar, CRC press, Taylor and Francis Group.
- Soft Computing and Intelligent System Design -Fakhreddine O Karray, Clarence D Silva,. Pearson Edition, 2004.

- 3. Artificial Intelligence Patric Henry Winston Third Edition, Pearson Education.
- 4. Fuzzy Sets and Fuzzy Logic Theory and Applications George J.Klir, Bo Yuan
- Genetic Algorithms in Search, Optimization and Machine Learning David E.Goldberg Addison-Wesley
- 6. An Introduction to Genetic Algorithms Melanie Mitchell, MIT Press
- Neuro-Fuzzy and Soft Computing A Computational Approach to Learning and Machine Intelligence – J.S.R.Jang, C.T.Sun, E.Mizutani, PHI

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

400 4

(A9545) BUSINESS INTELLIGENCE AND BIGDATA (CSE Elective-III) IV Year B.Tech. CSE I-Sem L T P C

Prerequisites: (A9511) Database Management System, (A9526) Data Warehousing and Data Mining, (A9512) Object Oriented Programming Through Java.

Course Objectives:

This course provides key technologies such as manipulating, storing, and analyzing big data. The students understand details of Hadoop. Tools that provide SQL-like access to unstructured data. It introduces the tools required to manage and analyze big data like Hadoop, NoSql Map-Reduce, principles in achieving big data analytics with scalability and streaming capability. It enable student to have skills that helps them to solve complex real-world problems in for decision support.

UNIT -I

Introduction to Big Data Analytics: Grasping the fundamentals of Bigdata, Examining Big Data types, **Technology Foundation of Big Data:** Big Data Technology, Digging into Big Data Technology components, Virtualization and Big Data ,Examining Cloud and Big Data, Information Management in Big Data. (**Text Book 1 part 1, Pg No. 7-36**)

UNIT-II

Big Data Management: Operational Databases, Map Reduce Fundamentals, Exploring world of Hadoop , Hadoop Foundation and ecosystem , Appliances and Big Data Warehouses. (**Text Book 1 part 3, Pg No. 83-138**)

UNIT-III

The Map Reduce and Software Stack: Algorithms using Map Reduce, Extensions to Map Reduce, The communication Cost Model, The Complexity Theory for Map Reduce. (Text Book 1, Pg No. 200-229).

UNIT-IV

Big Data Solutions in Real World: The importance of Bigdata to Business, Analyzing Data

in Motion: A Real-World View, Improving Business Processes with Big Data Analytics: A

Real-World View, Data Privacy and Ethics in Big Data. (Text book 1, Pg No. 235-262)

UNIT-V

Ethics of Big Data: Big Data Big Impact, Values and Actions, Current practices, Aligning

Values and Actions. (Text book 2, Pg No. 1-62)

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Explain the foundations, definitions, and capabilities of DSS, data analytics and BI.
- 2. List the definitions, concepts, and architectures of data warehousing.
- 3. Demonstrate the impact of business reporting, information visualization, and dashboards. Outline the definitions, concepts, and enabling technologies of big data analytics.
- 4. Explain data mining, neural networks, support vector machines, text analytics, text mining, sentiment analysis, web mining, web analytics, social analytics, social network analysis.
- 5. Apply big data technologies in business intelligence using geospatial data, locationbased analytics, social networking, Web 2.0, reality mining, and cloud computing.

Text Books:

- 1. Big Data For Dummies By Judith Hurwitz, Alan Nugent , Fern Halper , Marcia Kaufman , John Wiley & Sons
- Ethics of Big Data: Balancing Risk and Innovation By Kord Davis, O'reilly Media 4) Mining of Massive Datasets by Anand Rajaraman, Jure Leskovec, Jeff rey D. Ullman, Cambridge University Press.

References:

- Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses (Wiley CIO) By Michael Minelli, Michele Chambers, Ambiga Dhiraj John Wiley & Sons
- 2. Hadoop: The Definitive Guide, 3rd Edition, By Tom White, O'reilly Media
- 3. Big Data Now: 2012 Edition Publisher: O'Reilly Media.
- Too Big to Ignore: The Business Case for Big Data (Wiley and SAS Business Series) By Phil Simon, Wiley .

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

400 4

(A9546) SOFTWARE PROJECT MANAGEMENT (CSE Elective-III) IV Year B.Tech. CSE I-Sem L T P C

Prerequisites: (A9525) Software Engineering

Course Objectives:

The Objective is to provide graduates with knowledge of engineering to creatively, innovatively solve difficult computer systems problems, regularly engage in exploring, learning and applying state-of-the-art of hardware & software technologies. The solution of computer systems problems is effective software development team member that contributes innovative software design solutions to the resolution of business, scientific or government computer systems problems. It ables to communicate effectively, successfully, both individually and within multi-disciplinary teams.

UNIT - I

Conventional Software Management: The waterfall model, conventional software Management performance.

Evolution of Software Economics: Software Economics, pragmatic software cost estimation. (**Text Book, Pg No. 5-26**).

UNIT - II

Improving Software Economics: Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections. **The old way and the new:** The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process. (**Text Book, Pg No. 31-66**).

UNIT - III

Life cycle phases: Engineering and production stages, inception, Elaboration, construction, transition phases. Artifacts of the process: The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts. Model based software architectures: A Management perspective and technical perspective. (Text Book, Pg No. 73-111).

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UNIT-IV

Work Flows of the process: Software process workflows, Iteration workflows. **Checkpoints of the process:** Major mile stones, Minor Milestones, Periodic status assessments. Iterative Process Planning: Work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning.

Project Organizations and Responsibilities: Line-of-Business Organizations, Project Organizations, evolution of Organizations. **Process Automation:** Automation Building blocks, The Project Environment.(**Text Book, Pg. No. 117-184**)

UNIT- V

Project Control and Process instrumentation: The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation. **Tailoring the Process:** Process discriminate. **Future Software Project Management:** Modern Project Profiles, Next generation Software economics, modern process transitions. **Case Study:** The command Center Processing and Display system-Replacement (CCPDS-R) (**Text Book, Pg. No. 187-390**).

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Gain knowledge of software economics, phases in the life cycle of software development, project organization, and project control and process instrumentation.
- 2. Summarize software economics, software development life cycle, artifacts of the process, workflows, checkpoints, project organization and responsibilities, project control and process instrumentation.
- 3. Choose the right software development approach. Compare various project organizations and responsibilities
- 4. Analyze the major and minor milestones, artifacts and metrics for management and technical perspective.
- 5. Design software product using conventional and modern principles of software project management.

Text Book:

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

References:

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

VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A9547) COMPUTER GRAPHICS (CSE Elective-III)

IV Year B. Tech. I Semester

LT PC 400 4

Prerequisites: (A9501) Problem Solving and Computer Programming

Course Objectives:

This study is designed to provide a comprehensive introduction to computer graphics leading to the ability to understand contemporary terminology, progress, issues, and trends. A thorough introduction to computer graphics techniques, focusing on 3D modeling, image synthesis, and rendering.

UNIT-I

Introduction: Application areas of Computer Graphics, Overview of Graphics systems ,Video-Display Devices, ,Raster –scan system, Randam Scan system, Graphics Monitors and Work Stations and input. (**Text book-1, Pg No. 1-101**)

UNIT-II

Output primitives : Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms. **Filled area primitives:** Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms. **(Text book 1, Pg No. 103-150)**

UNIT –III

2-D geometrical transforms: Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems. (**Text Book 1, Pg No. 204-227**). **2-D viewing**: The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm. (**Text Book 1, Pg .No. 227-263**)

UNIT IV

3-D Object Representation : Polygon surfaces, quadric surfaces, spline representation, Hermite curve, Bezier curve and B-Spline curves, Bezier and B-Spline surfaces. (**Text Book 1, Pg No. 324-353**), Basic Illumination Models, Polygon Rendering methods (**Text Book, Pg No. 514-564**) **3-D Geometric transformations:** Translation, rotation, scaling, reflection and

shear transformations, composite transformations. 3D Viewing pipeline, clipping, projections

(Text Book 1, Pg No. 451-481)

UNIT V

Visible surface detection methods: Classification, back-face detection, depth-buffer, scanline, depth sorting, BSPtree methods, area sub-division and octree methods. (Text book-1,

Pg No. 490-505). **Computer Animation:** Design of animation sequence, general computer animation functions, raster animation, computer animation languages, key frame systems, motion specifications. (Text Book 1, Pg No. 603-616)

Course Outcomes:

After the completion of this course the students should be able to:

- **1.** Get overview on applications areas of Computer Graphics, Graphic devices and Monitors.
- **2.** Learn about basic tools for constructing pictures with straight lines, methods for performing geometric transformations 2-Dimensional, curves, filled area, cell-array patterns, and text.
- **3.** Learn about various surface functions such as quadrics, polygon surfaces, super quadrics, splines or blobby objects and 3-Dimensions transformations in computer graphics.
- **4.** Describe the importance of viewing. Learn major considerations in the generation of realistic graphic displays, detecting visible surfaces in a 3-Dimension scene and designing animation sequences.
- **5.** Discuss the applications of computer Graphics. Analyze the fundamentals of animations

Text Books:

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

Reference Books:

- 1. Computer Graphics with Virtual Reality Systems, Rajesh K Maurya, Wiley
- 2. Introduction to Computer Graphics, Using Java 2D and 3D, Frank Klawonn, Springer
- 3. Computer Graphics, Steven Harrington, TMH
- 4. Computer Graphics, Amarendra N Sinha, Arun Udai, TMH
- Computer Graphics Principles & practice, 2/e, Foley, VanDam, Feiner, Hughes, Pearson
- 6. Computer Graphics, Peter, Shirley, CENGAGE
- 7. Principles of Interactive Computer Graphics, Neuman , Sproul, TMH.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9560) DISTRIBUTED SYSTEMS (CSE Elective-III)

IV Year B. Tech. I Semester

LTPC 4004

Course Objectives:

•To explain what a distributed system is, why you would design a system as a distributed system, and what the desired properties of such systems are. To list the principles underlying the functioning of distributed systems, describe the problems and challenges associated with these principles, and evaluate the effectiveness and shortcomings of their solutions. To recognize how the principles are applied in contemporary distributed systems, explain how they affect the software design, and be able to identify features and design decisions that may cause problems. To design a distributed system that fulfills requirements with regards to key distributed systems properties (such as scalability, transparency, etc.), be able to recognize when this is not possible, and explain why; To build distributed system software using basic OS mechanisms as well as higher level middleware and languages.

UNIT I

Characterization of Distributed Systems- Introduction, Examples of Distributed systems, Resource sharing and web, challenges, System models-Introduction, Architectural and Fundamental models, Networking and Internetworking, Interprocess Communication.Distributed objects and Remote Invocation-Introduction, Communication between distributed objects, RPC, Events and notifications, Case study-Java RMI.

UNIT II

Operating System Support-Introduction, OS layer, Protection, Processes and Threads, Communication and Invocation, Operating system architecture, Distributed File SystemsIntroduction, File Service architecture, case study-SUN network file systems, Name Services-Introduction, Name Services and the Domain Name System, Case study of the Global Name Service, Case study of the X.500 Directory Service.

UNIT III

Peer to Peer Systems-Introduction, Napster and its legacy, Peer to Peer middleware, Routing overlays, Overlay case studies-Pastry, Tapestry, Application case studies-Squirrel, OceanStore. Time and Global States-Introduction, Clocks, events and Process states, Synchronizing physical clocks, logical time and logical clocks, global states, distributed debugging. Coordination and Agreement Introduction, Distributed mutual exclusion, Elections, Multicast communication, consensus and related problems.

UNIT IV

Transactions and Concurrency control- Introduction, Transactions, Nested Transactions, Locks, Optimistic concurrency control, Timestamp ordering, Comparison of methods for concurrency controls. Distributed Transactions-Introduction, Flat and Nested Distributed Transactions, Atomic commit protocols, Concurrency control in distributed transactions, Distributed deadlocks, Transaction recovery, Replication- Introduction, System model and group communication, Fault tolerant

services, Transactions with replicated data.

UNIT V

Security -Introduction, Overview of Security techniques, Cryptographic algorithms, Digital signatures, Case studies-Kerberos, TLS, 802.11 WiFi. Distributed shared memory, Design and Implementation issues, Sequential consistency and Ivy case study, Release consistency and Munin case study, other consistency models, CORBA case study - Introduction, CORBA RMI, CORBA Services.

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Demonstrate knowledge of the basic elements and concepts related to distributed system technologies.
- 2. Apply important methods in distributed systems to support scalability and fault tolerance. Design and Evaluate sample distributed systems.
- 3. Examine state-of-the-art distributed systems, such as Google File System.
- 4. Explain various architectures used to design distributed systems, such as client-server and peer-to-peer.
- 5. Learn basics of CORBA, RMI. Implement Digital signatures on projects.

TEXT BOOKS:

1.Distributed Systems Concepts and Design, G Coulouris, J Dollimore and T Kindberg, Fourth Edition, Pearson Education.

2.Distributed Systems, S.Ghosh, Chapman & Hall/CRC, Taylor & Francis Group, 2010.

REFERENCE BOOKS:

- 1. Distributed Computing, S.Mahajan and S.Shah, Oxford University Press.
- 2. Distributed Operating Systems Concepts and Design, Pradeep K.Sinha, PHI.
- 3. Advanced Concepts in Operating Systems, M Singhal, N G Shivarathri, Tata McGrawHill Edition.
- 4. Reliable Distributed Systems, K.P.Birman, Springer.
- 5. Distributed Systems –Principles and Paradigms, A.S. Tanenbaum and M.V. Steen, Pearson Education.
- 6. Distributed Operating Systems and Algorithm Analysis, R.Chow, T.Johnson, Pearson.
- 7. Distributed Operating Systems, A.S.Tanenbaum, Pearson education.
- Distributed Computing, Principles, Algorithms and Systems, Ajay D.K shemakalyani & Mukesh Singhal, Cambrigde, rp 2010

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9561) DATABASE SECURITY (CSE Elective-III)

IV Year B. Tech. I Semester

LTPC 4004

Course Objectives:

To learn the security of databases, design techniques of database security and how to secure software design

UNIT I

Introduction-Introduction to Databases Security Problems in Databases Security Controls Conclusions Security Models-1Introduction Access Matrix Model Take-Grant Model Acten Model PN Model Hartson and Hsiao's Model Fernandez's Model Bussolati and Martella's Model for Distributed databases

UNIT II

Security Models-2 Bell and LaPadula's Model Biba's Model Dion's Model Sea View Model Jajodia and Sandhu's Model The Lattice Model for the Flow Control conclusion. Security Mechanisms Introduction User Identification/Authentication Memory Protection Resource Protection Control Flow Mechanisms Isolation Security Functionalities in Some Operating Systems Trusted Computer System Evaluation Criteria

UNIT III

Security Software Design Introduction A Methodological Approach to Security Software Design Secure Operating System Design Secure DBMS Design Security Packages Database Security Design

UNIT IV

Statistical Database Protection & Intrusion Detection Systems: Introduction Statistics Concepts and Definitions Types of Attacks Inference Controls evaluation Criteria for Control Comparison. Introduction IDES System RETISS System ASES System Discovery

UNIT V

Models For The Protection Of New Generation Database Systems-1 Introduction A Model for the Protection of Frame Based Systems A Model for the Protection of Object -Oriented Systems SORION Model for the Protection of Object-Oriented Databases Models For The Protection Of New Generation Database Systems-2A Model for the Protection of New Generation Database Systems: the Orion Model Jajodia and Kogan's Model A Model for the Protection of Active databases Conclusions.

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Compare and contrast various database security models.
- 2. Implement the security techniques for distributed database systems. Compare and contrast models for the protection of new generation database system.
- 3. Define, develop and analyze an interesting database security related research project.
- 4. Design flaws and programming bugs in databases and the associated programs and systems.
- 5. Prevent unauthorized data observation, unauthorized data modification and ensure the data confidential.

TEXT BOOKS:

- Database Security and Auditing, Hassan A. Afyouni, India Edition, CENGAGE Learning, 2009.
- 2. Database Security, Castano, Second edition, Pearson Education.

REFERENCE BOOK:

1.Database security by alfred basta, melissa zgola, CENGAGE learning.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9330) NANO TECHNOLOGY (Open Elective-II)

IV Year B.Tech. CSE I-Sem

L T P C 3003

Prerequisites: None

Course Objectives:

Understand the fundamentals of Nano theory, necessary background for applications in various industries. Learn the components of Nano materials in detail, and its working in different applications. Understand the general scientific concepts required for technology, Apply the concepts in solving engineering problems. Explain scientifically the new developments in engineering and technology and Get familiarized with the concepts, theories, and technological applications

UNIT-I

Introduction to Nano Technology: Importance of Nanoscale, Nanostructure types, electronic, magnetic, optical Properties of Nanomaterials, top-down and bottom – up approach to nanostructures.

Quantum Mechanical phenomenon in Nanostructures: Quantum confinement of electrons in semiconductor Nano structures, one dimensional confinement (Quantum Wires), two dimensional confinements (Quantum Wells), three dimensional confinements (Quantum dots).

UNIT-II

Carbon Nano Structures: Carbon Nanotubes (CNTs), Fullerenes, C60, C80 and C240 Nanostructures, properties (mechanical, optical and electrical) and applications.

UNIT-III

Fabrication of Nanomaterials: Physical Methods: Inert gas condensation, Arc discharge, RF plasma, plasma arc technique, lon sputtering, Laser ablation, Laser pyrolysis, Molecular beam eqitaxy, Chemical vapour deposition method.

Nano Scale characterization techniques: Scanning probe techniques (AFM, MFM, STM, SEM, TEM), XRD.

UNIT-IV

Nanodevices and Nanomedicine: Lab on chip for bioanalysis, Core/shell Nanoparticles in drug delivery systems (site specific and targeted drug delivery), cancer treatment, and bone tissue treatment.

Nano and molecular electronics: Resonant-Tunneling Structures, single electron tunneling, Single Electron transistors, coulomb blockade, glant magneto resistance, tunneling magneto resistance.

UNIT-V

Nanolithography and Nanomanipulation: E-beam lithography and SEM based Nanolithography and Nanomanipulation, Ion beam lithography, oxidation and metallization Mask and its application. Deep UV lithography, x-ray based lithography.

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Perceive the fundamentals of Nanotechnology
- 2. Know the different classes of nano materials
- 3. Impart basic knowledge on various synthesis and characterization techniques involved in Nanotechnology
- 4. Make the learner familiarize with nanotechnology potentialities.

Text Books:

- 1. Charies.P.pode, introduction to nanotechnology, springer publications.
- 2. Springer Handbook of Nanotechnology-Bharat Bhusan.
- 3. Phani Kumar, principles of nanotechnology, scitech publications.

Reference Books:

- 1. David Ferry "Transport in Nano st
- 2. Structures" Cambridge University press 2000.
- 3. Nanobiotechnology; ed, C.M.Niemeyer, C.A. Mirkin.
- 4. Nanofabrication towards biomedical application: Techniques, tools, Application and impact-Ed. Challa S., S.R.Kumar, J.H.Carola.
- 5. Encyclopedia of Nanotechnology-Hari Singh Nalwa
- 6. Carbon Nanotubes: Properties and Applications- Michael J.O'Connell.
- 7. S.Dutta "Electron Transport in Mesoscopic systems" Cambridge University press.
- 8. H.Grabert and M.Devoret "Single charge Tunneling" Plenum press 1992.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9624) ENTERPREUNERSHIP DEVELOPMENT (Open Elective-II)

IV Year B.Tech. CSE I-Sem

L T P C 3003

Prerequisites: None

Course Objective:

The objective of the course is to make students understand the nature of entrepreneurship, and to motivate the student to start his/her own enterprise. The objective of the course is to enlighten with the fragrance of Corporate Good Governance and Business Ethics, so that they would become the best entrepreneurs / managers of the corporate world.

UNIT-I

Nature of Entrepreneurship; Characteristics – Qualities and skills of an Entrepreneur – Functions of entrepreneur – Entrepreneur scenario in India and Abroad. Forms of Entrepreneurship: Small Business – Importance in Indian Economy – Types of ownership – Sole trading – Partnership – Joint stock company and other forms. First – Mover disadvantages, Risk Reduction strategies, Market scope strategy, Imitation strategies and Managing Newness

UNIT-II

Aspects of Promotion: Generation of new entry opportunity, SWOT Analysis, Technological Competitiveness, legal regulatory systems, patents and trademarks, Intellectual Property Rights- Project Planning and Feasibility Studies- Major steps in product development. Financial Aspects: Sources of raising Capital, Debt-Equity, Financing by Commercial Banks, Government Grants and Subsidies, Entrepreneurship Promotion Schemes of Department of Industries (DIC), KVIC, SIDBI,NABARD, NSIC, APSFC, IFCI and IDBI. New Financial Instruments.

UNIT-III

Introduction to Business Ethics: Necessity for Business Ethics-Need for Ethical guideline – Salient Issues in Ethics and Commerce- Ethics as a Luxury – Earlier attempts at Ethics in Industry – Justification for Ethics – Effect of Migration of National Character – Shadow Economy – Basic Principles in Ethics – Corporate Climate and corporate climate audits – Political Issues – Nature and theory of Ethics – The Naturalistic fallacy - G.E.Moore's Philosophy.

UNIT-IV

Understanding Corporate Governance: Corporate Governance- Capitalism at crossroads – Historical perspective of Corporate Governance – Issues of Corporate Governance – Theoretical basis of Corporate Governance – Corporate Governance mechanisms – Indian Model of Governance – Good Corporate Governance – Corporate Governance committees – OECD Principles – Indian Committee and guidelines – The confederation of Indian Industry's initiative. Corporate Governance Models, Corporate Social Responsibility.

UNIT-V

Corporate Social Responsibility: System Concept of Business Society - Social

Responsibility – Social Responsibility tools – approaches to Ethics – Corporate Social Accountability - Business in a Social World – Ethics and Social Responsibility – professional ethics – Ethics of practicing company secretaries- Ethical investing.

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Define the nature and Qualities of Entrepreneur and relate to types of ownership.
- 2. What are risk Reduction, market scope and Imitation strategies.
- 3. Explain the legal regulations system and IPRs and summarize the source of finance from different institutions.
- 4. Identify the needs of business ethics and develop the principles.
- 5. Evaluate the issues of corporate governance and interpret the guidelines. Elaborate the concept of social responsibility and improve professional ethics.

Text Books:

- 1. Robert D Hisrich, Michael P Peters, Dean A Shepherd: Entrepreneurship, TMH, 2009
- 2. Vasanth Desai: Entrepreneurship, HPH, 2009
- 3. C.S.V.Murthy: Business Ethics & Corporate Governance, Himalaya, 2009.

References:

- 1. Bholanath Dutta: Entrepreneurship Text and Cases, Excel, 2009
- 2. David Martin: Corporate Governance, Viva, 2009
- 3. H. Nandan: Fundamentals of Entrepreneurship, PHI, 2009.
- 4. Barringer: Entrepreneurship, Pearson, 2009.
- 5. Ronald D Francis & Mukti Mishra: Business Ethics, TMH, 2009
- 6. RK Mishra, Gitarani: Corporate Governance, Excel, 2009
- 7. A.C.Frenando: Corporate Governance, Pearson, 2006
- V.Balachandran & V.Chandrasekaran: Corporate Governance & Social Responsibility, PHI, 2009
- 9. A.C.Fernando: Business Ethics, Pearson, 2009
- 10. Laura P Hartman & Abha Chatterjee: Business Ethics, TMH, 2009
- 11. Tripat Kaur: Values and Ethics in Management, 2/e, Paragon International, 2009.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9424) TELECOMMUNICATIONS AND SWITCHING NETWORKS (Open Elective-II)

IV Year B.Tech. CSE I-Sem

LTPC

3003

Prerequisites: (A9523) Data Communications and Computer Networks

Course Objectives:

To learn switching, singling and traffic in the context of telecommunication network. It exposes through the evolution of switching systems from manual and electromechanical systems to stored-program-controlled digital systems. The study of signaling, packet switching and networks.

UNIT-I

Switching Systems: Evolution of Telecommunications; Basics of a Switching System; Functions of a Switching System; Crossbar Switching-Principle of Crossbar Switching; Crossbar Switch Configurations; Cross-Point Technology; Crossbar Exchange Organization; A General Trunking; Electronic Switching; Digital Switching Systems.

Telecommunications Traffic: Introduction; The Unit of Traffic; Congestion; Traffic Measurement; A Mathematical Model; Lost-Call Systems-Theory; Traffic Performance; Loss Systems in Tandem; Use of Traffic Tables; Queuing Systems-The Second Erlang Distribution; Probability of Delay; Finite Queue Capacity; Some Other Useful Results; Systems with a Single Server; Queues in Tandem; Delay Tables; Applications of Delay Formulae.

UNIT-II

Switching Networks: Single Stage Networks; Gradings-Principle; Two Stage Networks; Three Stage Networks; Four Stage Networks

Time Division Switching: Basic Time Division Space Switching; Basic Time Division Time Switching; Time Multiplexed Space Switching; Time Multiplexed Time Switching; Combination Switching; Three Stage Combination Switching.

Control of Switching Systems: Call Processing Functions-Sequence of Operations; Signal Exchanges; State Transition Diagrams; Common Control; Reliability; Availability and Security; Stored Program Control.

UNIT-III

Signaling: Introduction; Customer Line Signaling; Audio Frequency Junctions and Trunk Circuits; FDM Carrier Systems-Outband Signaling; Inband (VF) Signaling; PCM Signaling; Inter Register Signaling; Common Channel Signaling Principles-General Signaling Networks; CCITT Signaling System Number 6; CCITT Signaling System Number 7; The High Level Data Link Control Protocol; Signal Units; The Signaling Information Field.

UNIT-IV

Packet Switching: Introduction; Statistical Multiplexing; Local Area And Wide Area Networks-Bus Networks; Ring Networks; Comparison of Bus and Ring Networks; Optical Fiber Networks; Large Scale Networks-General; Datagrams and Virtual Circuits; Routing; Flow Control; Standards; Frame Relay; Broadband Networks-General; The Asynchronous Transfer Mode; ATM Switches.

UNIT-V

Networks: Introduction; Analog Networks; Integrated Digital Networks; Integrated Services Digital Networks; Cellular Radio Networks; Intelligent Networks; Private Networks; Charging; Routing – General, Automatic Alternative Routing.

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Perceive the main concepts of telecommunicating network design.
- 2. Relate adequate knowledge about telecommunication network
- 3. Analyze and evaluate fundamental telecommunication traffic models.
- 4. Conclude themselves through the evolution of switching systems from manual and electromechanical systems to stored-program-controlled digital systems.
- 5. Apply the knowledge of basic modern signaling system. Examine the concept of packet switching.

Text Books:

 J. E Flood, "Telecommunications Switching and Traffic Networks," Pearson Education, 2006. 2. Tyagarajan Viswanathan, "Telecommunications Switching Systems and Networks," Prentice Hall of India Pvt. Ltd., 2006.

Reference Books:

- John C Bellamy, "Digital Telephony," John Wiley International Student Edition, 3rd Edition, 2000.
- 2. Behrouz A. Forouzan, "Data Communications and Networking," TMH, 2nd Edition, 2002.
- Tomasi," Introduonction to Data Communication and Networking," Pearson Education, 1st Edition, 2007.

VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A9548) Industry Oriented Mini Project

IV Year B.Tech. CSE I-Sem

LTPC

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Course Outcomes:

After the completion of this course the students should be able to:

- 1. Perceive, plan and execute a mini project as an individual or in a team in development of mini project
- 2. Prepare a technical report based on the Mini project.
- 3. Develop effective communication skills for presentation of mini project related activities
- 4. Demonstrate technical seminar based on the Mini Project work carried out.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9549) NETWORK SECURITY & CRYPTOGRAPHY LAB

IV Year B.Tech. CSE I-Sem	L T P C
	0032

Course Objective:

To clearly understand the security issues of computer networking and to simulate the network security algorithms.

Week – 1:

1. Write a program to implement Ceaser cipher algorithm in C/C++/Java.

Week – 2:

2. Write a program to implement Hill Cipher.

Week – 3:

3. Write a program to implement playfair cipher

Week – 4:

Write a program to implement Verman Cipher.

Week – 5:

4. Write a program to implement Vignere Cipher.

Week – 6:

5. Write a program to implement one time pad.

Week – 7:

6. Write a program to implement (Encryption Decryption) DES algorithm.

Week – 8:

7. WAP to implement RSA.

Week – 9:

8. WAP to implement Deffine - Hellman key exchange.

Week – 10:

9. WAP to implement SHA - 512.

Course Outcomes:

After the completion of this course the students should be able to:

- **1.** Implement the cipher techniques.
- 2. Apply the mathematical foundation required for various cryptographic algorithms.
- 3. Develop the various security algorithms.
- 4. Use different open source tools for network security and analysis.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9550) WEB TECHNOLOGIES LAB-II

IV Year B.Tech. CSE I-Sem

LTPC

0032

Course Objectives:

To enable the student to program web applications using the following technologies javascript, PHP, Tomcat server, jsp, Python.

Syllabus Content

Week 1 Install the following on the local machine Apache Web Server (if not installed) Tomcat Application Server locally Install MySQL (if not installed) Install PHP and configure it to work with Apache web server and MySQL (if not already configured

- Week 2 Implement the following web application using (a) PHP, (b) Servlets and (c) JSP: A user validation web application, where the user submits the login name and password to the server. The name and password are checked against the data already available in Database and if the data matches, a successful login page is returned. Otherwise a failure message is shown to the user.
- Week 3 . Modify the above program to use an xml file instead of database.
- Week 4 :Modify the above program to use AJAX to show the result on the same page below the submit button A simple calculator web application that takes two numbers and an operator (+,-,/,*and%) from an HTML page and returns the result page with the operation performed on the operands.
- Week 5 Modify the above program such that it stores each query in a database and checks the database first for the result. If the query is already available in the DB, it returns the value that was previously computed (from DB) or it computes the result and returns it after storing the new query and result in DB.
- Week 6 A web application that takes name and age from an HTML page. If the age is less than 18, it should send a page with "Hello <name> you are not authorized to visit this site" message, where <name> should be replaced with the entered name.

Otherwise it should send "Welcome <name> to this site" message

Week 7 A web application for implementation:

The user is first served a login page which takes user's name and password. After submitting the details the server checks these values against the data from a database and takes the following decisions.

If name matches and password doesn't match, then serves "password mismatch" page

If name is not found in the databases, server a registration page, where user's full name is asked and on submitting the full name, if stores, the login name, password and full name in the databases (hint: use session for storing the submitted login name and password)

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Define various web technologies concepts such as PHP, Java Servlets and JSP.
- 2. Describe syntax and semantics of PHP, Servlet, JSP programming.
- 3. Experiment with static and dynamic web applications.
- 4. Evaluate client server web applications and Design a fully functional web application using PHP, Java Servlets, JSP and MySQL database.

Text Books:

- 1. Web Technologies, Uttam K Roy, Oxford University Press.
- 2. The Complete Reference PHP –Steven Holzner, Tata McGraw-Hill.

Reference Books:

1.Web programming ,building internet applications, Chris Bates 2nd edition ,Wiley

Dreamtech

- 2. Java server pages-Hans Bergsten, SPD O'Reilly
- 3. Java Script, D.Flanagan, O'Reilly, SPD.
- 4. Beginning Web Programming-Jon Duckett WROX.
- 5. Internet and world wide web -How to program, Dietel and Nieto, Pearson.
- 6. Programming world wide web ,R.W.Sebesta,Fourth edition, Pearson

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9551) INTERNET OF THINGS

IV Year B.Tech. CSE II-Sem

LTPC

4004

Pre Requisites: (A9523) Data Communication and Computer Networks, (A9539) Web Services

Course Objectives:

The objective is to introduce the terminology, technology and its applications. The concept of M2M (machine to machine) is dealt with necessary protocols. It also introduces the Python Scripting Language which is used in many IOT devices, Raspberry PI platform, widely used in IOT applications. The implementations of web based services on IOT devices are also discussed.

UNIT-I

Introduction to Internet of Things –Definition and Characteristics of IoT, Physical Design of IoT – IoT Protocols, IoT communication models, Iot Communication APIs IoT enabled Technologies – Wireless Sensor Networks, Cloud Computing,Big data analytics,Communication protocols, Embedded Systems, IoT Levels and Templates Domain Specific IoTs – Home, City, Environment, Energy, Retail, Logistics, Agriculture, Industry, health and Lifestyle. (**Text Book, Pg No. 19-72**)

UNIT-II

IoT and M2M – Software defined networks, network function virtualization, difference between SDN and NFV for IoT Basics of IoT System Management with NETCOZF, YANG-NETCONF, YANG, SNMP NETOPEER(**Text Book, Pg No. 75-109**)

UNIT-III

Introduction to Python - Data types, data structures, Control flow, functions, modules, packaging, file handling, data/time operations, classes, Exception handling Python packages - JSON, XML, HTTPLib, URLLib, SMTPLib. (**Text Book, Pg No. 140-176**)

UNIT-IV

IoT Physical Devices and Endpoints - Introduction to Raspberry PI-Interfaces (serial, SPI, I2C), Programming Raspberry PI with Python – Controlling LED with Raspberry PI, Interfacing an LED and Switch with Raspberry PI, Interfacing a Light Sensor with Raspberry PI (**Text Book, Pg No. 177-192**).

UNIT-V

IoT Physical Servers and Cloud Offerings – Introduction to Cloud Storage models and Communication APIs,WAMP –AutoBahn for IoT, Xively Cloud for IoT, Python Web application framework-Django, Designing a RESTful web API (**Text Book, Pg No. 197-224**).

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Interpret the vision of IOT from a global context.
- 2. Perceive building blocks of Internet of Things and its characteristics.
- 3. Learn the basic concepts of Python. Implement the python programming using Raspberry.
- 4. Perceive the application areas of IOT. Realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks
- 5. Determine the Market perspective of IOT. Develop Python web applications and cloud servers for IOT.

Text Book:

1. Internet of Things - A Hands-on Approach, Arshdeep Bahga and Vijay Madisetti, Universities Press.

Reference Books:

- 1. Getting Started with the Internet of Things, Cuno Pfister, O'Reilly(SPD).
- 2. Designing the Internet of Things, Adrian McEwen & Hakim Cassimally, WILEY.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9552) INTERNET TECHNOLOGIES (CSE Elective-IV)

IV Year B. Tech. CSE II-Semester

L T P C 4 0 0 4

Course Objectives:

The course aims to impart the concepts of advanced web programming techniques, provide extension to web technology acquired. Helps to understand basics of server side technologies and apply them to develop dynamic web applications and the DOTNET framework, C# language features and Web development using ASP.NET

UNIT-I

C#.NET Essentials: Introduction to .NET, Introduction to Visual Studio 2012 IDE, C# 5.0 Overview, **C# Programming Language:** C# Fundamentals, Flow Control and Exception Handling in C# 5.0 Programs, Namespaces, Classes, Objects, and Structs, Object-Oriented Programming in C# 5.0, Pointers, Delegates, and Events, Dynamic Data Type and Dynamic Language Runtime (DLR). (**Text Book, Pg No. 1-266**)

UNIT-II

Windows Forms and Windows Presentation Foundation (WPF): Introducing Windows Presentation Foundation, Working with WPF 4.5 Controls, Resources, Styles, Templates, and Commands. (Text Book, Pg No. 267- 414)

UNIT-III

ASP.NET 4.5: Introducing ASP.NET 4.5 and Web Forms, Standard Web Server Controls, Navigation Controls in ASP.NET 4.5, Login and Web Parts Controls in ASP.NET 4.5. (Text Book, Pg No: 415-636)

UNIT-IV

Services and Deployment: ASP.NET Web Services, Working with Windows Communication Foundation, Deploying Windows and Web Applications.

(Text Book, Pg No. 717-842)

UNIT-V

Interacting with Database in C# 5.0: ADO.NET Entity Framework, Data Access with ADO.NET, .NET and SQL Server, Data Binding in Windows Forms and WPF Applications, Data Binding in ASP.NET Applications, LINQ Queries.(**Text Book, Pg No. 843-1120**)

Course Outcomes:

After the completion of this course the students should be able to:

- **1.** Explain the syntax and semantics of C# and ASP.NET using Visual Studio .NET platform.
- **2.** Illustrate the use of arrays, parameters mechanisms, properties, generics, and collections in C#.
- **3.** Explain concept of custom interfaces by designing C# applications.
- 4. Examine the available built-in interfaces in building complex applications.
- **5.** Compose queries to query in-memory data and define own operator behavior. Develop stand alone and graphical user interface applications on .NET.

Text Book:

 C# 2012 Programming Black Book covers .NET 4.5 - 'Kogent Learning Solutions Inc', Dreamtech Press.

Reference Books:

- 1. 'Beginning ASP.NET 2.0 in C# 2005' by Apress
- 2. 'C# with .NET Framework ' by Shibi Pannikar & Kumar Sanjeev
- 3. 'Understanding .NET Framework ' by Tonybaer

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9553) SERVICE ORIENTED ARCHITECTURE (CSE Elective-IV)

IV Year B.Tech. CSE II-Sem

L T P C 4004

Pre Requisites: (A9538) Network Security and Cryptography

Course Objectives:

To understand the details of web services technologies like WSDL, UDDI, and SOAP. It also enables students to learn how to implement and deploy web service client and server. Also to explore interoperability between different frameworks.

UNIT- I

Fundamentals of SOAP — SOAP Message Structure, SOAP encoding, Encoding of different data types, SOAP message exchange models, SOAP communication and messaging, (Text Book, Pg No: 104-138) Java and Axis, limitations of SOAP. (Text Book 1, Pg No: 199)

UNIT-II

Describing Web Services — WSDL — WSDL in the world of Web Services, Web Services life cycle, anatomy of WSDL definition document, WSDL bindings, WSDL Tools, limitations of WSDL. (**Text Book 1, Pg No: 202-222**)

UNIT-III

Discovering Web Services — Service discovery, role of service discovery in a SQA, service discovery mechanisms, UDDI — UDDI registries, uses of UDDI Registry, Programming with UDDI, UDDI data structures, Publishing API, Publishing, searching and deleting information in a UDDI Registry, limitations of UDD1. (**Text Book 1, Pg No: 222-269**)
UNIT-IV

Service oriented analysis – benefits of a Business-centric SOA, Deriving business services (Text Book 2, Pg No. 382-395)- Service Oriented Design – WSDL language basics. – SOAP language basics. – SOA composition (**Text Book 2, Pg No: 457-476**)

UNITV

Service Oriented Design-WS-BPEL language basics WS-Coordination overview, (Text Book

2, Pg No: 565-584) WS-Policy, WS Security, WS-Metadata Exchange language basics. (Text Book 2, Pg No: 629-641)

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Define SOAP Message Structure, SOAP Encoding, and Encoding of different data types.
- 2. Perceive the implement Web Services life cycle, Anatomy of WSDL definition document.
- 3. Describe WSDL bindings and tools. Working with UDDI, programming with UDDI, UDDI data structures.
- 4. Apply Publishing, searching and deleting information in a UDDI Registry
- 5. Develop an Understanding about Service Oriented Analysis, Service Oriented Design, WS-BPEL language basics. Perceive the overview of WS-Coordination.

Text Books:

- 1. Developing Java Web Services, R. Nagappan, R. Skoczylas, R.P. Sriganesh, Wiley India.
- 2. Service Oriented Architecture Concepts, Technology, and Design, Thomas Eri.

Reference Books:

- 1. Java Web Service Architecture, James McGovern, Sameer Tyagi etal., Elsevier
- 2. Building Web Services with Java, 2 Edition, S. Graham and others, Pearson Edn.
- 3. Java Web Services, D.A. Chappell & T. Jewell, O'Reilly, SPD.
- 4. Web Services, G. Alonso, F. Casati and others, Springer. Outcomes
- 5. Basic details of WSDL, UDDI, SOAP
- 6. Implement WS client and server with interoperable systems.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS)

(A9554) INFORMATION RETRIEVAL SYSTEMS (CSE Elective-IV) IV Year B.Tech. CSE II-Sem L T P C 4 0 0 4

Pre Requisites: (A9511) Database Management System

Course Objectives:

Students of this course will be exposed to text informational retrieval and it's past, present and future research directions. They would understand the processes, techniques and the evaluation methods presently used in the IR modeling. They would also learn the languages used in IR and use these to write queries in IR. They would be adequately exposed to human computer interaction for IR and for application of IR in searching the web.

UNIT 1

Retrieval Strategies: Vector Space Model Example of similarity coefficient Similarity measures Probabilistic Retrieval Strategies Simple Term Weights, Non-Binary Independence Model, Language models (**Page No: 11 to 56**)

UNIT 2

Retrieval Utilities: Relevance Feedback Clustering N-grams Regression Analysis .Thesauri (Page No: 94 to 132) UNIT 3

Retrieval Utilities: Semantic networks Parsing Cross-language Information Retrieval: Introduction Crossing the language barrier (**Page No: 132 to 157**)

UNIT 4

Efficiency: I Inverted index Query processing Signature files, Duplicate document detection (Page No:182 to 207)

UNIT 5

Integrating Structured Data and Text: A Historical progression Information retrieval as a relational application Semi-structured search using a relational schema, Distributed Information Retrieval: A Theoretical model of distributed retrieval Web search (Page No: 222 to 284)

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Define Vector space model. Perceive various similarity coefficient and measures.
- 2. Develop an Understanding on Relevance feedback, Regression Analysis, Thesauri.
- 3. Perceive the applications of clustering. Apply various Retrieval Utilities for Information Retrieval.
- 4. Develop an Understanding about Signature files, Duplicate document detection.
- 5. Apply IR principles to locate relevant information large collection of data. Analyze the model of distributed retrieval web search.

Text Books:

1. Modern Information Retrival Algorithms and Heuristics By David A. Grossman, Ophir Frieder, 2007 Springer.

Reference Books:

- 1. Information Storage and Retrieval Systems: Theory and Implementation By Kowalski,Gerald, Mark T Maybury ,Springer.
- 2. Information Retrieval: Algorithms and Heuristics By David A Grossman and Ophir Frieder, 2 nd Edition.

VAAGDEVI COLLEGE OF ENGINEERING (AUTONOMOUS) (A9555) COMPUTER FORENSICS (CSE Elective-IV)

IV Year B.Tech. CSE II-Sem

L T P C

4004

Course Objectives:

The objective is to provide digital evidences which are obtained from digital media. In order to understand the objectives of computer forensics, first of all, people have to recognize the different roles computer plays in a certain crime. According to a snippet from the United States Security Service, the functions computer has in different kinds of crimes.

UNIT-I

Computer Forensics Fundamentals: What is Computer Forensics?, Use of Computer Forensics Law Enforcement, Computer Forensics Assistance in to Human Resources/Employment Proceedings, Computer Forensics Services, Benefits of Professional Forensics Methodology, Steps taken by Computer Forensics Specialists Types of Computer Forensics Technology: Types of Military Computer Forensic Technology, Types of Law Enforcement — Computer Forensic Technology — Types of Business Computer Forensic Technology(Text Book1, Page No:1-186) Computer Forensics Evidence and Capture: Data Recovery Defined — Data Back-up and Recovery — The Role of Back-up in Data Recovery — The Data-Recovery Solution. (Text Book1, Page No:189-203)

UNIT-II

Evidence Collection and Data Seizure: Why Collect Evidence? Collection Options — Obstacles — Types of Evidence — The Rules of Evidence — Volatile Evidence — General Procedure — Collection and Archiving — Methods of Collection — Artifacts — Collection Steps — Controlling Contamination: The Chain of Custody (**Text Book1, Page No:217-228**) Duplication and Preservation of Digital Evidence: Preserving the Digital Crime Scene — Computer Evidence Processing Steps — Legal Aspects of Collecting and Preserving Computer Forensic Evidence (**Text Book1, Page No:235-247**) Computer Image Verification and Authentication: Special Needs of Evidential Authentication — Practical Consideration — Practical Implementation.(Text Book1, Page No:257-265)

UNIT-III

Computer Forensics analysis and validation: Determining what data to collect and analyze, validating forensic data, addressing data-hiding techniques, performing remote acquisitions.(Text Book2, Page No:262-279) Network Forensics: Network forensics overview, performing live acquisitions, developing standard procedures for network forensics, using network tools, examining the honeynet project. (Text Book2, Page No: 320-333)

Processing Crime and Incident Scenes: Identifying digital evidence, collecting evidence in private-sector incident scenes, processing law enforcement crime scenes, preparing for a search, securing a computer incident or crime scene, seizing digital evidence at the scene, storing digital evidence, obtaining a digital hash, reviewing a case. (**Text Book2, Page No:122-148**)

UNIT -IV

Current Computer Forensic tools: evaluating computer forensic tool needs, computer forensics software tools, computer forensics hardware tools, validating and testing forensics software(Text Book2, Page No:198-213) E-Mail Investigations: Exploring the role of e-mail in investigation, exploring the roles of the client and server in e-mail, investigating e-mail crimes and violations, understanding e-mail servers, using specialized e-mail forensic tools.(Text Book2, Page No:338-357) Cell phone and mobile device forensics: Understanding mobile device forensics, understanding acquisition procedures for cell phones and mobile devices.(Text Book2, Page No:371-375)

UNIT-V

Working with Windows and DOS Systems: understanding file systems, exploring Microsoft File Structures, Examining NTFS disks, Understanding whole disk encryption, windows registry, Microsoft startup tasks, MS-DOS startup tasks, virtual machines.(Text Book2, Page No:159-188)

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Understand the definition of computer forensics fundamentals.
- 2. Describe the types of computer forensics technology. Analyze various computer forensics systems.
- 3. Illustrate the methods for data recovery, evidence collection and data seizure.
- 4. Summarize duplication and preservation of digital evidence. Evaluate the effectiveness of available digital forensics tools.
- 5. Employ fundamental computer theory in the context of computer forensics practices.

Text Books:

- Computer Forensics, Computer Crime Investigation by John R. Vacca, Firewall Media, New Delhi.
- 2. Computer Forensics and Investigations by Nelson, Phillips Enfinger, Steuart, CENGAGE Learning

Reference Books:

- Real Digital Forensics by Keith J. Jones, Richard Bejtiich, Curtis W. Rose, Addison-Wesley Pearson Education
- 2. Forensic Compiling, A Tractitioneris Guide by Tony Sammes and Brian Jenkinson, Springer International edition.
- Computer Evidence Collection & Presentation by Christopher L.T. Brown, Firewall Media.
- 4. Homeland Security, Techniques & Technologies by Jesus Mena, Firewall Media.
- Software Forensics Collecting Evidence from the Scene of a Digital Crime by Robert M.Slade, TMH 2005
- 6. Windows Forensics by Chad Steel, Wiley India Edition

VAAGEDVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A9563)MACHINE LEARNING (CSE ELECTIVE-IV)

IV Year B. Tech. II Semester

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Objectives:

To be able to formulate machine learning problems corresponding to different applications. To understand a range of machine learning algorithms along with their strengths and weaknesses. To understand the basic theory underlying machine learning. To be able to apply machine learning algorithms to solve problems of moderate complexity. To be able to read current research papers and understands the issues raised by current research.

UNIT I

INTRODUCTION -Well posed learning problems, Designing a learning system, Perspectives and issues in machine learning Concept learning and the general to specific ordering. Introduction, A concept learning task, Concept learning as search, Find S: finding a maximally specific hypothesis, Version spaces and the candidate elimination algorithm, Remarks on version spaces and candidate elimination, Inductive bias

UNIT II

Decision Tree learning Introduction, Decision tree representation, Appropriate problems for decision tree learning, The basic decision tree learning algorithm, Hypothesis space search in decision tree learning, Inductive bias in decision tree learning, Issues in decision tree learning Artificial Neural Networks Introduction, Neural network representation, Appropriate problems for neural network learning, Perceptions, Multilayer networks and the back propagation algorithm, Remarks on the back propagation algorithm, An illustrative example recognition Advanced topics in artificial neural networks face Evaluation HypothesesMotivation, Estimation hypothesis accuracy, Basics of sampling theory, A general approach for deriving confidence intervals, Difference in error of two hypotheses, Comparing learning algorithms

UNIT III

Bayesian learning Introduction, Bayes theorem, Bayes theorem and concept learning, Maximum likelihood and least squared error hypotheses, Maximum likelihood hypotheses for predicting probabilities, Minimum description length principle, Bayes optimal classifier, Gibs algorithm, Naïve Bayes classifier, An example learning to classify text, Bayesian belief networks The EM algorithm Computational learning theory–Introduction, Probability learning an approximately correct hypothesis, Sample complexity for Finite Hypothesis Space, Sample Complexity for infinite Hypothesis Spaces, The mistake bound model of learning Instance Based Learning -Introduction, k Nearest Neighbour Learning, Locally Weighted Regression, Radial Basis Functions, Case-Based Reasoning, Remarks on Lazy and Eager Learning Genetic Algorithms –Motivation, Genetic Algorithms, An illustrative Example, Hypothesis Space Search, Genetic Programming, Models of Evolution and Learning, Parallelizing Genetic Algorithms

UNIT IV

Learning Sets of Rules–Introduction, Sequential Covering Algorithms, Learning Rule Sets: Summary, Learning First Order Rules, Learning Sets of First Order Rules: FOIL, Induction as Inverted Deduction, Inverting Resolution Analytical Learning-Introduction, Learning with Perfect Domain Theories: Prolog-EBG Remarks on Explanation-Based Learning, Explanation Based Learning of Search Control Knowledge

UNIT V

Combining Inductive and Analytical Learning–Motivation, Inductive Analytical Approaches to Learning, Using Prior Knowledge to Initialize the Hypothesis, Using Prior Knowledge to Alter the Search Objective, Using Prior Knowledge to Augment Search Operators, Reinforcement Learning–Introduction, The Learning Task, Q Learning, Non Deterministic, Rewards and Actions, Temporal Difference Learning, Generalizing from Examples, Relationship to Dynamic Programming

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Explain the theory underlying machine learning.
- 2. Learn the basic algorithms beyond binary classification and their applications.
- 3. Recognize and implement various genetic algorithms.
- 4. Construct algorithms to learn tree, to learn linear, non-linear models and rule-based models
- 5. Implement Probabilistic models. Learn basics of reinforcement learning.

TEXT BOOKS:

1. Machine Learning Tom M. Mitchell, -MGH

2. Machine Learning: An Algorithmic Perspective, Stephen Marsland, Taylor & Francis

(CRC)

REFERENCE BOOKS:

1. Machine Learning Methods in the Environmental Sciences, Neural Networks, William W

Hsieh, Cambridge Univ Press.

2. Richard o. Duda, Peter E. Hart and David G. Stork, pattern classification, John Wiley & Sons Inc., 2001

3. Chris Bishop, Neural Networks for Pattern Recognition, Oxford University Press, 1995

VAAGEDVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A9564)AD HOC AND SENSOR NETWORKS (CSE ELECTIVE-IV)

IV Year B. Tech. II Semester

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Course Objectives: It provides major aspects of ad hoc and sensor networking, from design through performance issues to application requirements. It starts with the design issues and challenges associated with implementations of ad hoc and sensor network applications. This includes mobility, disconnections, and battery power consumption. The course provides a detailed treatment of proactive, reactive, and hybrid routing protocols in mobile wireless networks.

UNIT-1:

Introduction to Ad Hoc Wireless Networks: Characteristics of MANETs, Application of MANETS, Challenges.**Routing in Ad Hoc Networks:** Topology-Based versus position-Based Approaches, Topology-Based Routing protocols, Position-Based Routing, Other Routing Protocols.

UNIT-II:

Data Transmission in MANETS: The Broadcast storm, Multicasting, Geo casting.

TCP over Ad Hoc Networks: TCP protocol Overview, TCP and MANETs, Solution for TCP over Ad Hoc.

UNIT-III:

Wireless LANs: Introduction, Transmission Techniques, Medium Access Control Protocol issues. **Wireless PANs:** Introduction, The Bluetooth Technology, Enhancements to Bluetooth, Comparison between WPAN systems.

UNIT-IV:

Sensor Network Design Considerations: Introduction, Empirical Energy Consumption, Sensing and Communication Range, Design issues, Clustering of SNs, MAC Layer, Routing Layer, Location based routing, high level application Layer Support.

UNIT-V:

Security: Security in Ad Hoc and Sensor Networks, Key Management, Secure Routing, Cooperation in MANETs, Intrusion Detection Systems.

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Perceive the concept of mobile computing. Estimate the MAC protocols for GSM and wireless LANs.
- 2. Demonstrate new ad hoc network applications and algorithms or protocols.
- 3. Compare the different operating Systems like Palm OS, Windows CE, Symbian OS, Linux for Mobile devices.
- 4. Explain the basic concepts of WIRELESS networks and challenges of adhoc and sensor networks.
- 5. Classify the design issues and different categories of MAC protocols. Discuss the sensor characteristics, wsn layer protocols and QoS related performance measurements

Text Books:

 Carlos De MoraisCordeiro, Dharma PrakashAgrawal "Ad Hoc & Sensor Networks: Theory and Applications", World Scientific Publishing Company, 2006.

Reference Books:

- 1. C. Siva Ram Murthy, and B. S. Manoj, "Ad Hoc Wireless Networks: Architectures and Protocols", Prentice HallProfessional Technical Reference, 2008.
- Feng Zhao and LeonidesGuibas, "Wireless Sensor Networks", Elsevier Publication 2002
- Holger Karl and Andreas Willig "Protocols and Architectures for Wireless Sensor Networks", Wiley, 2005
- KazemSohraby, Daniel Minoli, &TaiebZnati, "Wireless Sensor NetworksTechnology,Protocols, andApplications", John Wiley, 2007.
- 5. Anna Hac, "Wireless Sensor Network Designs", John Wiley, 2003.

VAAGEDVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A9556) Seminar

IV Year B. Tech. II Semester

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Identifies, understand and discuss current, real -world issues
- 2. Explain the role of self-efficacy, personal goals, and motivation in improving academic life
- 3. Describe the behaviors and characteristics of an effective learner
- 4. Gain knowledge of fast and rapidly changing by self learning
- 5. Practice finding relevant course material on the Internet and incorporate them in their courses.
- 6. Develop articles and presentation skills
- 7. Develop the interpersonal skills, soft skills and creativity.
- 8. Present features of the developed project to the targeted group through written and oral communication.

VAAGEDVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A9557) Comprehensive Viva

IV Year B. Tech. II Semester

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Course Outcomes:

After the completion of this course the students should be able to:

- 1. Articulate knowledge on various fundamentals.
- 2. Recalls to answer questions from all the courses of the semesters comprehensively
- 3. Attain Oral Presentation skills by answering questions in precise manner
- 4. Attain Oral Presentation skills by answering questions in concise manner
- 5. Gain confidence.
- 6. Inter-personal skills.
- 7. Prepare the students to face interview at the academic level.
- 8. Prepare the students to face interview at the industrial sector.

VAAGEDVI COLLEGE OF ENGINEERING

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(AUTONOMOUS)

(A9558) Major Project

IV Year B. Tech. II Semester

Course Outcomes:

After the completion of this course the students should be able to:

- 1. Uses fundamental knowledge and skills in engineering and apply it effectively on a project.
- 2. Apply knowledge of the 'real world' situations that a professional engineer can encounter.
- 3. Apply critical and creative thinking in the design of software, Hardware and Networking projects.
- 4. As a team student can organise, record and compile their work done throughout the project in an efficient manner.
- 5. Manage any disputes and conflicts within and outside their team.
- 6. Demonstrate a sound technical knowledge of their selected project topic.
- 7. Demonstrate the knowledge, skills and attitudes of a professional engineer.
- 8. Summarize an appropriate list of literature review, analyse previous work and relate them to current project.

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