ACADEMIC REGULATIONS
COURSE STRUCTURE
AND
DETAILED SYLLABUS

COMPUTER SCIENCE AND ENGINEERING

For

B.TECH. FOUR YEAR DEGREE COURSE
(Applicable for the batches admitted from 2014-2015)

VAAGDEVI COLLEGE OF ENGINEERING
(Autonomous)
Bollikunta, Warangal – 506 005
Telangana State, India

VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)
Bollikunta, Warangal – 506 005. T.S.
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Academic Regulations for B.Tech. (Regular)

(Effective for the students admitted into I-Year from the Academic year 2014-2015)

1. Award of B.Tech. Degree

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 all credits and secure all credits with the exemption of 8 credits in elective subjects.

2. 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 by Academic Council to complete the course for a further period.

3. Courses of Study

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

Branch Code	Branch
01	Civil Engineering
02	Electrical & Electronics Engineering
03	Mechanical Engineering
04	Electronics & Communication Engineering
05	Computer Science & Engineering

And any other course as approved by the authorities of the college from time to time.

4. Credits

	For I-Year-I/II Semester		II,III,IV Years per Semester	
	Periods/Week	**Credits**	**Periods/Week**	**Credits**
Theory	04	04	03	04
	02	02	04	04
Practical	03	02	03	02
Drawing	03T/03D	04	03	02
Mini Project	-	-	-	02
Comprehensive Viva Voce	-	-	-	02
Seminar	-	-	02	02
Project	-	-	15	12

5. Distribution and Weightage of Marks /Credits:

i. The Performance of a student in each semester shall be evaluated subject-wise with a maximum of 100 marks for theory and 75 marks for practical subject. In addition, Industry oriented mini-project, seminar, comprehensive viva-voce and project work shall be evaluated for 50, 50, 100 and 200 marks respectively.

ii. For theory subjects the distribution shall be 25 marks for Internal Evaluation and 75 marks for the End-Examination.

iii. For theory subjects, during the semester there shall be 2 mid term examinations. Each mid term examination consists of Part-A (Objective Type) for 5 marks and Part-B (subjective paper) for 15 marks with duration of 90 minutes and two assignments carrying 5 marks.

Subjective paper shall contain 5 questions of which student have to answer 3 questions of each 5 marks. First mid term examination shall be conducted for 2.5 units of syllabus and second mid term examination shall be conducted for 2.5 units. 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 total marks secured by the student in each mid term examination for 25 marks are considered and the average of the two mid term examinations shall be taken as the final marks secured by each candidate. If he is absent for any test/assignment, he is awarded zero marks for that test/assignment. However a candidate may permitted on medical grounds/extreme conditions provided he applied for makeup examinations within a week. A subcommittee will be constituted by the Academic Council to look in to such cases.

iv. For practical subjects there shall be a continuous evaluation during the semester for 25 sessional marks and 50 end examination marks. Out of the 25 sessional marks, day-today work in the laboratory shall be evaluated for 15 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 Chairman, Board of Studies in respective Branches.

v. For the subject having design and/or drawing, (such as Engineering Graphics Engineering Drawing, Machine Drawing) and estimation, the distribution shall be 25 marks for internal evaluation (15 marks for day-to-day work and 10 marks for internal tests) and 75 marks for end examination. There shall be two internal tests in a semester and the average of the two shall be considered for the award of marks for internal test.

vi. There shall be an industry-oriented mini project, in collaboration with an 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 industry oriented mini project shall

be submitted in a report form and should be presented before the committee, which shall be evaluated for 50 marks. The committee consists of an external examiner, head of the department, the supervisor of mini project and a senior faculty member of the department. There shall be no internal marks for industry oriented mini project.

vii. 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 50 marks. There shall be no external examination for seminar.

viii. 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. course of study. The Comprehensive Viva-Voce is evaluated for 100 marks by the Committee. There are no internal marks for the Comprehensive Viva-Voce.

ix. Out of a total of 200 marks for the project work, 50 marks shall be for internal evaluation and 150 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 supervisor of the project and a senior faculty member of the department. The topics for industry oriented mini project, seminar and project work shall be different from each other. The internal evaluation shall be on the basis of two seminars given by each student on the topic of his project.

6. Attendance Requirements:

i. A student shall be eligible to appear for the end examinations if he acquires a minimum of 75% of attendance in all the subjects (in each subject).

ii. Condonation of shortage of attendance in each subject up to 10% (On genuine medical grounds) in each semester may be granted by the College Academic Council on the basis of recommendation by the Principal.

iii. Shortage of attendance below 65% in each subject shall in no case be condoned.

iv. Student falling short of attendance as specified above will be detained.

v. 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.

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

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

7. Minimum Academic Requirements:

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

i. A student shall be deemed to have fulfilled the minimum academic requirements and earned the credits allotted to each theory or practical 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.

ii. A student shall be promoted from II to III year only if he fulfills the academic requirement of 32 credits (out of 80 credits) secured from all the examinations (both regular and supplementary) conducted up to end of II-Year, excluding the performance in II-B.Tech-II-Semester examination.

iii. A student shall be promoted from third year to fourth year only if he fulfills the academic requirements of 54 credits (out of 134 credits) secured from all the examinations (both regular and supplementary) conducted up to end of III-Year, excluding the performance in III-B.Tech.-II-Semester examination.

iv. 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 calculation of percentage of marks.

v. Student who fails to earn credits with an exemption of eight credits as indicated in the course structure within eight academic years from the year of admission shall forfeit his seat in B.Tech. course unless an extension is given by College Academic Council to complete the course for a further period.

8. Course Pattern:

i. The entire course of study is of four academic years. All years shall be on semester pattern.

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. When a student is detained due to lack of credits/shortage of attendance he may be re-admitted when the semester is offered after fulfillment of academic regulations.

9. Award of Class:

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

Class Awarded	percentage of marks to be secured	From the aggregate marks secured in the subjects excluding the subjects exempted.
First Class with Distinction	70% and above	
First Class	Below 70% but not less than 60%	
Second Class	Below 60% but not less than 50%	
Pass Class	Below 50% but not less than 40%	

(The Marks in internal evaluation and end examination shall be shown separately in the marks memorandum)

10. Minimum Instruction Days:

For each semester there shall be a minimum of 90 clear instruction days.

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

12. General:

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

ii. The academic regulations should be read as a whole for the purpose of any interpretation.

iii. In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Academic Council is final.

iv. 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.

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

(Effective for the students getting admitted into II-Year from the academic year 2015-2016 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 Academic Council to complete the course for a further period.

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

4. **Promotion Rule:**

   A student shall be promoted from third year to fourth year only if he fulfills the academic requirements of 32 credits from the following examinations.

   a. Two regular and one supplementary examinations of II-Year I-Semester.
   b. One regular one supplementary examinations of II-Year II-Semester.
   c. One regular examination of III-Year I-Semester.

5. **Award of Class:**

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

First Class with Distinction	70% and above	From the aggregate marks secured in subjects.(i.e., II-Year to IV-Year) excluding the subjects exempted.
First Class	Below 70% but not less than 60%	
Second Class	Below 60% but not less than 50%	
Pass Class	Below 50% but not less than 40%	

   (The Marks in internal evaluation and end examination shall be shown separately in the marks memorandum)

6. All other regulations as applicable for B.Tech. IV-Year degree course (Regular) will hold good for B.Tech. (Lateral Entry Scheme)

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MALPRACTICES RULES

DISCIPLINARY ACTION FOR / IMPROPER CONDUCT IN EXAMINATIONS

	Nature of Malpractices/Improper Conduct	**Punishment**
	If the candidate:	
1. (a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, Cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which he is appearing but has not made use of (material shall include any marks on the body of the candidate which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other candidate orally or by any other body language methods or communicates through cell phones with any candidate or persons in or outside the exam hall in respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that subject only of all the candidates involved. In case of an outsider, he will be handed over to the police and a case is registered against him.
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or 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	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 of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the College campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.	
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.	

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VAAGDEVI COLLEGE OF ENGINEERING, WARANGAL
(AUTONOMOUS)

COMPUTER SCIENCE AND ENGINEERING

COURSE STRUCTURE
(Applicable for the batches admitted from A.Y. 2014-15 onwards)

I YEAR **I SEMESTER**

S.No.	Code	Subject	L	T	P	Credits
1	A91001	Mathematics- I	4	1	0	4
2	A91002	English	4	0	0	4
3	A91003	Applied Physics	4	1	0	4
4	A91301	Engineering Graphics	2	0	4	4
5	A91501	Problem Solving & Computer Programming	4	1	0	4
6	A91006	Applied Physics Lab.	0	0	3	2
7	A91503	Problem Solving & Computer Programming Lab	0	0	3	2
8	A91505	IT Workshop	0	0	3	2
		Total	**18**	**3**	**13**	**26**

I YEAR **II SEMESTER**

S.No.	Code	Subject	L	T	P	Credits
1	A92001	Mathematics – II	4	1	0	4
2	A92003	Engineering Chemistry	4	1	0	4
3	A92004	Environmental Studies	4	0	0	4
4	A92203	Basic Electrical & Electronics Engineering	4	1	0	4
5	A92303	Engineering Workshop	0	0	3	2
6	A92501	Data Structures Through C++	4	0	0	4
7	A92007	English Language Communication Skills Lab	0	0	3	2
8	A92205	Basic Electrical & Electronics Engineering Lab	0	0	3	2
9	A92502	Data Structures Through C++ Lab.	0	0	3	2
		Total	**20**	**3**	**12**	**28**

VAAGDEVI COLLEGE OF ENGINEERING, WARANGAL
(AUTONOMOUS)

COMPUTER SCIENCE AND ENGINEERING

COURSE STRUCTURE

II YEAR **I SEMESTER**

S.No.	Code	Subject	L	T	P	Credits
1	A93501	Mathematical Foundations of Computer Science	4	1	0	4
2	A93404	Digital Logic Design & Micro Processors	4	1	0	4
3	A93502	Database Management Systems	4	1	0	4
4	A93503	Object Oriented Programming Through Java	4	1	0	4
5	A93504	Computer Organization & Architecture	4	0	0	4
6	A93408	Digital Logic Design & Micro Processor Lab	0	0	3	2
7	A93506	Database Management Systems Lab	0	0	3	2
8	A93507	Object Oriented Programming Through Java Lab	0	0	3	2
		TOTAL	**20**	**4**	**9**	**26**

II YEAR **II SEMESTER**

S.No.	Code	Subject	L	T	P	Credits
1	A94001	Computer Oriented Statistical Methods	4	0	0	4
2	A94501	Design and Analysis of Algorithms	4	1	0	4
3	A94502	Formal Languages and Automata Theory	4	1	0	4
4	A94503	Operating Systems	4	1	0	4
5	A94504	Advanced Java Tools	4	0	0	4
6	A94505	Advanced Java Tools Lab	0	0	3	2
7	A94506	Operating Systems Lab	0	0	3	2
8	A94507	Web Technologies Lab-I	0	0	3	2
9	A94002	Human values and Professional Ethics	2	0	0	2
10	A94006	Gender Sensitization	2	0	0	0
		TOTAL	**24**	**3**	**9**	**28**

VAAGDEVI COLLEGE OF ENGINEERING, WARANGAL
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COMPUTER SCIENCE AND ENGINEERING

COURSE STRUCTURE

III YEAR **I SEMESTER**

S No	Code	Subject	L	T	P	Credits
1	A95501	Data Communications & Computer Networks	4	1	0	4
2	A95502	Compiler Design	4	1	0	4
3	A95503	Software Engineering	4	0	0	4
4	A95504	Network Programming	4	1	0	4
5	A95621	Managerial Economics and Financial Analysis	4	1	0	4
6	A95505	Computer Networks and Compiler Design Lab	0	0	3	2
7	A95506	Network Programming Lab	0	0	3	2
8	A95507	Case tools & OOAD Lab	0	0	3	2
		Total	**20**	**04**	**09**	**26**

III YEAR **II SEMESTER**

S No	Code	Subject	L	T	P	Credits
1	A96501	Data Warehousing and Data Mining	4	1	0	4
2	A96502	Software Testing Methodology	4	0	0	4
3		**OPEN ELECTIVE**				
	A96503	1. E-Commerce	4	1	0	4
	A96416	2.VLSI Design				
	A96307	3.Nano Technology				
4		**DEPARTMENT ELECTIVE-I**				
	A96504	1 Artificial Intelligence	4	0	0	4
	A96505	2 Computer Graphics				
	A96506	3 .Net Technologies				
5		**DEPARTMENT ELECTIVE-II**				
	A96507	1 Advanced DBMS	4	0	0	4
	A96508	2 Embedded Systems				
	A96509	3 Storage Area Networks				
6	A96001	Technical Communications Skills Lab	0	0	3	2
7	A96510	Data Warehousing and Data Mining Lab	0	0	3	2
8	A96511	Software Testing Lab	0	0	3	2
9	A96105	Disaster Management	2	0	0	2
		Total	**22**	**02**	**09**	**28**

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VAAGDEVI COLLEGE OF ENGINEERING, WARANGAL
(AUTONOMOUS)

COMPUTER SCIENCE AND ENGINEERING

COURSE STRUCTURE

IV YEAR **I SEMESTER**

S No	Code	Subject	L	T	P	Credits
1	A97501	Network Security & Cryptography	4	1	0	4
2	A97502	Could Computing	4	1	0	4
3	A97503	Software Computing	4	1	0	4
4		**DEPARTMENT ELECTIVE-III**				
	A97514	1.Mobile Computing	4	1	0	4
	A97515	2.Software Project Management				
	A97516	3.Multimedia Application Development				
5		**DEPARTMENT ELECTIVE-IV**				
	A97517	1.Business Intelligence & Big data	4	0	0	4
	A97518	2.Principles of Programming Languages				
	A97519	3.Parallel Processing				
6	A97510	Network Security & Cryptography Lab	0	0	3	2
7	A97511	Cloud Computing Lab	0	0	3	2
8	A97512	Research Seminars	0	0	3	2
9	A97513	Industry Oriented Mini Project (Summer Training Programme)	0	0	0	2
		Total	**20**	**04**	**09**	**28**

IV YEAR **II SEMESTER**

S No	Code	Subject	L	T	P	Credits
1		**DEPARTMENT ELECTIVE-V**				
	A98501	1.Adhoc & Sensor Networks	4	0	0	4
	A98502	2.Digital Image Processing				
	A98503	3. Information Retrieval Systems				
2	A96601	Management Science	4	0	0	4
3	A98504	Comprehensive Viva	0	0	0	2
4	A98505	Major Project	0	0	15	12
		Total	**8**	**0**	**0**	**22**

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A91001) MATHEMATICS – I
(Common for all Branches)

I Year I-Sem

L	T	P	C
4	1	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:

Differential calculus:

Rolle's Mean Value theorem, Lagrange's Mean Value Theorem, Cauchy's Mean Value Theorem, Taylor's Theorem with geometrical and algebraic interpretation (without proof). Functions of several variables-Chain Rule. Jacobian, Functional dependence, maxima and minima of functions of two variables, with constraints and without constraints-Method of Lagrange's multipliers.

Unit – II:

Ordinary differential equations of first order:

Formation of differential equations**,** solution of differential equations of First order and First degree. Exact differential equations , Linear Differential equations. Bernouli's Differential equations, Orthogonal Trajectories ,Newton's law of cooling and Natural law of growth and Decay.

Unit – III:

Ordinary linear differential equations of higher order:

Homogenous linear differential equations of higher order with constant coefficients, 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), Cauchy-Euler equation and Lagrange's equation, Method of variation of parameters.

Unit – IV:

Improper integration and multiple integrals:

Beta and Gamma functions, properties and Relation between them Evaluation of improper integration using Beta, Gamma functions. Multiple integrals- double & triple integrals. Change of variables and change of order of integration. Finding area and volume of region.

Unit – V:

Laplace Transformation:

Laplace transform - Inverse Laplace transform - properties of Laplace transforms - Laplace transforms of unit step function, impulse function and periodic
function - convolution theorem - Solution of ordinary differential equations with constant coefficients and system of linear differential equations with constant coefficients using Laplace transform.

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.

Learning Outcomes:

By studying Mathematics-I students understanding the method of solving first order & higher order differential equations and they convert the trigonometric functions into algebraic function by studying mean value theorems. They understand how to find area, volume by using applications of integration. They understand how to find the solution of initial value problem without finding general solution by Laplace Technique.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A91002) ENGLISH
(Common for all Branches)

I Year I-Sem	**L**	**T**	**P**	**C**
	4	**0**	**0**	**4**

1. 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.*

2. 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.

Learning Outcomes

- Usage of correct English Language, written and spoken
- Enrichment of comprehension and fluency
- Gaining confidence in using language in varied 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

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

- Oral practice
- Describing objects/situations/people
- Role play – Individual/Group activities (Using exercises from all 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.

1. 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

4. ***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

S-Greeting and Taking Leave, Introducing Oneself and Others (Formal and Informal Situations)
R- Reading for Subject/ Theme
W- Writing Paragraphs
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.

and

L – Listening for themes and facts
S – Apologizing, interrupting, requesting and making polite conversation
R- for theme and gist
W- Describing people, places, objects, events
G- Verb forms
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

L – for main points and sub-points for note taking
S – Giving instructions and directions; Speaking of hypothetical situations
R – Reading for details
W – Note-making, information transfer, punctuation
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

L -Listening for specific details and information
S- Narrating, expressing opinions and telephone interactions
R -Reading for specific details and information
W- Writing formal letters and CVs
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: **P. Satyanarayana, P.C. Ray Publications,** Warangal, 2003.
24. The Tense: **P. Satyanarayana, P.C. Ray Publications,** Warangal 2003.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A91003) APPLIED PHYSICS

I Year I-Sem: ECE, CSE & EEE	L	T	P	C
	4	1	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, Micro canonical, canonical and grand canonical ensembles, Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics (qualitative treatment), Concept of electron gas, Density of states, Fermi energy, Fermi level.

Quantum Mechanics: Waves and Particles, de Broglie hypothesis, Matter waves, Davisson and Germer's experiment, Heisenberg's uncertainty principle & its applications, Schrodinger time independent wave equation, Physical significance of the wave function, Particle in one dimensional potential box.

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, Concept of effective mass of electron. 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: Introduction, 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, Diode equation, I-V characteristics of P-N junction diode, LED, LCD, Photo diode & Solar cell.

Unit-IV:

DIELECTRICS & MAGNETIC MATERIALS

Dielectrics: Introduction, Electric dipoles, Dipole moment, Dielectric constant, Polarizability, Electric susceptibility, Displacement vector, Electronic, Ionic and Orientational polarizations and calculations of electronic and ionic polarizabilities , Internal fields in solids, Clausius - Mosotti equation, Piezo-electricity, Ferro electricity, Pyro electricity.

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

Unit-V:

LASERS & FIBRE OPTICS

Lasers: Characteristics of lasers, Spontaneous and stimulated emission of radiation, Einstein's coefficients and relation between them, Population inversion, Lasing action, He-Ne laser. Semi conductor diode laser (Homo-junction), Applications of lasers in engineering and medicine.

Fibre Optics: Introduction, Acceptance angle and acceptance cone, Numerical aperture, Step index and graded index fibres, Attenuation in optical fibres, Applications of optical fibres in communication systems.

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 by Dr. K. Bhattacharya, A. Bhaskaran, Oxford Press.

Learning Outcomes:

1. The students will know the difference between classical and quantum mechanics. And also they will learn how this quantum mechanics is useful for the fields like medicine and industry.
2. The students will know how an electron moves in a potential well. They also learn how the solids are classified on basis of band theory.
3. The students will learn about the different semi-conducting devices along with the necessary basic theory.
4. The students will learn about various magnetic materials and dielectric materials which find many industrial applications.
5. The students learn about different types of emission of radiation and advanced applications of leaser in different fields.
6. They learn about different types of optical fibres and their applications in different fields.

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VAAGDEVI COLLEGE OF ENGINEERING
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ENGINEERING GRAPHICS

	L	T	P	C
I Year I-Sem EEE, ECE, CSE (A91301)				
II- Sem Civil, Mech (A92301)	**2**	**0**	**4**	**4**

COURSE OBJECTIVES:

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.
6. Attain the concepts of isometric, orthographic projections.

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 : Surface inclined to both the Principal Planes.

PROJECTIONS OF RIGHT REGULAR SOLIDS: 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.

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

UNIT – V

Introduction to Computer aided Drafting and generation of simple figures by using circle, line, Rectangle & Arc, etc.,

TEXT BOOKS

1. Engineering Drawing, N.D. Bhatt
2. Engineering Drawing – Basant, Agrawal, TMH

REFERENCES :

1. Engineering Graphics. P I Varghese Tata McGraw Hill Education Pvt. Ltd.
2. Engineering drawing – P.J. Shah .S.Chand Publishers.
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. PHI Learning Publisher.

COURSE OUTCOMES:

The students will be able to

1. Understand and draw the different types of conic sections.
2. Analyze the projections of points, straight lines, plane surfaces, solids at different positions and angles.
3. Convert orthographic views into isometric views and vice versa.
4. Perform sections of solids, development of surfaces and their applications in human life.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

PROBLEM SOLVING & COMPUTER PROGRAMMING

I Year I-Sem: ECE & CSE (A91501) **L/T/P C**
II-Sem: EEE (A92503) **4/-/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.

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)
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, 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.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-7: A broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.

Learning Outcomes:

1. Understanding how problems are posed and how they can be analyzed for obtaining solutions.
2. Understanding the fundamentals of C programming.
3. Learning of sequencing, branching, looping and decision making statements to solve scientific and engineering problems.
4. Implementing different operations on arrays and creating and using of functions to solve problems.
5. Ability to design and implement different types of file structures using standard methodology.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A91006) APPLIED PHYSICS LAB

I Year I-Sem: EEE, ECE & CSE

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:

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

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

PROBLEM SOLVING & COMPUTER PROGRAMMING LAB

I Year I-Sem: ECE & CSE (A91503) **L/T/P/C**
II-Sem: EEE (A92504) **-/ -/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

Analyze the problem of finding areas of shapes like circle, square, rectangle and triangle. Draw a flow chart.

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.

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.

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).

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

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.

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

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

Write a C program to find the factorial of a given integer.

Write a C program to find the GCD (greatest common divisor) of two given integers.

Write a C program to solve Towers of Hanoi problem.

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)

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

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.

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.

Write a C program to demonstrate calling of a function (like add,subtract,multiply) using a function pointer.

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.

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

Write a C program which copies one text file to another text file and verify the correctness.

Write a C program which copies one binary file to another binary file and verify the correctness.

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.)

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

Write a C program to produce reverse of the content of a text fie into another text file and verify the result.

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.

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)
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, 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.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-4: A broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.

Learning Outcomes:

1. Understanding how problems are posed and how they can be analyzed for obtaining solutions.
2. Understanding the fundamentals of C programming.
3. Learning of sequencing, branching, looping and decision making statements to solve scientific and engineering problems.
4. Implementing different operations on arrays and creating and using of functions to solve problems.
5. Ability to design and implement different types of file structures using standard methodology.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A91505) IT WORKSHOP

I Year I-Sem: CSE **L/T/P C**
0/0/3 2

Objectives:

- The modules include training on PC Hardware, Internet & World Wide Web and Productivity tools including Word, Excel and Power Point. PC Hardware introduces the students to a personal computer and its basic peripherals, the process of assembling a personal computer, installation of system software like MS Windows, Linux and the required device drivers, software level trouble shooting process with tips and tricks.
- Internet & World Wide Web module introduces the different ways of hooking the PC on to the internet from home and workplace and effectively usage of the internet. Usage of web browsers, email, newsgroups and discussion forums would be covered. In addition, awareness of cyber hygiene, i.e., protecting the personal computer from getting infected with the viruses, worms and other cyber attacks would be introduced.
- Productivity tools module would enable the students in crafting professional word documents, excel spread sheets and power point presentations using the Microsoft suite of office tools and LaTeX.(Recommended to use Microsoft office 2007 in place of MS Office 2003)...

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 and followed up with 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 up with 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 Word (4 Problems)**

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

Problem 8: Using LaTeX and Word to create project certificate. Features to be covered:- Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in both LaTeX and Word

Problem 9: Creating project 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 toolbar and Word Art, Formatting Images, Textboxes, Paragraphs and Mail Merge in word.

Excel (3 Problems)

Problem 11: Excel Orientation: The mentor needs to tell the importance of MS office 2007/ equivalent (FOSS) tool Excel as a Spreadsheet tool, give the details of the two tasks and features that would be covered in each.

Problem 12: Using Excel - accessing, overview of toolbars, saving excel files, using help and resources, Creating a Scheduler - Features to be covered:- Gridlines, Format Cells, Summation, auto fill, Formatting Text.

Problem 13: Calculating CPA - .Features to be covered:- Cell Referencing, Formulae in Excel - average, std. deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Count function, LOOKUP, VLOOKUP, Sorting, Conditional formatting.

LaTeX and MS/equivalent (FOSS) Tool - Power Point (3 Problems)

Problem 14: Students will be working on basic power point utilities and tools which help them create basic power point presentation. Topic covered during this Problem includes: - PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows in both LaTeX and Power point Students will be given model power point presentation which needs to be replicated. (Exactly how it's asked).

Problem 15: Second Problem helps students in making their presentations interactive. Topic covered during this week includes: Hyperlinks, Inserting — Images, Clip Art, Audio, Video, Objects, Tables and Charts.

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

Text Books :

1. Introduction to Informatino 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, David Anfinson and Ken Quamme, CISCO Press, Pearson Education.
7. PC Hardware and A+ Handbook, Kate J.Chase, PHI(Microsoft)

Learning Outcomes

- Troubleshooting of Hardware and Software
- Usage of Web browsers to access Internet, Search Engines
- Usage of MS Word, MS Excel, MS Power point

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A92001) MATHEMATICS – II
(Common for all Branches)

I Year II-Sem

L	T	P	C
4	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 – Inverse of a matrix using elementary operations, linear dependence and independence of vectors, solutions of systems of linear equations using elementary operations, and direct methods-Gauss elimination, LU-decomposition.

Unit-II:

Eigen values and Eigen vectors:

Eigen values and Eigen vectors of a matrix and their properties, Cayley-Hamillton theorem and its applications, Diagonalization of a matrix, Quadratic forms - Reduction of a quadratic form to canonical form by linear transformation and orthogonal transformation and nature, signature index of a quadratic form, 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.

Fourier transforms: Fourier integrals, Fourier sine and cosine integrals. Fourier transforms Fourier sine and cosine transforms- Properties- Inverse transforms- Finite Fourier transforms

Unit - IV:

Vector Calculus:

Scalar and Vector fields; Vector Differentiation, Level surfaces - directional derivative - Gradient of scalar field, Divergence and Curl of a vector field - Laplacian - Line and surface integrals; 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, for 2^{nd} order Equations. Applications of partial 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. 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

Course Outcomes:

By studying Mathematics-II students are able to find the rank of matrix and they can find eigen values & eigen vectors of different engineering fields. They use concept of matrices in the development of programming languages and by studying the fourier series & fourier transforms students are able to solve the problems related to theory of circuits and many applications in electronic engineering and communications engineering.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

ENGINEERING CHEMISTRY

	L	T	P	C
I Year I-SEM CIVIL, MECH. & EEE (A91004)				
II-SEM ECE & CSE (A92003)	**4**	**1**	**0**	**4**

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

Conductors, Non-conductors, Faraday's laws, Ohm's law, conductance, specific, equivalent and molar conductance, units and their relation. Numerical Problems. Applications of conductance – conductometric titrations.
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), Ion-selective electrode-Glass electrode, applications of electrode potentials- Determination of PH and Potentiometric Titrations. Numerical Problems. Concentration cells-Electrode concentration cells and Electrolyte concentration cells. Batteries: Primary cells-Dry cell, Secondary cells - Pb-Acid storage cell, Fuel cells- Hydrogen-Oxygen fuel cell.
Solar Batteries, Relation between electrical and heat energy.

Unit –3:

Corrosion and Its control

Introduction, Causes of corrosion, Types of corrosion- Dry and Wet corrosion. 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 & Nylon) and thermosetting resins (Bakelite). Conducting Polymers- Poly acetylene, Poly aniline & Ploy pyrrole. Fibers- Poly ester, Nylon-6, 6 & Nylon 6, 10.

Unit – 5:

Water Chemistry

Introduction, Types of hardness, units and Numerical problems, Estimation of hardness of water-EDTA method and Numerical problems, Boiler Troubles- Scale and sludge, caustic embrittlement & Boiler corrosion. Treatment of Boiler feed water- Lime-soda, Zeolite and Ion-exchange process. Numerical problems, Desalination of brackish water- Reverse Osmosis and Electro dialysis.

Text Books:

1. Text Book of Engineering Chemistry by C. Parameshwara Murthy. B.S. Publications
2. Text Book of Engineering Chemistry by Y. Bharathi kumara and Jyotsna Cherikuri, VGS Buplications.
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.

Learning Outcomes:

1. Applications of electrochemistry understanding different types of cells, their representation, knowledge of electrode potentials, utilization of electrical energy and conversation into different energies.
2. Applicability of electrodes in different fields of analysis.
3. Understanding the utility of batteries as a source of energy in many electronic gadgets & their types.
4. Enhancement of power generation by making of fuel cells. Knowledge of need for alternate source of energy.
5. Deterioration of metal under the influence of environment, mechanism of corrosion, factors affecting corrosion, prevention of corrosion using various methods & a basic knowledge of surface coatings.
6. Improving the properties of plastics by various additives, integral role of various polymers in our life style & applicability of plastic in automobile and textile industry.
7. Knowledge of hardness of water and its effect, industrial utility of water especially for steam generation, removal methodologies of hardness & treatment of brackish or salty water.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A92004) ENVIRONMENTAL STUDIES

I Year II-Sem: EEE, ECE & CSE

L	T	P	C
4	0	0	4

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, Field visits.

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. **Mineral resources:** use and exploitation, environmental effects of extracting and using mineral resources, **Land resources:** Forest resources, **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. Field visit. 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.

Overview of air pollution control technologies, Concepts of bioremediation. **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 waster 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.

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.

Learning Outcomes:

1. The students can realize the need and importance of ecosystem in the globalised sector.
2. Students knows the importance of living and non-leaving organism in the universe.
3. Students can take the steps to mitigate pollution in the environment.
4. Student understanding the important of environmental impact assessment and it's acts.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A92203)BASIC ELECTRICAL & ELECTRONICS ENGINEERING

I Year II-Sem: CIVIL, MECH & CSE	L	T/P/D	C
	4	1/-/-	4

Course Objective

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 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 -ϕ 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 (elementary treatment only)

3-Phase Induction Motor: Constructional features, Principle of Operation (elementary treatment 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.

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.(elementary treatment only)

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.

Course outcomes:

After going through this course the student gets a thorough knowledge on basic electrical circuits, parameters, and operation of the transformers in the energy conversion process, electromechanical energy conversion, construction operation characteristics of DC machines and the constructional features and also fundamental and characteristics of diode and transistor. With which he/she can able to apply the above conceptual things to real-world electrical and electronics problems and applications.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

ENGINEERING WORKSHOP

	L	T	P	C
I Year I-Sem: Civil, EEE & ECE (A91303)				
II-Sem: CSE & Mech (A92303)	**0**	**0**	**3**	**2**

COURSE OBJECTIVES:

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.

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

II. Trades for Demonstration & Exposure

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

III. **IT Workshop I:** Computer hardware, identification of parts, Disassembly, Assembly of computer to working condition, simple diagnostic exercises.
IT Workshop II: Installation of operating system windows and linux simple diagnostic exercises.

TEXTBOOKS:

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

COURSE OUTCOMES:

The students will be able to

1. Know the fundamental knowledge of various trades and their usage in real time applications
2. Gain knowledge of Foundry, Welding, Black smithy, Fitting, Machine shop and house wiring
3. Understand the basis for analyzing power tools in construction and wood working, electrical engineering and mechanical engineering.
4. Use basic concepts of computer hardware for assembly and disassembly.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A92501) DATA STRUCTURES THROUGH C++

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 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.

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.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.

CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.

CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.

CO-4: An ability to communicate effectively, both in writing and oral.

CO-5: A recognition of the need for, and an ability to engage in life-long learning.

Learning Outcomes:

1. Understanding of fundamental concepts of abstract data types and general standard data structures.
2. Ability to design linear data structures stacks, queues and linked lists.
3. Ability to design nonlinear data structures, trees and graphs, and to implement their operations.
4. Ability to implement different searching and sorting techniques.
5. Ability to apply different searching and sorting techniques for real world problems..

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

ENGLISH LANGUAGE COMMUNICATIONS SKILLS LAB

	L	T	P	C
I Year I-Sem: MECH. & EEE (A91005)				
II-Sem: CIVIL, CSE & ECE (A92007)	**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.

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

Learning Outcomes:

- Better Understanding of nuances of language through audio- visual experience and group activities
- Neutralization of accent for intelligibility
- Speaking with clarity and confidence thereby enhancing employability skills of the students

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 – Self-introduction 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.
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.*

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A92205) BASIC ELECTRICAL & ELECTRONICS ENGINEERING LAB

Class: I Year B.Tech II Semester.	Practicals: 3
Branch: Civil/Mech/CSE	Tutorials: 0
Duration of University Examination: 3 Hrs	University Examination: 50 Marks
	Sessionals: 25 Marks

List of Experiments:

1. Verification of Kirchhoff's Laws.
2. Verification of superposition and Reciprocity Theorems.
3. Verification of Maximum Power transfer theorem.
4. Experimental Determination 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 phase transformer.
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)

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VAAGDEVI COLLEGE OF ENGINEERING
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(A92502) 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 operations

a) 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.

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,Internationational 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.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-4: An ability to communicate effectively, both in writing and oral.
CO-5: A recognition of the need for, and an ability to engage in life-long learning.

Learning Outcomes:

1. Understanding of fundamental concepts of abstract data types and general standard data structures.
2. Ability to design linear data structures stacks, queues and linked lists.
3. Ability to design nonlinear data structures, trees and graphs, and to implement their operations.
4. Ability to implement different searching and sorting techniques.
5. Ability to apply different searching and sorting techniques for real world problems..

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A93501) MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE

II Year B. Tech.(CSE) I Semester	**L/T/P/-**	**C**
	4/1/-	**4**

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

Foundations: Basics-sets and Operations of Sets-Relations and Functions-Some methods of Proof and Problem-solving Strategies-Fundamentals of Logic-Logical Inferences-Methods of Proof of an Implication-First Order Logic and Other Methods of Proof-Rules of Inference for Quantified Propositions-Mathematical Induction

UNIT-II

Elementary Combinatorics: Basics of Counting-Combinations and Permutations-Enumeration of Combinations and Permutations-Enumerating Combinations and Permutations with Repetitions-Enumerating Permutations with Constrained Repetitions-Binomial Coefficients-The Binomial and Multinomial Theorems-The Principle of Inclusion-Exclusion

UNIT-III

Recurrence Relations: Generating Functions of Sequences- Calculating Coefficients of generating Functions- Recurrence relations- solving recurrence relations by substitution and Generating Functions-The Method of Characteristic roots- solutions of Inhomogeneous Recurrence Relations.

UNIT-IV

Relations and Digraphs: Relations and Directed Graphs-Special Properties of Binary Relations-Equivalence Relations-Ordering Relations, Lattices, and Enumerations-Operations on Relations-Paths and Closures-Directed Graphs and Adjacency Matrices-Application: Sorting and Searching-Application: Topological Sorting.

UNIT-V

Graphs: Basic Concepts-Isomorphism and Sub graphs-Trees and Their Properties-Spanning Trees-Directed Trees-Binary Trees-Planar Graphs-Euler's Formula-Multigraph and Euler Circuits-Hamiltonian Graphs-Chromatic Numbers-The Four Color Problem.

TEXT BOOKS:

1. Discrete Mathematics for Computer Scientists & Mathematicians- Joe.L. Mott, Abraham Kandel Theodore P.Baker.
2. Discrete Mathematics, R.K.Bisht, H.S.Dhami, Oxford University Press 1st Edition 2015.
3. Elements of DISCRETE MATHEMATICS-A Computer Oriented Approach – C L Liu, D P Mohapatra.Third Edition, Tata McGraw Hill.

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

Course Outcomes:

1. A Strong foundation in core computer science and Engineering, both theoretical And applied concepts.
2. An ability to apply knowledge of mathematics ,science, and Engineering to real-World problems
3. Students will be able to apply the concepts acquired for different purposes
4. Ability to illustrate by examples the basic terminology of functions, relations, and sets and demonstrate knowledge of their associated operations.
5. A Recognition of the need for, and an ability to engage in life-long learning.
6. A Knowledge of contemporary issues.

Learning Outcomes:

1. Have knowledge of the concepts needed to test the logic of a program.
2. Have an Understanding in identifying structures on many levels.
3. Be aware of a class of functions which transform a finite set into another finite set which relates to input output functions in computer science.
4. Be aware of the counting principles.
5. Be exposed to concepts and properties of algebraic structures such as semi-groups, monoids and Groups.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A93404) DIGITLAL LOGIC DESIGN & MICROPROCESSORS

II Year B.Tech. CSE I- Sem | **L T P C**
4 1 0 4

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.

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.

Course outcomes:

Upon completion of the course, students should possess the following skills:

- Be able to manipulate numeric information in different forms, e.g., different bases, signed integers, various codes such as ASCII, Gray, and BCD.
- Be able to manipulate simple Boolean expressions using the theorems and postulates of Boolean algebra and to minimize combinational functions.
- Be able to design and analyze combinational circuits and to use standard combinational functions/building block to build more complex circuits.
- Be able to learn the internal organization of popular 8086 microprocessors
- Be able to learn hardware and software interaction and integration.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A93502) DATABASE MANAGEMENT SYSTEMS

II Year B.Tech.(CSE) I Semester **L/T/P C**
4/1/- 4

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 (15%)

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.

UNIT-II (20%)

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.

UNIT – III (20%)

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.

UNIT – IV(20%)

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

UNIT-V (25%)

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.

TEXTBOOKS.

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.

COURSE OUTCOMES:

CO-1. A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-3. Ability to model, understand, and develop complex software for system software as well as application software.
CO-7. The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal and human contexts .
CO-9. A Knowledge of Contemporary Issues.

LEARNING OUTCOMES:

1. Ability to understand the fundamental concepts of database management.
2. Ability to design and query databases, as well as understand the internals of databases.
3. Ability to define basic functions of DBMS & RDBMS.
4. Ability to describe database development process and to apply the Relational Database Model to understand the Logical and Physical aspects of the DBMS architecture.
5. Ability to analyze database models & entity relationship models and to draw the E-R diagram for the given case study.
6. Ability to use Structured Query Language (SQL) with complex queries.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A93503) OBJECT ORIENTED PROGRAMMING THROUGH JAVA

II Year B. Tech CSE I SEM **L/T/P C**
4 /1/- 4

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.

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.

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.

Files- streams-byte streams, character streams, text Input/output, binary input/output random access file operations, File management using File class, exploring String Class.

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-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.

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.

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.

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.

Applets: Inheritance hierarchy for applets, differences between applets and applications, Life Cycle of an applet, passing parameters to applets, applet security issues.

Text Books:

1. Java Fundamentals- A comprehensive Introduction, Hebert Schildt and Dale Skrien, TMH.

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.

Course Outcomes (COs):

Following are the course outcomes that we attain:

1) **CO-1.** A strong foundation in core Computer science and engineering, both theoretical and applied concepts.
2) **CO-3.** Ability to model, understand and develop complex software for System Software as well as Application Software.
3) **CO-4.** An ability to function effectively within team.
4) **CO-7.** The board education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human context.
5) **CO-8.** Recognition of the need for, an ability to engage in life-long learning.

Learning Outcomes (LOs):

Upon successful completion of this course, students would be able to learn:

1. **Knowledge:** They can describe the principles of object-oriented programming, apply the concepts of data encapsulation, inheritance, and polymorphism to large-scale software and also acquire the concepts of Graphical User Interfaces.
2. **Professional Skill:** They can Design and develop object-oriented computer programs apart from that they can develop programs with Graphical User Interfaces capabilities.
3. **Transferable Skill:** They can formulate problems as steps so as to be solved systematically.
4. **Attitude:** They can integrate robustness, reusability, and portability into large-scale software development with team-work in mind.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A93504) COMPUTER ORGANIZATION AND ARCHITECTURE

II Year B.Tech CSE I Semester **L/T/P/C**
4/0/0/ 4

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.

Syllabus Content

UNIT-1
STRUCTURE OF COMPUTERS: Computer types, Functional units, Basic Operational concepts, Von-Neumann Architecture, Bus Structures, Software, Performance, Multiprocessors and Multicomputer.
REGISTER TRANSFER AND MICRO-OPERATIONS: Register Transfer Language, Register Transfer, Bus and Memory transfers, Arithmetic micro-operations, Logic micro-operations, Shift micro-operations, Arithmetic logic shift unit.

UNIT-2
BASIC COMPUTER ORGANIZATION AND DESIGN: 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: Control memory, Address sequencing, Micro-program example, Design of Control Unit

UNIT-3
CENTRAL PROCESSING UNIT: General Register Organsation, Stack organization, Instruction formats, Addressing modes, Data Transfer and Manipulation, Program control, Reduced Instruction Set Computer (RISC).
COMPUTER ARITHMETIC: Addition and Subtraction, Multiplication and Division Algorithms, Floating-Point Arithmetic Operation, Decimal Arithmetic Unit, Decimal Arithmetic Operations.

UNIT-4
INPUT-OUTPUT ORGANSATION: Peripheral devices, Input-Output Interface, Asynchronous Data Transfer, Modes of Transfer, Priority Interrupt, Direct Memory Access(DMA)

THE MEMORY SYSTEM: Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memory, cache memory, virtual memory.

UNIT – 5
PIPELINE AND MULTIPROCESSORS
PIPELINE: Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline, RISC Pipeline
MULTIPROCESSORS: Characteristics of Multiprocessors, Interconnection Structures, Interprocessor Arbitration, Interprocessor Communication and synchronization.

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.

Course Outcomes:
CO-3. Ability to model, understand, and develop complex software for system software as well as application software
CO-7. The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts
CO-9. A knowledge of contemporary issues

Learning Outcome:

1. Understand the basic components of a computer, including CPU, memories, and input/output, and their organization, Ability to use memory and I/O devices effectively.
2. Understand the cost performance tradeoff in designing memory hierarchy and instruction sets, able to explore the hardware requirements for cache memory and virtual memory.
3. Understand and be able to use assembly languages for solving simple problems. Understand the relationship between high level language and assembly language.
4. Able to follow the trends in computer design and appreciate the design philosophy behind.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A93408) DIGITLAL LOGIC DESIGN & MICROPROCESSORS LAB

II Year B.Tech. CSE I- Sem

L	T	P	C
0	0	3	2

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)

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A93506) DATABASE MANAGEMENT SYSTEMS LAB

II Year B.Tech. CSE I Sem **L/T/P C**
0/0/3 2

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.

Passenger

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 / No

Ticket

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

REFERENCE BOOKS:

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.

Course Outcomes:

- Ability to design and implement a database schema for given problem.
- Be capable to Design and build a UI application.
- Apply the normalization techniques for development of application software to realistic problems.
- Ability to formulate queries using SQL DML/DDL/DCL commands.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A93507)OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB

II Year B.Tech.(CSE) I Semester **L/T/P C**
0/0/3 2

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

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

Week 11. a)Write a Java program for handling mouse and keyboard events.
b)Write a Java program for handling menu events.

Week 12. 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 13. 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 14.
a) Write an applet that displays a simple message.
b) Write a java program for passing parameters to applets.

Week 15. 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 16. Write a Java program that:
a) Implements stack ADT.
b) Converts infix expression into Postfix form

Week 17. a) Develop an applet in Java that displays a simple message.
b) Develop an applet in Java that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named "Computer" is clicked.

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.

Course Outcomes:

CO-1. A strong foundation in core Computer science and engineering, both theoretical and applied concepts

CO-2. An ability to apply knowledge of mathematics, science and engineering to real world problems.

CO-3. Ability to model, understand, and develop complex software for System Software as well as Application Software.

CO-6. An ability to communicate effectively, both in writing and oral.

CO-8. Recognitionof the need for, an ability to engage in life-long learning.

Learning Outcomes:

1. Be able to understand better the object-oriented approach in programming. Students should be able to analyze and design a computer program to solve real world problems based on object-oriented principles.
2. Be able to write computer programs to solve real world problems in Java
3. To learn and appreciate the importance and merits of proper comments in source code and API documentations
4. Be able to write simple GUI interfaces for a computer program to interact with users, and to understand the event-based GUI handling principles.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A94001) COMPUTER ORIENTED STATISTICAL METHODS

II Year B.Tech.(CSE) II Semester **L/T/P C**
4/0/- 4

Objectives: This Course provides a thorough understanding of mathematical probability-related theory and statistical 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 students 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,

Syllabus Content:

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 – Discrete and continuous. Probability distributions, mass function/ density function of a probability distribution. Mathematical Expectation, Moment about origin, Central moments Moment generating function of probability distribution.

UNIT-II: Probability distributions and Joint Probability Concepts

Binomial, Poisson & normal distributions and their properties. Moment generating functions of the above three distributions. and hence finding the mean and variance. Joint probability distributions- Joint probability mass / density function, Marginal probability mass / density functions,

UNIT-III: Correlation & Regression and Concepts of Sampling

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

Sampling: Definitions of population, sampling, statistic, parameter. Types of sampling, Expected values of Sample mean and variance, sampling distribution, Standard error, Sampling distribution of means and sampling distribution of variance.

UNIT-IV: Introduction to Estimation, Testing of Hypothesis in Large and Small Samples

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

Large sample tests related to significance of sample's means; population versus sample means – significance of samples' standard deviations; population versus sample standard deviations – significance of samples' proportions; population versus 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 & Stochastic Processes

Arrival Theorem – Pure Birth process and Death process M/M/1 Model. Introduction to Stochastic Processes – Markov process classification of states – Examples of Markov Chains, Stochastic Matrix, limiting probabilities.

Text Books:

1. *Fundamentals Of Mathematical Statistics* By S C Gupta and V.K.Kapoor, Sultan Chand Publishers
2. *Probability And Statistics For Engineers And Scientists* By Sheldon M.Ross, Academic Press
3. *Probability And Statistics For Engineering And The Sciences* 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., Wiley India
3. *Probability And Statistics* By T.K.V.Iyengar &B.Krishna Gandhi et al
4. *A Text Book Of Probability And Statistics*, Shahnaz Bathul, Cengage Learning

Course Outcomes:

CO-2. An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-4. An ability to function effectively within teams.
CO-5. An understanding of professional and ethical responsibility
CO-6. An ability to communicate effectively, both in writing and oral.
CO-8. A recognition of the need for, and an ability to engage in life-long learning

Learning Outcomes:

Students will be able to:

- Choose appropriate statistical methods and apply them in various data analysis problems and will be able to use various statistical software to perform data analysis;
- Communicate effectively statistical methods and results in appropriate contexts, both orally and in writing;
- Critically assess the strengths and weaknesses of published studies, and evaluate the validity of reported results.
- Perform exploratory analysis of data collected within any application area; test for normality of the data.
- Apply statistical methods via hypothesis testing, point estimation and confidence interval estimation;
- Contextualise outputs where data are drawn from diverse and evolving social, political and cultural dimensions.
- Possess understanding of the balance between the complexity / accuracy of the mathematical / statistical models used and the timeliness of the delivery of the solution.
- Possess basic knowledge of stochastic models that may apply to telecommunications research areas, such as traffic modelling, resource provisioning and traffic management in the technological fields.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A94501)DESIGN AND ANALYSIS OF ALGORITHMS

II Year B. Tech.(CSE) II Semester **L/T/P C**
4/0/- 4

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 nonpolynomial type of classes of problems; synthesis of efficient algorithms in common engineering design situations would be discussed.

UNIT I:
Introduction: Algorithm, Psuedo code for expressing algorithms, Performance Analysis-Space complexity, Time complexity, Asymptotic Notation- Big oh notation, Omega notation, Theta notation and Little oh notation, Probabilistic analysis, Amortized analysis. Divide and conquer: General method, applications-Binary search, Quick sort, Merge sort, Strassen's matrix multiplication.

UNIT II:
Disjoint Sets: Disjoint set operations, union and find algorithms, spanning trees. Backtracking: General method, applications-n-queen problem, sum of subsets problem, graph coloring, Hamiltonian cycles. connected components and biconnected components.

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

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

UNIT V:
Branch and Bound: General method, applications - Travelling sales person problem, 0/1 knapsack problem- LC Branch and Bound solution, FIFO Branch and Bound solution.
NP-Hard and NP-Complete problems: Basic concepts, non deterministic algorithms, NP - Hard and NP-Complete classes, Cook's theorem.

Text Books:

1. Fundamentals of Computer Algorithms, Ellis Horowitz, Satraj Sahni and Rajasekharam, Galgotia publications pvt. Ltd.
2. Design and Analysis of Algorithms, S.Sridhar Oxford Higher Education.

References:

1. Introduction to Algorithms, secondedition, T. H. Cormen, C. E. Leiserson, R. L. Rivest, and C. Stein, PHI Pvt. Ltd. / Pearson Education
2. Design and Analysis Algorithms - Parag Himanshu Dave, Himanshu Bhalchandra Dave Publisher: Pearson
3. Algorithm Design: Foundations, Analysis and Internet examples, M. T. Goodrich and R. Tomassia, John wiley and sons.
4. Introduction to Design and Analysis of Algorithms A strategic approach, R. C. T. Lee, S. S. Tseng, R. C. Chang and T. Tsai, Mc Graw Hill.
5. Data structures and Algorithm Analysis in C++, Allen Weiss, Second edition, Pearson education.
6. Design and Analysis ofalgorithms, Aho, Ullman and Hopcroft, Pearson education.
7. Algorithms – Richard Johnson baugh and Marcus Schaefer, Pearson Education

Course Outcomes:

CO–1. A strong foundation in core computer science and engineering, both theoretical and applied concepts.

CO–3. Ability to model, understand, and develop complex software for system software as well as application software.

CO–7. The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts.

Learning Outcomes:

1. The students would acquire a knowledge as to how known problems are analysed and how they were solved in the best possible way.
2. The students would be able to classify new problems into some of the known category of problems.
3. The students would be able to discuss the correctness of algorithms using inductive proofs and invariants; and they can estimate worst-case running times of algorithms using asymptotic analysis
4. The students would be able to devise appropriate data structures and data handling mechanisms for efficient data processing.
5. The students would gain ability to formulate solution processes for new problems in daily business and professional life.
6. The students would be able to demonstrate better problem solving capability that prepares them for leadership roles.
7. The students would be able to better communicate their ideas for effective collaborations.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A94502)FORMAL LANGUAGES AND AUTOMATA THEORY

II Year B.Tech.(CSE) II Semester **L/T/P C**
4/1/- 4

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-1

Fundamentals : Strings, Alphabet, Language,Set Notations, Relations, , transition diagrams and Language recognizers

Finite Automata : Finite State System, Basic definations, Nondeterministic Finite Automata(NFA), Equivalence and Conversion of NFA to DFA (Deterministic Finite Automata), NFA with ε-moves, Equivalence and Conversion of NFA's with and without ε-moves, Finite Automata with output- Moore Machines, Mealy Machines

Unit-2

Regular expression & Regular Languages: regular expressions, Regular sets, equivalence and Conversion of Regular expressions to Finite Automata, identity rules, Pumping lemma of regular sets, the Myhill-Nerode theorem and minimization of Finite Automata

Context Free Grammars – I : Introduction, Basic Definitions, Derivation Trees. Equivalence between Regular Expression and Finite Automata & Inter Conversion *(Ref. Introduction to Theory of Computation –Sipser 2nd edition Thomson Pg.No:66-76)*

Unit-3

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

Pushdown Automata: Informal descriptions, Definitions, Pushdown Automata Versus CFL's – equivalence & conversions.

Unit-4

Turing Machine: Introduction, The Turing Machine Model, Computable Languages and Functions, Techniqies for Turing Machine Construction, Modifications of Turing Machine,

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

Unit-5

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) Grammers and PDA's

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

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-7: A broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.
CO-8: A recognition of the need for, an ability to engage in life-long learning.

Learning Outcomes:

1. Academic performance.
2. Project attainments.
3. Publication attainments.
4. Student's placements.
5. Student's higher studies.
6. Lifelong learning achievements.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A94503)OPERATING SYSTEMS

II Year B.Tech.(CSE) II Semester **L/T/P C**
4/0/- 4

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 -1 (20%)

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

UNIT -2(25%)

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.

UNIT -3(25%)

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.

UNIT -4(15%)

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.

UNIT -5(15%)

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.

Text Books:

1. Operating System Concepts- Abraham Silberchatz, Peter B. Galvin, Greg Gagne 7th Edition, John Wiley.
2. Operating systems- A Concept based Approach-D.M.Dhamdhere, 2nd Edition, TMH

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.

Course Outcomes:

CO-1. A strong foundation in core computer science and engineering, both theoretical and applied concepts.
CO-2. An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-7. The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts

Learning Outcomes:

1. Understand functional architecture of an operating system
2. Develop algorithms for subsystem components
3. Design device drivers and multi threading libraries for a tiny OS
4. Develop application programs using UNIX system calls
5. Design and solve synchronization problems
6. Understand standard UNIX and FAT file systems

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A94504)ADVANCED JAVA TOOLS

II Year B.Tech.(CSE) II Semester **L/T/P C**
4/1/- 4

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, Client/Server Tic-Tac-Toe Using a Multithreaded Server, Security and the Network.

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
Java Beans: Introduction, Bean Box Overview Preparing a class to be a Java Bean, Creating a Java Bean: Java Achieve Files and the Jar Utility, Adding Beans to the Bean Box, Connecting Beans with events in the Bean Box, Adding Properties to a Java Bean, Java Beans World Wide Web Resources.
defining setter and getter methods.

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.

UNIT-IV
Java Server Pages (JSP): Advantages of JSP over Servlet, Anotomy of JSP, Defining each element of JSP, Custom Tag Library, Error Handling in JSP, working with JDBC.

UNIT-V
Struts: Introduction to Struts, Struts-2 Advancement in Web Technology, Creating Application, Action Class, Designing User Interface with Struts, Struts Validation Frame Work.

Text Books

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

Reference Books

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

Course Outcomes (COs):

CO-1. A strong foundation in core Computer science and engineering, both theoretical and applied concepts.
CO-3. Ability to model, understand and develop complex software for System Software as well as Application Software.
CO-4. An ability to function effectively within team.
CO-6. An ability to communicate effectively, both in writing and oral.
CO-7. The board education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human context.
CO-8. Recognition of the need for, an ability to engage in life-long learning.

Learning Outcomes (Los):

Upon successful completion of course students would be able to learn

1. **Knowledge and understanding**- They can understand some advanced programming concepts to deal with complex data objects as whole entities, rather than by twiddling with their elements.
2. **Cognitive skills**- They can reformulate given a problem and write large programs, by analyzing the original problem, and can determine which problem elements to represent as objects or functions.
3. **Communication skills**- They can write the simplest possible program that solves a given problem while explaining to the reader how it solves that problem.
4. **Practical and subject specific skills** – They can effectively use parameterization and inheritance to promote reuse, Develop programs with networking, Compose more complex programs from simpler parts.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A94505)ADVANCED JAVA TOOLS LAB

II Year B.Tech II Sem CSE **L/T/P/D/C**
0/0/3/0/2

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 Bean Application for an simple property.
10. Write a Bean Application for an Boolean Property.

Week-6:
11. Write a Bean Application for starting and stopping the Juggler Bean and Execute it in Applet.
12. Write a Bean Application for an Bound property

Week-7:
13. Write a Bean Application for an constrained property
14. Write a Bean Application for Rotating a Molecular Bean

Week-8:
15. Write servlet program for displaying a message in a browser using generic servlet
16. Write a servlet program to retrieve the initial arguments.

Week-9:
17. Write a servlet program to insert the values into database, values should read as a client request.

18. Write a servlet program to .Retrieve the results from database depends on client request.

Week-10:
19. Write a servlet program for communicating first servlet to second servlet
20. Write a servlet program for invoking the get and post methods.

Week-11:
21. Write a servlet program for session tracking using hidden form fields.
22. Write a servlet program for session tracking using http session.

Week-12:
23. Write a servlet program for session tracking using cookies
24. Write a servlet program for communicating first servlet to another by URL class

Week-13:
25 Write a servlet program in the format using http servlet.
26. Write a program to display a message using JSP.

Week-14:
27. Write a program to insert Values in to Data Base using JSP pages.
28. Write a program to retrieve Values from Data Base using JSP pages.

Week-15:
29. Write a program to handle errors in JSP pages.
30. Write a program to create simple user interface using struts framework.

Week-16:
31. Write a program to illustrate Action Class.
32. Write a program to provide validation using struts framework.

Text Books

1. JAVA How to programming by DIETEL&DIETEL.
2. 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.

Course Outcomes(Cos)

1. **CO-1.** A strong foundation in core computer science and engineering, both theoretical and applied concepts.
2. **CO-3.** Ability to model, understand and develop complex software for System Software as well as Application Software.
3. **CO-4.** An ability to function effectively within team.
4. **CO-6.** An ability to communicate effectively, both in writing and oral.
5. **CO-7.** The board education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human context.
6. **CO-8.** Recognition of the need for, an ability to engage in life-long learning.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A94506) OPERATING SYSTEMS LAB

II Year B. Tech. CSE II- Semester **LT P C**
0 0 3 2

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
a) FCFS b) SJF c) Pre-emption 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

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

Course Outcomes:

CO-1: A strong foundation in core computer science and engineering, both theoretical and applied concepts.

CO-3: Ability to model, understands, and develops complex software for system software as well as application software.

CO-4: An ability to function effectively within team

CO-7: A recognition of the need for, and an ability to engage in life-long learning

Learning Outcomes

1) Upon completing the course the student is capable of explaining the basic structure and functioning of operating system.
2) Student is able to point the problems related to process management and synchronization as well as is able to apply learned methods to solve basic problems.
3) Student is capable of explaining the cause and effect related to deadlocks and is able to analyze them related to common circumstances in operating systems.
4) The student is able to explain the basics of memory management, the use of virtual memory in modern operating systems as well as the structure of the most common file-systems.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A94507) WEB TECHNOLOGIES LAB-I

II Year B.Tech.(CSE) II Semester **L/T/P C**
0/0/3 2

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 webdesigning 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 Ordered Lists.

WEEK 4. 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,1Checkboxes Controls,1Radio Box Controls,1Select Box Controls,1File

Select boxes,1Hidden Controls,1Clickable Buttons,Submit and Reset Button etc.

WEEK 7. Write a html program on Stylesheet using External Style Sheet, 1Internal 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).

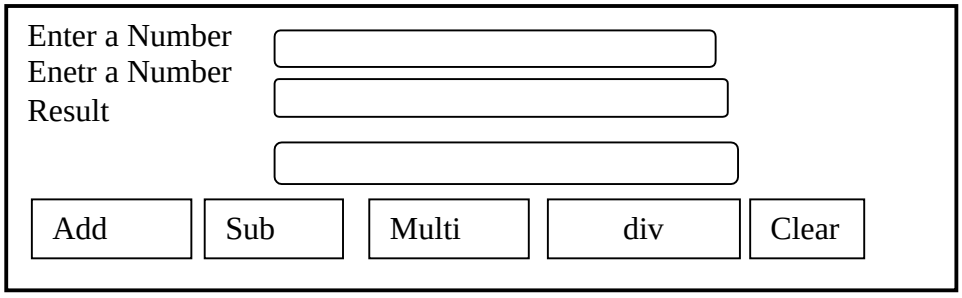
c.E-mail id (should not contain any invalid and must follow the standard pattern

name@domain.com)

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



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

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 Programmming-Bai/Ekedaw-Cengage Learning.

4. Beginning Web Programming-Jon Duckett ,WROX

Course Outcomes:

CO-2 An ability to apply knowledge of mathematics, science, and engineering to real

CO-3. Ability to model, understand, and develop complex software for System Software as well as Application Software.

CO-4. An ability to function effectively within teams.

CO-6. An ability to communicate effectively, both in writing and oral.

CO-9. A knowledge of contemporary issues.

Learning Outcomes:

1. Understanding of fundamental concepts of Internet and world wide web.

2. Ability to design a web site using frontpage .

3. Ability to design both static and dynamic web pages using javascripts and css.

4. Ability to use xml transformations using xslt

5. Ability to use Content Management Systems like Joomla

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A94002) HUMAN VALUES AND PROFESSIONAL ETHICS

II Year B.Tech II-Sem **L T P C**
2 0 0 2

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.

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.
5. M. Govindarajan, S. Natarajan, & V.S. Senthilkumar: Engineering Ethics(Includes Human Values), HI Learning Pvt. Ltd., New Delhi – 110001

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A94006) GENDER SENSITIZATION

II Year B.Tech. II-Sem | **L T P C**
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
Introduction
Preparing for womanhood
Growing up male
First lessons in caste
Different masculinities

Unit – 3
Housework: The Invisible Labour
"My mother does not work"
"Share the load"

Unit – 4
Missing Women: Sex Selection and Its consequences
Declining sex ratio
Demographic consequences

Unit – 5
Knowledge: Through the Lens of Gender
Point of view
Gender and the structure of knowledge
Further reading: Unacknowledged women artists of Telangana

Unit – 6
Sexual Harassment: Say No!

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

Unit – 7
Women' Work: Its Politics and Economics

Fact and fiction
Unrecognized and unaccounted work
Further reading: Wages and conditions of work

Unit – 8
Domestic Violence: Speaking Out

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

Unit – 9
Whose History? Questions for Historians and Others

Reclaiming a past
Writing other histories
Further reading: Missing pages from modern Telangana history

Unit – 10
Gender Spectrum: Beyond the Binary

Two or many?
Struggles with discrimination

Unit – 11
Thinking about Sexual Violence

Blaming the victim
"I fought for my life…"
Further reading: The caste face of violence

Unit – 12
Just Relationships: Being Together as Equals

Mary Kom and Onler
Love and acid just do not mix
Love letters
Mothers and fathers
Further Reading: Rosa Parks – The braveheart

Unit – 13
Additional Reading: Our Bodies, Our Health

Course Outcomes:

- Students will have developed a better understanding of important issues related to gender in contemporary India.
- Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature and film.
- Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.
- Students will acquire insight into the gendered division of labor and its relation to politics and economics.
- Men and women students and professionals will be better equipped to work and live together as equals.
- Students will develop a sense of appreciation of women in all walks of life.
- Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women, the textbook will empower students to understand and respond to gender violence.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A95501) DATA COMMUNICATIONS AND COMPUTER NETWORKS

III Year B. Tech CSE I SEMESTER **L T P C**
4 1 0 4

Course Objectives:
To expose the students to the basic principles of the technology of data communications and networking. Upon completion of this course, the students will have a good working knowledge :

- To understand the concept of data communication and modulation techniques.
- To comprehend the use of different types of transmission media and network devices.
- To understand the error detection and correction in transmission of data.
- To understand the concept of flow control, error control and LAN protocols.
- To understand the functions performed by Network Management System
- To understand security issues.

UNIT-I
Introduction : Data Communications, Networks, The Internet, Protocols and Standards, Network Models, Layered Tasks, The OSI Model, Layers in 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, Data Rate Limits, Performance, Digital Transmission, Digital to Digital Conversion, Analog to Digital Conversion, transmission modes Analog Transmission, Digital to analog Conversion, Analog to analog Conversion Bandwidth utilization: Multiplexing and Spreading, Multiplexing, Spread Spectrum. **Text Book-1 page No: 1-184**

UNIT-II
Transmission Media, Guided Media, Unguided Media: Wireless,Switching, Circuit Switched Networks, Datagram Networks, Virtual Circuit Networks, Structure of a Switch, Using Telephone and Cable Networks for Data Transmission, Telephone Networks, Dialup Modems, Digital Subscriber Line, Cable TV Networks, Cable TV for Data Transfer Data link layer: Error Detection and Correction, Introduction, Block Coding, Liner Block Codes, Cyclic Codes, Checksum, Data Link Control, Framing, Flow and Error Control, Protocols, Noiseless Channels, Noisy Channels, HDLC, Point to Point Protocol, Multiple Access, Random Access, Aloha, Controlled Access,Channelization,Wired LANs :Ethernet, IEEE Standards, Standard Ethernet, Changes in the Standard, Fast Ethernet, Gigabit Ethernet, Wireless LANs :IEEE 802.11, Bluetooth. **Text Book-1 page No: 191-443**

UNIT-III
Connecting LANs, Backbone Networks, and Virtual LANs, Connecting Devices, Backbone Networks, Virtual LANs,Wirleless WANs: Cellular Telephony, Satellite Networks, Sonet/SDH, Architecture, Sonet Layers, Sonet Frames, STS Multiplexing, Sonet Networks, Virtual Tributaries, Virtual Circuit Networks: Frame Relay and ATM, Frame Relay, ATM, ATM LANs. Network Layer: Logical Addressing, IPv4 Addresses, IPv6 Addresses, Network Layer: Internet Protocol, Internetworking, IPv4, IPv6, Transition from IPv4 to IPv6, Network Layer: Adress Mapping, Error Reporting and Multicasting, Address Mapping, ICMP, IGMP,

ICMPv6, Network Layer: Delivery, Forwarding and Routing, Delivery, Forwarding, Unicast Routing Protocols, Multicast Routing Protocols. **Text Book-1 page No: 445-693**

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, Integrated Services, Differentiated Services, QoS in Switched. **Text Book-1 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, Remote Logging, Telnet, Electronic Mail, File Transfer, **WWW and HTTP:** Architecture, Web Documents, HTTP, **Network Management:** SNMP, Network Management System, Simple Network Management Protocol (SNMP). **Text Book-1 page No: 851-877**

Text Books:

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.
4. An Engineering Approach to Computer NetworksS. Keshav,2nd Edition,Pearson Education.
5. Understanding communications and Networks, 3rd Edition, W.A.Shay,Cengage Learning.

Course Outcomes:

CO-1: A strong foundation in core Computer science and engineering, both theoretical and applied concepts.

CO-2: An ability to apply knowledge of mathematics, science and engineering to real world problems.

CO-6: An ability to communicate effectively, both in writing and oral.

CO-7: The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human context.

CO-8: A recognition of the need for, an ability to engage in life-long learning

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A95502) COMPILER DESIGN

III Year B. Tech CSE I SEMESTER **L T P C**
4 1 0 4

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.*

UNIT – 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.
(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. **page No:***475-484, 92&592, 335.*

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

UNIT – 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. **page No:** 610-614,553, 579, 558.

Text Books:

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.
4. Modern Compiler Implementation in C- Andrew N. Appel, Cambridge University Press.

Course Outcomes:

CO-1:	A strong foundation in core computer science and engineering, both theoretical and applied concepts.
CO-2:	An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3:	Ability to model, understand, and develop complex software for System Software as well as Application Software
CO-7:	The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A95503) SOFTWARE ENGINEERING

III Year B.Tech. I SEMESTER **L T P C**
4 0 0 4

Course Objectives:
To produce graduates who use their knowledge of engineering to creatively and innovatively solve difficult computer systems problems, regularly engage in exploring, learning and applying state-of-the-art hardware and software technologies to the solution of computer systems problems and will be an effective software development team member who contributes innovative software design solutions to the resolution of business, scientific or government computer systems problems and will be able to communicate effectively and successfully, both individually and within multi-disciplinary teams.

Syllabus Content

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

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 Book1(33-47,51-68,77-98) Text book2(137-161)**

Unit-2

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.

Design Engineering: Design process and Design quality, Design concepts, the design model, pattern based software design. **Text book2(164-189,191-212) Text book1(258-281)**

Unit-3

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(286-320,324-353,356-382)**

Unit-4

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(386-392,423-425,394-403,406-416,461-492)**

Unit-5

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(654-663,726-740,744-768)**

Text Books:

1. 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 Engineering1: Abstraction and modeling, Diner Bjorner, Springer International edition, 2006.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-4: An ability to function effectively within teams.
CO-6: An ability to communicate effectively, both in writing and oral.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A95504) NETWORK PROGRAMMING

III Year B. Tech CSE I SEMESTER **L T P C**
4 1 0 4

Course Objectives:
The goal of this course is to introduce the students the basics of computer networks and internet programming. The students will be taught various forms of IPC through Unix and sockets, also an opportunity to do network programming using TCP/IP is provided. To develop an understanding of modern network architectures from a 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. **(TB 1 Page 18-27, TB2 Page 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. **(TB1 Page 57,Page 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. **(TB1 Page 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. **(TB1 Page 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. **(TB2 Page 87-137,589-616,692-694)**

Text Books:

2. UNIX Network Programming, Vol. I, Sockets API, 2ndEdition. W.Richard Stevens, Pearson Edn. Asia.
3. UNIX Network Programming, 1st Edition,-W.Richard Stevens. PHI.

Reference Books:

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.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-4: An ability to function effectively within teams.
CO-5: An understanding of professional and ethical responsibility.
CO-8: A recognition of the need for, and an ability to engage in life-long learning.
CO-9: A knowledge of contemporary issues.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A95621) MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS

III Year B. Tech CSE I SEMESTER **L T P C**
4 1 0 4

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 of 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.

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

UNIT – V
Introduction to Financial Accounting & 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).

TEXT BOOKS

Aryasri: Managerial Economics and Financial Analysis, 2/e, TMH, 2005.
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.
4) 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.
7) 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

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-7: The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.
CO-8: A recognition of the need for, and an ability to engage in life-long learning.
CO-9: A knowledge of contemporary issues.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A95505) COMPUTER NETWORKS AND COMPILER DESIGN LAB

III Year B. Tech CSE I SEMESTER **L T P C**
0 0 3 2

Course Objectives:
To understand the functionalities of various layers of OSI model and facilitate an understanding of the fundamental concepts of computer networking. To improve the ability of the students to program computer network 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

Syllabus Content:
Week 1:

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>
<bexpression> ::= <expression> <relop> <expression>
<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|i|j|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:

```
{       int a[3],t1,t2;
        t1=2;
        a[0]=1; a[1]=2; a[t1]=3;
        t2=-(a[2]+t1*6)/(a[2]-t1);
        if t2>5
                print(t2);
else
{
int t3;
t3=99;
        t2=-25;
        print(-t1+t2*t3); /* this is a comment
        on 2 lines */
} endif
        }
```

Week 2:

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 3:

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

Week 4:

3. Design Predictive parser for the given language**.**

Week 5:

4. Design LALR bottom up parser for the above language**.**

Week 6:

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

Week 7:

6. 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.

COMPUTER NETWORKS
Week 8:

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 9:

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

Week 10:

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

Week 11:

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

Week 12:

9. Configuring a network by using Distance Vector Protocol.

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.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-7: The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A95506) NETWORK PROGRAMMING LAB

III Year B. Tech CSE I SEMESTER **L T P C**
0 0 3 2

Course Objectives:
To impart a solid foundation of the state of art trends in computer networking and to provide a hands on experience of the same. The lab aims to give an overarching insight to all arenas of 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. Unix/Linux environments will be used for this purpose

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.

Reference Book:
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.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.

CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.

CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.

CO-4: An ability to function effectively within teams.

CO-5: An understanding of professional and ethical responsibility.
and Engineering solutions in the scientific, societal, and human contexts.

CO-8: A recognition of the need for, and an ability to engage in life-long learning.

CO-9: A knowledge of contemporary issues.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A95507) CASE TOOLS AND OOAD LAB

III Year B. Tech CSE I SEMESTER **L T P C**
0 0 3 2

Course Objectives:
This course examines the reasons for the inherent complexity of software construction, and presents structured methods to deal effectively with it. The 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.

Syllabus Content

Week 1	Introduction to Unified Modeling Language.
Week 2	Develop a Class Diagram for ATM System.
Week 3	Develop a Class Diagram for Library Management System and Railway Reservation System.
Week 4	Develop a Usecase Diagram for ATM System.
Week 5	Develop a Usecase Diagram for Library Management System and Railway Reservation system**.**
Week 6	Develop a Sequence Diagram for ATM System.
Week 7	Develop a Sequence Diagram for Library Management System and Railway Reservation System.
Week 8	Develop a Collaboration Diagram for ATM System, Library Management System and Railway Reservation System.
Week 9	Develop a State Diagram for ATM System.
Week 10	Develop a State Diagram for Library Management System and Railway Reservation System.
Week 11	Develop a Activity Diagram for ATM System.
Week 12	Develop a Activity Diagram for Library Management System and Railway Reservation System.
Week 13	Develop a Component Diagram for ATM System.
Week 14	Develop a Component Diagram for Library Management System and Railway Reservation System.
Week 15	Develop a Deployment Diagram for ATM System.
Week 16	Develop a Deployment Diagram for Library Management System and Railway Reservation System**.**

Text Books:

1. Grady Booch, James Rumbaugh, Ivar Jacobson: The Unified Modeling Language user guide, Pearson Education.
2. Hans-Eriksson, Magnus Penker, Brian Lynous, David Fado: UML 2 Toolkit, WILEY-Dreamtech India Pvt.Ltd.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.

CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.

CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.

CO-4: An ability to function effectively within teams.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96501) DATA WAREHOUSING AND DATAMINING

III Year B. Tech. CSE II-Semester **L T P C**
4 1 0 4

Course Objectives:

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

Syllabus Content

UNIT -I

Data Mining: Types of Data, Data Mining Functionalities, Interestingness Patterns-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. **(Page No: 1-100).**

UNIT -II

Data Warehouse and OLAP Technology: Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Cube and OLAP Technology, Data Warehouse Implementation , DBMS schemas for Decision support, Efficient methods for Data Cube computation.. **(Page No: 105-217).**

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
Classification and Prediction: Basic Concepts, Decision Tree Induction, Bayesian Classification, Rule-Based Classification, Classification by Back propagation, Support Vector Machines, Associative Classification, Lazy Learners, Other Classification Methods, Prediction.. **(Page No: 227-358)**

UNIT -IV

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, Clustering High-Dimensional Data, Constraint-Based Cluster Analysis, Outlier Analysis. **(Page No: 383-459)**

UNIT -V

Mining Streams, Time Series and Sequence Data: Mining Data Streams, Mining Time-Series Data, Mining Sequence Patterns in Transactional Databases, Mining Object, Spatial, Multimedia, Text and Web Data, Spatial Data Mining, Multimedia Data Mining, Text Mining, Mining the World Wide Web, Data Mining applications. **(Page No: 467-683)**

Text Books:

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 Edn 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.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-4: An ability to function effectively within teams.
CO-5: An understanding of professional and ethical responsibility.
CO-6: An ability to communicate effectively, both in writing and oral.
CO-7: The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.
CO-8: A recognition of the need for, and an ability to engage in life-long learning.
CO-9: A knowledge of contemporary issues.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96502) SOFTWARE TESTING METHODOLOGY

III Year B. Tech CSE II SEMESTER **L T P C**
4 0 0 4

Course Objectives:

The objective of this course is to understand fundamental concepts in software testing, including software testing objectives, process, criteria, strategies, and methods. To discuss various software testing techniques, issues and solutions in software. Discussing various paths and its expressions in detail. To expose the 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 conc epts 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)**

UNIT – 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)**

UNIT – 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, State 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)**

Text Books:

1. Software Testing techniques – Boris Beizer, Dreamtech, second edition.

Reference Books:

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.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-4: An ability to function effectively within teams.
CO-5: An understanding of professional and ethical responsibility.
CO-7: The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.
CO-8: A recognition of the need for, and an ability to engage in life-long learning.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96503) E-Commerce
(OPEN ELECTIVE)

III Year B. Tech. II-Semester

L	T	P	C
4	1	0	4

Course Objectives:

The student shall be able to identify the major categories and trends of e-commerce applications, understand essential processes of an e-commerce system. Identify several factors and web store requirements needed to succeed in e-commerce. Discuss the benefits and trade-offs of various e-commerce clicks and bricks alternatives. Understand the main technologies behind e-commerce systems and how these technologies interact. Discuss the various marketing strategies for an online business. Define various electronic payment types and associated security risks and the ways to protect against them.

Syllabus

UNIT I

Electronic Commerce-Frame work, anatomy of E-Commerce applications, E-Commerce Consumer applications, E-Commerce organization applications. Consumer Oriented Electronic commerce - Mercantile Process models.

UNIT II

Electronic payment systems - Digital Token-Based, Smart Cards, Credit Cards, Risks in Electronic Payment systems. Inter Organizational Commerce - EDI, EDI Implementation, Value added networks.

UNIT III

Intra Organizational Commerce - work Flow, Automation Customization and internal Commerce, Supply chain Management.

UNIT IV

Corporate Digital Library - Document Library, digital Document types, corporate Data Warehouses. Advertising and Marketing - Information based marketing, Advertising on Internet, on-line marketing process, market research.

UNIT V

Consumer Search and Resource Discovery - Information search and Retrieval, Commerce Catalogues, Information Filtering. Multimedia - key multimedia concepts, Digital Video and electronic Commerce, Desktop video processing, Desktop video conferencing.

Text Book:

1. Frontiers of electronic commerce – Kalakata, Whinston, Pearson.

Reference Books:

1. E-Commerce fundamentals and applications Hendry Chan, Raymond Lee, Tharam Dillon, Ellizabeth Chang, John Wiley.
2. E-Commerce, S.Jaiswal – Galgotia.
3. E-Commerce, Efrain Turbon, Jae Lee, David King, H.Michael Chang.

4. Electronic Commerce – Gary P.Schneider – Thomson.
5.E-Commerce – Business, Technology, Society, Kenneth C.Taudon, Carol Guyerico Traver.

Course Outcomes:

CO-2: Ability to model, understands, and develops complex software for system software as well as application software.
CO-4: An ability to function effectively within teams.
CO-8: A recognition of the need for, an ability to engage in life-long learning.
CO-9: A knowledge of contemporary issues.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96416) VLSI DESIGN
(OPEN ELECTIVE)

III Year B. Tech. II-Semester **L T P C**
4 1 0 4

Course Objectives:

- Give exposure to different steps involved in the fabrication of ICs using MOS transistor, CMOS/BICMOS transistor and passive components.
- Explain electrical properties of MOS and BiCMOS devices to analyze the behavior of inverters designed with various loads.
- Give exposure to the design rules to be followed to draw the layout of and logic circuit.
- Provide concept to design different types of logic gates using CMOS inverter and analyze their transfer characteristics.
- Provide design concepts to design building blocks of data path of any system using gates.
- Understand basic programmable logic devices and testing of CMOS circuits.

UNIT –I:
Introduction: Introduction to IC Technology – MOS, PMOS, NMOS, CMOS & BiCMOS
Basic Electrical Properties: Basic Electrical Properties of MOS and BiCMOS Circuits: I_{ds}-V_{ds} relationships, MOS transistor threshold Voltage, g_m, g_{ds}, Figure of merit ωo; Pass transistor, NMOS Inverter, Various pull ups, CMOS Inverter analysis and design, Bi-CMOS Inverters.

UNIT -II:
VLSI Circuit Design Processes: VLSI Design Flow, MOS Layers, Stick Diagrams, Design Rules and Layout, 2 μm CMOS Design rules for wires, Contacts and Transistors Layout Diagrams for NMOS and CMOS Inverters and Gates, Scaling of MOS circuits.

UNIT –III:
Gate Level Design: Logic Gates and Other complex gates, Switch logic, Alternate gate circuits, Time delays, Driving large capacitive loads, Wiring capacitance, Fan – in, Fan – out, Choice of layers.

UNIT -IV:
Data Path Subsystems: Subsystem Design, Shifters, Adders, ALUs, Multipliers, Parity generators, Comparators, Zero/One Detectors, Counters.
Array Subsystems: SRAM, DRAM, ROM, Serial Access Memories.

UNIT -V:
Programmable Logic Devices: PLAs, FPGAs, CPLDs, Standard Cells, Programmable Array Logic, Design Approach, Parameters influencing low power design.
CMOS Testing: CMOS Testing, Need for testing, Test Principles, Design Strategies for test, Chip level Test Techniques.

Text Books:

1. Essentials of VLSI circuits and systems – Kamran Eshraghian, Eshraghian Dougles and A. Pucknell, PHI, 2005 Edition
2. CMOS VLSI Design – A Circuits and Systems Perspective, Neil H. E Weste, David Harris, Ayan Banerjee, 3rd Ed, Pearson, 2009.
3. VLSI Design – M. Michael Vai, 2001, CRC Press.

Reference Books:

1. Introduction to VLSI Systems: A Logic, Circuit and System Perspective – Ming-BO Lin, CRC Press, 2011
2. CMOS logic circuit Design - John .P. Uyemura, Springer, 2007.
3. Modern VLSI Design - Wayne Wolf, Pearson Education, 3rd Edition, 1997.
4. VLSI Design- K .Lal Kishore, V. S. V. Prabhakar, I.K International, 2009.
   Introduction to VLSI – Mead & Convey, BS Publications, 2010

Course Outcomes:

- Acquire qualitative knowledge about the fabricaton process of integrated circuit using MOS transistor.
- Choose an appropriate inverter depending on specifications repuired for a circuit
- Draw the layout of any logic circuit which helps to understand and estimate parasitic of any logic circuit.
- Draw the layout of any logic circuit which helps to understand and estimate parasitic of any logic circuit.
- Design different types of logic gates using CMOS inverter and analyze their transfer characteristic.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96307) NANO TECHNOLOGY
(OPEN ELECTIVE)

III Year B.Tech. II-Sem **L T P C**
4 0 0 4

Course Objectives:

1. Understand the fundamentals of Nano theory, necessary background for applications in various industries.
2. Learn the components of Nano materials in detail, and its working in different applications
3. Understand the general scientific concepts required for technology, Apply the concepts in solving engineering problems,
4. Explain scientifically the new developments in engineering and technology, and Get familiarized with the concepts, theories, and technological applications.

Unit-I:

Introduction to nanotechnology: Importance of nanoscale, Nanostructure types, electronic, magnetic, optical Properties of Nanomaterials, top-down and bottom – up approach to nanostructures.

Unit-II:

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).

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.

Unit-IV:

Nano Scale characterization techniques: Scanning probe techniques (AFM, MFM, STM, SEM, TEM), XRD.

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.

Unit-V:

Nano and molecular electronics: Resonant-Tunneling Structures, single electron tunneling, Single Electron transistors, coulomb blockade, glant magneto resistance, tunneling magneto resistance.

Nanolithography and nanomanipulation: e-beam lithography and SEM based nanolithography and nanomanipulation, lon beam lithography, oxidation and metallization Mask and its application. Deep UV lithography, x-ray based lithography.

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.

References Books:

1. David Ferry "Transport in Nano structures" Cambridge University press 2000.
2. Nanobiotechnology; ed, C.M.Niemeyer, C.A. Mirkin.
3. Nanofabrication towards biomedical application: Techniques, tools, Application and impact-Ed. Challa S., S.R.Kumar, J.H.Carola.
4. Encyclopedia of Nanotechnology-Hari Singh Nalwa
5. Carbon Nanotubes: Properties and Applications- Michael J.O'Connell.
6. S.Dutta "Electron Transport in Mesoscopic systems" Cambridge University press.
7. H.Grabert and M.Devoret "Single charge Tunneling" Plenum press 1992.

Course Outcomes:

The students will be able to

1. Understand 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.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96504) ARTIFICIAL INTELLIGENCE
(Department Elective-I)

III Year B. Tech. CSE II-Semester **L T P C**
4 0 0 4

Course Objective:
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.

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.

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 RuleBased Systems, Bayesian Networks, Dempster-Shafer Theory, Fuzzy logic. Weak Slot-and-Filler Structures- Semantic Nets, Frames. Strong Slot-and-Filler Structures- Conceptual Dependency, Scripts. CYC.

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.

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:

1. ARTIFICIAL INTELLIGENCE - Elaine Rich, Kevin Knight - TMH - Second Edition (Sections: 1.1, 1.5, 2.2 to 2.5, 3.1 to 3.6, 4.1 to 4.4, 5.2 to 5.5, 6.1 to 6.5, 7.2 to 7.6 , 8.1 to 8.5, 9.1,9.2,10.1 to10.3, 12.1 to 12.3, 12.5, 13.3 to 13.7 excluding 13.5, 15.2 to15.4,20.1,20.2,20.4)

REFERENCE BOOKS:

1. ARTIFICIAL INTELLIGENCE - George F Luger - PHI - Fourth Edition
2. ARTIFICIAL INTELLIGENCE - Russels - PEARSON

Course Outcomes:

CO-2: An ability to apply knowledge of mathematics, Science, and engineering to real – world problems

CO-4: An ability to function effectively within teams.

CO-7: The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.

CO-9: A Knowledge of contemporary issues.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96505) COMPUTER GRAPHICS
(Department Elective-I)

III Year B. Tech. II Semester **L T P C**
4 0 0 4

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 .(p.nos 1-101 of Text book-1)

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.(P.nos 103-150 of Text book-1)

UNIT III: 2-D geometrical transforms: Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems. (p.nos 204-227 of text book-1).
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.(p.nos 227-263 of Text book -1)

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.(p.no's 324-353 of Text book-1),Basic Illumination Models, Polygon Rendering methods(P.no's 514-564)
3-D Geometric transformations: Translation, rotation, scaling, reflection and shear transformations, composite transformations. 3D Viewing pipeline, clipping, projections(p.no's 451-481 of Text book -1)

UNIT V: Visible surface detection methods: Classification, back-face detection, depth-buffer, scan-line, depth sorting, BSPtree methods, area sub-division and octree methods.(p.no's 490-505 of Text book-1)
Computer animation : Design of animation sequence, general computer animation functions, raster animation, computer animation languages, key frame systems, motion specifications.(p.no's 603-616 of Text book-1)

Text Books:

1. Computer Graphics *C* version, Donald Hearn, M.Pauline Baker, Pearson
2. Computer Graphics with Virtual Reality Systems, Rajesh K Maurya, Wiley
3. Introduction to Computer Graphics, Using Java 2D and 3D, Frank Klawonn, Springer
4. Computer Graphics, Steven Harrington, TMH
5. Computer Graphics, Amarendra N Sinha, Arun Udai, TMH

Reference Books:

1. Computer Graphics Principles & practice, 2/e, Foley, VanDam, Feiner, Hughes, Pearson
2. Computer Graphics, Peter, Shirley, CENGAGE
3. Principles of Interactive Computer Graphics, Neuman , Sproul, TMH.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-7: The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.
CO-9: A knowledge of contemporary issues.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96506) .NET TECHNOLOGIES
(Department Elective-I)

III 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

Syllabus Content

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). **(CHAPTER 1 TO 7: Ref page No 1 to 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. **(CHAPTER 8 AND 9: Ref pages No 267 to 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. **(CHAPTER 10 TO 13: Ref page No: 415 to 636)**

UNIT-IV
Services and Deployment: ASP.NET Web Services, Working with Windows Communication Foundation, Deploying Windows and Web Applications.
(CHAPTER 15 TO 17: Ref page No: 717 to 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.
(CHAPTER 18 TO 23 : Ref page No: 843 to 1120)

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

Course Outcomes:

CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-7: The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.
CO-9: A knowledge of contemporary issues.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96507) ADVANCED DBMS
(Department Elective-II)

III Year B. Tech. II Semester **L T P C**
4 0 0 4

Course Objectives:
To provide information about the features and benefits of Database Management System that plays an important role in Information Technology. It also introduces recovery databases in database system. The study is divided into various sections and explains the basic design and execution of relational databases. It provides knowledge and understanding of the underlying principles of Relational Database Management Solution. It also provides information about implementing and maintaining an effective and efficient database system with the help of the rising trends.

Unit I:
Database System Concepts and Architecture (pp:21-36)
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.

Unit II:
Database Recovery Techniques (pp:454-464)
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.

Unit III:
The Enhanced Entity-Relationship (EER) Model (pp:61-79)
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.

Unit IV:
Database Security (pp:478-494):
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.

Unit V: Enhanced Data Models for Advanced Applications (pp:568-600)
Active Database Concepts and Triggers- Temporal Database Concepts- Spatial Database Concepts- Multimedia Database Concepts- Introduction to Deductive Databases.

Text Books:

1. Ramez Elmasri , Shamkant B. Navathe, Fundamentals of Database Systems – six edition-TMH

Reference Books:

1. Raghu Ramakrishnan, Johannes Gehrke- Database Management Systems- Third edition- McGraw-Hill.
2. Silberschatz, Korth, Sudarshan- Database System Concepts- Forth edition- McGraw-Hill.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-6: An ability to communicate effectively, both in writing and oral.
CO-7: The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.
CO-8: A recognition of the need for, and an ability to engage in life-long learning.
CO-9: A knowledge of contemporary issues.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96508) EMBEDDED SYSTEMS
(Department Elective-II)

III B.Tech II Semester **L T P C**
4 0 0 4

Course Objectives:

This course helps to learn the basic principles of writing software for embedded systems. This course surveys the issues and discusses the various techniques for dealing with them. In particular it discusses approaches to the appropriate use of the real time operating system upon which much embedded software is based. It provides an understanding of the basic components of embedded systems and steps in designing them, knowledge of the assembly instructions and C programming, learning the interfacing of various I/O devices, understanding of the RTOS and its important concepts.

Syllabus Content

Unit-I
A First Look at Embedded Systems: (21-30) Examples of Embedded Systems, Typical Hardware. **Hardware Fundamentals for the Software Engineer: (34-60)** Terminology, Gates, a Few Other Basic Considerations, Timing Diagrams, Memory.

Unit-II
Advanced Hardware fundamentals: (65-90) Microprocessors, Buses, direct memory access, interrupts, built-ins on the microprocessor, conventions used on schematics, a sample schematic. **Interrupts (102—130)** Microprocessor architecture, interrupt basics, the shared-data problem, interrupt latency.

Unit-III
Survey of Software Architectures:(135—153) Round-Robin, Round-Robin with Interrupts, Function-Queue-Scheduling Architecture, Real-Time Operating System Architecture, Selecting Architecture. **Introduction to Real-Time Operating Systems: (157—188)** Tasks and Task States, Tasks and Data, Semaphores and Shared Data.

Unit-IV
More Operating System Services: (192 ----227) Message Queues, Mailboxes, and Pipes, Timer Functions, Events, Memory Management, Interrupt Routines in an RTOS Environment. **Basic Design Using a Real-Time Operating System:(235---279)** Overview, Principles, an Example, Encapsulating Semaphores and Queues, Hard Real-Time Scheduling Considerations, Saving Memory Space, Saving Power.

Unit-V
Embedded Software Development Tools: (281---300) Host and Target Machines, Linker/Locators for Embedded Software, Getting Embedded Software into the Target System. **Debugging Techniques (303—346)** Testing on Your Host Machine, Instruction

Set Simulators, The assert Macro, Using Laboratory Tools. **An Example System: (349—356)** What the Program Does, Environment in Which the Program Operates.

Text Books:

1. An Embedded Software Primer, David E. Simon, Pearson Education.

Reference Books:

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.

Course Outcomes:

CO-4: An ability to function effectively within teams.
CO-5: An understanding of professional and ethical responsibility.
CO-6: An ability to communicate effectively, both in writing and oral.
CO-7: The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.
CO-8: A recognition of the need for, and an ability to engage in life-long learning.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96509) STORAGE AREA NETWORK
(Department Elective-II)

III Year B. Tech II SEM **L T P C**
4 0 0 4

Course Objectives:

The objective of this course is to understand Storage Area Networks characteristics and components, to become familiar with the SAN vendors and their products, to learn Fiber Channel protocols and how SAN components use them to communicate with each other, to become familiar with CISCO MDS 9000 Multilayer Directors and Fabric Switches, to thoroughly learn CISCO SAN-OS features and to understand the use of all SAN-OS commands.

UNIT I: Introduction to Information Storage and Management(1-50)

Information Storage, Evolution of Storage Technology and Architecture, Data Centre Infrastructure, Key Challenges in Managing Information, Information Lifecycle.
Storage Systems Environment: Components of a Storage System Environment, Disk Drive Components, Disk Drive Performance, Fundamental Laws Governing Disk Performance, Logical Components of the Host, Application Requirements and Disk Performance.

UNIT II: Data Protection RAID & Intelligent Storage System (51-95)

Data Protection RAID: Implementation of RAID, RAID Array Components, Different RAID levels and their suitability for different application environments: RAID 0, RAID 1, RAID 3, RAID 4, RAID 5, RAID 0+1, RAID 1+0, RAID 6, RAID Comparison, RAID Impact on Disk Performance, Hot Spares.
Intelligent Storage System: Components of an Intelligent Storage System, Intelligent Storage Array, Concept in Practice:EMC CLARiiON and Symmetrix.

UNIT III: Storage Networking Technologies(97-148)

Direct-Attached Storage and Introduction to SCSI: Types of DAS, DAS Benefits and Limitations, Disk Drive Interfaces, Introduction to Parallel SCSI, SCSI Command Model.
Storage Area Networks: The SAN and its Evolution, Components of SAN, FC Connectivity, Fibre Channel Ports, Fibre Channel Architecture, Zoning, Fibre Channel Login Types, FC Topologies, Concepts in Practice:EMC Connectrix

UNIT IV: Storage Virtualization & Business Continuity: (207-247)

Storage Virtualization: Forms of Virtualization, SNIA Storage Virtualization Taxonomy, Storage Virtualization Configurations, Storage Virtualization Challenges, Types of Storage Virtualization. Concepts in Practice.
Business Continuity: Information Availability, BC Terminology, BC Planning Life cycle, Failure Analysis, Business Impact Analysis, BC Technology Solutions, Concepts in Practice:EMC PowerPath.

UNIT V: Backup and Recovery (251-280, 333-360)

Backup and Recovery: Backup Purpose, Backup Considerations, Backup Methods, Backup Process, Backup and Restore Operations, Backup Topologies, Backup in NAS Environments,

Backup Technologies. Concepts in Practice:EMC Networker.
Securing the Storage Infrastructure: Storage Security Framework, Risk Triad, Storage Security Domains, Security Implementation in Storage Networking
Case Studies:
The technologies described in the course are reinforced with EMC examples of actual solutions. Realistic case studies enable the participant to design the most appropriate solution for given sets of criteria.

Text Book:
1. EMC Corporation, Information Storage and Management, Wiley.

Reference Books:
1. Robert Spalding, "Storage Networks: The Complete Reference", Tata McGraw Hill, Osborne,2003.
2. Marc Farley, "Building Storage Networks", Tata McGraw Hill, Osborne, 2001.
3. Meeta Gupta, Storage Area Network Fundamentals, Pearson Education Limited, 2002.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-7: The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.
CO-8: A recognition of the need for, and an ability to engage in life-long learning.

VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96001) TECHNICAL COMMUNICATIONS SKILLS LAB

III Year B. Tech. II-SEM **L T P C**
0 0 3 2

1. Introduction

The introduction of the Technical Communication Skills Lab is considered essential at 3rd 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.
- Further, they would be required to communicate their ideas relevantly and coherently in writing.
- 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:

1. **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.
2. **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.
4. **Presentation Skills** – Oral presentations (individual and group) through JAM sessions/seminars/**PPTs** 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 infra-structural 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)

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.
5. **Business and Professional Communication:** Keys for Workplace Excellence. Kelly M. Quintanilla & Shawn T. Wahl. Sage South Asia Edition. Sage Publications. 2011.

Suggested Books:

1. **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.
3. **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.
11. **International English for Call Centres** by Barry Tomalin and Suhashini Thomas, Macmillan Publishers, 2009.
12. **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.

Course Outcomes

- Developing sound vocabulary and its proper use contextually.
- Inculcating flair for Writing and felicity in written expression.
- Enhancing job prospects.
- Acquiring effective speaking abilities

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A96510) DATA WAREHOUSING AND DATAMINING LAB

III Year B. Tech. II-SEMESTER **L T P C**
0 0 3 2

Course Objectives:
This practical 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. The next part of the practical helps the students to perform data mining functionalities such as association rule mining, classification and clustering. They students get an opportunity to explore the application of data mining to text databases and operation on them.

Syllabus Content

Week 1	Design a data warehouse for auto sales Analysis
Week 2	Building of data cube for auto sales Analysis
Week 3	Perform OLAP operations on auto sales Analysis
Week 4	Data warehouse administration support-partitioning in SQL, parallel execution, materialized views, and demonstration using a data base
Week 5	Introduction to Weka Explorer
Week 6	Introduction to Weka CLI and Experimenter
Week 7	Use WEKA Explorer to implement Association rule mining using super market data.
Week 8	Implementation of Apriori algorithm using super market data.
Week 9	Implementation of FP tree algorithm using super market data.
Week 10	Implementation of Naïve Bayesian classification algorithm
Week 11	Introduction to Classification
Week 12	Implementation of Decision Tree
Week 13	Introduction to clustering methods using super market data.
Week 14	Implementation of K-means clustering algorithm using super market data.
Week 15	Introduction to text mining : Text mining preprocessing tasks such as stop word removal, POS tagging
Week 16	Introduction to Wordnet, Indexing, Classification of text using Naïve Bayes etc

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.

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 Edn Asia.
3. Insight into Data Mining,K.P.Soman,S.Diwakar,V.Ajay,PHI,2008.
4. Data Warehousing Fundamentals – Paulraj Ponnaiah Wiley student Edition

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.

CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.

CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.

CO-4: An ability to function effectively within teams.

CO-6: An ability to communicate effectively, both in writing and oral.

CO-7: The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.

CO-9: A knowledge of contemporary issues.

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VAAGDEVI COLLEGE OF ENGINEERING
(UGC AUTONOMOUS)

(A96511) SOFTWARE TESTING LAB

III Year B. Tech II SEM **T L P C**
0 0 3 2

Course Objectives:

Testing is a process used to identify the correctness, completeness and quality of developed computer software. It is 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.

Syllabus Content:

Week 1: Perform a Context Sensitive Test based on Flight Reservation Application.

Week 2: Perform a Analog Test based on Flight Reservation Application.

Week 3: Perform GUI Checkpoint's→Single property test based on Flight Reservation application.

Week 4: Perform GUI Checkpoint's→Object/Window test based on Flight Reservation application

Week 5: Perform GUI Checkpoint's→multiple object test based on Flight Reservation application.

Week 6: Perform a Test on Bitmap Checkpoints→For object/window based on the application.

Week 7: Perform a Test on Bitmap Checkpoints→For Screen area based on the application.

Week 8: Perform a Test on Database Checkpoints→Default check based on the application.

Week 9: Perform a Test on Database Checkpoints→Custom check based on the application.

Week 10: Perform a test based on Synchronization's→For Object/window based on the application.

Week 11: Perform a test based on Synchronization's→For Screen area based on the application.

Week 12: Perform a test based on Synchronization's→For Object/window based on the application.

Week 13: Write a program to demonstrate the working of Do...while construct and write the teat cases.

Week 14: Write a program to demonstrate the working of While…do construct and write the test cases.

Week 15: Write a program to demonstrate the working of If…else construct and write the test cases.

Week 16: Write a program to demonstrate the working of Switch construct and write the test cases.

Week 17: Write a program to demonstrate the working of Switch construct and write the test cases.

Week 18: 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.

Text books:

1. Dr. K.V.K.K. Prasad (2007), Software Testing Tools, Dream tech Press.

2. Boris Beizer(2003),Software Testing Techniques2nd edition, Dream tech Press.

Reference books:

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.

Course Outcomes:

CO-1: A strong foundation in core Computer Science and Engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for System Software as well as Application Software.
CO-4: An ability to function effectively within teams.
CO-5: An understanding of professional and ethical responsibility.
CO-6: An ability to communicate effectively, both in writing and oral.
CO-7: The broad education necessary to understand the impact of Computer Science and Engineering solutions in the scientific, societal, and human contexts.
CO-8: A recognition of the need for, and an ability to engage in life-long learning.
CO-9: A knowledge of contemporary issues.

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VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A96105) DISASTER MANAGEMENT

III Year B.Tech. II-SEMESTER **L T P C**
2 0 0 2

Course Objectives:

Student will be able to

- Understand the difference between a hazard and disaster
- Know about various disasters and their impacts
- Understand different approaches of disaster risk reduction
- Understand disaster risks in India

UNIT I : 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 II : 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 III: 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

UNIT IV: 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 V: 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

Text Books

1. Alexander, D. Natural Disasters, ULC press Ltd, London, 1993.
2. 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

1. 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.
4. Chakrabarty, U.K. Industrial Disaster Management and Emergency Response, Asian Book Pvt. Ltd., New Delhi 2007.
5. Disaster Management in India, Ministry of Home Affairs, Government of India, New Delhi, 2011.
6. National Policy on Disaster Management, NDMA, New Delhi, 2009
7. 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.
9. Disaster Management, Future challenge and opportunities, Edited by Jagbir singh, I.K. International publishing home Pvt, Ltd.

Course Outcomes:

After completion of this course, student should be able to

- Acquire the knowledge of disaster Management
- Understand the vulnerability of ecosystem and infrastructure due to a disaster
- Acquire the knowledge of Disaster Management Phases
- Understand the hazard and vulnerability profile of India

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VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A97501) NETWORK SECURITY & CRYPTOGRAPHY

IV Year B. Tech. CSE I Semester **L T P C**
4 1 0 4

Course Objectives:
To explain the objectives and the importance of information security with a focus on applications of confidentiality, integrity, authentication and availability by various cryptographic algorithms. Further, it also describes the enhancements made to IPV4 & IPSec along with public key cryptosystems. The Students will also understand intrusion and 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.
(TB1 Page no:13-22).
Buffer overflow & format string vulnerabilities, TCP session hijacking, ARP attacks, route table modification, UDP hijacking, and man-in-the-middle attacks. **(Page 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. **(Page 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. **(Page no:238-419).**

UNIT-IV:
Email privacy: Pretty Good Privacy (PGP) and S/MIME. **(Page no:438-457).**
IP Security: Overview, IP Security Architecture, Authentication, Header, Encapsulating Security Payload, Combing Security Association and key Management. **(Page no:485-506).**

UNIT-V:
Web Security: Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET) **(Page no:528-549).**

Intruders, Viruses and related threats, Firewall Design principles, Trusted Systems, Intrusion Detection Systems. **(Page no:567-630).**

Text Books:
1. Cryptography and Network Security by William Stalling 4th Edition, Person Education.

2. 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.

Course Outcomes:

CO-1: A strong foundation in core computer science and engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understand, and develop complex software for system software as well as application software.
CO-7: The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts .

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VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A97502)CLOUD COMPUTING

IV Year B. Tech. CSE I Semester **L T P C**
4 1 0 4

Course Objectives:
The course provides students with the comprehensive and in-depth knowledge of Cloud computing concepts, technologies, architecture and applications. It introduces research state-of-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 **(TB1 Page no:1-55).** Computer Clusters for Scalable Parallel Computing **(TB1:65-120).** Virtual Machines and Virtualization of Clusters and Data centers **(Page no:129-179).**

UNIT-II
Foundations: Introduction to Cloud Computing **(TB2 Page no:1-37**), Migrating into a Cloud, Enriching the 'Integration as a Service' Paradigm for the Cloud Era (**Page no:57-94**). The Enterprise Cloud Computing Paradigm **(Page no:97-115).**

UNIT- III
Infrastructure as a Service (IAAS) & Platform and Software as a Service (PAAS / SAAS): Virtual machines provisioning and Migration services**(TB2 Page no:121-154**), On the Management of Virtual machines for Cloud Infrastructures(157-185), Enhancing Cloud Computing Environments using a cluster as a Service**(Page no:193-218).** Secure Distributed Data Storage in Cloud Computing **(Page no:221-242).** Aneka **(Page no:251-269),** Comet Cloud **(Page no:279-295),** T-Systems**' (Page no:299-314**), Workflow Engine for Clouds**(Page no:321-341**). Understanding Scientific Applications for Cloud Environments **(Page no:345-363).**

UNIT- IV
Monitoring, Management and Applications: An Architecture for Federated Cloud Computing **(TB2 Page no:393-407**), SLA Management in Cloud Computing **(Page no:413-425**), Performance Production for HPC on Clouds **(Page no:437-445),** Best Practices in Architecture Cloud Applications in the AWS cloud, Building Content Delivery networks Clouds **(Page no:511-527),** Resource Cloud Mashups**(Page no:533-545).**

UNIT – V
Governance and Case Studies: Organizational Readiness and Change management in the Cloud age **(TB2 Page no:551-565).** Data Security in the Cloud, Legal issues in Cloud computing **(Page no:573-588).** Achieving Production Readiness for Cloud Services **(Page no:593-610**)

Text Book

1. 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.
2. Cloud Computing and SOA convergence in your enterprise, by David S. Linthicum, Addison – Wesely.

Course Outcomes:

CO-1: A strong Foundation in Core computer science and Engineering, both Theoretical and applied concepts

CO-2: Ability to model, understands, and develops complex software for system as well as application software

CO-3: An ability to function effectively with in teams

CO-4: An ability to communicate effectively, both writing and oral

CO-5: An understanding of professional and ethical responsibility

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VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A97503) SOFT COMPUTING

IV Year B. Tech CSE I-Semester **L T P C**
4 1 0 4

Course Objectives:
To introduce with soft computing concepts like neural networks, supervised learning and unsupervised learning techniques, concepts of neural network basics and its types and understand the features of fuzzy sets and its relations. To familiarize the applications of neural networks and fuzzy logic member function features and to know the real time applications of internet search techniques and fuzzy.

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.(**page.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.(**page.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 (**page. 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(**page 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 (**page no:385-462**) ,Applications of Soft Computing **: (page no:511-681)**

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.
2. 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
5. Genetic Algorithms in Search, Optimization and Machine Learning – David E.Goldberg Addison-Wesley

6. An Introduction to Genetic Algorithms – Melanie Mitchell, MIT Press
7. Neuro-Fuzzy and Soft Computing A Computational Approach to Learning and Machine Intelligence – J.S.R.Jang, C.T.Sun, E.Mizutani, PHI

Course Outcomes: Upon completion of this course, students should be able to:

CO-1: A strong foundation in core computer science and engineering, both theoretical and applied concepts.

CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.

CO-3: Ability to model, understand, and develop complex software for system software as well as application software.

CO-7: The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts

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VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A97514) MOBILE COMPUTING (CSE ELECTIVE-3)

IV B. Tech CSE I Semester **L T P C**
4 1 0 4

Course Objectives:
This is an advanced graduate course on the basics of mobile and pervasive computing. Students will learn the fundamentals and acquire hands-on experience with mobile computing as well as sensor-based systems and sensor platform technologies. Students will learn how to design and develop mobility-aware systems, and will also build and program sensor- and actuator-based systems. The course will require knowledge of Java and Java development environments, as well as network-based programming. It will also require working knowledge of Mobile Java (Java 2 Micro Edition) and will involve two large group projects.

UNIT-I:
Introduction to Mobile Communications and Computing: Mobile Computing (MC) Introduction to MC, Novel applications, Limitations, and Architecture.
GSM: Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover, Security, and New data services. (**page 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. (**page 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). (**page 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. (**page no:351-365**)

UNIT-V:
Database Issues: Hoarding techniques, caching invalidation mechanisms
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 Books:
1. Mobile Communications, Jochen Schiller, Addison-Wesley, Second Edition, 2004
2. Handbook of Wireless Networks and Mobile Computing Stojmenovic and Cacute, Wiley, 2002.

Reference Books:

1. Mobile and Wireless Design Essentials Martyn -Mallick Wiley DreamTech,2003
2. Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML Reza Behravanfar, Cambridge University Press,Oct2004
3. Mobile Computing, Raj Kamal, Oxford University Press ,2007

Course Outcomes:

CO-1: A strong foundation in core Computer science and engineering, both theoretical and applied concepts.

CO-2: To analyze and compare the performance of different data dissemination techniques and algorithms for mobile real time applications.

CO-5: An understanding of professional and ethical responsibility.

CO-6: An ability to communicate effectively, both in writing and oral.

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VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

(A97515) SOFTWARE PROJECT MANAGEMENT (CSE ELECTIVE-3)

IV Year B. Tech I Semester **L T P C**
4 1 0 4

Course Objectives:
To produce graduates who use their knowledge of engineering to creatively and innovatively solve difficult computer systems problems, regularly engage in exploring, learning and applying state-of-the-art hardware and software technologies to the solution of computer systems problems and will be an effective software development team member who contributes innovative software design solutions to the resolution of business, scientific or government computer systems problems and will be able to communicate effectively and 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.

UNIT - II:
Improving Software Economics: Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections.
The old way and the new: The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process.

UNIT - III:
Life cycle phases: Engineering and production stages, inception, Elaboration, construction, transition phases.
Artifacts of the process: The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.
Model based software architectures: A Management perspective and technical perspective.

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.

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:

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.

Course Outcomes:

CO-1. A strong foundation in core computer science and engineering, both theoretical and applied concepts.

CO-2. An ability to apply knowledge of mathematics, science, and engineering to real-world problems.

CO-3. Ability to model, understand, and develop complex software for system software as well as application software.

CO-5. An understanding of professional and ethical responsibility

CO-7. The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts

CO-8. A recognition of the need for, and an ability to engage in life-long learning

CO-9. A knowledge of contemporary issues

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VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A97516) MULTIMEDIA APPLICATION DEVELOPMENT (CSE ELECTIVE-3)

IV Year B. Tech I Semester **L T P C**
4 1 0 4

Course Objective

Understand the importance of multimedia in today's online and offline information sources and repositories. Understand how Text, Audio, Image and Video information can be represented digitally in a computer, so that it can be processed, transmitted and stored efficiently

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.

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

UNIT – II:

Action Script I: ActionScript Features, Object-Oriented ActionScript, Datatypes and Type Checking, Classes, Authoring an ActionScript Class.

Action Script II : Inheritance, Authoring an ActionScript 2.0 Subclass, Interfaces, Packages, Exceptions.

UNIT – III:

Application Development : An OOP Application Frame work, Using Components with ActionScript MovieClip Subclasses.

Multimedia data compression I : Lossless compression algorithm: Run-Length Coding, Variable Length Coding, Dictionary Based Coding, Arithmetic Coding, Lossless Image Compression,

Multimedia data compression II : Lossy compression algorithm: Quantization, Transform Coding, Wavelet-Based Coding, Embedded Zerotree of Wavelet Coefficients Set Partitioning in Hierarchical Trees (SPIHT).

UNIT – IV:

Basic Video Compression Techniques: Introduction to video compression, video compression based on motion compensation, search for motion vectors, MPEG, Basic Audio Compression Techniques.

UNIT – V:

Multimedia Networks: Basics of Multimedia Networks, Multimedia Network Communications and Applications : Quality of Multimedia Data Transmission, Multimedia over IP, Multimedia over ATM Networks, Transport of MPEG-4, Media-on-Demand(MOD).

TEXT BOOKS :

1. Fudamentals of Multimedia by Ze-Nian Li and Mark S. Drew PHI/Pearson Education.
2. Essentials ActionScript 2.0, Colin Moock, SPD O,REILLY.

REFERENCES :

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

Course outcomes

CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.

CO-3: Ability to model, understand, and develop complex software for system software as well as application software.

CO-4: An ability to function effectively within teams.

CO-5: An understanding of professional and ethical responsibility.

CO-6: An ability to communicate effectively, both in writing and oral.

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VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A97517) BUSINESS INTELLIGENCE & BIG DATA (CSE ELECTIVE-4)

IV Year B. Tech I Semester **L T P C**
4 0 0 4

Course Objectives:
This course brings together several key technologies used in manipulating, storing, and analyzing big data. To make the student understand details of Hadoop. To introduce tools that provides SQL-like access to unstructured data. To introduce the tools required to manage and analyze big data like Hadoop, NoSql Map-Reduce. To teach the fundamental techniques and principles in achieving big data analytics with scalability and streaming capability. To enable students to have skills that will help 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**.**

UNIT II:
Big Data Management: Operational Databases, Map Reduce Fundamentals, Exploring world of Hadoop , Hadoop Foundation and ecosystem , Appliances and Big Data Warehouses.

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.

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

UNIT V:
Ethics of Big Data: Big Data Big Impact, Values and Actions, Current practices, Aligning Values and Actions.

TEXT BOOK:
1. Big Data For Dummies By Judith Hurwitz, Alan Nugent , Fern Halper , Marcia Kaufman : John Wiley & Sons

2. 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
3. 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:

1. Hadoop: The Definitive Guide, 3rd Edition , By Tom White , O'reilly Media
2. Big Data Now: 2012 Edition Publisher: O'Reilly Media.
3. Too Big to Ignore: The Business Case for Big Data (Wiley and SAS Business Series) By Phil Simon, Wiley 1e.

COURSE OUTCOMES:

CO-1: A strong foundation in core computer science and engineering, both theoretical and applied concepts.

CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.

CO-3: Ability to model, understand, and develop complex software for system software as well as application software.

CO-4: An ability to function effectively within teams.

CO-5: An understanding of professional and ethical responsibility.

CO-6: An ability to communicate effectively, both in writing and oral.

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VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A97518) PRINCIPLES OF PROGRAMMING LANGUAGES (CSE ELECTIVE-4)

IV B. Tech I Semester **L T P C**
4 0 0 4

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**.(Pg.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. **(Pg.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**. (Pg.No: 265-313).**

.Names, Variables, Concept of Binding, Type Checking, Strong Typing, Type Compatibility, Named Constants, Variable Initialization. **(Pg.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. **(Pg.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**.(Pg.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**. (Pg.No: 487-553)**

Concurrency: Subprogram-Level Concurrency, Semaphores, Monitors, Message Passing, Java Threads, C# Threads. **(Pg.No: 573-608)**

Exception Handling: Exceptions, Exception Propagation, Exception handler in ADA, C++ and JAVA. **(Pg.No: 619-638).**

UNIT-5

Functional Programming Language: Introduction, Features of LISP, Applications of Functional Languages, Comparison of Functional and Imperative Languages**. (Pg.No: 659-694)**

Logic Programming Language: Introduction and overview of Logic Programming, Basic elements of Prolog, application of Logic Programming. **(Pg.No: 701-731)**

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.

Course Outcomes:

CO 1: A strong foundation in core computer science and engineering, both the theoretical and applied concepts

CO 2: An ability to apply knowledge of mathematics, science and engineering to real world problem.

CO 3: Ability to model, understand and develop complex software for system software as well as application software.

CO-6: An ability to communicate effectively, both in writing and oral.

CO-7: The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts.

CO-8: A recognition of the need for, and an ability to engage in life-long learning.

CO-9: A knowledge of contemporary issues.

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VAAGEDVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A97519) PARALLEL PROCESSING (CSE ELECTIVE-4)

IV Year B. Tech. I Semester **L T P C**
4 0 0 4

Objectives: To study how parallel computers work and how to analyze the correct designs of parallel architectures, especially within the technological constraints. The course is a comprehensive study of modern parallel computer architectures and parallel processing techniques and their applications from basic concepts to state-of-the-art computer systems. It provides in-depth coverage of fundamentals, design complexity, power, reliability and performance coupled with treatment of parallelism at all levels.

UNIT I:
Introduction to parallel processing: Parallelism in uniprocessor systems, parallel computer structures, Architectural classification schemes (Flynn's, Feng's and handler's), parallel processing applications. (**page no:8-48**)

UNIT II:
Pipelining and vector processing: Linear pipelining, classification of pipeline processors, Instruction and arithmetic pipelines, principles of designing pipelined processors, characteristics of vector processing. (**page no:146-153,164-208,213-218**)

UNIT III:
Structures and algorithms for Array processors: SIMD array processors, SIMD interconnection networks, parallel algorithms for array processors. (**page no:325-373**)

UNIT IV:
Multiprocessor architecture and programming: functional structures of multiprocessor systems, interconnection networks, multiprocessor operating systems, inter processor communication mechanisms. (**page no:459-502,525-532,557-576**)

UNIT V:
Dataflow computers: Distinction between control flow and data flow computers, data flow graphs and languages, advantages and disadvantages of dataflow computers, dataflow computer architectures. (**page no:732-767**)

Text Books:

1. Hawang Kai and Briggs F. A., "Computer Architecture and Parallel Processing", McGraw Hill

Reference Books:

1. Introduction to Computer Architecture-Stone H S(Galgotia publishers)
2. Jorden H. F. and Alaghaband G., "Fundamentals of Parallel Processing"
3. M.J. Quinn, "Parallel Programming", TMH
4. The Architecture of pipelined computers-Koggi H(Mc Graw Hill)
5. Shasikumar M., "Introduction to Parallel Processing", PHI

6. Wilson G.V., “Practical Parallel Programming”, PHI

Course Outcomes:

CO-1. A strong foundation in core computer science and engineering, both theoretical and applied concepts.

CO-2. An ability to apply knowledge of mathematics, science, and engineering to real-world problems.

CO-3. Ability to model, understand, and develop complex software for system software as well as application software.

CO-5. An understanding of professional and ethical responsibility

CO-7. The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts

CO-8. A recognition of the need for, and an ability to engage in life-long learning

CO-9. A knowledge of contemporary issues

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VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A97510) NETWORK SECURITY & CRYPTOGRAPHY LAB

IV Year B. Tech. CSE I-Semester **L T P C**
0 0 3 2

Course Objectives:

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:

4. Write a program to implement Verman Cipher.

Week – 5:

5. Write a program to implement Vignere Cipher.

Week – 6:

6. Write a program to implement one time pad.

Week – 7:

7. Write a program to implement (Encryption Decryption) DES algorithm.

Week – 8:

8. WAP to implement RSA .

Week – 9:

9. WAP to implement Deffine - Hellman key exchange.

Week – 10:

10. WAP to implement SHA - 512.

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Course Outcomes:

CO-1: A strong foundation in core computer science and engineering, both theoretical and applied concepts.
CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.
CO-3: Ability to model, understands, and develops complex software for system software as well as application software.
CO-7: The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts

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VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A97511) CLOUD COMPUTING LAB

IV Year B. Tech. CSE I-Semester **L T P C**
0 0 3 2

Course Objectives: This course is to provide students with the comprehensive and in-depth working knowledge of Cloud Computing concepts, technologies, architecture and applications by introducing and researching state-of-the-art in Cloud Computing fundamental issues, technologies, applications and implementations with Oracle VM Virtual box, Hadoop. Another objective is to expose the students to frontier areas of Cloud Computing and information systems, while providing sufficient foundations to enable further study and research.

Syllabus Content:

Week 1: Introduction to basic cloud computing concepts.
Week 2: Draw a neat diagram of cloud computing Architecture.
Week 3: Find procedure to run the virtual machine of different configuration. Check how many virtual machines can be utilized at particular time.
Week 4: Find procedure to attach virtual block to the virtual machine and check whether it holds the data even after the release of the virtual machine.
Week 5: Install a C compiler in the virtual machine and execute a sample program.
Week 6: Show the virtual machine migration based on the certain condition from one node to the other.
Week 7:‘Find’ procedure to install storage controller and interact with it.
Week 8: Installation and Configuration of Hadoop.
Week 9:‘Find’ procedure to set up the one node Hadoop cluster.
Week 10: Mount the one node Hadoop cluster using FUSE.
Week 11: Write a program to use the API's of Hadoop to interact with it.
Week 12: Using Hadoop for counting word frequency with map reduce.
Week 13: Write a word count program to demonstrate the use of Map and Reduce tasks
Week 14: Installation & Configuration of Oracle Virtual box for windows xp & android.
Week 15: Installing open Solaris as a guest OS to Sun xVM Virtual Box using the 7-Zip archive tool
Week 16: Evaluation of performance of services over cloud: Google App &Amazon web services.

Text Books:

1. Cloud computing implementation, management and security by John W Rittinghouse, James F Ransome, CRC Press, Taylor & Francis group, 2010.
2. Cloud Computing a practical approach by Anthony T velte, Toby J. Velte Robert Elsenpeter, Tata McGraw Hill edition, 2010.
3. Mastering cloud computing, foundations and applications programming by Rajkumar Buyya, Christian Vecchiola, S.Thamarai Selvi, MK Publications, 2013.

Reference Books:

1. Cloud Application Architectures by George Reese, Oreilly publishers.
2. Cloud Computing and SOA convergence in your enterprise, by David S. Linthicum, Addison – Wesely.

Course Outcomes:

1. An ability to apply knowledge of mathematics, science and engineering to real world problems.
2. Ability to model, understand and develop complex software for system software as well as application software.
3. An ability to communicate effectively, both in writing and oral.
4. The board education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human context.

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VAAGEDVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A98501)AD HOC AND SENSOR NETWORKS (CSE ELECTIVE-5)

IV Year B. Tech. II Semester

L	T	P	C
4	0	0	4

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.

Text Books:

1. 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.
2. Feng Zhao and LeonidesGuibas, "Wireless Sensor Networks", Elsevier Publication 2002
3. Holger Karl and Andreas Willig "Protocols and Architectures for Wireless Sensor Networks", Wiley, 2005
4. KazemSohraby, Daniel Minoli, &TaiebZnati, "Wireless Sensor NetworksTechnology,Protocols, andApplications", John Wiley, 2007.
5. Anna Hac, "Wireless Sensor Network Designs", John Wiley, 2003.

Course Outcomes:

CO-1: A strong foundation in core computer science and engineering, both theoretical and applied concepts**.**

CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.

CO-3: Ability to model, understand, and develop complex software for system software as well as application software.

CO-4: An ability to function effectively within teams.

CO-5: An understanding of professional and ethical responsibility

CO-6: An ability to communicate effectively, both in writing and oral.

CO-7: The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts

CO-9: A knowledge of contemporary issues

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VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A98502)DIGITAL IMAGE PROCESSING (CSE ELECTIVE-5)

IV Year B.Tech. II Semester **L T P C**

4 0 0 4

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.

TEXT BOOKS:

1. 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.

REFERENCE BOOKS:

1. Digital Image Processing and Analysis-Human and Computer Vision Application with using CVIP Tools - Scotte Umbaugh, 2nd Ed, CRC Press, 2011
2. 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
6. 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:

CO-1: A strong foundation in core computer science and engineering, both theoretical and applied concepts.

CO-2: An ability to apply knowledge of mathematics, science, and engineering to real-world problems.

CO-3: Ability to model, understand, and develop complex software for system software as well as application software.

CO-5: An understanding of professional and ethical responsibility.

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VAAGDEVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A98503)INFORMATION RETRIEVAL SYSTEMS (CSE ELECTIVE-5)

IV Year B.Tech. II Semester **L T P C**

4 0 0 4

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.

Syllabus Content

UNIT-I: Retrieval Strategies: Vector Space Model, Probabilistic Retrieval Strategies: Simple Term Weights, Non-Binary Independence Model, Language models.

UNIT-II: Retrieval Utilities: Relevance Feedback, Clustering, N-grams , Regression Analysis, Thesauri.

UNIT-III: Retrieval Utilities: Semantic networks, Parsing. Cross-language Information Retrieval: Introduction, Crossing the language barrier.

UNIT-IV: Efficiency: Inverted index, Query processing, Signature files, Duplicate document detection.

UNIT-V: 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 Websearch.

TEXTBOOKS

1. Modern Information Retrival Algorithms and Heuristics By David A. Grossman, Ophir Frieder, 2007.
2. Information Storage and Retrieval Systems: Theory and Implementation By Kowalski, Gerald, Mark T Maybury ,Springer.
3. Information Retrieval: Algorithms and Heuristics By David A Grossman and Ophir Frieder, 2nd Edition, Springer.

REFERENCE BOOKS

1. Information Retrieval Data Structures and Algorithms By William B Frakes, Ricardo Baeza-Yates, Pearson Education, 1992.
2. Information Storage & Retieval By Robert Korfhage – John Wiley & Sons.
3. Introduction to Information Retrieval By Christopher D. Manning and Prabhakar Raghavan, Cambridge University Press, 2008.
4. Natural Language Processing and Information Retrieval,T.Siddiqui and U.S.Tiwary,Oxford Univ. Press.

Course Outcomes:

CO-1. A strong foundation in core computer science and engineering, both theoretical and applied concepts.

CO-2. An ability to apply knowledge of mathematics, science, and engineering to real-world problems.

CO-3. Ability to model, understand, and develop complex software for system software as well as application software.

CO-5. An understanding of professional and ethical responsibility

CO-7. The broad education necessary to understand the impact of computer science and engineering solutions in the scientific, societal and human contexts

CO-8. A recognition of the need for, and an ability to engage in life-long learning

CO-9. A knowledge of contemporary issues

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VAAGEDVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

(A96601)MANAGEMENT SCIENCE

IV Year B. Tech. II Semester **L T P C**
4 0 0 4

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.

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.
4. 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.
8. Lawrence R Jauch, R. Gupta and William F. Glueck: Business Policy and Strategic Management Science, McGraw Hill, 2012.

Course Outcomes:

By the end of the course, the student will be in a position to

- Plan an organizational structure for a given context in the organisation carry out production operations through Work study.
- Carry out production operations through Work study.
- Understand the markets, customers and competition better and price the given products appropriately.
- Ensure quality for a given product or service.
- Plan and control the HR function better.
- Plan, schedule and control projects through PERT and CPM.
- Evolve a strategy for a business or service organisation.

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