ACADEMIC REGULATIONS

COURSE STRUCTURE

AND

DETAILED SYLLABUS

Information Technology

B.TECH. FOUR YEAR DEGREE COURSE

(Applicable for the batches admitted from 2011-2012)

VNR VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY
(AFFILIATED TO JNTUH)
An Autonomous Institute under JNTUH

VNR VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

HYDERABAD

An Autonomous Institute under JNTUH

ACADEMIC REGULATIONS 2011 FOR B.TECH. DEGREE COURSE

(Applicable for Students admitted from the academic year 2011-2012)

1. 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 and Electronics Engineering
03	Mechanical Engineering
04	Electronics and Communication Engineering
05	Computer Science and Engineering.
10	Electronics and Instrumentation Engineering
12	Information Technology
24	Automobile Engineering

1.1 Eligibility Criteria for Admission

The eligibility criteria for admission into engineering programmes shall be as mentioned below:

The candidate shall be an Indian National.

The candidate should have completed 16 years of age as on 31st December of the academic year for which the admissions are being conducted.

The Candidate should have passed the qualifying examination (10+2) or equivalent as on the date of admission.

Seats in each programme in the Institution are classified into **Category** A and **Category** B as per the G.Os.

1.1.1 Category – A Seats

These seats will be filled through counseling as per the rank at the Common Entrance Test (EAMCET) conducted by the State Government and State Government GOs as per other admission criteria laid down in the G.Os.

1.1.2 Category - B Seats

These seats will be filled by the institute as per the G.Os. Issued by State Government from time to time.

1.1.3 Category: Lateral Entry

He candidates shall be admitted into the Third Semester, based on the rank secured by the candidate at Engineering Common Entrance Test (ECET(FDH)) by the Convener, ECET.

2. Distribution and Weightage of Marks

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 subjects.** In addition, an Industry oriented mini-project, Seminar, Comprehensive viva-voce, and Project Work shall be evaluated for **50, 50, 50 and 200 marks** respectively.

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

For theory subjects, Two mid examinations will be conducted in each Semester as per the academic calendar. Each mid examination is evaluated for 25 marks. First mid examination should be conducted for 1 – 2 ½ Units of syllabus and the second mid examination shall be conducted for 2 ½ - 5 Units of syllabus. The mid descriptive type exam paper consists of Section-A and Section-B.

Section-A [compulsory] consists of 5 short answer questions and each carries one mark.

Section-B consists of 5 questions out of which 4 are to be answered and each question carries 5 marks. The time duration of each mid examination is 90 minutes.

Two assignments are to be given to students covering the syllabus of first mid and second Mid examinations and are evaluated for 5 marks each. .
The first assignment shall be submitted before first mid examinations and second Assignment should be submitted before second mid examination.

At the end of the Semester Internal Marks Maximum 30 for the respective subjects are allotted as follows:

(a) 25 marks for the better of the two mid term examinations
(b) 5 marks of the average of the two assignment marks

iii. For practical subjects there shall be a continuous evaluation during the Semester for **25 internal marks and 50 marks for end examination**. Out of the 25 marks for internal, **day-to-day work in the laboratory shall be evaluated for 10 marks**, and 10 marks for internal examination (two internal practical examinations will be conducted and the better of the two examinations will be taken into account) and 5 marks for laboratory record.

NOTE: A student who is absent for any assignment/Mid term examination for any reason what so ever shall be deemed to have secured 'zero' marks in the test/examination and no makeup test/examination shall be conducted.

iv For the subjects having design and / or drawing, (such as Engineering Graphics, Engineering Drawing, Machine Drawing, Production Drawing Practice, and Estimation etc., the distribution shall be 30 **marks for internal evaluation (15 marks for day-to-day work and 15 marks for internal tests (**the better of the two examinations will be taken into account**) and 70 marks for end examination.** There shall be **two internal tests** in a Semester.

iv. 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. The **mini project shall be evaluated during the IV year I Semester.** The industry oriented mini project shall be submitted in report form and should be presented before a committee, which shall be evaluated for **50 marks.** The committee consists of Head of the Department, the supervisor of mini project and a senior faculty member of the department. There shall be **no internal assessment for industry oriented mini project.**

vi. There shall be a **Seminar presentation in IV year II Semester**. For the Seminar, the student shall collect the information on a specialized topic other than the project topic and prepare a technical report, showing his understanding of the topic, and submit to the department, which shall be evaluated by a Departmental committee consisting of the Head of the department, Seminar supervisor and a senior faculty member. The Seminar report shall be evaluated for **50 marks**. There shall be **no external examination for Seminar.**

vii. There shall be a **Comprehensive Viva-Voce in IV year II Semester**. The Comprehensive Viva-Voce will be conducted by a Committee consisting of the Head of the Department and three Senior Faculty members of the Department. The Comprehensive Viva-Voce is aimed to assess the student's understanding in various subjects studied during the B.Tech. course of study. The Comprehensive Viva-Voce is evaluated **for 50 marks** by the Committee. There will be **no internal assessment for the Comprehensive viva-voce.**

viii. The Project work shall be started by the student in the beginning of the IV year I Semester. Out of a total of **200 marks** for the project work, **60 marks shall be for Internal Evaluation** and **140 marks for the Semester end Examination**. The Semester end Examination (viva-voce) shall be conducted by a committee comprising of an external examiner, Head of the Department and the project supervisor. The evaluation of project work shall be conducted at the end of the IV year II Semester. **The Internal Evaluation shall be on the basis of three Seminars conducted during the IV year II Semester for 30 marks by the committee consisting of Head of the Department, project supervisor and senior faculty member of the Department and for 30 marks by the supervisor of the project.**

3. Semester end Examination

(a) Theory Courses

Each course is evaluated for 70 marks. Examination is of 3 hours duration.
Question paper contains two sections [Section-A and Section-B]

Section-A: Carries 30 marks [Five questions of one mark each, five questions of two marks each and another five questions of three marks each] which is compulsory.

Section-B: carries 40 marks consisting of six essay type questions out of which four questions to be answered, each carrying 10 marks.

Drawing related subjects, question paper contains 8 questions (atleast one question from each unit), out of which the candidate has to answer any 5 questions, each carrying 14 marks.

(b) Practical Courses

Each lab course is evaluated for 50 marks. The examination shall be conducted by the laboratory teacher and another senior teacher concerned with the subject of the same/other department/Industry. The external examiner may be appointed by the Chief Superintendent in consultation with HOD as and when required.

(c) Supplementary Examinations

Supplementary examinations will be conducted along with regular Semester end examinations. (During even Semester regular examinations, supplementary examinations of odd Semester and during odd Semester regular examinations, supplementary examinations of even Semester will be conducted).

4. Attendance Requirements

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

ii. Condonation of shortage of attendance in aggregate **up to 10% (65% and above and below 75%)** in a Semester may be granted by **Institute Academic Committee.**

iii. A student will not be permitted to write the end examination and hence not promoted to the next Semester unless he satisfies the attendance requirement of the present Semester, as applicable. They may seek re-admission for that Semester when offered next.

iv. Shortage of Attendance **below 65% in aggregate** shall in **NO case be condoned.**

v. Students whose shortage of attendance is not condoned in any Semester are not eligible to take their end examination of that Semester.

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

5. Minimum Academic Requirements

The following academic requirements have to be satisfied in addition to the attendance requirements mentioned in item No.**4.**

i. A student shall be deemed to have satisfied 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% (25 out of 70 marks)** 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 fulfils the academic requirement of **37 credits from Two regular and one supplementary examinations of I year I Semester and One Regular and One Supplementary exam of I year II Semester, and one regular examination of II year I Semester** irrespective of whether the candidate takes the examination or not.

iii. A student shall be **promoted from III year to IV year** only if he fulfils the academic requirements of total **62 credits from the following examinations,** whether the candidate takes the examinations or not.

- Three regular and Two supplementary examinations of I B Tech I Semester.
- Two regular and two Supplementary examinations for I B Tech II Semester
- Two regular and one supplementary examinations up to the end of II year I Semester.
- One regular and one supplementary examinations of II year II Semester.
- One regular examination of III year I Semester.

iv. A student shall register and put up minimum academic requirement in all 200 credits and earn the 200 credits. Marks obtained in all 200 credits shall be considered for the calculation of percentage of marks.

v. Students who fail to earn 200 credits as indicated in the course structure **within eight academic years** from the year of their admission shall **forfeit their seat** in B.Tech. course and their **admission shall stand get cancelled.**

6. Course pattern

i. The entire course of study is of four academic years. **All the I, II, III and IV years are of Semester pattern .**

ii. A student eligible to appear for the end examination in a subject, but absent or has failed in the end examination may reappear for that subject at the supplementary examination whenever conducted.

iii. When a student is detained due to shortage of attendance in any Semester, he may be re-admitted into that Semester when it is offered next, **with the academic regulations of the batch into which he gets readmitted.**

iv. When a student is detained due to lack of credits in any year, he may be eligible to be promoted or for promotion into the next year after fulfillment of the academic requirements, **with the academic regulations of the batch into which he gets admitted**

7. Award of B.Tech. Degree and Class

A student will be declared eligible for the award of the B. Tech. Degree if he/she fulfils 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. Registered for **200 credits** and secured **200 credits.**

NOTE: 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.

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

Class Awarded	% of marks to be secured	
First Class with Distinction	70% and above	From the aggregate marks secured for the 200 Credits.
First Class	Below 70% but not less than 60%	
Second Class	Below 60% but not less than 50%	
Pass Class	Below 50% but not less than 40%	
Fail	Below 40%	

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

8. Withholding of Results

If the student has not paid dues to College, or if any case of indiscipline is pending against him, the result of the candidate may be withheld and he will not be allowed to go into the next higher Semester. The award or issue of the Degree may also be withheld in such cases.

9. Transitory Regulations

Students who have discontinued or have been detained for want of attendance or any other academic requirements, may be considered for readmission as and when they become eligible. They have to take up Equivalent subjects, as substitute subject in place of repetition of subjects as decided by the Institute Academic Committee.

10. Minimum Instruction Days

The minimum instruction days for each Semester shall be **90 clear instruction days.**

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

12. The decision of the Institute Academic Committee will be final in respect of equivalent subjects for those students who are transferred from other colleges. The procedure for permitting students to transfer from other colleges will be decided by the principal / Institute Academic Committee keeping the Government Rules concerned in view.

13. 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 the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Principal is final.

iv. In the case of any discrepancy/ambiguity/doubt arises in the above rules and regulations, the decision of the Principal shall be final.

v. The College may change or amend any or all of the academic regulations or syllabi at any time and the changes or amendments made shall be applicable to all the students concerned with effect from the dates notified by the College.

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

(Applicable for students admitted from the academic year 2012-2013)

(i) A student shall register for all 150 credits and earn all the 150 credits. Marks obtained in all 150 credits shall be considered for the calculation of the class.

(ii) A student who fails to earn 150 credits as indicated in the course structure within **six** academic years from the year of their admission shall forfeit their seat in B.Tech. programme and their admission stands cancelled.

(iii) The same attendance regulations are adopted as that of B.Tech. Four year degree course.

(iv) A student shall be promoted from third year to fourth year only on fulfilling the academic requirements of securing 37 credits from the following examinations.

a. Two regular and one supplementary examination of II year I Semester

b. One regular and one supplementary examination of II year II Semester

c. One regular examination of III year I Semester.

Irrespective of whether the candidate appears the Semester-End examination or not as per the normal course of study and in case of getting detained for want of credits the student may make up the credits through supplementary exams of the above exams before the date of commencement of class work for IV year I Semester.

(v) Award of B.Tech. Degree and Class

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

Class Awarded	% of marks to be secured	
First Class with Distinction	70% and above	From the aggregate marks secured for the 150 Credits. (i.e., II year to IV year)
First Class	Below 70% but not less than 60%	
Second Class	Below 60% but not less than 50%	
Pass Class	Below 50% but not less than 40%	
Fail	Below 40%	

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

(vi) All other regulations as applicable to B.Tech. four year degree course will hold good for B.Tech. (Lateral Entry Scheme).

DEPARTMENT OF INFORMATION TECHNOLOGY

VISION

Promote a stimulating and productive environment of work, study, and interactive learning for students and staff

MISSION

Inculcate the value of learning, self-worth and quality performance among students and staff, and transition of students for productive and responsible participation in society

Programme Educational Objectives (PEOs):

I. To provide students with a solid foundation in the scientific, mathematical, and Engineering fundamentals necessary to formulate, analyze, solve engineering problems.

II. To prepare students to meet the challenges in IT Industry regarding Analysis, Design and Development of various types of Projects that meet the needs of National and Global Companies, and also to prepare them for pursuing higher studies and research.

III. To develop the understanding for specification, planning, designing, implementation and deployment of software project by providing the sufficient knowledge of Software Engineering, Modeling, Security and Information Retrieval Systems.

IV. Ability to enhance the analytical skills of the students with the faculty expertise by bringing the real world into labs through a specially designed VNR protocol. And also enlarging the technological horizon of students beyond curriculum through seminars, and workshops.

V .To organize special training programmes on modern IT skills to pursue certification courses through Oracle, Computer Network Certification.

VI. To train students with broader scientific and engineering knowledge by providing multidisciplinary courses with emphasis on Digital, Microprocessor and embedded systems, so as to achieve ability to comprehend, analyze, design and create novel products with innovative ideas.

VII. To develop effective communication skills, managerial skills, team spirit, multi disciplinary approach with social commitment and optimal utilization of resources as an IT professional.

VIII. Ability to convert innovative ideas in to high end projects and to convert it into a marketable product in collaboration with industry by providing with the sufficient knowledge of Cloud Computing, Virtualization, and Web 2.0.

IX. IT Professional endeavors enable the graduate to meet the legal and ethical responsibilities and to engage in life-long learning, to advance the economic and social development at the National and global levels through technology transfer.

Program Outcomes (POs):

The program demonstrates that the graduate is

a) Graduates will have an understanding of the fundamental mathematical, logical, statistical, and scientific principles, emphasizing computing and information processing.

b) An ability to identify and analyze the user needs and take them in to account for Selection, Creation, Evaluation and Administration of Computer-based systems like –Institute Management, Cart and Inventory Management.

c) The core competence in the field of IT addresses a wide range of strategic, managerial and operational activities involved in gathering, processing, storing, distributing and use of information, and its associated technologies like SE, OS, WT, DBMS, CN, in developing applications for various organizations**.**

d) Graduate will demonstrate an ability to visualize and work on laboratory to understand the performance of different types of projects .

e) Through VNR protocols, students are able to acquire in depth knowledge and can apply this mode of inquiry in an application development like search engine.

f) Ability to acquire and apply fundamental principles of electronics, microprocessor , microcontrollers and embedded Systems.

g) Graduate to be a multi-skilled engineer with good technical knowledge in robotics and automation fields to develop knowledge based systems.

h) Ability to understand software engineering principles and apply them to design, develop, implement and deploy with extensive security features.

i) Students to engage actively in research, consulting, and/or other professional activities, both to advance individual professional competence and to integrate new knowledge into the educational programs like Oracle Workforce Development plan.

j) Develop a sense of personal responsibility and accountability for one's individual actions and performance. Apply personal goal setting, decision making skills, and time management concepts.

k) Work effectively in teams with people of diverse backgrounds at all corporate levels.

l) Graduates able to develop "win-win" approaches for conflict resolution and assess feasibility, risk of the projects.

m) Students can apply information technology principles and practices to a variety of problems, with the understanding of social, professional, and ethical issues related to computing.

n) Ability to update his knowledge with the latest technologies by involving in distinct domain projects like web OS.

o) Recognize the need for continued learning by participating and succeeding in competitive examinations like GATE, GRE,CAT and also pursue research.

VNR Vignana Jyothi Institute of Engineering and Technology

B. Tech Information Technology

I YEAR I SEMESTER **COURSE STRUCTURE**

Subject Code	Subject Name	Lectures	T/P/D	CREDITS
R11MTH1101	Mathematics - I	3	1	3
R11PHY1101	Engineering Physics-I	3	0	3
R11CHE1101	Engineering Chemistry	3	0	3
R11HAS1101	English	3	0	3
R11CSE1101	Computer Programming	3	0	3
R11EIE1126	Basic Electrical & Electronics Engineering.	4	0	4
R11HAS1201	English Language Communication Skills Laboratory - I	0	3	2
R11CSE1201	Computer Programming Laboratory	0	3	2
R11MED1202	Workshop Practice	0	3	2
Total		**19**	**10**	**25**

VNR Vignana Jyothi Institute of Engineering and Technology

B. Tech Information Technology

I YEAR II SEMESTER **COURSE STRUCTURE**

Subject Code	Subject Name	Lectures	T/P/D	CREDITS
R11MTH1102	Mathematics– II	3	1	3
R11MTH1104	Numerical Analysis and Linear Programming	3	1	3
R11PHY1102	Engineering Physics-II	3	0	3
R11CED1109	Environmental Studies	3	0	3
R11CSE1102	Data Structures	3	0	3
R11MED1105	Engineering Drawing	3	3	4
R11CSE1202	Data Structures Laboratory	0	3	2
R11EPC1201	Engineering Physics & Engineering Chemistry Laboratory	0	3	2
R11HAS1202	English Language Communication Skills Laboratory -II	0	3	2
Total		**18**	**14**	**25**

*** T/P/D: Tutorial/Practical/Drawing Practice**

VNR Vignana Jyothi Institute of Engineering and Technology

B. Tech Information Technology

II YEAR I SEMESTER **COURSE STRUCTURE**

Subject Code	Subject Name	Lectures	T/P/D	CREDITS
R11MTH1106	Probability and Statistics	3	1	3
R11MTH1107	Mathematical Foundation for Computer Science	3	0	3
R11ITD1118	Advanced Data Structures	4	1	4
R11CSE1103	Computer Organization	4	0	4
R11CSE1117	Principles of Programming Languages	3	1	3
R11ITD1119	Digital logic Design	4	0	4
R11ITD1206	Advanced Data Structures Laboratory	0	3	2
R11EIE1209	Basic Electrical and Electronics Laboratory	0	3	2
Total		**21**	**9**	**25**

VNR Vignana Jyothi Institute of Engineering and Technology

B. Tech Information Technology

II YEAR II SEMESTER **COURSE STRUCTURE**

Subject Code	Subject Name	Lectures	T/P/D	CREDITS
R11ECE1112	Data Communication Systems	3	1	3
R11CSE1110	Database Management Systems	4	0	4
R11HAS1102	Business Economics and Financial Analysis	4	0	4
R11CSE1119	Design and Analysis of Algorithms	3	1	3
R11CSE1120	Software Engineering	3	1	3
R11CSE1114	Object Oriented Programming	4	0	4
R11CSE1204	Object Oriented Programming Laboratory	0	3	2
R11CSE1208	Database Management Systems Laboratory	0	3	2
Total		**21**	**9**	**25**

*** T/P/D: Tutorial/Practical/Drawing Practice**

VNR Vignana Jyothi Institute of Engineering and Technology
B. Tech Information Technology

III YEAR I SEMESTER **COURSE STRUCTURE**

Subject Code	Subject Name	Lectures	T/P/D	CREDITS
R11CSE1113	Computer Networks	3	1	3
R11ITD1120	Linux Programming	4	1	4
R11ECE1108	Microprocessor and Microcontrollers	4	0	4
R11HAS1103	Management Science	4	0	4
R11CSE1108	Operating Systems	3	1	3
R11ITD1126	E-Commerce	3	1	3
R11ECE1204	Microprocessor and Microcontrollers Laboratory	0	3	2
R11ITD1202	Operating Systems and Computer Networks Laboratory	0	3	2
Total		**21**	**10**	**25**

VNR Vignana Jyothi Institute of Engineering and Technology
B. Tech Information Technology

IIIYEAR II SEMESTER **COURSE STRUCTURE**

Subject Code	Subject Name	Lectures	T/P/D	CREDITS
R11ITD1102	Web Technologies	3	1	3
R11ITD1122	Software Project Management	3	1	3
R11ITD1103	Automata and Compiler Design	4	1	4
R11CSE1123	Data Warehousing and Data Mining	4	0	4
R11CSE1118	Computer Graphics and Animation	4	0	4
ELECTIVE – I				
R11CSE1115	Semantic Web and Social Networks	3	1	3
R11ITD1123	Information Retrieval Systems			
R11CSE1125	Distributed Databases			
R11ITD1108	Cloud Computing			
R11HAS1204	Advanced English Language Communication Skills Laboratory	0	3	2
R11ITD1203	Web Technologies Laboratory	0	3	2
Total		**21**	**10**	**25**

*** T/P/D: Tutorial/Practical/Drawing Practice**

VNR Vignana Jyothi Institute of Engineering and Technology
B. Tech Information Technology

IV YEAR I SEMESTER **COURSE STRUCTURE**

Subject Code	Subject Name	Lectures	T/P/D	CREDITS
R11CSE1121	Object Oriented Analysis and Design	4	0	4
R11CSE1124	Visual Programming Techniques	3	1	3
R11ITD1105	Wireless Networks and Mobile Computing	3	1	3
R11ITD1128	Mobile Application Development	3	1	3
ELECTIVE – II				
R11ITD1106	Network Management System	3	1	3
R11ITD1109	Internetworking with TCP/IP			
R11ITD1121	Network Security			
R11ITD1111	Scripting Languages			
ELECTIVE – III				
R11ECE1113	Digital Image Processing	3	1	3
R11ITD1127	Storage Area Networks			
R11ITD1125	Building Enterprise Applications			
R11CSE1126	Soft Computing			
R11ITD1204	Object Oriented Analysis and Design & Visual Programming Techniques Laboratory	0	3	2
R11ITD1208	Mobile Application Development Laboratory	0	3	2
R11ITD1301	Industry Oriented Mini Project	0	8	2
Total		**19**	**19**	**25**

VNR Vignana Jyothi Institute of Engineering and Technology
B. Tech Information Technology

IV YEAR II SEMESTER **COURSE STRUCTURE**

Subject Code	Subject Name	Lectures	T/P/D	CREDITS
R11ITD1104	Distributed Systems	3	0	3
ELECTIVE – IV				
R11CSE1122	Software Testing Methodologies	3	1	3
R11ITD1112	Web Services			
R11ITD1113	Computer Forensics			
R11ITD1124	Business Intelligence Applications			
ELECTIVE – V				
R11ITD1114	Multimedia and Application Development	3	1	3
R11ITD1115	Design Patterns			
R11ITD1116	Bioinformatics			
R11CSE1106	Introduction to Mainframe Systems			
R11ITD1302	**SEMINAR**	0	3	2
R11ITD1303	**COMPREHENSIVE VIVA**	0	0	2
R11ITD1304	**PROJECT WORK**	6	12	12
Total		**15**	**17**	**25**

*** T/P/D: Tutorial/Practical/Drawing Practice**

I Year B.Tech CSE & IT – I Sem	L	T/P/D	C
	3	1	3

(R11MTH1101) MATHEMATICS – I
(Advanced Calculus)

UNIT I

Elementary analysis

Sequences and series - convergence and divergence, ratio test, comparison test, integral test, Cauchy's root test, Raabe's test (statements only for the tests), and absolute and conditional convergence.

Mean value theorems (statements only) - Rolle's theorem, Lagrange's theorem, Cauchy's theorem, and generalized mean value theorem (Taylor's Theorem).

UNIT II

Functions of several variables

Partial differentiation; Functional dependence; Jacobian; Maxima and Minima of functions of two variables with constraints and without constraints.

Radius of curvature; Centre and circle of curvature – evolutes and envelopes.

UNIT III

Improper integrals and special functions

Improper Integrals; Beta, Gamma, and Error functions - Properties and simple applications.

UNIT IV

Curve tracing, applications of integration and multiple integrals

Curve tracing – Cartesian, polar, and parametric curves; Applications of integration to lengths, volumes and surface areas in cartesian and polar coordinates.

Multiple integrals - double and triple integrals, change of variables, and change of order of integration.

UNIT-V

Vector calculus

Introduction to vector and scalar functions; gradient, curl, divergence, and their related properties of sums and products; Laplacian and second order operators; Vector integration - line integral, work done, potential function; Area, surface, and volume integrals; Statements of Vector integral theorems and their verification (without proofs) - Green's theorem, Stoke's theorem, and Gauss divergence theorem.

TEXT BOOKS

1. Calculus and Analytic Geometry - Thomas and Finney, 9th edition, *Pearson Education*.

REFERENCES

1. Elementary Analysis: The Theory of Calculus - Kenneth Ross, *Springer.*
2. Principles of Mathematical Analysis - Walter Rudin, 3rd edition, *Paperbac,* 1976.
3. Advanced Engineering Mathematics - Erwin Kreyszig, 8th edition, *John Wiley*.
4. Calculus - Tom M. Apostol, Volume1 and Volume 2, 2nd edition, *John Wiley,* 2003.
5. Schaum's Outline of Vector Analysis - Murray R. Spiegel, 2nd edition, *Tata McGraw Hill* 2011.

I Year B.Tech CSE & IT – I Sem **L T/P/D C**
3 0 3

(R11PHY1101) ENGINEERING PHYSICS-I

UNIT I

INTERFERENCE AND DIFFRACTION: Superposition principle, resultant amplitude, coherence, methods to obtain coherent sources, interference, Young's double slit experiment, interference in thin films by reflection, Newton's rings Experiment, Distinguish between Fraunhofer and Fresnel diffraction, diffraction at single slit (Qualitative and Quantitative(Phasors approach)), double slit, circular aperture, and multiple slits (grating)(Qualitative Approach). Resolution of spectral lines, Rayleigh criterion, resolving power of grating and telescope.

UNIT II

POLARIZATION: Polarization phenomenon, Brewster's Law and Malus law, examples, types of polarization, double refraction, Nicol prism, Quarter and Half wave plates

LASERS: Characteristics of Lasers – Spontaneous and Stimulated Emission of radiation, meta stable state, population inversion, lasing action, Einstein's coefficients and relation between them –– Ruby Laser – Helium-Neon Laser – Carbon dioxide laser - Semiconductor Laser – Applications of lasers.

UNIT III

FIBER OPTICS: Principle of optical fiber – Acceptance angle and acceptance cone – Numerical aperture – - Types of fibers and refractive index profiles – Qualitative analysis of attenuation in optical fibers –Application of optical fibers.

CRYSTAL STRUCTURES: Space lattice – Unit cell – Lattice parameter – Crystal systems – Bravais lattices Atomic radius – Co-ordination number - Structures and Packing fractions of Simple Cubic – Body Centered Cubic – Face Centered Cubic crystals – Hexagonal closed packed crystals - Structures of diamond, NaCl.

UNIT IV

DIRECTIONS, PLANES AND X-RD: Miller Indices for Crystal planes and directions – Inter planar spacing of orthogonal crystal systems –Diffraction of X-rays by crystal planes and Bragg's law– Laue method – Powder method – Applications of X-ray diffraction

BONDING IN SOLIDS: Force and energy between two approaching atoms, primary and secondary bonds, binding energy and cohesive energy, Madelung constant, cohesive energy and Madelung constant for NaCl crystal.

DEFECTS IN SOLIDS: Imperfections in crystals – Point defects (Vacancies, Interstitial and Impurities) Schottky and Frenkel defects – (with mathematical treatment)- Line imperfections – Edge and Screw dislocation – Burger vector – Surface defects and volume defects (Qualitative Treatment).

UNIT V

SURFACE PHYSICS: Surface Electronic structure(work function, thermionic emission, surface states, tangential surface transport), Electron Microscope, Scanning Tunneling Microscope.

SCIENCE & TECHNOLOGY OF NANOMATERIALS: Origin of nanotechnology – (Basic principles of Nanoscience & Technology) surface to volume ratio, quantum confinement – Fabrication of nano materials Bottom up fabrication: sol-gel and combustion methods – Top down fabrication: CVD& PVD methods– Characterization (XRD & TEM) - Applications of nanotechnology.

TEXT BOOKS

1. Introduction to Solid State Physics by Charles Kittel : John Wiley & Sons
2. Physics vol.2, by Halliday, Resnick and Krane; John Wiley & Sons
3. Applied Physics by P.K.Mittal, IK International Publishing House (P) Ltd.
4. Optics by Ghatak and Thyagarajan, Tata Mc Graw

REFERENCES

1. Engineering Physics by R.K.Gaur and S.L.Gupta; Dhanpat Rai and Sons
2. Solid State Physics by S.O.Pillai
3. Engineering Physics by M Chandra Shekar and P. Appala Naidu, VGS Book links.
4. Solid State Physics by A.J.Dekker; Macmillan Publishers India Ltd.
5. Solid State Physics by N.W.Ashcroft & N.David Merwin. Thomson Learning
6. Engineering Physics by G Sahashra Buddhe; University Press
7. Elements of Solid State Physics by J.P.Srivatsva, PHI Publishers
8. Introduction to Optical Communication by G. Keiser
9. Fundamentals of Molecular Spectroscopy by Banwell, Tata McGraw Hill

I Year B.Tech CSE & IT – I Sem **L T/P/D C**
3 0 3

(R11HAS1101) ENGLISH

Introduction

This is the age of information and communication technologies. Engineers and technical professionals need to convey technical information in English for various purposes.
Besides learning general English as an international language, engineering students need to be equipped with adequate writing ability so that they can communicate technical information clearly on at least a basic level. A good English writing proficiency can be a contributing factor to professional recognition and career prospects. This course teaches those writing strategies that scientists, engineers, and others will need in order to write successfully on the job. It initiates the students into Technical Writing. The purposes of technical writing are to inform and persuade. This program aims to train students in writing clear, concise and effective English.
This Syllabus is therefore, a Pragmatic English Writing Program for engineering students with intermediate proficiency. The program covers a syllabus outline and instructional approaches on basic writing skills with particular reference to technical writing.

Objectives

i) To equip the students with all the LSRW skills for advanced writing and speaking.
ii) To equip the students with basic grammar, infrastructural patterns and grammatical constructions required of in technical writing.
iii) To acquaint the students with the writing process, beginning with paragraph writing. This would prepare them for academic and workplace writing.
iv) Equip the students with Oral Communication Skills.

Methodology

A Task-based, process oriented methodology will be used by the teachers to give a practical orientation to the teaching of language. An inductive approach will be used to demonstrate the use of language in context. This should enable the students to internalize the language structures and vocabulary used in context. Students will be exposed to numerous examples and ample practice will be given in the contextual use of language structures.

Syllabus Outline

UNIT I : Prose
1. Heaven's Gate by Pico Iyer
2. The Connoisseur by Nergis Dalal

UNIT II : Basic Grammar
i) Common Errors v) Use of Articles and Prepositions

ii) Subject-Verb Agreement
iii) Adverbs
iv)Transitional elements
vi) Conjunctions
vii) pronoun reference

UNIT III : Reading and Writing Skills

i) Reading Comprehension
ii) Paragraph Writing
iii) Letter Writing
iv) Memo Writing
v) Words often Confused
vi) Synonyms and Antonyms
vii) One Word Substitutes
viii) Prefixes and Suffixes
ix) Idioms and Phrases

UNIT IV : Prose

1. The Cuddalore Experience by Anu George
2. The Odds Against Us by Satyajit Ray

UNIT V : Technical Writing Component

A. Definition of a Technical Term
B. Description of a Mechanism
C. Description of a Technical Process
D. Classification
E. Cause and Effect
F. Comparison and Contrast
G. Analogy

TEXT BOOKS

1. Effective Technical Communication, Ashraf Rizvi,
2. Technical Communication : Principles and Practices, M. Raman and S. Sharma,OUP, 2004. (Indian Edition)

REFERENCES

1. Technical Writing Process and Product., Gerson Sharon J. and Steven Gerson : 3rd edition, New Jersey: Prentice Hall 1999
2. Composition Practice, Blanton, L.L. 1993; Book 4 ,Second Edition, Heinle & Heinle Publishers, pp. 54
3. A course in Analytical Writing for Science and Technology, Georges, T.M. 1996; http://www.mspiggy.etl.noaa.gov/write/
4. Oxford English for Electrical and Mechanical Engineering, Glendinning, E.H. and Glendinning, N. 1995; Oxford University Press, pp.28,68,83
5. Less is More: Summary Writing and Sentence Structure in the Advanced ESL Classroom, Greaney, G.L. 1997; The Internet TESL Journal, Vol.III, No.9 http://iteslj.org/Techniques/Greaney-Writing.html
6. A Handbook for Technical Communication, Neufeld, J.K. 1987; Prentice-Hall, Inc. pp.20,65-68
7. Principles of Course Design for Language Teaching, Yalden, J. 1987; Cambridge University Press

8. Guide to Writing as an Engineer, David F. Beer and David McMurrey, 2nd ed., Wiley, 2004, ISBN: 0471430749.
9. Applied Writing for Technicians, Dale Jungk, McGraw-Hill, 2005, ISBN 0-07-828357-4.
10. Pocket Style Manual, Diane Hacker, Bedford/St. Martin's, 2003, ISBN: 0312406843.

I Year B.Tech CSE & IT – I Sem	L	T/P/D	C
	3	0	3

(R11CHE1101) ENGINEERING CHEMISTRY

UNIT I

Electrochemical cells and Batteries:

Cell representation, Galvanic cells, Single electrode potential, standard electrode potential, Electrochemical series, Nernst equation, Concentration cells. Reference electrodes – (Hydrogen, Calomel, Quinhydrone electrode), Ion Selective Electrodes (Glass Electrode & Flouride Electrode), Numerical problems.

Batteries: Primary and secondary cells, (lead-Acid cell, Ni-Cd cell, Lithium cells). Applications of batteries.Fuel cells – Hydrogen – Oxygen fuel cells, Advantages of fuel cells. Solar cells: working, principle and applications.

UNIT II

Corrosion and its control: Introduction, causes and different types of corrosion and effects of corrosion. Theories of corrosion – Chemical, Electrochemical corrosion, corrosion reactions, factors affecting corrosion – Nature of metal – galvanic series, over voltage, purity of metal, nature of oxide film, nature of corrosion product. Nature of environment -effect of temperature, effect of pH, Humidity, effect of oxidant.

Corrosion control methods – cathodic protection, sacrificial anode, impressed current cathode. Surface coatings – methods of application on metals - hot dipping, galvanizing, tinning, cladding, electroplating -Organic surface coatings – paints constituents and functions.

UNIT III

Polymers: Introduction, Types of Polymerization, Plastics: Thermoplastic resins & Thermoset resins. Compounding & fabrication of plastics, preparation, properties, engineering applications of: polyethylene, PVC, PS, Teflon, Bakelite, Nylon.

Rubber: Characteristics and uses Rubber –Natural rubber, vulcanization. Elastomers – Buna-s, Butyl rubber, Thiokol rubbers, Fibers – polyester, Fiber reinforced plastics (FRP), applications.

UNIT IV

Water:Introduction, Hardness: Causes, expression of hardness – units – types of hardness, estimation of temporary & permanent hardness of water, numerical problems. Boiler troubles – Scale & sludge formation, caustic embrittlement, corrosion, priming & foaming Softening of water (Internal & external treatment-Lime soda, Zeolite, Ion exchange process and Numerical problems) Reverse osmosis, Electro dialysis.

UNIT V

Nano-materials: Introduction, preparation and applications of nanomaterials with special reference to Carbon nano tubes.

Insulators: Classification of insulators, characteristics of thermal & electrical insulators and applications of Superconductors (Nb-Sn alloy, $YBa_2 Cu_3 O_{7-x}$).

TEXT BOOKS

1. Text book of Engineering Chemistry by Y.Bharathi Kumari, Jyotsna Cherukuri, VGS Book Links, Vijayawada.
2. Engineering Chemistry by P.C.Jain & Monica Jain, Dhanpatrai Publishing Company.

REFERENCES

1. Text book of Engineering Chemistry by S.S. Dhara & Mukkanti, S.Chand & Co. New Delhi.
2. Text book of Engineering Chemistry by C.P.Murthy, C.V.Agrawal, Naidu, B.S.Publications,Hyderabad.
3. Text book of Engineering Chemistry by R.Gopalan,D.Venkappayya,Sulochana Nagarajan, Vikas Publishers.

I Year B.Tech CSE & IT – I Sem	L	T/P/D	C
	3	0	3

(R11CSE1101) COMPUTER PROGRAMMING

UNIT I

Introduction to Computers: Computer Systems, Computing Environments (DOS/Linux), Computer languages, Linux commands , creating and running programs, Software Development Methods, Algorithms, Pseudo code, flow charts, applying the software development method.

UNIT II

Introduction to C Language: History, Simple C Programme, Identifiers, Basic data types, Variables, Constants, type qualifiers, Input / Output, Operators. Expressions, Precedence and Associativity, Expression Evaluation, Type conversions, Bit wise operators, Statements, Simple C Programming examples.

Selection Statements, if and switch statements, Repetition statements – while, for, do-while statements, Loop examples, other statements related to looping – break, continue, go to, C Programming examples.

UNIT III

Designing Structured Programs: Functions basics, user defined functions, inter function communication, Standard functions, Scope, Storage classes-auto, register, static, extern, scope rules, recursive functions, example C programs.

Arrays: Basic concepts, one-dimensional arrays, two – dimensional arrays, multidimensional arrays, arrays to functions, C program examples.

Strings: Basic concepts, String Input / Output functions, arrays of strings, string handling functions, strings to functions, C programme examples.

UNIT IV

Derived types: Structures Basic concepts, nested structures, arrays of structures, structures and functions, unions, typedef, bit fields, enumerated types, C programming examples.

Pointers: Basic concepts, pointers and functions, pointers and strings, pointers and arrays, pointers and structures, self referential structures , example C programs.

UNIT V

File I/O: Basic concepts, text files and binary files, file input / output operations, file status functions (error handling), C program examples. Preprocessor Directives, Dynamic Memory Allocation, Command-Line Arguments.

TEXT BOOKS

1. C programming A Problem-Solving Approach by Behrouz A.Forouzan,E.V.Prasad,Richard F.Gilberg
2. The C Programming Language by Brian W. Kernighan, Dennis M. Ritchie

REFERENCES

1. Let Us C Yashavant Kanetkar BPB
2. C How to Program Paul Deitel and Harvey Deitel , PH
3. Absolute beginner's guide to C, Greg M. Perry, Edition 2,Publisher: Sams Pub., 1994

I Year B.Tech CSE & IT– I Sem	L	T/P/D	C
	4	0	4

(R11EIE1126) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

UNIT I

Introduction to Electrical Engineering: Basic circuit components, Types of elements, types of sources, Ohm's law, Kirchhoff's laws, Simple problems. resistive networks, inductive networks, capacitive networks, series, parallel circuits, star delta and delta star transformation, Network theorems- Super position, Thevenins's, Norton's, Maximum power transfer theorems and simple problems.

UNIT II

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

UNIT III

Diode: characteristics, Rectifiers and Filters: Qualitative theory of p-n junction, p-n junction as a diode, diode equation, v-i characteristics, temperature dependence of VI characteristics, Ideal versus practical -resistance levels (static and dynamic), transition and diffusion capacitances, diode equivalent circuits, p-n junction as a rectifier , half wave, full wave and Bridge rectifiers. **Filters:** Inductor, Capacitor, L-section and π section filters. ripple factor. Breakdown mechanisms in pn junction diodes, zener diode characteristics, simple circuit of regulator using zener diode.

UNIT IV

Bipolar Junction Transistor: Junction transistor, Transistor current components, transistor as an amplifier, Transistor

Construction, BJT operation, BJT symbol, Configurations: Common Base, Common Emitter and Common Collector.

Biasing and Stabilization: Operating point, The DC and AC load lines, Need for biasing, Fixed bias, collector feedback bias, Emitter feedback bias, Collector-Emitter feedback bias, Voltage divider bias, Bias stability, Stabilization factors(S,S',S") definitions.

UNIT V

Field Effect Transistor: The junction FET, Construction and principal of operation, symbol, Pinch off voltage, Drain and Transfer characteristics, The JFET small signal model. MOSFET principal of operation, symbol, MOSFET Characteristics in Enhancement and Depletion Mode.

TEXT BOOKS

1. Basic Electrical Engineering by M.S.Naidu and S.Kamakshiah – TMH
2. Electronic Devices and Circuits by J.Millman and C.C.Halkias, Tata McGraw Hill, 1998.

REFERENCES

1. Electronic Devices and Circuits by A.P. Godse & U.A.Bakshi, Technical Publications.
2. Electrical Circuit Theory and Technology – by John Bird, Elsevier Science & Technology, 2007
3. Theory and Problems of Basic Electrical Engineering by D.P.Kothari & I.J.Nagrath PHI.
4. Electrical Circuit Analysis-by Sudhakar & Shyam Mohan, TMH

I Year B.Tech CSE & IT – I Sem	L	T/P/D	C
	0	3	2

(R11HAS1201) ENGLISH LANGUAGE COMMUNICATION SKILLS LABORATORY-I

The English language Communication Skills Lab aims to provide practice in all the four skills of LSRW, and provide ample practice in listening and speaking skills.

Syllabus for Lab Sessions

Unit 1

Multimedia Lab

1. Phonetics
2. Listening Comprehension
3. Vocabulary Lesson 1

Oral Communication Skills Lab: Self Introduction ; E-mail

Unit 2

Multimedia Lab

1. Grammar ---Nouns and Pronouns; The Present Tense
2. Vocabulary Lesson 2
3. Listening Skills

Oral Communication Skills Lab: Role Play/ Situational Dialogues

Unit 3 Multimedia Lab

1. Telephoning Skills
2. Grammar --- Articles; The Past Tense
3. Vocabulary Lesson 3

Oral Communication Skills Lab: JAM/ Short Talk

Unit 4

Multimedia Lab

1. Grammar ---- Concord; The Future Tense
2. Vocabulary Lesson 4
3. Listening Comprehension

Oral Communication Skills Lab: Information Transfer

Unit 5 Multimedia Lab

1. Grammar --- Adjectives, adverbs, conjunctions
2. Vocabulary -- Lesson 5

Oral Communication Skills Lab : Presentation Skills

Multimedia Lab Requirements

The English Language Lab shall have two parts:
i) **The Computer aided Language Lab** for 60 students with 60 systems, one master console, LAN facility and English language software for self- study by learners.
ii) **The Communication Skills Lab** with movable chairs and audio-visual aids with a P.A System,
a T. V., a digital stereo –audio & video system and camcorder etc.

System Requirement (Hardware component):
Computer network with Lan with minimum 60 multimedia systems with the following specifications:
iv) P – IV Processor

a) Speed – 2.8 GHZ
b) RAM – 512 MB Minimum
c) Hard Disk – 80 GB
v) Headphones of High quality

5. Suggested Software:
The software consisting of the prescribed topics elaborated above should be procured and used.

Suggested Software:

- **Clarity Pronunciation Power** – part II
- **Oxford Advanced Learner's Compass**, 7th 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)

Multimedia Lab Requirements
Minimum Requirement:
The English Language Lab shall have two parts:
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Lingua TOEFL CBT Insider, by Dreamtech
TOEFL & GRE (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)

I Year B.Tech CSE & IT – I Sem

L	T/P/D	C
0	3	2

(R11MED1202) WORKSHOP PRACTICE
(10 + 6 Weeks)

TRADES FOR EXCERCISES

At least two exercises from each trade:

1. Carpentry
2. Tin-Smithy
3. Fitting
4. Welding
5. Electrical Wiring

IT WORK SHOP EXCERCISES

1. Computer Hardware: Identification of Parts, Assembling and disassembling Simple diagnostic exercises -
2. Installation of Operating System : Windows , Linux – Basic Command Simple diagnostic exercises .

TEXTBOOKS

1. Work shop Manual - P.Kannaiah/ K.L.Narayana, Scitech Publishers.
2. Workshop Manual by Venkat Reddy.
3. Engineering Workshop Practice – V Ramesh Babu, VRB Publishers Pvt. Ltd.
4. IT Essentials PC Hardware and Software Companion Guide Third Edition by Davis Anfinson and Ken Quamme – CISCO Press, Pearson Education.
5. PC Hardware and A+ Handbook – Kate J. Chase PHI (Microsoft)

VNR Vignana Jyothi Institute of Engineering and Technology

I Year B.Tech CSE & IT – I Sem	**L**	**T/P/D**	**C**
	0	**3**	**2**

(R11CSE1201) COMPUTER PROGRAMMING LABORATORY

Week 1

1. WAP that reads three different integers from the keyboard and prints – sum, average, product, smallest, largest of the numbers.
2. WAP that reads two integers and prints – difference, quotient and remainder
3. WAP that reads two integers and determines whether the first is a multiple of the other

Week 2

1. Write a C program to find the sum of individual digits of a positive integer.
2. Write a program to generate Fibonacci sequence (1, 1, 2, 3, 5, 8,)
3. Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.

Week 3

1. Write a C program to calculate the following Sum:
   Sum=1-x2/2! +x4/4!-x6/6!+x8/8!-x10/10!
2. Write a C program to find the roots of a quadratic equation.

Week 4

1. 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)
2. Write a C program to generate Pascal's triangle.
3. Write a C program to construct a pyramids of numbers

Week 5

1 WAP to print a given number [0-1000] in words. For example, 123 as One Hundred and Twenty Three

2 WAP to check whether a given number is an Armstrong, Palindrome, Perfect, Prime, or a Fibonacci prime Number

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

Week 6

1. Implementation of functions categories.
2. Write C programs that use both recursive and non-recursive functions
   a. To find the factorial of a given integer.
   b. To find the GCD (greatest common divisor) of two given integers.

Week 7

1. Write a C program to calculate
   i) Minimum and maximum of an 1-d array
   ii) Sorting and Searching of 1-D array

iii) Addition and Multiplication of Two Matrices

Week 8

1. Programs on String handling functions-Copying, reverse, substring, concatenation.
2. Programs on structure and unions.

Week 9

Midterm exam

Week 10

Programs using pointers- pointer basic operations, pointers and functions

Week 11

Programs on pointers and structures, Pointers and arrays, pointers and strings.

Week 12

Write a program using file operations and error handling.

Week 13

Write a program using Dynamic memory allocation

Week 14

Write a program using command line arguments.

Week 15

Write a program using preprocessor directives

Week 16

Internal Lab Exam

I Year B.Tech CSE & IT – II Sem

L	T/P/D	C
3	1	3

(R11MTH1102) MATHEMATICS – II
(Linear Algebra and Ordinary Differential Equations)

LINEAR ALGEBRA

UNIT I

Solution of linear systems

Matrices and linear systems of equations - elementary row transformations, Rank Echelon form, and normal form; Solution of linear systems - direct methods - LU decomposition, LU decomposition from Gauss elimination, and solution of Tri-diagonal systems; Eigen values, eigen vectors, and their properties - Liner dependence and independence; Cayley-Hamilton theorem - inverse and powers of a matrix by Cayley-Hamilton theorem, diagonalization of a matrix, calculation of powers of a matrix; Modal and spectral matrices.

UNIT II

Linear transformations

Real matrices - symmetric, skew symmetric, and orthogonal linear transformation; Complex matrices - Hermitian, Skew-Hermitian and unitary matrices; Eigen values and eigen vectors of complex matrices and their properties; Quadratic forms - reduction of quadratic form to canonical form, rank, positive, negative definite, semi definite, index, signature, Sylvester law, and singular value decomposition.

ORDINARY DIFFERENTIAL EQUATIONS

UNIT III

Ordinary differential equations and their applications

Differential equations of first order and first degree - Linear, Bernoulli and exact differential equation; Applications of differential equations of first order and first degree - Newton's law of cooling, Law of natural growth and decay, Orthogonal trajectories, and basic circuits.

UNIT IV

Differential equations of higher order and their applications

Differential equations of higher order - homogeneous and non-homogenous type, differential equations of second order and higher order with constant coefficients with right hand side term of the type e^{ax}, sin (ax), cos (ax), polynomials in x, e^{ax} V(x), x V(x), and method of variation of parameters; Applications to bending of beams; Mechanical systems - Simple harmonic motion.

UNIT V

Linear differential equations and qualitative methods

Cauchy's linear differential equation; Legendre's differential equations; Simultaneous linear differential equations; The phase plane; Phase portraits and direction fields; Critical points and stability.

TEXT BOOKS

1. Advanced Engineering Mathematics - R.K Jain and S.R.K Iyengar, 3rd edition, Narosa Publications, 2011.
2. Differential Equations - Dennis G. Zill, Cengage learning, 2011.

REFERENCES

1. Advanced Engineering Mathematics - Erwin Kreyszig, 8th edition, *John Wiley*.
2. Advanced Engineering Mathematics - Peter V. O'Neil, 9th Edition, *Cengage Learning.*
3. Elementary Differential Equations and Boundary Value Problems - William E. Boyce and Richard C. Diprima ,*Wiley.*
4. Linear Algebra and its applications - David C Clay, *Pearson Education.*
5. Differential Equations, with Applications and Historical Notes - George F. Simmons and John S. Robertson, 2nd Edition, *Tata McGraw Hill,* 2008.
6. Advanced Engineering Mathematics - Dennis G. Zill, Warren S. Wright, and Michael R. Cullen, 4th edition, *Jones & Bartlett Learning*.

I Year B.Tech CSE & IT – II Sem	L	T/P/D	C
	3	0	3

(R11PHY1102) ENGINEERING PHYSICS-II

UNIT I

ELEMENTS OF STATISTICAL MECHANICS: Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics (non mathematical treatment) – Photon gas –Planck's law of black body radiation – Deduction of Wein's law and Rayleigh-Jeans law from Plank's law.

PRINCIPLES OF QUANTUM MECHANICS: Waves and particles – De Broglie hypothesis - Matter waves - Davisson and Germer experiment –Heisenberg's uncertainty principle - Schrodinger Wave Equation – Wave function and its Physical Significance - Particle in one dimensional potential box(wave functions, probability densities and energy states).

UNIT II

FREE ELECTRON FERMI GAS: Energy levels in one dimension, Effect of temperature on the Fermi-Dirac distribution, Free electron gas in three dimensions, electrical conductivity & Ohm's law, Electrical Resistivity of Metals (Qulitaitve), thermal conductivity of metals.

BAND THEORY OF SOLIDS: Electron in a periodic potential – Bloch Theorem - Kronig-Penney model (non mathematical treatment) – Origin of energy band formation in solids – Classification of materials into conductors, semiconductors & Insulators - Concept of effective mass of an electron.

UNIT III

SEMICONDUCTOR PHYSICS: Fermi level in Intrinsic and Extrinsic semiconductors - Intrinsic semiconductor and carrier concentration – Extrinsic semiconductor and carrier concentration – Equation of continuity – Direct and indirect band gap semiconductors - Hall effect.

PHYSICS OF SEMICONDUCTOR DEVICES: Formation of p-n junction – open circuit p-n junction – Energy diagram of diode – i/v characteristics of p-n junction diode – p-n diode as a rectifier – Diode equation – LED

UNIT IV

MAGNETIC PROPERTIES: Permeability, Field intensity, magnetic field induction, Magnetization and Magnetic susceptibility – Origin of magnetic moment, Bohr magneton – Classification of magnetic materials (Dia, Para and Ferro)- Domain theory of ferromagnetism, Hysteresis curve – Soft and Hard magnetic materials – properties of Anti ferro and Ferri magnetic materials – Ferrites and their applications.

UNIT V

SUPERCONDUCTORS: Experimental survey and superconductivity phenomenon, – Meissner effect – Critical fields and Persistent currents, Type I and Type II superconductors - London equations- flux quantization, BCS theory, Josephson effect – High temperature Superconductors, Applications of Superconductors.

DIELECTRIC PROPERTIES: Electric dipole, Dipole moment, Dielectric constant, Electronic, Ionic and Orientation Polarization – Calculation of Polarizibilities – Internal fields – Claussius – Mossotti equation –Piezo and Ferro electricity

TEXT BOOKS

1. Introduction to Solid State Physics by Charles Kittel (Publishers: John Wiley & Sons) for units 2 to 5
2. Concepts of Modern physics by Arthur Beiser, McGraw Hill Inc.
3. Applied Physics by P.K.Mittal, IK International Publishing House (P) Ltd

REFERENCES

1. Solid State Physics by S.O.Pillai, New Age Publishers
2. Solid State Physics by A.J.Dekker; Macmillan Publishers India Ltd.
3. Engineering Physics by Dr M Chandra Shekar and Dr P. Appala Naidu, VGS Book links.
4. Solid State Physics by N.W.Ashcroft & N.David Merwin. Thomson Learning
5. Engineering Physics by G Sahashra Buddhe; University Press
6. Elements of Solid State Physics by J.P.Srivatsva, PHI Publishers
7. Engineering Physics by M.R.Srinivasan, New Age Publishers

I Year B.Tech CSE & IT – II Sem	L	T/P/D	C
	3	0	3

(R11CED1109) ENVIRONMENTAL STUDIES

UNIT I

Introduction, Definition, scope and Importance

Ecosystems: Introduction, types, Classification of Eco system, structure and functions of ecosystems.

Bio-diversity and its conservation, Value of bio-diversity Bio-geographical classification of India – India as a mega diversity habitat, Threats to bio-diversity –Hot-spots of Bio Diversity, Conservation of bio-diversity.

UNIT II

Natural Resources: Classification of Resources, Land resources, Land degradation, Soil erosion and desertification, Food resources, Effects of modern agriculture, fertilizer pesticide problems, Food miles, organic farming, Forest resources, Use and over-exploitation, Water resources, Dams –benefits, Conflicts over Water, Energy resources-sustainable Development, and Energy Audit

UNIT III

Environmental pollution and its control: Classification of pollution and pollutants, Air pollution, causes ,Effects ,Control measures, ambient air quality standards, water pollution causes , Effects ,Control measures, water and waste water treatment methods, water quality standards, Noise pollution causes ,Effects ,Control measures, land pollution causes ,Effects ,Control measures, solid waste disposal methods ,characteristics of e-waste and management

UNIT IV

Global Environmental problems and global Efforts: Nuclear hazards, Global warming, Acid rain, hurricanes, Hazardous Waste, Overpopulation , ozone layer depletion, Clean development mechanism , Green computing ,Green Building ,carbon credits, carbon trading

International conventions/protocols: Earth summit, Kyoto protocol and Montreal protocol, Stockholm Declaration

UNIT V

Environmental Impact Assessment and Environmental Management plan: Definition of impact, Classification of Impacts, Prediction of Impacts and Impact assessment Methodologies, Environmental Impact Statement, Environmental Management plan: Technological Solutions

TEXT BOOKS

1. Introduction to Environmental Science by Y.Anjaneyulu, BS Publications
2. Text book of Environmental studies by Deeksha dave, Cengage publishers
3. Text book of Environmental studies by M.Anji Reddy, BS Publications

REFERENCES

1. Text book of Environmental studies by Anuba Kaushik & C P Kaushik, Newage International Pvt.Limited
2. Text book of Environmental studies by S V S Rana, Rastogi Publications
3. Text book of Environmental studies by Dr. K Raghavan Nambiar, Scitech Publishers

I Year B.Tech CSE & IT – II Sem	L	T/P/D	C
	3	1	3

(R11MTH1104) NUMERICAL ANALYSIS AND LINEAR PROGRAMMING

NUMERICAL ANALYSIS

UNIT I

Solutions of non-linear systems

Introduction; Mathematical preliminaries; Solution of algebraic and transcendental equations – the bisection method, the method of false position, the iteration method, Newton - Raphson method, and order of convergence.

UNIT II

Interpolation

Introduction; Errors in polynomial interpolation; Finite differences; Forward differences; Backward differences; Central differences; Symbolic relations and separation of symbols; Differences of a polynomial; Newton's formulae for interpolation; Central difference interpolation formulae; Gauss's central difference formulae; Lagrange and Hermite interpolation formulae; Cubic spline interpolation.

UNIT III

Numerical differentiation and Integration

Introduction; Differentiation of equally and unequally spaced data, and finite difference approximations; Trapezoidal rule, Simpson's 1/3 rule, and Simpson's 3/8 rule.

Numerical solutions of ordinary differential equations

Solution of initial value problems by Taylor's series - Picard's method of successive approximations, Euler's method, and Runge - Kutta methods; Predictor Corrector methods – Adams-Bashforth-Moulton method.

UNIT IV

Numerical solutions of partial differential equations (PDE)

Introduction; Classification of second order PDE; finite difference approximations to derivatives; Solution of Laplace and Poisson equation - Jacobi's method, Gauss-Seidal method by Leibmann's, Solution of parabolic equations (heat equation) by explicit and Crank Nicolson implicit scheme method; Solution of hyperbolic equations (wave equation).

LINEAR PROGRAMMING

UNIT V

Linear programming

Basic concepts; formulation of linear programming problem; constrained optimization-linear programming - simplex method, dual simplex method, and transportation problems.

TEXT BOOKS

1. Introduction to Numerical Analysis - S.S.Sastry*, PHI , 2010.*
2. Operations Research - Prem Kumar Gupta and D.S.Hira, *S.Chand,* 2003.

REFERENCES

1. Advanced Engineering Mathematics - Erwin Kreyszig, 8th Edition, *John Wiley and Sons.*
2. Advanced Engineering Mathematics - Peter V. O'Neil, 9th Edition, *Cengage Learning.*
3. Elementary Numerical Analysis – an algorithmic approach - Samuel D. Conte and Carl De Boor ,3rd edition,*Tata McGraw Hill,* 2006.
4. *Numerical Analysis - R.L Burden and J.D Faires, , 7th ediation, Thomson, 2007.*

I Year B.Tech CSE & IT – II Sem	L	T/P/D	C
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(R11CSE1102) DATA STRUCTURES

UNIT I

Data Structures: Introduction to Data Structures, abstract data types, Linear list – singly linked list implementation, insertion, deletion and searching operations on linear list, circular linked list implementation, Double linked list implementation, insertion, deletion and searching operations. Applications of linked lists.

UNIT II

Stacks: Operations, array and linked representations of stacks, stack application-infix to postfix conversion, postfix expression evaluation, recursion implementation.

UNIT III

Queues: Operations, array and linked representations. Circular Queue operations, Dequeues, applications of queue.

UNIT IV

Trees: Definitions, Binary tree representation, Binary search tree, binary tree traversals.
Graphs: Definitions, Graph representations, Graph traversals.

UNIT V

Searching and Sorting: Big O Notation , Sorting- selection sort, bubble sort, insertion sort, quick sort, merge sort,
Searching-linear and binary search methods.

TEXT BOOKS

1. C Programming & Data Structures, B.A.Forouzan and R.F. Gilberg, Third Edition, Cengage Learning.
2. Data Structures Using C (Paperback) by Aaron M. Tenenbaum

REFERENCES

1. C and Data structures – P. Padmanabham, Third Edition, B.S. Publications.
2. Data Structures using C – A.M.Tanenbaum, Y.Langsam, and M.J. Augenstein, Pearson Education / PHI
3. C Programming and Data Structures, E. Balagurusamy, TMH.
4. C Programming and Data Structures, P. Dey, M Ghosh R Thereja, Oxford University Press
5. C and Data structures – E V Prasad and N B Venkateswarlu, S. Chand&Co.

I Year B.Tech CSE & IT – Sem	L	T/P/D	C
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(R11MED1105) ENGINEERING DRAWING

UNIT I

Introduction to engineering graphics – construction of ellipse, parabola and hyperbola – cycloidal curves.

UNIT II

Orthographic projections of points, lines and planes – axis inclined to one planes and inclined to both the planes.

UNIT III

Orthographic projections of solids:
Cylinder, cone, prism, pyramid and sphere positions and axis inclined to both the planes.

UNIT IV

Isomeric projections of lines, planes and simple solids.

UNIT V

Conversion of orthographic views into isometric views and vice-versa.

TEXT BOOKS

1. Engineering drawings By N.D.Bhatt.
2. Engineering graphics By K.L. Narayana & P.Kannayya.

REFERENCES

1. Engineering drawing and graphics: Venugopal / New age
2. Engineering drawing : Johle / TMH

I Year B.Tech CSE & IT – II Sem	L	T/P/D	C
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(R11CSE1202) DATA STRUCTURES LABORATORY

WEEK1

1. Write a program for creation, Search and Traversal of Single Linked List
2. Write a program to perform insertion and deletion operations in Single Linked List
3. Write a program to merge two single linked lists

WEEK2

1. Write a program for creation, Search and Traversal of Circular Linked List
2. Write a program to perform insertion and deletion operations in Circular Linked List

WEEK 3

1. Write a program for creation, Search and Traversal of Double Linked List
2. Write a program to perform insertion and deletion operations in Double Linked List

WEEK 4

1. Write a program to implement stack using Arrays
2. Write a program to implement stack using Linked List

WEEK 5

1. Write a program to convert infix expression to postfix expression using stack
2. Write a program to evaluate postfix expression

WEEK 6

1. Programs using recursion
2. Write a program to convert infix expression to prefix expression using stack

WEEK 7

1. Write a program to implement Linear queue using Array
2. Write a program to implement Linear queue using Linked List

WEEK 8

1. Write a program to implement insertions and deletions in a circular Queue
2. Write a program to perform search and count operations in a circular queue

WEEK 9

1. Write a program to implement insertions and deletions in a Dequeue
2. Write a program to perform search and count operations in Dequeue

WEEK 10 Midterm Exam

WEEK 11

1. Write a program to implement Linear search
2. Write a program to implement Binary Search

WEEK 12

1. Write a program to implement Selection sort
2. Write a program to implement Bubble sort

3. Write a program to implement Insertion sort

WEEK 13

1. Write a program to implement Merge sort
2. Write a program to implement Quick sort

WEEK 14

1. Implementation of a binary tree representation using Arrays
2. Write a program to search an element, to print right and left children of every node in a tree

WEEK 15

1. Implementation of a Graph representation using Adjacency Matrix
2. Write a program to print all adjacent nodes of every node in a graph

WEEK 16- Final Internal Lab Exam

I Year B.Tech CSE & IT – II Sem	L	T/P/D	C
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(R11EPC1201) ENGINEERING PHYSICS LABORATORY

Any Eight Experiments from the following:

1. Dispersive Power of the material of a Prism using Spectrometer
2. Diffraction Grating (both with Laser and non-laser source)
3. Single Slit with laser light
4. Newton's Rings
5. Finding thickness of a thin wire or sheet by forming a wedgeshaped film
6. Energy gap of a semiconductor material
7. Torsional Pendulum Expt. to determine the rigidity modulus of material of a wire
8. Melde's experiment
9. Sonometer Experiment
10. Numerical Aperture and Acceptance angle of an optical fiber cable
11. Stewart Gee's experiment
12. Characteristics of LED.
13. Photo cell/ Solar Cell

Text Books: Essential Practical Lab Manual of Physics: by P.Raghavendra Rao

ENGINEERING CHEMISTRYLABORATORY

LIST OF EXPERIMENTS

1. Titrimetry
   Estimation of hardness of water by EDTA method.
2. Instrumental methods
   i. Conductometry
      a. Conductometric titration of strong acid Vs Strong base
   ii. Colorimetry
      a. Estimation of copper by colorimetric method
   iii. Potentiometry
      a. Titration of strong acid Vs Strong base by potentiometry
3. Physical properties
   a) Determination of viscosity of sample oil by Redwood viscometer.
4. Preparation of organic compounds
   Preparation of aspirin or Thiokol rubber

TEXT BOOKS

1. Laboratory Manual on Engineering Chemistry by S.K.Bhasin and Sudha Rani,Dhanpat Rai Publishing Company.
2. Laboratory Manual on Engineering Chemistry by Y.Bharathi Kumari, Jyotsna Cherukuri, VGS Book Links, Vijayawada.

I Year B.Tech CSE & IT – II Sem

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(R11HAS1202) ENGLISH LANGUAGE COMMUNICATION SKILLS LABORATORY-II

In continuation with the first Year I semester syllabus, this course offers further practice in Listening, Speaking, and Grammar in preparation for the advanced speaking and writing skills offered in the III Year .

UNIT I

Multimedia Lab:

1. Listening Comprehension
2. Grammar -- Voice
3. Vocabulary Lesson 6

Oral Communication Skills Lab : Self Introduction

UNIT II

Multimedia Lab:

1. Grammar - Conditionals & Prepositions
2. Listening Comprehension
3. Vocabulary Lesson 7

Oral Communication Skills Lab: 1. Description of Objects
2. Description of Processes

UNIT III

Multimedia Lab:

1. Grammar -- Use of Subordinate Clauses; Phrasal Verbs; Idioms
2. Vocabulary Lesson 8

Oral Communication Skills Lab: Presentation Skills

UNIT IV

Multimedia Lab:

1. Grammar -- Use of Substitution, Reference and Ellipsis
2. Listening Comprehension
3. Vocabulary Lesson 9

Oral Communication Skills Lab: Debate

UNIT V

Multimedia Lab:

1. Grammar --- Parallelism, Repetition, Nominalization
2. Vocabulary Lesson 10

Oral Communication Skills Lab : Group Discussions

II Year B. Tech, IT – I Sem	L	T/P/D	C
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(R11MTH1106) PROBABILITY AND STATISTICS

UNIT I

Probability and Distributions

Sample space and events, Probability- The axioms of probability, some elementary theorems, conditional probability, Baye's theorem. Random variables - discrete and continuous. Distributions - Binomial, Poisson and Normal distributions–related properties.

UNIT II

Sampling Distributions and Testing of Hypothesis

Sampling distributions, sampling distribution of means (σ known and unknown). Point estimation, interval estimation.Tests of hypothesis - null hypothesis, alternate hypothesis, type I, type II errors, critical region. Inferences concerning means and proportions- Large samples-test of hypothesis for single mean and difference between the means. Test of hypothesis for the proportions- single and difference between the proportions, confidence interval for the mean and proportions.

UNIT III

Tests of significance- Small samples

Tests of significance-t distributions, confidence interval for the t- distribution, F-distributions and Chi square distributions.

UNIT IV

Correlation and Regression

Coefficient of correlation, regression coefficient, the lines of regression, rank correlation, correlation for bivariate frequency distributions.

UNIT V

Reliability theory and Time Series analysis

Basic concepts of reliability, Normal failure law, Exponential failure law, The Weibull failure law and reliability of systems. Time series- utility of time series analysis, components of time series. Preliminary adjustments before analyzing time series. Measurement of trend by the method of least squares.

TEXT BOOKS

1. Probability and Statistics for Engineers - Miller I.R. and Freund J.E, 5th Edition, Prentice-Hall, 1995.
2. Introductory Probability and Statistical Application – Meyer, 2nd edition, Oxford and Ibh, 1970.
3. Statistical Methods - S.P. Gupta, Sultan Chand and sons, 2011.

REFERENCES

1. Reliability Engineering- Balagurusamy E,Tata McGraw Hill , 1984.
2. Elements of Applied Stochastic processes- Bhat U.N, Wiley Series in Probability and Mathematical Statistics, 1983.

II Year B. Tech, IT – I Sem	L	T/P/D	C
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(R11MTH1107) MATHEMATICAL FOUNDATION FOR COMPUTER SCIENCE

UNIT I

Mathematical Logic: Statements and notations, Connectives, Well formed formulas, Truth Tables, tautology, equivalence implication, Normal forms, Quantifiers, universal quantifiers. Predicates: Predicative logic, Free & Bound variables, Rules of inference, Consistency, proof of contradiction, Automatic Theorem Proving.

UNIT II

Relations: Properties of binary Relations, equivalence, transitive closure, compatibility and partial ordering relations, Hasse diagram. Functions: Inverse Function, Composition of functions, recursive Functions. Algebraic structures: Algebraic systems, Examples and general properties, Semi groups and monoids, groups, and sub groups, Homomorphism, Isomorphism on groups and semi groups.

UNIT III

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

UNIT IV

Recurrence Relations: Generating Functions, Function of Sequences, Calculating Coefficients of generating functions, Recurrence relations, Solving recurrence relation by substitution and Generating functions, the method of Characteristic roots, solution of Inhomogeneous Recurrence Relations.

UNIT V

Graph Theory: Representation of Graphs, DFS, BFS, Spanning Trees, Planar Graphs.
Graph Theory and Applications: Basic Concepts, Isomorphism and Sub graphs, Multi graphs and Euler circuits, Hamiltonian graphs, Chromatic Numbers.

TEXT BOOKS

1. Elements of Discrete Mathematics- A Computer Oriented Approach, C.L.Liu, D.P. Mohapatra, 3rd edition, Tata Mc Graw Hill.
2. Discrete Mathematics for Computer Scientists and Mathematicians, Second edition, J.L.Mott, A. Kandel, T.P. Baker, PHI

REFERENCES

1. Discrete Mathematics and its Applications, 5th edition, Kenneth.H.Rosen, TMH.
2. Discrete Mathematical Structures Theory and applications, Mallik and Sen, Cengage.
3. Discrete Mathematics with Applications, Thomas Koshy, Elsevier.
4. Logic and Discrete Mathematics, Grass Man and Tremblay,Pearson Education

II Year B. Tech, IT – I Sem	L	T/P/D	C
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(R11ITD1118) ADVANCED DATA STRUCTURES

UNIT I

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

UNIT II

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

UNIT III

Review of basic data structures, The list ADT, Stack ADT, Queue ADT, Implementation using template classes in C++. Priority Queues – Definition, ADT, Realizing a Priority Queue using Heaps, Definition, insertion, Deletion, Heap sort, External Sorting- Model for external sorting, Multiway merge, Polyphase merge.

UNIT IV

Dictionaries, linear list representation, Skip list representation, operations insertion, deletion and searching, hash table representation, hash functions, collision resolution-separate chaining, open addressing-linear probing, quadratic probing, double hashing, rehashing, extendible hashing, comparison of hashing and skip lists. Text Processing – Pattern matching algorithms-Brute Force, Knuth-Morris-Pratt algorithm, Tries – Standard tries, Compressed tries, Suffix tries.

UNIT V

Trees-Basic Terminology, Binary tree ADT, array and linked representations, traversals, threaded binary trees, Binary Search Trees : Definition, ADT, Implementation, Operations of Searching, Insertion and Deletion. AVL Trees, Definition, Operations-Insertion and Searching. B-Trees, Definition, B-Tree of order m, insertion, deletion and searching. Graphs : Basic terminology, representations of Graphs, Graph search methods – DFS, BFS.

TEXT BOOKS

1. Data structures, Algorithms and Applications in C++, S.Sahni, University Press (India) Pvt.Ltd, 2nd edition, Universities Press Orient Longman Pvt. Ltd.
2. Data structures and Algorithms in C++, Michael T.Goodrich, R.Tamassia and Mount, Wiley student edition, John Wiley and Sons.

REFERENCES

1. Data structures and Algorithm Analysis in C++, Mark Allen Weiss, Pearson Education. Ltd., Second Edition.
2. Data structures using C and C++, Langsam, Augenstein and Tanenbaum, PHI.
3. Problem solving with C++, The OOP, Fourth edition, W.Savitch, Pearson Education.
4. Data Structures and Algorithms Using C++, Ananda Rao Akepogu,Radhika Raju Palagiri.

VNR Vignana Jyothi Institute of Engineering and Technology

II Year B.Tech, IT – I Sem	**L**	**T/P/D**	**C**
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(R11CSE1103)COMPUTER ORGANIZATION

UNIT I

BASIC STRUCTURE OF COMPUTERS: Computer types, functional unit, basic operational concepts, bus structures, multi processors and multi computers, multi tasking.

Register Transfer Language and Micro operations: Register Transfer language, Regiser Transfer, Arithmetic Microoperations, Logic Microoperations, Shift Microoperations, Arithmetic logic shift unit.

UNIT II

BASIC COMPUTER ORGANIZATION AND DESIGN: Instruction Codes, Computer Registers, computer instructions – instruction Cycle, memory reference instructions, input-output and interrupt. Central Processing Unit: Stack organization, instruction formats, addressing modes, data transfer and manipulation, program control, CISC and RISC.

UNIT III

MICROPROGRAMMED CONTROL: Control memory, address sequencing, micro program example, design of control unit, hardwired control, micro programmed control.

THE MEMORY ORGANIZATION: Memory hierarchy, Main Memory, Cache memory, performance considerations, virtual memory, secondary storage.

UNIT IV

COMPUTER ARITHMETIC: Addition and subtraction, multiplication algorithms, Division algorithms, floating-point arithmetic operations, Decimal arithmetic unit, Decimal arithmetic operations.

INPUT-OUTPUT ORGANIZATION: Peripheral devices, input-output interface, asynchronous data transfer, modes of transfer, priority interrupt, direct memory access.

UNIT V

PIPELINE AND VECTOR PROCESSING: Parallel Processing,Pipelining,Arithmetic Pipeline,Instuction pipeline,RISC pipeline Vector Processing, Array Processors.

TEXT BOOKS

1. Computer System Architecture – M. Morris Mano, III edition, Pearson/PHI
2. Computer organization – Carl Hamacher, Zvonks Vranesic, Safeazaky, V edition, Mc Graw Hill

REFERENCES

1. Computer Organization and Architecture – William Stallings Sixth edition, Pearson/PHI
2. Fundamentals of Computer Organization and Design, Sivarama Dandamudi
3. Computer Architecture a Quantitative approach, John L. Hennessy and David A Patterson, Fourth edition Elsevier.
4. Computer Architecture Fundamentals and Principles of Computer Design, Joseph D/ Dumas II,
   BS Publication

II Year B.Tech, IT – I Sem	L	T/P/D	C
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(R11CSE1117) PRINCIPLES OF PROGRAMMING LANGUAGES

UNIT I

Preliminary Concepts: 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.

UNIT II

Syntax and Semantics: General Problem of describing syntax and semantics, formal methods of describing syntax---BNF, EBNF for common programming languages features, parse trees, ambiguous grammars, attribute grammars, denotational semantics and axiomatic semantics for common programming language features.

UNIT III

Data types: Primitive, character, user defined, array, associative, record, union, pointer and reference types, design and implementation uses related to these types. Names, Variable, concept of binding, type checking, strong typing, type compatibility, named constants, variable initialization.

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.

UNIT IV

Subprograms and Blocks: Fundamentals of sub-programs, Scope and lifetime of variable, static and dynamic scope, Local referencing environments, parameter passing methods, overloaded sub-programs, generic sub-programs.

Abstract Data types: Introduction to data abstraction, encapsulation, and design issues, C++ parameterized ADT, object oriented programming in C++, Java. Concurrency---Subprogram level concurrency, semaphores, monitors, message passing, and Java threads.

UNIT V

Exception handling: Exceptions, Exception propagation, Exception handler in C++ and Java.

Logic Programming Language: Introduction and overview of logic programming, applications of logic programming. Functional Programming Language: Introduction and fundamentals of FPL, LISP, ML, Haskell, applications of FPL and comparison of functional and imperative languages.

TEXT BOOKS

1. Concepts of Programming Languages by Robert. W. Sebesta 6/e, Pearson Education.
2. Programming Languages-Louden, Second Edition, Thomson.

REFERENCES

1. Programming languages – Ghezzi, 3/e, John Wiley
2. Programming Languages Design and Implementation – Pratt and Zelkowitz, Fourth Edition PHI/Pearson Education.
3. Programming Languages – Watt, Wiley Dreamtech
4. Programming in PROLOG Clocksin, Springer.

II Year B.Tech, IT – I Sem	L	T/P/D	C
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(R11ITD1119) DIGITAL LOGIC DESIGN

UNIT I

NUMBERS SYSTEMS AND CODE: Review of number systems- number base conversion-binary arithmetic- binary weighted and non-weighted codes – Complements-Signed binary numbers-Error Detection and Correcting Codes-Binary Logic.

UNIT II

BOOLEAN ALGEBRA AND GATE LEVEL MINIMIZATION: Postulates and theorems-representation of switching functions-SOP and POS forms –Canonical forms-digital logic gates –Karnaugh Maps –minimization using three variable, four variable and five variable K-Maps, Don't Care Conditions- NAND and NOR implementation , Other Two-Level Implementation –Exclusive –OR function -Integrated Circuits-Hardware Description Language(HDL)

UNIT III

DESIGN OF COMBINATIONAL CIRCUITS: Tabular Minimization- Combinational Circuits-Analysis and Design Procedure- Binary adder and subtractors – Carry Look-ahead adder-Decimal adder-Binary multiplier-magnitude comparator-BCD adder- Decoders- Encoders-Multiplexers-Random Access Memory-Read Only Memory-Programmable Logic Array-Programmable Array Logic - HDL for Combinational Circuits

UNIT IV

DESIGN OF SEQUENTIAL CIRCUITS: Combinational Vs Sequential Circuits – Latches-Flip Flops-RS flip flop, JK flip flop, T flip flop, D flip flop, Master-Slave Flip flop- Flip Flops excitation functions –Conversion of one flip flop to another flip flop- Asynchronous Vs Synchronous circuits-Analysis of clocked sequential circuits-State Table-State Diagram-State Reduction and State Assignment-Mealy and Moore Machines-capabilities and limitations of Finite State Machine-State equivalence and machine minimization-Design of synchronous counters- Ripple Counters-Asynchronous counters-Registers-Shift Registers- HDL for Sequential circuits.

UNIT V

ASYNCHRONOUS SEQUENTIAL LOGIC: Introduction-Analysis Procedure, Circuits with Latches, Design Procedure-Reduction of state and flow Tables – Race Free State Assignment Hazards, Design examples.

TEXT BOOKS

1. DIGITAL DESIGN , Third Edition , M.Morris Mano, Pearson Education/PHI.
2. FUNDAMENTALS OF LOGIC DESIGN, Roth, 5th Edition,Thomson.

REFERENCES

1. Switching and Finite Automata Theory by Zvi. Kohavi, Tata McGraw Hill.
2. Switching and Logic Design, C.V.S. Rao, Pearson Education
3. Digital Principles and Design Donald D.Givone, Tata McGraw Hill, Edition.
4. Fundamentals of Digital Logic & Micro Computer Design , 5TH Edition, M. Rafiquzzaman JohnWiley

II Year B. Tech, IT – I Sem	L	T/P/D	C
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(R11ITD1206) ADVANCED DATA STRUCTURES LABORATORY

WEEK 1

Implementation of C++ programs using - Constructors, friend functions, Parameter passing methods, this pointer, inline functions, static members, dynamic memory allocation, exception handling.

WEEK 2

Implementation of C++ programs using: Function over Loading, Operator Overloading, Function and class templates, inheritance types, runtime polymorphism using virtual functions, abstract classes, streams I/O.

WEEK 3

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

a) Stack ADT b) Queue ADT c) Linear list

WEEK 4

Write C++ programs to implement the following using linked list

a) Stack ADT b) Queue ADT c) Linear list

WEEK 5

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

a) Circular Queue ADT b) Dequeue ADT

WEEK 6

Write C++ programs to implement the following using linked list

a) Circular Queue ADT b) Dequeue ADT c) Double linked list

WEEK 7

Write C++ programs to implement the following on Bnary search tree i)Insertions

ii) deletions

iii) search

WEEK 8

Write C++ programs to implement Binary tree traversals (preorder, inorder, postorder)

WEEK 9

Write C++ programs to implement bfs and dfs for a given graph

WEEK 10

Write C++ programs to implement

a) Heap sort b) merge sort

WEEK 11

Write C++ programs to implement all functions of dictionary (ADT) using hashing.

WEEK 12

Write C++ programs to implement Brute Force and Knuth –Morris-Pratt pattern matching algorithm

II Year B. Tech, IT - I Sem

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(R11EIE1209) BASIC ELETRICAL AND ELECTRONICS ENGINEERING LABORATORY

Demonstration (1 lab Session)

1. Identification, of R, L, C Components (Colour Codes),Potentiometers, variable capacitors, DRB, DLB, DCB, Relays, Bread Boards.
2. Identification, Diodes, BJTs, Low power JFETs, MOSFETs, LEDs, LCDs, Optoelectronic Devices, Linear and Digital ICs.
3. Study and operation of Multi meters (Analog and Digital), Function Generator, Regulated Power Supplies and CRO.

PART A

1. Verification of Kirchhoff's laws
2. Verification of superposition theorem
3. Verification of maximum power transfer theorem on DC with resistive load
4. Experimental verification of Thevenin's and Norton's theorems

PART B

1. Deflection sensitivity measurement of CRO.
2. PN Junction diode characteristic. (Forward bias and Reverse bias)
3. Zener diode characteristics and Zener voltage regulator.
4. Full wave Rectifier with & without filters
5. Half wave Rectifier with & without filters
6. Bridge Rectifier with & without filters
7. Transistor CE characteristics (Input and Output).
8. Drain and transfer characteristics of FET.

(Any 10 experiments should be completed)

II Year B.Tech, IT- II Sem	L	T/P/D	C
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(R11ECE1112) DATA COMMUNICATIONS SYSTEMS

UNIT I

INTRODUCTION TO DATA COMMUNICATIONS AND NETWORKING: Standards Organizations for Data Communications, Layered Network Architecture, Open Systems Interconnection, Data Communications Circuits, Serial and parallel Data Transmission, Data communications Circuit Arrangements, Data communications Networks, Alternate Protocol Suites.

SIGNALS, NOISE, MODULATION, AND DEMODULATION: Signal Analysis, Electrical Noise and Signal-to-Noise Ratio, Analog Modulation Systems, Information Capacity, Bits, Bit Rate, Baud, and M-ary Encoding, Digital Modulation.

UNIT II

METALLIC CABLE TRANSMISSION MEDIA: Metallic Transmission Lines, Transverse Electromagnetic Waves, Characteristics of Electromagnetic Waves, Transmission Line Classifications, Metallic Transmission Line Types, Metallic Transmission Line Equivalent Circuit, Wave Propagation on Metallic Transmission Lines, Metallic Transmission Line Losses.

OPTICAL FIBER TRANSMISSION MEDIA: Advantages of Optical Fiber Cables, Disadvantages of Optical Fiber Cables, Electromagnetic spectrum, Optical Fiber Communications System Block Diagram, Optical Fiber construction, The Physics of Light, Velocity of Propagation, Propagation of Light Through an Optical fiber Cable, Optical Fiber Modes and Classifications, Optical Fiber Comparison, Losses in Optical Fiber Cables, Light sources, Light Detectors, Lasers.

UNIT III

DIGITAL TRANSMISSION: Pulse Modulation, Pulse code Modulation, Dynamic Range, Signal Voltage –to-Quantization Noise Voltage Ration, Linear Versus Nonlinear PCM Codes, Companding, PCM Line Speed, Delta Modulation PCM and Differential PCM.

MULTIPLEXING AND T CARRIERS: Time- Division Multiplexing, T1 Digital Carrier System, North American Digital Multiplexing Hierarchy, Digital Line Encoding, T Carrier systems, European Time- Division Multiplexing, Statistical Time – Division Multiplexing, Frame Synchronization, Frequency- Division Multiplexing, Wavelength- Division Multiplexing, Synchronous Optical Network

UNIT IV

CELLULAR TELEPHONE SYSTEMS: First- Generation Analog Cellular Telephone, Personal Communications system, Second-Generation Cellular Telephone Systems, N-AMPS, Digital Cellular Telephone, Interim Standard, North American Cellular and PCS Summary, Global system for Mobile Communications, Personal Communications Satellite System.

UNIT V

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

TEXT BOOKS

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

REFERENCES

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

II Year B.Tech , IT – II Sem	L	T/P/D	C
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(R11CSE1110) DATA BASE MANAGEMENT SYSTEMS

UNIT I

Introduction to Databases and Database Management System - Database system Applications - Advantages of DBMS over File System - Data Models – Instances and schema - View of Data - Database Languages -DDL-DML - Database Users and Administrator - Database System Structure.

UNIT II

Database Design and ER diagrams – Attributes and Entity Sets – Relationships and Relationship Sets – Constraints - Keys - Design Issues - Entity-Relationship Diagram- Weak Entity Sets - Extended E-R Features - Database Design with ER model - Database Design for Banking Enterprise

UNIT III

Introduction to the Relational Model – Structure of RDBMS - Integrity Constraints over Relations – Enforcing Integrity Constraints – Querying Relational Data - Relational Algebra and Calculus.

Introduction to SQL- Data Definition commands, Data Manipulation Commands, Basic Structure, Set operations Aggregate Operations - Join operations - Sub queries and correlated queries, SQL functions , views ,Triggers, Embedded SQL.

UNIT IV

Functional Dependencies– Introduction , Basic Definitions, Trivial and Non trivial dependencies, closure of a set of dependencies, closure of attributes, irreducible set of dependencies- Schema Refinement in Database Design- Problems Caused by Redundancy – Decompositions – Problem Related to Decomposition — Lossless Join Decomposition – Dependency Preserving Decomposition - FIRST, SECOND, THIRD Normal Forms – BCNF – – Multivalued Dependencies – Fourth Normal Form.

UNIT V

Transaction concept- Transaction state- Implementation of atomicity and Durability- Concurrent executions – Serializability, Recoverability

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

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 – Comparision of Indexing with Hashing.

TEXTBOOKS

1. Database System Concepts, Silberschatz, Korth , Fifth Edition, McGraw hill (1,2,3,5 Units)
2. Introduction to Database Systems, C.J.Date, Pearson Education (4^{th} Unit)

REFERENCES

1. Fundamentals of Database Systems, Elmasri Navrate Pearson Education
2. Database Management Systems, Raghuramakrishnan, Johannes Gehrke, TATA Mc Graw Hill - (1,2,3,5 Units)
3. Data base Systems design, Implementation, and Management, Peter Rob & Carlos Coronel 7th Edition.
4. Database Systems using Oracle: A simplified guide to SQL and PL/SQL , Shah, PHI.

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	4	0	4

(R11HAS1102) BUSINESS ECONOMICS AND FINANCIAL ANALYSIS

UNIT I

Business and new economic environment

Characteristic features of business; Features and evaluation of sole proprietorship; Partnership; Joint stock company; Public enterprises and their types; Changing business environment in post- liberalization scenario.

UNIT II

Introduction to business economics, and demand analysis

Definition; Nature and scope of managerial economics - demand analysis determinants; Law of demand and its exceptions.

Elasticity of demand and demand forecasting

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, and judgmental approach to demand forecasting.

UNIT III

Cost analysis

Cost concepts - opportunity cost, fixed vs. variable costs, explicit costs vs. implicit costs, and out of pocket costs vs. imputed costs; Break-even analysis (BEA) - determination of break-even point (simple problems), managerial significance, and limitations of BEA.

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 IV

Theory of production

Production function - isoquants and isocosts, least cost combination of inputs, and laws of returns; Internal and external economics of scale.

Market structures

Types of competition; Features of perfect competition, monopoly, and monopolistic competition; Price-output determination in case of perfect competition and monopoly.

Pricing policies and methods

Cost plus pricing; Marginal cost pricing; Sealed bid pricing; Going rate pricing, Limit pricing, Market skimming pricing, Penetration pricing, Two-part pricing, Block pricing, Bundling pricing, Peak load pricing, Cross subsidization.

UNI T V

Introduction to financial accounting

Double-entry book keeping; Journal; Ledger; Trial balance; Final accounts - trading account, profit and loss account, and balance sheet with simple adjustments.

Financial analysis through ratios

Computation; Analysis and interpretation of liquidity ratios - current ratio, and quick ratio; Activity ratios - inventory turnover ratio, and debtor turnover ratio; Capital structure ratios – debt-equity ratio, and interest coverage ratio; Profitability ratios - gross profit ratio, net profit ratio, operating ratio, P/E ratio, and EPs.

TEXT BOOKS

1. Managerial Economics and Financial Analysis *by* Aryasri, 2009; *Publisher: Tata McGraw Hill*.
2. Managerial Economics *by* Varshney & Maheswari, 2009; *Publisher: Sultan Chand*.

REFERENCES

1. Financial Accounting for Management: An analytical perspective *by* Ambrish Gupta, 2010; *Publisher: Pearson Education*.
2. Managerial Economics *by* H. Craig Peterson & W. Cris Lewis; *Publisher: Prentice Hall of India*.

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(R11CSE1119) DESIGN AND ANALYSIS OF ALGORITHMS

UNIT I

Introduction: Algorithm, Psuedocode for expressing algorithms, Performance Analysis-Space complexity, Time complexity, Asymptotic Notation- Big oh notation, Omega notation, Theta notation. Disjoint Sets- disjoint set operations, union and find algorithms, spanning trees, connected components and biconnected components.

UNIT II

Divide and conquer: General method , applications-Binary search, Quick sort, Merge sort, Strassen's matrix multiplication. Greedy method: General method, applications-Job sequencing with dead lines, 0/1 knapsack problem, Minimum cost spanning trees, Single source shortest path problem, Huffman Codes.

UNIT III

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

UNIT IV

Backtracking: General method, applications- Recursive Permutation Selector,N-queen problem, sum of subsets problem, Graph coloring, Hamiltonian cycles.

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. Introduction to Algorithms, second edition, T.H.Cormen, C.E.Leiserso R.L.Rivest,and C.Stein, PHI Pvt. Ltd./ Pearson Education

REFERENCES

1. Algorithm Design: Foundations, Analysis and Internet examples M.T.Goodrich and R.Tomassia,John wiley and sons.
2. Introduction to Design and Analysis of Algorithms A strategic approach R.C.T.Lee, S.S.Tseng, R.C.Chang and T.Tsai, Mc Graw Hill. .
3. Algorithms, Richard Johnson baugh and Marcus Schaefer, Pearson Education.
4. Fundamentals of Algorithms by Brassard & Brattley PHI

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(R11CSE1120) SOFTWARE ENGINEERING

UNIT I

Introduction to Software Engineering: Changing nature of Software, Software Myths.

A Generic View Of Process: Software engineering A layered technology, The Capability Maturity Model Integration (CMMI)

Process Models: The water fall model, Incremental process models, evolutionary process models, the unified process.

UNIT II

Software Requirements: Functional and non functional requirements, User requirements, System requirements, Interface specification,The software requirements document.

Requirements Engineering Process: Feasibility studies, requirements elicitation and analysis, requirements validation, requirements management

UNIT III

System models: context models, behavior models, data models, object models, structured methods

Design engineering: design process and design quality, design concepts the design model

Creating an architectural design: software architecture, data design, architectural styles and patterns, architectural design

UNIT IV

Test Strategies: A strategic approach to software testing, Black box and White box Testing, Validation Testing, System Testing,Product Metrics ,Software Quality, Metrics for analysis model, Metrics for design model, Metrics for source code, Metrics for testing, Metrics for maintenance Metrics for process and products, Software measurement, Metrics for software quality

UNIT V

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, ISO 9000 Quality standards

TEXT BOOKS

1. Software engineering- Roger S.Pressman, A practitioner's Approach, McGraw-Hill International Edition, 5th edition, 2001.
2. Software engineering, Ian Sommerville, Pearson education Asia, 6th edition, 2000.

REFERENCES

1. An Integrated Approach to Software Engineering - Pankaj Jalote- Springer Verlag, 1997.
2. Software Engineering – An Engineering Approach, James F Peters and Witold Pedryez, John Wiley and Sons, New Delhi, 2000.
3. Software Engineering Fundamentals, Ali Behforooz and Frederick J Hudson, Oxford University Press, New Delhi, 1996.
4. Software Engineering – Aprimer,Waman S Jawadekar – TMH – 2008 .

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(R11CSE1114) OBJECT ORIENTED PROGRAMMING

UNIT I

Fundamentals of Object Oriented programming: Object Oriented paradigm - Basic concepts of Object Oriented Programming - Benefits of OOP - Applications of OOP

Java Evolution: Java Features - How Java differs from C and C++ - Java and Internet - Java and World Wide Web - Web Browsers - Hardware and Software Requirements - Java Environment. Overview of Java Language: Simple Java Program - Java Program Structure - Java Tokens- Java Statements - Implementing a Java Program - Java Virtual Machine - Constants - Variables - Data types - Scope of Variables-Symbolic Constants-Type Casting and type promotions – Operators, Operator Precedence and Associativity - Control Statements – break - continue- Arrays-Multi dimensional arrays, Wrapper Classes - Simple examples.

UNIT II

Classes: Classes and Objects - Constructors – methods - this keyword – garbage collection-finalize - Overloading methods and constructors - Access Control- Static members – nested and inner classes – command line arguments - variable length arguments.

Inheritance: Forms of inheritance – specialization, specification, construction, extension, limitation, combination, benefits and costs of inheritance. Super uses- final - polymorphism, method overriding - dynamic method dispatch –abstract classes – exploring string class.

UNIT III

Packages and Interfaces: Defining and accessing a package – understanding CLASSPATH – access protection importing packages – Interfaces - Defining and implementing an interface, Applying interfaces, Variables in interfaces and extended interfaces. Exploring java.lang and java.util packages.

Exception Handling-Fundamentals, usage of try, catch, multiple catch clauses, throw, throws and finally. Java Built in Exceptions and creating own exception subclasses.

UNIT IV

Multithreaded Programming: Java Thread life cycle model – Thread creation - Thread Exceptions - Thread Priority – Synchronization - Messaging - Runnable Interface - Interthread Communication - Deadlock - Suspending, Resuming and stopping threads.

I/O Streams: File – Streams – Advantages - The stream classes – Byte streams – Character streams.

Networks basics: Socket Programming - Proxy Servers - TCP/IP Sockets - Net Address - URL - Datagram's

UNIT V

Applet Programming: How Applets differ from Applications - Applet Life Cycle - Creating an Applet - Running the Applet- Designing a Webpage - Applet Tag - Adding Applet to HTML file - More about Applet Tag - Passing parameters to Applets - Aligning the display.

Event handling: basics of event handling, Event classes, Event Listeners, delegation event model, handling mouse and keyboard events, adapter classes, AWT Class hierarchy - AWT Controls - Layout Managers and Menus, limitations of AWT, Swing, MVC architecture, components, containers, exploring swing.

TEXT BOOKS

1. The Complete Reference Java J2SE, 5th Edition, Herbert Schildt ,, TMH.
2. Core Java 2 Volume I Fundamentals, 5th Edn. Cay S.Horstmann, Gary Cornell - PHI,2000.

REFERENCES

1. The Java Programming Language, K. Arnold and J. Gosling, Second Edition, Addison Wesley, 1996.
2. Java Programming and Objected Oriented Application Development by Richard A.Johnson INDIA Edition CENGAGE Learning.
3. Object Oriented Programming with Java, R.Buyya, S.T Selvi, X Chu,TMH.
4. An Introduction to Java Programming, Y.Daniel Liang, Pearson Education.

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(R11CSE1204) OBJECT ORIENTED PROGRAMMING LABORATORY

1. Write a java program to print all the twin primes below 1000. (A twin prime is a prime number that differs from another prime number by two. (3, 5), (5, 7), (11, 13), (17, 19), (29, 31), (41, 43), .821, 823), etc. .

2. Write a java program to implement matrix multiplication. (Take the input from keyboard).

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

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

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

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

7. Write a Java program that prints all real solutions to the quadratic equation ax2 + bx + c = 0. Read in a, b, c and use the quadratic formula. If the discriminant b2 -4ac is negative, display a message stating that there are no real solutions.
8. Write a java program to implement constructor overloading.
9. Write a java program to implement variable length arguments
10. Write a java program to implement the use of inner classes.
11. Write a java program to implement dynamic method dispatch.
12. Write a Java program that illustrates how run time polymorphism is achieved.

13. Write a java program that illustrates the following
    Handling predefined exceptions
    Handling user defined exceptions
14. Write a java program that illustrates the following
    Creation of simple package.
    Accessing a package.
    Implementing interfaces.

15. Write a Java program for creating multiple threads
    Using Thread class
    Using Runnable interface

16. Write a Java program for creating multiple threads. The main method sleeps for 10 seconds at the end of which all the threads should be terminated.

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

18. Write a Java program that implements a simple client/server application. The client sends data to a server. The server receives the data, uses it to produce a result, and then sends the result back to the client. The client displays the result on the console. For ex: The client sends a Celsius value, and the result produced by the server is the Fahrenheit value.

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

20. Write a Java program that: (Use classes and objects)
    a) Implements stack ADT.
    b) Converts infix expression into Prefix form.

21. Write an applet that displays a simple message.

22. Write a java program for passing parameters to applets

23. 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.
24. Write a Java program for handling mouse and keyboard events.
25. Write a Java program for handling menu events.

TEXT BOOKS

1. The Complete Reference Java J2SE, 5th Edition, Herbert Schildt , TMH.
2. Core Java 2 Volume I Fundamentals, 5th Edition. Cay S.Horstmann, Gary Cornell , PHI,2000.
3. The Java Programming Language - Second Edition, K. Arnold and J. Gosling , Addison Wesley, 1996.

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(R11CSE1208) DATABASE MANAGEMENT SYSTEMS LABORATORY

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

Experiment 1: E-R Model

Analyze the problem carefully and come up with the entities in it. Identify what data has to be persisted in the database. This contains the entities, attributes etc. Identify the primary keys for all the entities. Identify the other keys like candidate keys, partial keys, if any.

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

Experiment 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.

Experiment 3: Relational Model

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

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

Experiment 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.

Experiment 5: Practicing DDL and DML commands

Create all the normalized tables that are identified in Experiment 4.

Insert data into the above tables.

Experiment 7: Querying

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

Practice the following Queries:

1. Display unique PNR, no of all passengers.
2. Display all the names of male passengers.
3. Display the ticket numbers and names of all the passengers.
4. Find the ticket numbers of the passengers whose name start with V 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.

Experiment 8 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.

8. Write a Query to display the Information present in the Passenger and cancellation tables. Hint: Use UNION Operator.
9. Display the number of days in a week on which the 9WO1 bus is available.
10. Find number of tickets booked for each PNR_no using GROUP BY CLAUSE. Hint: Use GROUP BY on PNR_No.
11. Find the distinct PNR numbers that are present.
12. 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.
13. Find the total number of cancelled seats.
14. Display the details of passengers who travelled within the last 3 months.
15. Create a view for the details of passengers who cancelled their tickets.

Experiment 9: Create tables for the following schema.

Student(snum: integer, sname: string, major: string, level: string, age: integer)
Class(name: string, meets at: time, room: string, fid: integer)
Enrolled(snum: integer, cname: string)
Faculty(fid: integer, fname: string, deptid: integer)

Experiment 10: Querying

1. Find the names of all Juniors (Level = JR) who are enrolled in a class taught by I. Teach.
2. Find the age of the oldest student who is either a History major or is enrolled in a course taught by Teacher
3. Find the names of all classes that either meet in room R128 or have 5 or more students enrolled.
4. Find the names of all students who are enrolled in two classes that meet at the same time.
5. Find the names of faculty members who teach in every room in which some class is taught.
6. Find the names of faculty members for whom the combined enrollment of the courses that they teach is less than 5
7. Print the Level and the average age of students for that Level, for each Level.
8. Print the Level and the average age of students for that Level, for all Levels except JR.
9. Print the Level and the average age of students for that Level, whose average age is greater than 20.
10. Find the names of students who are enrolled in the maximum number of classes.
11. Find the names of students who are not enrolled in any class.
12. Count the number of junior level students.
13. Display all the students whose names starts with the letter “p”.
14. Display all the teachers whose names contain letter ‘a’ or ‘I’ in their names.

Experiment 11: PL/SQL Programs

1. Program to find sum of first ‘n’ natural no.s
2. Program to find reverse of a number
3. Insert the values of areas of a circle into a table called areas taking radius values from 2 to 8.

Experiment 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. Practice the following programs using cursors.

1. Write a cursor program to retrieve the details of all students using cursors (Use students table in experiment 9)
2. Write a PL/SQL block to update the level of students from JL to “junior Level” and SL to “senior Level”and insert a record in newlevel table.
3. Write a cursor program to display the details of Senior Level students .

Experiment 13: Procedures

In this session you are going to learn Creation of stored procedure, Execution of procedure and modification of procedure. Practice procedures using the above database.

Experiment 14: 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.

REFERENCES

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 I l g PL/SQL Programming,M.Me Laughlin.TMH.
6. SQL Fundamentals,! J.Patrick,Pearson Education.

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(R11CSE1113) COMPUTER NETWORKS

UNIT I

Introduction to networks: internet, protocols and standards, the OSI Model, Layers in OSI model, TCP/IP suite, Addressing, Analog and Digital signals.
Physical layer: Digital transmission, multiplexing, transmission media, circuit switched networks, Datagram networks, virtual circuit networks, switch and Telephone networks.

UNIT II

Data link layer: Introduction, Block coding, cyclic codes, checksum, framing, flow and error control, Noiseless channels, noisy channels, HDLC, point to point protocols.
Medium Access sub layer: Random access, controlled access, Channelization.

UNIT III

IEEE standards: Ethernet, Fast Ethernet, Giga-Bit Ethernet, wireless LANS.
Connecting LANS , backbone networks and virtual LANS, Wireless WANS, SONET, Frame relay and ATM.

UNIT IV

Network layer: Logical addressing, internetworking, tunneling, address mapping, ICMP, IGMP, forwarding, Uni-cast routing protocols, multicast routing protocols.

UNIT V

Transport Layer: Process to process delivery, UDP and TCP protocols, SCTP, Data traffic, congestion, congestion control, Qos, integrated services, differentiated services,QoS in switched networks.
Application Layer: Domain name space, DNS in internet, electronic mail, FTP, WWW, HTTP, SNMP, multi-media, network security.

TEXT BOOKS

1. Data Communications and Networking – Behrouz A. Forouzan , Fourth Edition TMH,2006.
2. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI.

REFERENCES

1. Data communications and computer Networks, P.C .Gupta, PHI.
2. An Engineering Approach to Computer Networks-S.Keshav, 2nd Edition, Pearson Education.
3. Understanding communications and Networks, 3rd Edition, W.A. Shay, Cengage Learning.
4. Computer Networking: A Top-Down Approach Featuring the Internet. James F. Kurose & Keith W. Ross,3rd Edition, Pearson Education.

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(R11ITD1120) LINUX PROGRAMMING

UNIT I

Linux Utilities: File handling utilities, Security by file permissions, Process utilities, Disk utilities, Networking commands, Filters, Text processing utilities and Backup utilities, sed – scripts, operation, addresses, commands, applications, awk – execution, fields and records, scripts, operation, patterns, actions, functions, using system commands in awk.

Working with the Bourne again shell(bash): Introduction, shell responsibilities, pipes and input Redirection, output redirection, here documents, running a shell script, the shell as a programming language, shell meta characters, file name substitution, shell variables, command substitution, shell commands, the environment, quoting, test command, control structures, arithmetic in shell, shell script examples, interrupt processing, functions, debugging shell scripts.

UNIT II

Linux Files: File Concept, File System Structure,Inodes, File types, The standard I/O and formatted I/O, stream errors, kernel support for files, System calls, library functions, file descriptors, low level file access, file and record locking. **Directory management:** Directory file APIs , Symbolic links and hard links.

UNIT III

Linux Process: Process concept, Kernel support for process, process attributes, process control - process creation, waiting for a process, process termination, zombie process, orphan process, Process APIs. Signals – Introduction to signals, Signal generation and handling, Kernel support for signals, Signal function, unreliable signals, reliable signals, kill, raise , alarm, pause, abort, sleep functions.

UNIT IV

Interprocess Communication: Introduction to IPC, pipes, FIFOs, Introduction to three types of IPC(Linux)-message queues, semaphores and shared memory.

Message Queues: Kernel support for messages, Linux APIs for messages, client/server example.

Semaphores: Kernel support for semaphores, Linux APIs for semaphores, file locking with semaphores.

Shared Memory: Kernel support for shared memory, Linux APIs for shared memory, semaphore and shared memory example.

UNIT V

Sockets: Introduction to Linux Sockets, Socket system calls for connection oriented protocol and connectionless protocol, example-client/server programs.

TEXT BOOKS

1. Unix System Programming using C++ T.Chan, PHI.
2. Unix Concepts and Applications, 4th Edition, Sumitabha Das, TMH,2006.
3. Unix Network Programming ,W.R.Stevens,PHI.

REFERENCES

1. Unix and Shell programming, B.A.Forouzan and R.F.Gilberg, Cengage Learning
2. A practical guide to Linux , Mark G.Sobell
3. Beginning Linux Programming, 4th Edition , N.Mathew, R stones, WROX Wiley India Edition,2008.
4. Linux System Programming., Robert Love, O'Reilly, SPD. 2007

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(R11ECE1108) MICROPROCESSORS AND MICROCONTROLLERS

UNIT I

Introduction to 8085 Microprocessor: Architecture of 8086 Microprocessor, Addressing modes of 8086, Instruction set of 8086, Assembler directives, simple assembly language programs, procedures, and macros. Pin diagram of 8086-Minimum mode and maximum mode of operation. Memory and I/O organization of 8086.

UNIT II

8255 PPI : Various modes of operation and interfacing to 8086. Interfacing Keyboard & Displays, D/A and A/D converter to 8086 using 8255, memory interfacing to 8086, Interfacing 8257 DMA Controller to 8086.

UNIT III

Serial Communication standards: serial data transfer schemes, 8251 USART architecture and interfacing, RS-232, IEEE 488 standards. Interrupt structure of 8086, Interrupt Vector Table. Need for 8259 Programmable Interrupt Controller.

UNIT IV

Introduction to Microcontrollers: 8051 Microcontroller Architecture, I/O ports, memory organization, counters and Timers, Serial data Input/Output, Interrupts. Addressing modes, Instruction set of 8051, Simple programs.

Timer, serial port and Interrupts programming: Programming 8051 timers/counters, 8051 serial port programming, programming timer interrupts, programming External hardware interrupts, programming serial communication interrupts.

UNIT V

The AVR RISC microcontroller architecture: Introduction, AVR family architecture, Register File, The ALU, Memory access and Instruction execution, I/O memory, EEPROM, I/O ports, Timers, UART, Interrupt structure.

TEXT BOOKS

1. Microprocessors and interfacing – Douglas V. Hall, TMH, 2nd Edition, 1999.
2. 8051 Microcontroller – Kenneth J. Ayala, Penram International/ Thomson, 3rd Edition.
3. The 8051 microcontrollers and Embedded systems- Mazidi and mazidi, PHI, 2000.

REFERENCES

1. Micro computer systems, The 8086/8088 Family Architecture, Programming and Design – Y.Liu and G.A. Gibson, PHI, 2nd edition.
2. Advanced microprocessors and Peripherals – A.K.Ray and K.M.Bhurchandi, TMH, 2000.
3. Micro Computer System 8086/8088 Family Architecture Programming and Design – By Liu and GA Gibson PHI, 2nd Edition
4. Microcontrollers and Applications, Ajay . V. Deshmukh, TMGH,2005.
5. The 8085 Microprocessor : Architecture Programming and Interfacing – K.Uday Kumar, B.S Umashankar, Pearson , 2008.

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(R11HAS1103) MANAGEMENT SCIENCE

UNIT I

Introduction to management

Concepts of management - nature, importance, and functions of management; Taylor's scientific management theory; Fayol's principles of management; Mayo's Hawthorne experiments; Maslow's theory of human needs; Douglas McGregor's theory X and theory Y; Herzberg's two-factor theory of motivation; System and contingency approach to management; Planning – meaning, significance, and types of plans; Decision making and steps in decision making process; Leadership styles; Social responsibilities of management.

Organizing - Meaning, and features; Process of organization; Principles of organization; Elements of organization; Organization chart; Span of control - Graicunas formulae; Centralisation and decentralization; Types of mechanistic and organic structures of organisation - line organization, line and staff organization, functional organization, committee organization, matrix organization, virtual organisation, cellular organisation, team structure, boundaryless organization, inverted pyramid structure, and lean and flat organization structure; Their merits, demerits and suitability.

UNIT II

Human resources management

Concepts of HRM;

Basic functions of HR manager - human resource planning (definition; objectives; process), recruitment (definition; sources; techniques), selection (definition; process), induction and orientation, training and development (definition; need; methods), employee exit process, employee relations management, employee compensation and benefits administration, job evaluation (objectives; process; methods), and performance appraisals (objectives; process; methods).

UNIT III

Strategic management

Mission; Goals; Objectives; Policy; Strategy; Programmes; Elements of corporate planning process - environmental scanning; value chain analysis, BCG matrix, generic strategy alternatives, SWOT analysis, and steps in strategy formulation and implementation; Balance score card; Capability maturity model (CMM)/ People capability maturity model (PCMM).

UNIT IV

Operations management

Plant location; Types of plant layout; Methods of production – job, batch, and mass production; Work study-basic procedure involved in method study and work measurement.

Materials management

Objectives; Need for inventory control; EOQ, ABC Analysis; Purchase procedure; Value analysis; JIT, Six sigma; TQM; Supply chain management; Stores management and stores records.

M**arketing**

Functions of marketing; Marketing mix, and marketing strategies based on product life cycle; Channels of distribution.

UNIT V

Project management – network analysis

Network analysis; Programme evaluation review technique - PERT (probability of completing the project within given time); Critical path method - CPM (Identifying critical path); Project cost analysis; Project crashing; Simple problems.

TEXT BOOKS

1. Management Science *by* Aryasri; *Publisher: Tata McGraw Hill, 2009.*
2. Management *by* James Arthur, Finch Stoner, R. Edward Freeman, and Daniel R. Gilbert 6th Ed; *Publisher: Pearson Education/Prentice Hall.*
3. Principles and Practice of Management - L.M. Prasad; *Publisher: Sultan Chand Publications, New Delhi.*

REFERENCES

1. Principles of Marketing: A South Asian Perspective *by* Kotler Philip, Gary Armstrong, Prafulla Y. Agnihotri, and Eshan ul Haque , 2010, 13th Edition, *Publisher: Pearson Education/ Prentice Hall of India*.
2. A Handbook of Human Resource Management Practice *by* Michael Armstrong, 2010; *Publisher: Kogan Page Publishers*.
3. Quantitative Techniques in Management *by* N.D. Vohra, 4th edition, 2010; *Publisher: Tata McGraw Hill*.
4. Operations Management: Theory and Practice *by* B. Mahadevan, 2010; *Publisher: Pearson Education*.
5. Strategic Management *by* V.S.P. Rao and V. Hari Krishna, 2010; *Publisher: Excel Books*.

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(R11CSE1108) OPERATING SYSTEMS

UNIT I

Computer System and Operating System Overview: Overview of Computer System hardware, Operating System Objectives and functions, Evaluation of operating System, Example Systems. Operating System Services, System Calls, System Programs.

Process Management: Process Description, Process Control, Process States, Cooperating Processes, Inter-process Communication.

UNIT II

CPU Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms and evaluation, Threads Overview, Threading issues.

Concurrency: Principles of Concurrency, Mutual Exclusion, Software and hardware approaches, Semaphores, Monitors, Message Passing, Classic problems of synchronization.

UNIT III

Principles of deadlock: System Model, Deadlock Characterization, Methods for handling Deadlocks, Deadlock Prevention, Deadlock avoidance, Deadlock detection, Recovery from Deadlocks, Dining philosopher's problem.

UNIT IV

Memory Management: Basic concepts, Swapping, Contiguous memory allocation, Paging, Segmentation, Virtual memory, Demand paging, Page-replacement algorithms, Thrashing.

Secondary storage structure: Disk structure; Disk scheduling, Disk management, Swap-space Management, RAID structure, Stable-storage Implementation, Tertiary-Storage Structure

I/O systems: I/O hardware, Application I/O interface, Kernel I/O subsystem, Transforming I/O request to hardware operations, STREAMS

UNIT V

File Management: File system-File concepts, Access methods, Directory structure, File system mounting, File sharing and Protection. Implementing file systems-File system structure and implementation, Directory implementation, Allocation methods, Free-space management, Efficiency and performance

Security: Security threats, Protection, Intruders, Viruses, Trusted System.

TEXT BOOKS

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

REFERENCES

1. Operating System A Design Approach-Crowley,TMH.
2. Modern Operating Systems, Andrew S Tanenbaum 2nd edition Pearson/PHI.
3. "An Introduction to Operating Systems, Concepts and Practice", PHI, 2003 - Pramod Chandra P. Bhat.
4. Operating Systems – A concept based approach – DM Dhamdhere – 2nd Edition TMH

III Year B.Tech IT–I Sem	L	T/P/D	C
	3	1	3

(R11ITD1126) E – COMMERCE

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.

UNIT III

Inter Organizational Commerce: EDI, EDI Implementation, Value added networks.
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.
Consumer Search and Resource Discovery: Information search and Retrieval, Commerce Catalogues, Information Filtering.

UNIT V

Multimedia: key multimedia concepts, Digital Video and electronic Commerce, Desktop video processing, Desktop video conferencing, broadband telecommunications, mobile & wireless computing fundamentals.

TEXT BOOKS

1. Frontiers of Electronic commerce – Kalakata, Whinston, Pearson.
2. E-Commerce fundamentals and applications Hendry Chan, Raymond Lee, Tharam Dillon, Ellizabeth Chang, John Wiley.

REFERENCES

1. E-Commerce, S.Jaiswal – Galgotia.
2. E-Commerce, Efrain Turbon, Jae Lee, David King, H.Michael Chang.
3. Electronic Commerce – Gary P.Schneider – Thomson.
4. E-Commerce – Business, Technology, Society, Kenneth C.Taudon, Carol Guyerico Traver

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(R11ECE1204) MICROPROCESSORS AND MICROCONTROLLERS LABORATORY

I. Microprocessor 8086 and Interfacing:

1. Introduction to MASM/TASM.
2. Arithmetic operation – Multi byte Addition and Subtraction, Multiplication and Division – Signed and unsigned Arithmetic operation, ASCII – arithmetic operation.
3. Logic operations – Shift and rotate – Converting packed BCD to unpacked BCD, BCD to ASCII conversion.
4. By using string operation and Instruction prefix: Move Block, Reverse string, Sorting, Inserting, Deleting, Length of the string, String comparison.
5. 8255 : Interface keyboard
6. 8255 : Interface Display
7. Serial communication between 8086 processors and PC through 8251.

II. Microcontroller 8051 and Interfacing:

1. Programming using arithmetic, logical and Bit manipulation instructions of 8051
2. Reading and Writing on a parallel port.
3. Timer in different modes
4. Serial communication between 8051 and PC
5. Interrupt programming
6. LCD Interfacing
7. Keyboard Interfacing
8. ADC Interfacing

9. DAC Interfacing
10. stepper motor Interfacing
11. DC motor Interfacing
12. Sensor Interfacing and signal conditioning

(At least 5 interfacing experiments must be completed in addition to programming experiments from part-II)

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(R11ITD1202) OPERATING SYSTEMS & COMPUTER NETWORKS LAB

(THROUGH LINUX)

OBJECTIVE

- To understand the functionalities of various layers of OSI model.
- To understand the operating system functionalities System/Software Requirement.
- Intel based desktop PCs LAN CONNECTED with minimum of 166 MHZ or faster processor with at least 64 MB RAM and 100 MB free disk space.

COMPUTER NETWORKS LAB

1. Implement the data link layer framing methods such as character, character stuffing and bit stuffing.
2. Implement on a data set of characters the three CRC polynomials – CRC 12, CRC 16 and CRC CCIP.
3. Implement Dijkstra 's algorithm to compute the Shortest path thru a graph.
4. Take an example subnet graph with weights indicating delay between nodes. Now obtain Routing table at each node using distance vector routing algorithm
5. Take a 64 bit plain text and encrypt the same using DES algorithm.
6. Using RSA algorithm encrypt a text data and Decrypt the same.

OPERATING SYSTEMS LAB

1. Simulate the following CPU scheduling algorithms.
   a) Round Robin b) Priority
2. Simulate all file allocation strategies
   a) Sequential b) Linked
3. Simulate Bankers Algorithm for DeadLock Avoidance.
4. Simulate Bankers Algorithm for Deadlock Prevention.
5. Simulate Paging Technique of memory management.

LINUX PROGRAMMING

Note: Use Bash for Shell scripts.

1. 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.
2. 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.
3. Write a shell script to find factorial of a given integer.
4. Write an awk script to find the number of characters, words and lines in a file.
5. Write a c program that makes a copy of a file using standard I/O and system calls.
6. Implement in C the following Unix commands using System calls a . cat b. mv
7. Write a C program to list for every file in a directory, its inode number and file name.
8. Write a C program to create a Zombie process.
9. Write C programs that illustrate communication between two unrelated processes using
   named pipe.
10. Write a C program (sender.c) to create a message queue with read and write permissions to write 3 messages to it with different priority numbers.
11. Write a C program (receiver.c) that receives the messages (from the above message queue as specified in (Prog: 10)) and displays them.

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	3	1	3

(R11ITD1102) WEB TECHNOLOGIES

UNIT I

HTML Common tags: List, Tables, images, forms, Frames; Cascading Style sheets. Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script.

UNIT II

Introduction to XML: Document type definition, XML Schemas, Document Object model, Presenting XML, Using XML **Processors:** DOM and SAX.

Java Beans: Introduction to Java Beans, Advantages of Java Beans, BDK Introspection, Using Bound properties, Bean Info Interface, Constrained properties Persistence, Customizes, Java Beans API, Introduction to EJB's.

UNIT III

Web Servers and Servlets: Tomcat web server, Installing the Java Software Development Kit, Tomcat Server & Testing Tomcat, Introduction to Servelets: Lifecycle of a Serverlet, JSDK, The Servelet API, The javax.servelet Package, Reading Servelet parameters, Reading Initialization parameters. The javax.servelet HTTP package, Handling Http Request & Responses, Using Cookies-Session Tracking, Security Issues.

UNIT IV

Database Access: Database Programming using JDBC, JDBC drivers,Studying Javax.sql.* package, Accessing a Database from a Servelet.

Introduction to JSP: The Problem with Servelet. The Anatomy of a JSP Page, JSP Processing. JSP Application Design with MVC Setting Up and JSP Environment.

UNIT V

JSP Application Development: Generating Dynamic Content, Using Scripting Elements Implicit JSP Objects, Conditional Processing : Displaying Values Using an Expression to Set an Attribute, Declaring Variables and Methods Error Handling and Debugging Sharing Data Between JSP pages, Requests, and Users Passing Control and Date between Pages – Sharing Session and Application Data – Memory Usage Considerations, Accessing a Database from a JSP page, Deploying JAVA Beans in a JSP Page, Introduction to struts framework.

TEXT BOOKS

1. Web Programming, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech (UNIT s 1, 2)
2. Core SERVLETS ANDJAVASERVER PAGES VOLUME 1: CORE TECHNOLOGIES By Marty Hall and Larry Brown Pearson (UNITs 3,4,5)

REFERENCES

1. Programming world wide web-Sebesta,Pearson
2. Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia.
3. Jakarta Struts Cookbook , Bill Siggelkow, S P D O'Reilly.
4. Java : The complete Reference, 7th Edition by Herbert Schildt. TMH.

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	3	1	3

(R11ITD1122) SOFTWARE PROJECT MANAGEMENT

UNIT I

Conventional Software Management: The waterfall model, conventional software Management performance.

Improving Software Economics: Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections.

UNIT II

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

Life cycle phases: Engineering and production stages, Inception, Elaboration, Construction, Transition phases.

Artifacts of the process: The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.

UNIT III

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.

UNIT IV

Process Automation: Automation Building blocks.

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 discriminants.

UNIT V

Project Organizations and Responsibilities: Line-of-Business Organizations

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 BOOKS

1. Software Project Management, Walker Royce: Pearson Education, 2005.
2. Software Project Management, Bob Hughes and Mike Cotterell: Tata McGraw- Hill Edition.

REFERENCES

1. Software Project Management, Joel Henry, Pearson Education.
2. Software Project Management in practice, Pankaj Jalote, Pearson Education.2005.

III Year B.Tech IT–II Sem	L	T/P/D	C
	4	1	4

(R11ITD1103) AUTOMATA AND COMPILER DESIGN

UNIT I

Formal Languages and Regular Expressions: Languages. Definition: Languages, regular expressions. Finite Automata – DFA, NFA. Conversion of regular expression to NFA, NFA to DFA. Applications of Finite Automata to lexical analysis. LEX tools.

UNIT II

Context Free Grammars and Parsing: Context free grammars. Derivation, parse trees, ambiguity LL(K) grammars and LL(1) parsing.

Bottom up parsing: handle pruning, LR grammar parsing, LALR parsing, parsing ambiguous grammars, YACC programming specification.

UNIT III

Semantics: Syntax directed translation, S-attributed and L-attributed grammars. Intermediate Code generation: Abstract tree, translation of simple statements and control flow statements

UNIT IV

Context Sensitive features: Chomsky hierarchy of languages and recognizers. Type checking, type conversions, equivalence of type expressions, overloading of functions and operations

Runtime Storage: Storage organization, storage allocation strategies, scope access to new local names, Parameters, language facilities for dynamic storage allocation.

UNIT V

Code optimization: Principle sources of optimization, optimization of basic blocks, peephole optimization, flow graphs, data flow analysis of flow graphs

Code generation: Machine dependent code generation, object code forms, generic code generation, algorithm, register allocation and assignment, using DAG representation of block.

TEXTBOOKS

1. Introduction to theory of computation, Sipser,2nd Edition,Thomson
2. Compilers Principles, Techniques and Tools Aho ,Ullman ,Ravisethi,Pearson Education

REFERENCES

1. Modern Compiler construction in C, Andrew W.Appel Cambridge University press
2. Compiler construction, Louden, Cengage learning

III Year B.Tech IT–II Sem	L	T/P/D	C
	4	0	4

(R11CSE1123) DATA WAREHOUSING AND DATA MINING

UNIT I

Introduction: Fundamentals of data mining, KDD process, Data Mining Functionalities, Classification of Data Mining systems, Data Mining Task primitives, Integration of a Data mining System with a Database or a Data warehouse systems, Major issues in Data Mining.
Data Preprocessing: Needs for Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation.

UNIT II

Data Warehouse and OLAP Technology for Data Mining: Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, From Data Warehousing to Data Mining.
Data Cube computation and Data Generalization: Efficient Methods for Data Cube Computation, Further Development of data cube and OLAP Technology, Characterization and Discrimination: Attribute-Oriented Induction.

UNIT III

Mining Frequent, Associations and Correlations: Basic Concepts, Frequent Itemset mining methods, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses, From Association Mining to Correlation Analysis, Constraint-Based Association Mining.

UNIT IV

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

UNIT V

Cluster Analysis Introduction: Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Outlier Analysis.
Mining Complex Types of Data: Mining Spatial Databases, Mining Multimedia Databases, Mining Time-Series and Sequence Data, Mining Text Databases, Mining the World Wide Web.

TEXT BOOKS

1. Data mining: Concepts and Techniques, Jiawei Han and Micheline Kamber, 2nd Edition, Elsevier, 2006.
2. Introduction to data mining, Pang-Ning Tan, Michael Steinbach, Vipin Kumar, Addison-Wesley, 2005.

REFERENCES

1. Data Mining Introductory and Advanced topics –MARGARET H DUNHAM, PEARSON EDUCATION
2. Data Mining Techniques – ARUN K PUJARI, University Press.
3. Data Warehousing in the Real World – SAM ANAHORY & DENNIS MURRAY. Pearson Edn. Asia.
4. Data Warehousing Fundamentals – Paulrai Ponnaiah, Wiley Student Edition

III Year B.Tech, IT–II Sem	L	T/P/D	C
	4	0	4

(R11CSE1118) COMPUTER GRAPHICS AND ANIMATION

UNIT I

INTRODUCTION: Introduction: Usage of Graphics and their applications, Presentation Graphics-Computer Aided Design- Computer Art- Entertainment- Education and Training-Visualization- Image Processing- Graphical User Interfaces

Over view of Graphics systems: Video Display Devices- Raster Scan systems-random scan systems-Graphics monitors and workstations-Input devices-hard copy devices-Graphics software

Output primitives: Points and Lines-Line Drawing Algorithms- Loading the Frame buffer- Line function- Circle- Generating Algorithms- Ellipse Generating Algorithms-Other Curves- Parallel Curve Algorithms-Curve Functions-Pixel Addressing- Filled Area Primitives-Filled Area Functions- Cell Array- Character Generation

Attributes of Output Primitives: Line and Curve Attributes-Color and Gray scale levels- Area Fill Attributes- Character Attributes-Bundled Attributes- Inquiry Functions-Ant aliasing

UNIT II

TWO DIMENSIONAL GEOMETRICAL TRANSFORMATION AND VIEWING: Two dimensional geometric transformations - Matrix representations and homogeneous coordinates, composite transformations, Two dimensional viewing - viewing pipeline, viewing coordinate reference frame; widow-to-viewport coordinate transformation, Cohen -Sutherland- and Cyrus-beck line clipping algorithms, Southerland-Hodgeman polygon clipping algorithm.

UNIT III

THREE DIMENSIONAL OBJECT REPRESENTATION: Three dimensional concepts; Three dimensional object representations - Polygon surfaces - Polygon tables - Plane equations - Polygon meshes; Curved Lines and surfaces, Quadratic surfaces; Blobby objects; Spline representations - Bezier curves and surfaces - B-Spline curves and surfaces

UNIT IV

THREE DIMENSIONAL GEOMETRICAL TRANSFORMATION AND VIEWING: Three dimensional geometric and modeling transformations - Translation, Rotation, Scaling, composite transformations

Three dimensional viewing - viewing pipeline, viewing coordinates, Projections, Clipping; Visible surface detection methods: Depth buffer, scan line, Depth sorting, BSP-tree methods, Area sud-division and octree methods

UNIT V

COMPUTER ANIMATION: Design of Animation Sequence, General computer Animation functions, Raster animation, Computer animation languages, key frame systems, motion specifications

TEXT BOOKS

1. Computer Graphics C Version by Donald Hearn and M. Pauline Baker Pearson Education, New Delhi, 2004
2. Computer graphics principles and practice, 2nd Edition in c, Foley, VanDam, Feiner and Hughes, Pearson Education

REFERENCES

1. Procedural elements for Computer Graphics, David Rogers, Tata Mc Graw hill,2nd edition
2. Computer Graphics, Steven Harington, TMH
3. Principles of interactive Computer Graphics: Neuman and sproul,TMH
4. Computer Graphics: Second Edition zhigand xiang, Roy Plastock, schaums outlines,TMH Edition

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III Year B.Tech , IT–II Sem	**L**	**T/P/D**	**C**
Elective - I	**3**	**1**	**3**

(R11CSE1115) SEMANTIC WEB AND SOCIAL NETWORKS

UNIT I

Thinking and Intelligent Web Applications, The Information Age, The World Wide Web, Limitations of Todays Web, The Next Generation Web

Machine Intelligence, Artificial Intelligence, Ontology, Inference engines, Software Agents, Berners-Lee www, Semantic Road Map, Logic on the semantic Web.

UNIT II

Ontologies and their role in the semantic web, Ontologies Languages for the Semantic Web - Resource Description Framework(RDF) / RDF Schema. Ontology Web Language(OWL),UML,XML/XML Schema.

Ontology Engineering, Constructing Ontology, Ontology Development Tools, Ontology Methods, Ontology Sharing and Merging, Ontology Libraries and Ontology Mapping,

UNIT III

Logic, Rule and Inference Engines. Semantic Web applications and services. Semantic Search.

e-learning, Semantic Bioinformatics, Knowledge Base

UNIT IV

XML Based Web Services, Creating an OWL-S Ontology for Web Services. Semantic Search Techno logy, Web Search Agents and Semantic Methods,

UNIT V

What is social Networks analysis, development of the social networks analysis, Electronic Sources for Network Analysis - Electronic Discussion networks.

Blogs and Online Communities. Web Based Networks. Building Semantic Web Applications with social network features.

TEXTBOOKS

1. Thinking on the Web - Berners Lee.Godel and Turing,Wiley interscience,20()8.
2. Social Networks and the Semantic Web, Peter Mika,Springer,2007.

REFERENCES

1. Semantic Web Technologies,Trends and Research in Ontology Based Systems, J.Davies, Rudi Studer. Paul Warren, John Wiley & Sons.
2. Semantic Web and Semantic Web Services -Liyang Lu Chapman and Hall/CRC Publishers,(Taylor & Francis Group)
3. Information Sharing on the semantic Web - Heiner Stuckenschmidt; Frank Van Harmelen, Springer Publications.
4. Programming the Semantic Web.T.Segaran, C.Evans, J.Taylor, O'Reilly,SPD.

III Year B.Tech IT–II Sem	L	T/P/D	C
Elective - I	3	1	3

(R11ITD1123) INFORMATION RETRIEVAL SYSTEMS

UNIT I

Introduction: Definition, Objectives, Functional Overview, Relationship to DBMS, Digital libraries and Data Warehouses. Information Retrieval System Capabilities, Search, Browse, Miscellaneous.

UNIT II

Cataloging and Indexing: Objectives, Indexing Process, Automatic Indexing, Information Extraction. Data Structures: Introduction, Stemming Algorithms, Inverted file structures, N-gram data structure, PAT data structure, Signature file structure, Hypertext data structure. Automatic Indexing: Classes of automatic indexing, Statistical indexing, Natural language, Concept indexing, Hypertext linkages.

UNIT III

Document and Term Clustering: Introduction, Thesaurus generation, Item clustering, Hierarchy of clusters. User Search Techniques: Search statements and binding, Similarity measures and ranking, Relevance feedback, Selective dissemination of information search, weighted searches of Boolean systems, Searching the Internet and hypertext.

UNIT IV

Information Visualization: Introduction, Cognition and perception, Information visualization technologies. Text Search Algorithms: Introduction, Software text search algorithms, Hardware text search systems. Information System Evaluation: Introduction, Measures used in system evaluation, Measurement example – TREC results.

UNIT V

Multimedia Information Retrieval, Models and Languages, Data Modeling, Query Languages, Indexing and Searching. Libraries and Bibliographical systems, online IR system, OPACs,Digital Libraries.

TEXTBOOKS

1. Information Storage and Retrieval systems Theory and Implementation Second Edition
2. Modern Information Retrival By Ricardo Baeza-Yates, Pearson Education, 2007.

REFERENCE S

1. Information Retrieval: Algorithms and Heuristics By David A Grossman and Ophir Frider, 2nd Edition, Springer.
2. Frakes, W.B., Ricardo Baeza-Yates: Information Retrieval Data Structures and Algorithms, Prentice Hall, 1992.
3. Modern Information Retrival By Yates Pearson Education.
4. Information Storage & Retieval By Robert Korfhage – John Wiley & Sons
5. Natural Language Processing and Information Retrieval, T.Siddiqui and U.S.Tiwary, Oxford University Press.

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III Year B.Tech IT–II Sem	**L**	**T/P/D**	**C**
Elective - I	**3**	**1**	**3**

(R11CSE1125) DISTRIBUTED DATABASES

UNIT I

Features of Distributed versus Centralized Databases, Principles Of Distributed Databases , Levels Of Distribution Transparency, Reference Architecture for Distributed Databases , Types of Data Fragmentation, Distribution transparency for Read – only Applications, Distribution transparency for update Applications, Distributed database Access primitives, Integrity Constraints in Distributed Databases.Distributed Database design – A frame work, the design of database fragmentation, the allocation of fragments.

UNIT II

Translation of Global Queries to Fragment Queries, Equivalence Transformations for Queries, Transforming Global Queries into Fragment Queries, Distributed Grouping and Aggregate Function Evaluation, Parametric Queries.

UNIT III

Optimization of Access Strategies, A Framework for Query Optimization, Join Queries, General Queries.

UNIT IV

The Management of Distributed Transactions, A Framework for Transaction Management, Supporting Atomicity of Distributed Transactions,
Concurrency Control for Distributed Transactions, Architectural Aspects of Distributed Transactions.
Concurrency Control, Foundation of Distributed Concurrency Control, Distributed Deadlocks, Concurrency Control based on Timestamps, Optimistic Methods for Distributed Concurrency Control.

UNIT V

Reliability, Basic Concepts, Non blocking Commitment Protocols, Reliability and concurrency Control, Determining a Consistent View of the Network, Detection and Resolution of Inconsistency, Checkpoints and Cold Restart.
Distributed Database Administration, Catalog Management in Distributed Databases, Authorization and Protection

TEXT BOOKS

1. Distributed Database Principles & Systems, Stefano Ceri, Giuseppe Pelagatti McGraw-Hill

REFERENCES

1. Principles of Distributed Database Systems, M.Tamer Ozsu, Patrick Valduriez ,Pearson Education.

III Year B.Tech IT–II Sem	L	T/P/D	C
Elective - I	3	1	3

(R11ITD1108) CLOUD COMPUTING

UNIT I

Introduction to Virtualization: Objectives of virtualization, history of virtualization, benefits of virtualized technology, the virtual service desk, what can be virtualized, related forms of computing, cloud computing, software as a service – SaaS, grid computing, utility computing, virtualization processes.

UNIT II

Virtualization Technologies-I: ubuntu (server edition), altiris, windows, server, software virtualization, vmware, intel virtualization, red hat virtualization, softgrid application, Linux virtualization, desktop, virtualization, hardware virtualization, resource virtualization, processor virtualization, application virtualization.

Virtualization Technologies-II: Storage virtualization, virtualization density, para-virtualization, OS virtualization, virtualization software, data storage virtualization, Intel virtualization technology, thinstall virtualization suite, net framework virtualization, windows virtualization on fedora, storage virtualization technologies, virtualization level, security monitoring and virtualization, oracle virtualization.

UNIT III

Virtualization and Storage Management: The heart of cloud computing -virtualization, defining virtualization, why virtualize, what can be virtualized, where does virtualization happen, how does virtualization happen, on the road to storage virtualization, improving availability using virtualization, improving performance through virtualization, improving capacity through virtualization, business value for virtualization.

UNIT IV

Introduction to Cloud Computing: Cloud Introduction and overview- Components, Infrastructure and Services, Why Use Cloud Computing, Benefits and Limitations, Cloud Application Architectures, Cloud Infrastructure Models, Cloud Computing Technology- Hardware & Software Infrastructure

Cloud Computing Architecture: Requirements, Introduction to Cloud Computing Architecture, various kinds of Cloud Computing Architecture, Grid Computing, Transactional Computing, On Demand Computing, and Distributed Computing.

UNIT V

Security: Security issues in Cloud Computing - Data Security, Network Security, and Host Security

Disaster Recovery: Disaster Recovery Planning, Disasters in the Cloud, Disaster Management. Scaling a Cloud Infrastructure- Capacity Planning, Cloud Scale.
Case Studies: Amazon S3, Google APP Engine, IBM Clouds, Oracle OBIEE

TEXT BOOKS

1. Cloud Computing Virtualization Specialist Complete Certification Kit - Study Guide Book, Ivanka Menken
   Gerard Blokdijk, 2009.
2. Cloud Application Architectures Building Applications and Infrastructure in the Cloud, George Reese, O'Reilly Media Press, 2009.

REFERENCES

1. Cloud Computing: A Practical Aprroach, Anthony T.Velte, Tobe J.Velte, Robert Elsenpeter, Publication Person Education, 2009
2. Storage Virtualization: Technologies for Simplifying Data Storage and Management, Tom Clark, Addison-Wesley, 2005
3. Cloud Computing Technologies and Strategies of the Ubiquitous Data Center, Curtis Franklin Jr.Brian J.S. Chee**,** 2010
4. Introduction to Cloud Computing: Business & Technology, Timothy Chou,2009

III Year B.Tech CSE & IT– II Sem	L	T/P/D	C
	0	3	2

(R11HAS1204) ADVANCED ENGLISH LANGUAGE COMMUNICATION SKILLS LABORATORY

Introduction

This course aims to offer students a practical approach to Technical Writing, and provide a relevant, contemporary and authoritative introduction to the dynamic field of technical communication that prepares them for Workplace Communication. Each unit in the syllabus is devised so as to include a writing component as well as an oral component.

The objectives of this course are to

i) expose students to workplace writing
ii) initiate them into the Process of Technical Communication
iii) to enable the students to create clear, accurate, and succinct content
iv) enable students to produce documents reflecting different types of technical communication such as Abstracts, Proposals and Technical Reports through ample practice
v) enable students to adjust technical content to meet the needs of a specific target audience
vi) groom students in behavioral skills

Methodology

Writing Component

A Process- Genre methodology will be used in teaching the technical genres. This method would enable students to understand the use of particular lexico-grammatical patterns required of in the context of technical writing. They would learn to use language to express the particular communicative intent that is required of in the context of writing these genres.

Oral Communication Component

The objective of including Oral Communication is to impart behavioral skills and prepare students to speak to a large group or team, keeping in mind the audience, context and purpose of communication. This Oral Communication component must enable students to

speak in an organized and mature way, without any inhibitions. They will be groomed to relate their speech to their audience.

Objectives of Oral Communication Component

i. equip students with Behavioral skills
ii. prepare them for Oral presentations, and Group Discussions
iii. equip them with Interview skills

Syllabus Outline

UNIT I

1. Applications and Covering letters
2. Resume Writing
3. Oral Communication :Self Introduction

UNIT II

1. Introduction to Technical Writing

- Defining Technical Writing
- Distinguishing it from other types of writing
- Determining audience, purpose and context

2. Summarizing and Synthesizing Information

3. Behavioral Skills and Personality Development

a) Building a Positive Attitude, Building a Positive Personality, Motivation, Goal Setting, Values and Vision
b) Problem Solving and Decision Making; Negotiation Skills through Role Play
c) Team Building and Leadership Abilities

UNIT III

1. Verbal Ability : Language, Reasoning Skills, Analytical Ability, Reading and Listening Skills
2. Oral Communication: Presentation Skills (Oral and Visual)

UNIT IV

1. Writing Research Abstracts
2. Oral Communication: Group Discussions

UNIT V

1. Writing Project Proposals
2. Writing Project Reports
3. Oral Communication: Interview Skills

REQUIRED TEXT BOOKS AND MATERIALS

1. Technical Writing: Process and Product *by* Sharon J. Gerson and Steven M. Gerson (1999); *Publisher: Prentice Hall.*
2. Effective Technical Communication *by* Ashraf Rizvi, M., (2005); Publisher: *Tata Mc Graw Hill*.
3. Anderson, Paul V. (2003). Reports. In Paul V. Anderson's Technical Communication: A Reader-Centered Approach (5th ed.) (pp. 457-473). Boston: Heinle.

REFERENCES

1. Technical Communication *by* Rebecca E. Burnett, 5th edition (2001); *Publisher: Thomson/Wadsworth*
2. Technical Communication: A Practical Approach (7th ed.) *by* William S. Pfeiffer; *Publisher: Person education*
3. Technical Communication: Situations and Strategies *by* Mike Markel (2006-2007); *Publisher: Bedford/ St. Martins*.
4. Anderson, Paul V. (2003). Three Types of Special Reports. In Paul V. Anderson's Technical Communication: A Reader-Centered Approach (5th ed..) ((pp. 474-513). Boston:Heinle.
5. Bolter, Jay David (2001), "The Late Age of Print" in Robert P. Yagelski's Literacies and Technologies: A Reader for Contemporary Writers (135-145); *Publisher: Longman*.
6. Brandt, Deborah. (1998) Sponsors of literacy. College Composition and Communication 49.2, 165-185.
7. Burnett, Rebecca, E. (2001) "Locating and Recording Information" in Rebecca E. Burnett's Technical Communication (pp. 164-195).
8. Johnson-Sheehan, Richard (2007). "Starting Your Career" in Richard Johnson-Sheehan's Technical Communication Today (2nd ed.) (pp. 388-402). New York: Longman.
9. Business Correspondence and Report Writing by R. C. Sharma and K. Mohan, Third Edition (2002); *Publisher: Tata McGraw Hill*.
10. Technical Communication: Principles and Practices by M. Raman and S. Sharma (Indian edition; 2004); *Publisher: Oxford University Press*.

III Year B.Tech, IT– II Sem	L	T/P/D	C
	0	3	2

(R11ITD1203) WEB TECHNOLOGIES LAB

OBJECTIVE

To create a fully functional website and to Develop an online Book store using which we can sell books (Ex. amazon .com).

HARDWARE AND SOFTWARE REQUIRED

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

WEEK 1

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

1) HOME PAGE:

The static home page must contain three frames.

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

Left frame : At least four links for navigation, which will display the catalogue of respective links. For e.g.: When you click the link “CSE” the catalogue for CSE Books should be displayed in the Right frame.

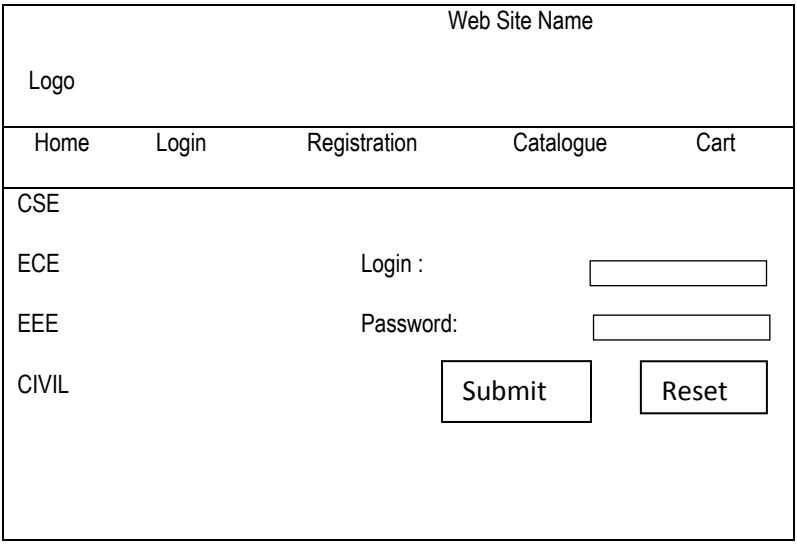
Right frame: The pages to the links in the left frame must be loaded here. Initially this page contains description of the web site.

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Description of the Web Site			

Fig 1.1

2) LOGIN PAGE:

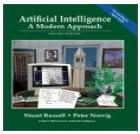
This page looks like below:



3) CATOLOGUE PAGE:

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

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

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	   	Book : XML Bible Author : Winston Publication : Wiely Book : AI Author : S.Russel Publication : Princeton hall Book : Java 2 Author : Watson Publication : BPB publications	$ 40.5 $ 63 $ 35.5	  

		Book : HTML in 24 hours Author : Sam Peter Publication : Sam publication	$ 50	Add to cart

WEEK 2

4) CART PAGE:

The cart page contains the details about the books which are added to the cart.
The cart page should look like this:

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

5) REGISTRATION PAGE:

Create a “registration form “with the following fields

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

WEEK 3

VALIDATION:

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

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

b) Write JavaScript to validate the above login page with the above parameters.

WEEK 4

Design a web page using CSS (Cascading Style Sheets) which includes the following:

1) Use different font, styles:
In the style definition you define how each selector should work (font, color etc.).
Then, in the body of your pages, you refer to these selectors to activate the styles.
For example:

```
<HTML>
<HEAD>
<style type="text/css">
B.headline {color:red; font-size:22px; font-family:arial; text-decoration:underline}
</style>
</HEAD>
<BODY>
<b>This is normal bold</b><br>
<b class="headline">This is headline style bold</b>
</BODY>
</HTML>
```

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

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

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

4) Define styles for links as

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

Example:

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

5) Work with layers:

For example:

```
LAYER 1 ON TOP:
<div style="position:relative; font-size:50px; z-index:2;">LAYER 1</div>
<div style="position:relative; top:-50; left:5; color:red; font-size:80px; z-

LAYER 2 ON TOP:
<div style="position:relative; font-size:50px; z-index:3;">LAYER 1</div>
<div style="position:relative; top:-50; left:5; color:red; font-size:80px; z-
```

6) Add a customized cursor:

Selector {cursor:value}

For example:

```
<html>
<head>
<style type="text/css">
.xlink {cursor:crosshair}
.hlink{cursor:help}
</style>
</head>
<body>
<b>
<a href="mypage.htm" class="xlink">CROSS LINK</a>
<br>
<a href="mypage.htm" class="hlink">HELP LINK</a>
</b>
</body>
</html>
```

WEEK 5

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

1) Title of the book

2) Author Name

3) ISBN number

4) Publisher name

5) Edition

6) Price

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

Display the XML file as follows.

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

Use XML schemas XSL and CSS for the above purpose.

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

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

WEEK 6

VISUAL BEANS:

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

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

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

WEEK 7

Install TOMCAT web server.

While installation assign port number 8000 to TOMCAT. Make sure that these ports are available i.e., no other process is using this port.

Access the above developed static web pages for books web site, using these servers by putting the web pages developed in week-1 and week-2 in the document root.

Access the pages by using the urls: http://localhost:8000/vnr/books.html

WEEK 8

User Authentication :

Assume four users user1, user2, user3 and user4 having the passwords pwd1,pwd2,pwd3 and pwd4 respectively. Write a servelet for doing the following.

1. Create a Cookie and add these four user id's and passwords to this Cookie.

2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) available in the cookies.

If he is a valid user (i.e., user-name and password match) you should welcome him by name(user-name) else you should display " You are not an authenticated user ".

Use init-parameters to do this. Store the user-names and passwords in the web.xml and access them in the servlet by using the getInitParameters() method.

WEEK 9

Install JSDK.

User Authentication :

Assume four users user1, user2, user3 and user4 having the passwords pwd1, pwd2, pwd3 and pwd4 respectively. Write a servelet for doing the following.

1. Use init-parameters to do this. access them in the servlet by using the getInitParameters() method.

2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) with above accessed values.

If user is a valid user (i.e., user-name and password match) you should welcome user by name (user-name) else you should display " You are not an authenticated user ".

WEEK 10

Install a database (Mysql or Oracle).

Create a table which should contain at least the following fields: name, password, email-id, phone number (these should hold the data from the registration form).

Practice 'JDBC' connectivity.

Write a java program/servlet/JSP to connect to that database and extract data from the tables and display them. Experiment with various SQL queries.

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

WEEK 11

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

WEEK 12

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

IV Year B.Tech, IT– I Sem	L	T/P/D	C
	4	0	4

(R11CSE1121) OBJECT ORIENTED ANALYSIS AND DESIGN (USING UML)

UNIT I

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

UNIT II

Basic Structural Modeling: Classes, Relationships, Common mechanisms and diagrams. Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages, Common modeling techniques.

UNIT III

Class and Object Diagrams: Terms, concepts, modeling techniques for class and object diagrams, Common modeling techniques.

Basic Behavioral Modeling-I: Interactions, Interaction diagrams, Common modeling techniques

UNIT IV

Basic Behavioral Modeling-II: Use cases, Use case diagrams, Activity diagrams, Common modeling techniques

Advanced Behavioral Modeling: Events and signals, state machines, processes and Threads, time and space, state chart diagrams, Common modeling techniques.

UNIT V

Architectural Modeling: Component, Deployment, Component diagrams, Deployment diagrams, Common modeling techniques. **Case Studies**

TEXT BOOKS

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

REFERENCS

1. Fundamentals of Object Oriented Design in UML, Pearson Education: Meilir Page-Jones.
2. Object Oriented Analysis & Design :The McGraw-Hill. Atul Kahate
3. Practical Object-Oriented Design with UML:TATA McGrawHill ,Mark Priestley:
4. Applying UML and Patterns: An introduction to Object – Oriented Analysis and Design and Unified Process, Craig Larman, Pearson Education.

IV Year B.Tech , IT– I Sem	L	T/P/D	C
	3	1	3

(R11CSE1124) VISUAL PROGRAMMING TECHNIQUES

INTRODUCTION

This course builds skills to develop console-based and windows-based applications using VC#.NET. The course discusses the implementation of Object-oriented concepts using C# language. In addition, this course introduces implementation of various programming concepts, such as threads, file handling, delegates, attributes, and reflection using C# language. This course also introduces GUI application development and database programming through ADO.NET.

Furthermore, this course also provides an understanding to develop and deploy Web applications using ASP.NET. This course covers adding and configuring server controls, and master pages.

UNIT I Introduction to .NET - (T1)

What is .NET, Why .NET, Advantages of .NET, Architecture of .NET, Introduction to CLR, CLR architecture, Just-in-time compiler(JIT), Microsoft Intermediate Language(MSIL), Understanding IL with ILDASM, .NET Framework, common class library, common type system(CTS), common language specifications(CLS), Languages under .NET,
Working with Microsoft Visual studio IDE.

UNIT II Object Oriented Programming Using C# (T1)

Explain features and phases of the object-oriented approach, Write and execute C# programs, Use decision-making constructs and loop constructs, Implement structures, enumerations, arrays, and collections, Implement polymorphism and overload functions and operators, Explain and use delegates and events , Use various stream classes to implement file handling.

UNIT III GUI Applications Development using .NET Framework (T1)

Work with the Windows Forms and controls, Perform validation of controls using classes and controls , Work with Dialog Boxes, Menus and MDI Application, Implement Printing and Reporting Functionality in a Windows Forms Application, Package and deploy applications.

UNIT IV Developing Database Applications Using ADO.NET (T3)

Create and manage connections using ADO.NET, Identify the disconnected and connected environment in ADO.NET, Create datasets and data tables, Retrieve and store large binary data, Perform bulk copy operations , Execute SQL notification maintain and update a cache, Read, write, validate, and modify XML data using XML reader and writer classes.

UNIT V Developing Web applications Using ASP.NET (T2)

Create a Web Application, Program a Web Application, Add and Configure Server Controls, Create a Common Layout by Using Master Pages, Manage State for a Web Application , Access and Display Data, Control Access to a Web Application , Deploy a Web Application, Build Dynamic Web Applications, Create Controls for Web Applications.

TEXT BOOKS

1. C# and the .NET Platform Andrew Troelsen, Apress Wiley-dreamtech, India Pvt Ltd
2. Professional ASP.NET 3.5: In C# and VB, March 2008, WroxPress.

REFERENCES

1. C# Your Visual Blueprint for building .NET Applications By : Eric Butow and Tommy Ryan
2. ASP.NET Your Visual Blueprint for building Web on the .NET framework By Danny Ryan and Tommy Ryan
3. Introduction to C# Using .NET Pearson Education
4. C# How to Program, Pearson Education.

IV Year B.Tech , IT– I Sem	L	T/P/D	C
	3	1	3

(R11ITD1105) WIRELESS NETWORKS AND MOBILE COMPUTING

UNIT I

Introduction to Network Technology and Cellular Communications HIPERLAN: Protocol Architecture, Physical layer, Channel Access Control Sub-layer, MAC Sub-layer, Information Bases and Networking

WLAN: Infrared vs. Radio Transmission, Infrastructure and Ad Hoc networks,

IEEE 802.11. Bluetooth.: User Scenarios ,Physical Layers ,MAC layer , Networking , Security , Link Management

GSM: Mobile Services, System Architecture, Radio Interface, Protocols, Localization and Calling, Handover, Security, and New Data Services.

Mobile computing (MC): Introduction to MC, Novel Applications, Limitations and Architecture

UNIT II

(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, Wireless LAN (IEEE802.11), Collision Avoidance (MACA, MACAW) Protocols.

UNIT III

Mobile IP Network Layer: IP and Mobile IP Network Layers, Packet Delivery and Handover Management, Registration, Tunneling and Encapsulation, Route Optimization, DHCP.

Mobile Transport Layer: Conventional TCP/IP Protocols, Indirect TCP, Snooping TCP, Mobile TCP, Other Transport Layer Protocols for Mobile Networks.

UNIT IV

Database Issues: Database Hoarding& Caching Techniques, Client –Server Computing & Adaptation, Transactional Models, Query Processing, Data Recovery Process & QoS Issues.

Data Dissemination and Synchronization : Communications Asymmetry Classification of Data Delivery Mechanisms , Data Dissemination Broadcast Models , Selective Tuning and Indexing Methods ,Digital Audio and Video Broadcasting (DAB & DVB).Data Synchronization –Introduction ,Software ,and Protocols

UNIT V

Mobile Ad hoc Networks (MANETs): Introduction , Applications & Challenges of a MANET, Routing, Classification of Routing Algorithms , Algorithms such as DSR, AODV, DSDV, etc., Mobile Agents, Service Discovery .

Protocols and Platforms for Mobile Computing WAP, Bluetooth, XML, J2ME, Java Card, PalmOS, Windows CE, SymbianOS, Linux for Mobile Devices.

TEXT BOOKS

1. Handbook of Wireless Networks and Mobile Computing, Stojmenovic and Cacute, Wiley, 2002, I
2. Mobile Communications, Jochen Schiller, Addison-Wesley, Second Edition, 2004

REFERENCES

1. Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML, Reza Behravanfar, Cambridge University Press, Oct2004.
2. Mobile Computing, Raj Kamal, Oxford University Press ,2007

IV Year B.Tech, IT– I Sem	L	T/P/D	C
	3	1	3

(R11ITD1128) MOBILE APPLICATION DEVELOPMENT

UNIT I

J2ME Overview : Java 2 Micro Edition and the World of Java, Inside J2ME, J2ME and Wireless Devices, Android OS- Overview.

Small Computing Technology: Wireless Technology, Radio Data Networks, Microwave Technology, Mobile Radio Networks, Messaging, Personal Digital Assistants

UNIT II

J2ME Architecture and Development Environment: J2ME Architecture, Small Computing Device Requirements, Run-Time Environment, MIDlet Programming, Java Language for J2ME, J2ME Software Development Kits, Hello World J2ME Style, Multiple MIDlets in a MIDlet Suite, J2ME Wireless Toolkit.

J2ME Best Practices and Patterns: The Reality of Working in a J2ME World, Best Practices

UNIT III

Commands, Items, and Event Processing: J2ME User Interfaces, Display Class, The Palm OS Emulator, Command Class, Item Class, Exception Handling

High-Level Display Screens: Screen Class, Alert Class, Form Class, Item Class, List Class, Text Box Class, Ticker Class

Low-Level Display Canvas: The Canvas, User Interactions, Graphics, Clipping Regions, Animation

UNIT IV

Record Management System: Record Storage, Writing and Reading Records, Record Enumeration, Sorting Records, Searching Records, Record Listener.

JDBC Objects: The Concept of JDBC, JDBC Driver Types, JDBC Packages, Overview of the JDBC Process, Database Connection, statement Objects, Result set, Transaction Processing, Metadata, Data Types, Exceptions.

JDBC and Embedded SQL: Model Programs, Tables, Indexing, Inserting Data into Tables, Selecting Data from a Table, Metadata, Updating Tables, Deleting Data form a Table, Joining Tables, Calculating Data, Grouping and Ordering Data, Sub queries, VIEWs

UNIT V

Generic Connection Framework: The Connection, Hypertext Transfer Protocol, Communication Management Using HTTP Commands, Session Management, Transmit as a Background Process.

TEXT BOOKS

1. J2ME: The Complete Reference, James Keogh, Tata McGrawHill.
2. Enterprise J2ME: Developing Mobile Java Applications – Michael Juntao Yuan, Pearson Education, 2004

REFERENCES

1. Beginning Java ME Platform, Ray Rischpater, Apress, 2009
2. Beginning J2ME: From Novice to Professional, Third Edition, Sing Li, Jonathan B. Knudsen, Apress, 2005
3. Kicking Butt with MIDP and MSA:Creating Great Mobile Applications,1st edition,J.Knudsen,Pearson.

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IV Year B.Tech , IT– I Sem	**L**	**T/P/D**	**C**
Elective - II	**3**	**1**	**3**

(R11ITD1106) NETWORK MANAGEMENT SYSTEMS

UNIT I

Data communications and Network Management Overview : Analogy of Telephone Network Management, Communications protocols and Standards, Case Histories of Networking and Management, Challenges of Information **Technology Managers, Network Management:** Goals, Organization, and Functions, Network and System Management, Network Management System Platform, Current Status and future of Network Management.

UNIT II

SNMPV1 Network Management: Organization and Information and Information Models. **Managed network:** The History of SNMP Management, The SNMP Model, The Organization Model, System Overview, The Information Model.
SNMPv1 Network Management: Communication and Functional Models. The SNMP Communication Model, Functional model.

UNIT III

SNMP Management: SNMPv2: Major Changes in SNMPv2, SNMPv2 System Architecture, SNMPv2 Structure of Management Information, the SNMPv2 Management Information Base, SNMPv2 Protocol.
SNMP Management: RMON: What is Remote Monitoring? , RMON SMI and MIB, RMON1, RMON2, ATM Remote Monitoring, A Case Study of Internet Traffic Using RMON

UNIT IV

Telecommunications Management Network: Why TMN? , Operations Systems, TMN Conceptual Model, TMN Standards, TMN Architecture, TMN Management Service Architecture, An Integrated View of TMN, implementation Issues.

UNIT V

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

TEXT BOOKS

1. Network Management, Principles and Practice, Mani Subramanian, Pearson Education.
2. Principles of Network System Administration, Mark Burges, Wiley Dreamtech.

REFERENCES

1. Network management, Morris, Pearson Education.
2. Distributed Network Management, Paul John Wiley.

IV Year B.Tech , IT– I Sem	L	T/P/D	C
Elective - II	3	1	3

(R11ITD1109) INTERNETWORKING WITH TCP/IP

UNIT I

Introduction to IP: Data gram, Fragmentation, option, checksum, IP Design, ARP and RARP, Design

Internet Control Message protocol: Types of Messages, Message format, Error reporting, query, checksum, ICMP Design.

Internet Group Management protocol:

Multicasting, IGMP, Encapsulation, Multicast backbone, IGMP Design.

UNIT II

Routing Protocols: Interior and Exterior routings, RIP, OSPF, BGP, Multicast routing,BOOT P and DHCP: BOOTP, Packet Format, operation, UDP points, using TFTP,Delay agent, DHCP Operation, Packet format. FTP Connections,

Communication, Command processing, file transfer, user interface and anonymous FTP.

UNIT III

Trivial File transfer protocol: Messages, RPQ, WRQ, Data, ACK & RROR, Connector, Data transfer UDP Ports, Examples, Security application SMTP User agent addresses, Delayeddeli very, Aliases, Mail transfer agent, commands and responses, Mail transfer phases MIME, POP.

UNIT IV

Simple Network Management protocol: Compact, S MI, Name, Type, Encoding method, MI B,SNMP Messages, Format Encoding, Examples,HTTP Transaction, Request messages, Re sponse message, header, examples.

UNIT V

World Wide Web: Hypertext and Hypermedia, Browser architecture, Static documents, HTM L, Dynamic documents, CGI, active documents, JAVA.

IPV6 and ICMPV6: IPV6, IPV6 addresses, IPV6 packet format, ICMPV6, Transition fromIPV4 to IPV6

TEXT BOOKS

1. TCP/IP Protocol Suite - Third Edition, Behrouz A. Forouzan. TMH.
2. Internetworking with TCP/IP Volume II, Third Edition – Douglas E. COMER/DAVID L.STEVENS, PHI.

IV Year B.Tech , IT– I Sem	L	T/P/D	C
Elective - II	3	1	3

(R11ITD1121) NETWORK SECURITY

UNIT I

INTRODUCTION: 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, Classical Encryption techniques, Fiestel Cipher Structure, Data Encryption Standard, Block Cipher Design Principles and Modes of Operation, Triple DES, IDEA, BLOWFISH, RC-4, Evaluation criteria for AES, AES Cipher, Placement of Encryption Function, Traffic Confidentiality

UNIT II

PUBLIC KEY CRYPTOGRAPHY: Confidentiality using Symmetric ncryption – Principles of Public key Cryptosystems, RSA algorithm, Key Management, Diffie-Hellman key Exchange, Elliptic Curve Cryptography. Buffer overflow, TCP session hijacking, ARP attacks, route table modification, UDP hijacking and man-in-the-middle attacks.

UNIT III

AUTHENTICATION AND HASHFUNCTIONS: Authentication requirements, Authentication functions, Message Authentication Codes, Hash Functions, Security of Hash Functions and MACs, MD5 message Digest algorithm , Secure Hash Algorithm, RIPEMD, HMAC Digital Signatures, Authentication Protocols, Digital Signature Standard, Authentication Applications: Kerberos – X.509 Authentication Service

UNIT IV

NETWORK SECURITY: Electronic Mail Security – PGP/ SMIME, IP security- Architecture, Authentication Header, Encapsulating Security Payload, Key Management, Web Security- Secure Socket Layer, Transport Layer Security and Secure Electronic Transaction

UNIT V

SYSTEM LEVEL SECURITY: Intrusion detection – password management – Viruses and related Threats – Virus Counter measures – Firewall Design Principles – Trusted Systems.

TEXT BOOKS

1. Cryptography And Network Security – Principles and Practices, William Stallings, Prentice Hall of India, Fourth Edition, 2005.
2. Applied Cryptography, Bruce Schneier John Wiley & Sons Inc, 2001

REFERENCES

1. Security in Computing, Charles B. Pfleeger, Shari Lawrence Pfleeger, Third Edition, Pearson Education, 2003
2. Cryptography and Network Security, Atul Kahate, Tata McGraw-Hill, 2003.
3. Hack Proofing your network by Ryan Russell, Dan Kaminsky, Rain Forest, Puppy, Joe Grand, DavidAhmad, Hal Flynn Ido Dubrawsky, Steve W.Manzuik and Ryan Permeh, wiley Dreamtech

IV Year B.Tech , IT– I Sem	L	T/P/D	C
Elective - II	3	1	3

(R11ITD1111) SCRIPTING LANGUAGES

UNIT I

Introduction to PERL and Scripting: Scripts and Programs, Origin of Scripting, Scripting Today, Characteristics of Scripting Languages, Web Scripting, and the universe of Scripting Languages. PERL- Names and Values, Variables, Scalar Expressions, Control Structures, arrays, list, hashes, strings, pattern and regular expressions, subroutines, advance Perl - finer points of looping, pack and unpack, file system, eval, data structures, packages, modules, objects, interfacing to the operating system, Creating Internet ware applications, Dirty Hands Internet Programming, security Issues.

UNIT II

PHP Basics PHP Basics: Features Embedding PHP Code in your Web pages, Outputting the data to the browser, Data types, Variables, Constants, expressions, string interpolation, control structures . Function,Creating a Function, Function Libraries, Arrays, strings and Regular Expressions.

UNIT III

Advanced PHP Programming: PHP and Web Forms, Files, PHI3 Authentication and Methodologies -Hard Coded, File Based, Database Based, IP Based, Login Administration, Uploading Files with PHI3, Sending Email using PHP, PHI3Encryption Functions, the Merypt package, Building Web sites for the World - Translating Websites- Updating Web sites Scripts, Creating the Localization Repository, Translating Files, text. Generate Binary Files, Set the desired language within your scripts. Localizing Dates, Numbers and Times.

UNIT IV

TCL-TK: TCL Structure, syntax, Variables and Data in TCL, Control Flow, Data Structures, input/output, procedures, strings, patterns, files, Advance TCL- eval, source, exec and up level commands, Name spaces, trapping errors, Event driven programs, making applications internet aware, Nuts and Bolts Internet Programming, Security Issues, C Interface. Tk-Visual Tool Kits, Fundamental Concepts of Tk, Tk by example, Events and Binding, Perl-Tk.

UNIT V

Python: Introduction to Python language, python-syntax,statements,functions,Built-in-functions and Methods, Modules in python, Exception Handling, Integrated Web Applications in Python - Building Small, Efficient Python Web Systems ,Web Application Framework.

TEXT BOOKS

1. The World of Scripting Languages, David Barren, Wiley Publications.
2. Python Web Programming, Steve Holden and David Beazley, New Riders Publications.

REFERENCES

1. Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHPJ.Lee and B.Ware (Addison Wesley) Pearson Education.
2. Programming Python, M.Lutz,SPD.
3. Core Python Programming, Chun, Pearson Education.
4. Beginning PHI3 and MySQL, 3rd Edition, Jason Gilmore, press Publications (Dream tech.).

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Elective - III	3	1	3

(R11ECE1113) DIGITAL IMAGE PROCESSING

UNIT I

Fundamentals of Image Processing and Image Transforms: Digital Image Fundamentals, Basic steps of Image Processing System, Sampling and Quantization of an image, relationship between pixels, Imaging Geometry. Image Transforms: 2 D- Discrete Fourier Transform, Discrete Cosine Transform (DCT), Haar Transform, Hadmard Transform, Hotelling Transform and slant transform.

UNIT II

Image Enhancement: Spatial domain methods: Histogram processing, Fundamentals of Spatial filtering, Smoothing spatial filters, Sharpening spatial filters. Frequency domain methods: Basics of filtering in frequency domain, image smoothing, image sharpening, Selective filtering.

UNIT III

Image Segmentation: Segmentation concepts, Point, Line and Edge Detection, Edge Linking using Hough Transform, Thresholding, Region Based segmentation.

Wavelet based Image Processing: Introduction to wavelet Transform, Continuous wavelet Transform, Discrete wavelet Transform, Filter banks, Wavelet based image compression

UNIT IV

Image Compression: Image compression fundamentals - Coding Redundancy, Spatial and Temporal redundancy, Compression models: Lossy and Lossless, Huffman coding, Arithmetic coding, LZW coding, Run length coding, Bit plane coding, Transform coding, Predictive coding, JPEG Standards.

UNIT V

Image Restoration: Image Restoration Degradation model, Algebraic approach to restoration, Inverse Filtering, Least Mean square filters, Constrained Least squares Restoration, Interactive restoration. Overview of Digital Image Watermarking Methods

TEXT BOOKS

1. Digital Image Processing- Rafael C. Gonzalez and Richard E.Woods, 3rd Edition, Pearson, 2008.
2. Digital Image Processing- S.Jayaraman, S Esakkirajan, T Veerakumar, TMH, 2010.
3. Fundamentals of Digital Image Processing-A.K.Jain, PHI, 1989.

REFERENCES

1. Digital Image Processing-William K.Pratt, 3rd Edition, John Willey, 2004.
2. Digital Image Processing and Computer Vision – Somka, Hlavac, Boyl, Cengage Learning, 2008.
3. Digital Image Processing using MATLAB - Rafael C. Gonzalez, Richard E.Woods and Steven L.Edding 2nd , TMH. 2010.
4. Introductory Computer Vision Imaging Techniques and Solutions – Adrian Low,2nd Edition, 2008.
5. Introduction to image Processing and Analysis – John C. Russ, J. Christian Russ, CRC Press, 2010

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(R11ITD1127) STORAGE AREA NETWORKS

UNIT I

Review data creation and the amount of data being created and understand the value of data to a business, challenges in data storage and data management, Solutions available for data storage, Core elements of a data center infrastructure, role of each element in supporting business activities

Hardware and software components of the host environment, Key protocols and concepts used by each component .Physical and logical components of a connectivity environment ,Major physical components of a disk drive and their function, logical constructs of a physical disk, access characteristics, and performance Implications.

UNIT II

Concept of RAID and its 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, Compare and contrast integrated and modular storage systems ,High-level architecture and working of an intelligent storage system

Evolution of networked storage, Architecture, components, and topologies of FC-SAN, NAS, and IP-SAN, Benefits of the different networked storage options, Understand the need for long-term archiving solutions and describe how CAS fulfills the need , Understand the appropriateness of the different networked storage options for different application environments

UNIT III

List reasons for planned/unplanned outages and the impact of downtime,Impact of downtime, Differentiate between business continuity (BC) and disaster recovery (DR) ,RTO and RPO, Identify single points of failure in a storage infrastructure and list solutions to mitigate these failures.

Architecture of backup/recovery and the different backup/recovery topologies , replication technologies and their role in ensuring information availability and business continuity, Remote replication technologies and their role in providing disaster recovery and business continuity capabilities

UNIT IV

Identify key areas to monitor in a data center, Industry standards for data center monitoring and management, Key metrics to monitor for different components in a storage infrastructure, Key management tasks in a data center. Information security, Critical security attributes for information systems, Storage security domains, List and analyzes the common threats in each domain

UNIT V

Virtualization technologies, block-level and file-level virtualization technologies and processes. 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.

TEXTBOOKS

1. Information Storage and Management ,EMC Corporation, Wiley.
2. Storage Networks: The Complete Reference, Robert SpaldingTata, McGraw Hill, Osborne,2003

REFERENCES

1. Building Storage Networks, Marc Farley,Tata McGraw Hill, Osborne, 2001.
2. Storage Area Network Fundamentals, Meeta Gupta, Pearson Education Limited, 2002.

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(R11ITD1125) BUILDING ENTERPRISE APPLICATIONS

UNIT I

Introduction to enterprise applications and their types, software engineering methodologies, life cycle of raising an enterprise application, introduction to skills required to build an enterprise application, key determinants of successful enterprise applications, and measuring the success of enterprise applications

UNIT II

Inception of enterprise applications, enterprise analysis, business modeling, requirements elicitation, use case modeling, prototyping, non functional requirements, requirements validation, planning and estimation

UNIT III

Concept of architecture, views and viewpoints, enterprise architecture, logical architecture, technical architecture - design, different technical layers, best practices, data architecture and design – relational, XML, and other structured data representations, Infrastructure architecture and design elements - Networking, Internetworking, and Communication Protocols, IT Hardware and Software, Middleware, Policies for Infrastructure Management, Deployment Strategy, Documentation of application architecture and design

UNIT IV

Construction readiness of enterprise applications - defining a construction plan, defining a package structure, setting up a configuration management plan, setting up a development environment, introduction to the concept of Software Construction Maps, construction of technical solutions layers, methodologies of code review, static code analysis, build and testing, dynamic code analysis – code profiling and code coverage

UNIT V

Types and methods of testing an enterprise application, testing levels and approaches, testing environments, integration testing, performance testing, penetration testing, usability testing,

globalization testing and interface testing, user acceptance testing, rolling out an enterprise application.

TEXT BOOKS

1. Raising Enterprise Applications – Published by John Wiley, authored by Anubhav Pradhan, Satheesha B. Nanjappa, Senthil K. Nallasamy, Veerakumar Esakimuthu
2. Building Java Enterprise Applications – Published by O'Reilly Media, authored by Brett McLaughlin

REFERENCES

1. Software Requirements: Styles & Techniques – published by Addison-Wesley Professional
2. Software Systems Requirements Engineering: In Practice – published by McGraw-Hill/Osborne Media
3. Managing Software Requirements: A Use Case Approach, 2/e – published by Pearson
4. Software Architecture: A Case Based Approach – published by Pearson

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(R11CSE1126) SOFT COMPUTING

UNIT I

AI Problems and Search: AI problems, Techniques, Problem Spaces and Search, Heuristic Search Techniques- Generate and Test, Hill Climbing, Simulated Annealing, Best First Search Problem reduction, Constraint Satisfaction and Means End Analysis. Approaches to Knowledge Representation- Using Predicate Logic and Rules.

UNIT II

Artificial Neural Networks: Introduction, Basic models of ANN, important terminologies, Supervised Learning Networks, Perceptron Networks, Adaptive Linear Neuron, Back propagation Network. Asscociative Memory Networks. Training Algorithms for pattern association and Hopfield Networks.

UNIT III

Unsupervised Learning Network: Introduction, Fixed Weight Competitive Nets, Maxnet, Hamming Network, Kohonen Self-Organizing Feature Maps, Counter Propagation Networks, Adaptive Resonance Theory Networks. Special Networks-Introduction to various networks.

UNIT IV

Introduction to Classical Sets (crisp Sets) and Fuzzy Sets- operations and Fuzzy sets. Classical Relations and Fuzzy Relations- Cardinality, Operations, Properties and composition. Tolerance and equivalence relations. Membership functions- Features, Fuzzification, membership value assignments, Defuzzification.

UNIT V

Fuzzy Arithmetic and Fuzzy Measures, Fuzzy Rule Base and Approximate Reasoning Fuzzy Decision making Fuzzy Logic Control Systems. Genetic Algorithm- Introduction and basic operators and terminology. Applications: Internet Search Technique, Hybrid Fuzzy Controllers.

TEXT BOOKS

1. Principles of Soft Computing- S N Sivanandam, S N Deepa, Wiley India, 2007
2. Soft Computing and Intelligent System Design -Fakhreddine O Karray, Clarence D Silva,. Pearson Edition, 2004.

REFERENCES

1. Artificial Intelligence and Soft Computing- Behavioral and Cognitive Modeling of the Human Brain- Amit Konar, CRC press, Taylor and Francis Group.
2. Artificial Intelligence – Patric Henry Winston – 3rd Edition, Pearson Education.
3. A First Course in Fuzzy – Hung, T Nguyen and Elbert A Walker , CRC Press. Taylor and Francis Group.
4. Artificial Intelligence – Elaine Rich and Kevin Knight, TMH, 1991,

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(R11ITD1204) OBJECT ORIENTED ANALYSIS & DESIGN AND VISUAL PROGRAMMING TECHBIQUES LAB

The student should take up the case studies of ATM system, Online Reservation System and Model it in different views i.e. Use case view, logical view, component view, Deployment view.

WEEK 1

1. Design a Class Diagram for ATM system, Online Reservation System.

WEEK 2

1. Design a Use case Diagram for ATM system, Online Reservation System.

WEEK 3

1. Design a Sequence Diagram for ATM system, Online Reservation System.

WEEK 4

1. Design a Collaboration Diagram for ATM system, Online Reservation System.

WEEK 5

1. Design a Activity Diagram for ATM system, Online Reservation System.
2. Design a State Chart Diagram for ATM system, Online Reservation System.

WEEK 6

1. Design a Component Diagram for ATM system, Online Reservation System.
2. Design a Deployment Diagram for ATM system, Online Reservation System.

VISUAL PROGRAMMING TECHBIQUES LAB

WEEK 1

1. Write console applications using C# for the following:
    a. Display message “Welcome to Visual Programming Lab”
    b. Perform arithmetic operations on given two numbers
    c. Finding factorial Value
    d. Money Conversion
    e. Quadratic Equation
    f. Temperature Conversion

WEEK 2

2. Write console applications to illustrate conditional statements such as:
    a. If-then-else
    b. Switch, break and continue
3. Write console applications to illustrate looping statements such as:
    a. While and do-while
    b. For and foreach

WEEK 3

4. Write C# programs to implement exception handling using the following keywords:
    a. Try ,catch and throw
5. Write C# programs to illustrate Object oriented programming features:
    a. Encapsulation
    b. Inheritance
    c. Polymorphism

WEEK 4

6. Write C# programs to make us of the following data types
    a. Enum.
    b. Structures
7. Write C# programs to make us of the following data types
    a. Arrays
    b. Collections
8. Write C# programs using the following concepts
    a. Delegates
    b. Events

WEEK 5

9. Design a Windows Application to implement simple calculator by using controls in C#.
    a. Textbox b. Labels c. Buttons
10. Design a student registration form by making use of all other controls in C#.
    a. ListBox b. Combobox c. Radio Buttons d. Check Boxes and other controls

WEEK 6

11. Design a windows form application by using advanced controls available in C#.
12. Design a windows form application using Menu Control and Dialog Box (Notepad).

13. Design an MDI Application in C#

WEEK 7 and 8

14. Design a windows form application which uses ADO.NET to perform basic database operations.
15. Design a windows form application which uses ADO.NET to perform advanced database operations.
16. Write a C# program to read and write data in XML file.

WEEK 9

17. Design web applications using ASP.NET for the following:
    a. Display message “Welcome to Visual Programming Lab”
    b. Perform arithmetic operations on given two numbers
    c. Finding factorial Value
    d. Money Conversion
    e. Quadratic Equation
    f. Temperature Conversion
18. Write a Program to perform Asp.Net state.

WEEK 10

19. Write a Program to create an Advertisement using Ad rotator.
20. Write a Program to perform following operations on calendar
21. display the Holiday in calendar.
22. display the selected date in the calendar.
23. display the Difference between the two dates in the calendar.
24. Write a Program to perform Tree view operation using data list.

WEEK 11

25. Write a Program to perform validation operation.
26. Write a Program to insert the data in to database using Execute-Non Query.
27. Write a Program to delete the data in to database using Execute non-query.

WEEK 12

28. Create an application in which user has to display records in the Grid View Control fromTable created in access data base. (With the Help Of Oledb Classes or Access Data SourceControl)
29. Study of the User Controls and their event, using the user controls to the web pages
30. Create application which uses Standard Login Control to The Web Application

WEEK 13

31. Use the Asp Navigation control that allows user to navigation and selection facility the pages of Web site
32. Create the Sign In, Sign Up and Update Application using session management

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(R11ITD1208) MOBILE APPLICATION DEVELOPMENT LAB (Through J2ME)

Objective

In this lab, a student is expected to design, implement, document and present a mobile client/server system using standard Java and Java 2 Micro Edition (J2ME) platform. Specifically it is required to design and implement a system that consists mainly of a mobile client (MC) and a Proxy Server (PS). MC will be written in J2ME, MIDP 2.0, while PS will be written in standard Java. It is necessary to use a mobile phone emulator to develop and demonstrate the experiments.

It may be necessary to use other components or existing resources (servers) as needed. For instance a database local to PS or a web service available on the Internet that can be invoked by the PS.

Week - 1: Installation of Java Wireless Toolkit (J2ME)

1) If the Java Development Kit (JDK) is not there or only having the Java Runtime Environment (JRE) installed, install the latest JDK from http://java.sun.com/javase/downloads/index.jsp. Current stable release of Java is JDK 6 Update 7 but check the web page in case there are newer non-beta releases available.

2) Next, download the Java Wireless Toolkit (formerly called J2ME Wireless Toolkit) from: http://java.sun.com/products/sjwtoolkit/download.html.

3) Run the installer (for example, for Windows it is: sun_java_wireless_toolkit- 2_5_2-windows.exe). The installer checks whether a compatible Java environment has been pre-installed. If not, it is necessary to uninstall old versions of Java and perform Step 1 again.

Once after successful installation of Java and the tool kit compile the program and run in the toolkit.

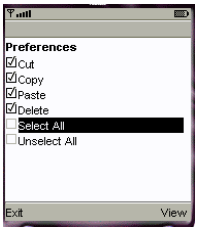
Week - 2 Working with J2ME Features

Working with J2ME Features: Say, creating a Hello World program Experiment with the most basic features and mobile application interaction concepts (lists, text boxes, buttons, radio boxes, soft buttons, graphics, etc)

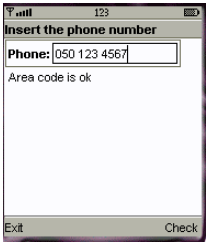
2.1 Create a program which creates to following kind of menu.

2.2 Event Handling.

Create a menu which has the following options:
* cut - can be on/off
* copy - can be on/off
* paste - can be on/off
* delete - can be on/off
* select all - put all 4 options on
* unselect all - put all 4 options off

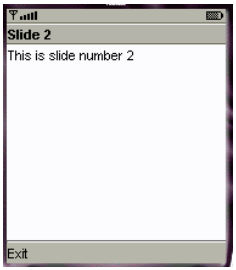


2.3. Input checking
Create an MIDP application which examine, that a phone number, which a user has entered is in the given format.
* Area code should be one of the following: 040, 041, 050, 0400, 044
* There should 6-8 numbers in telephone number (+ area code)



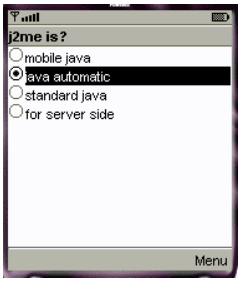
Week – 3 Threads & High Level UI:

3.1. Create a slide show which has three slides, which includes only text. Program should change to the new slide after 5 seconds. After the third slide program returns to the first slide.

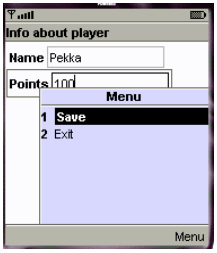


3.2 High-level UI

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

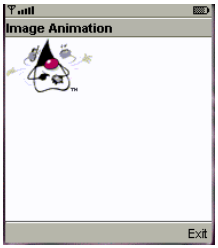


3.3 Create a MIDP application, where the user can enter player name and points. The program saves the information to the record using RMS at MIDP device. Program should also print out the top 10 player list to the end user. You can use this class in your game if you made own class for saving and reading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

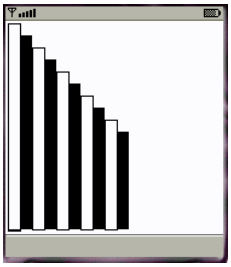


Week - 4 Working on Drawing and Images

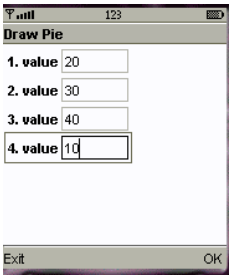
4.1 Create a slide show which has three slides, which includes pictures at PNG format. Program should change to the new slide other 5 seconds.

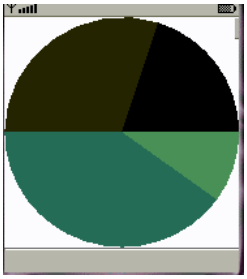


4.2 Create a MIDP application, which draws a bar graph to the display. Data values can be given at int[] array.



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





Week - 5 Developing Networked Applications using the Wireless Toolkit

Creating a Simple Client-Server Application
Create, compile and run a basic UDP-based client-server application.
Creating the Datagram Server project
Creating and Compiling the DatagramServer source files
Running your Server application on the Phone simulator
Creating the Datagram Client project
Creating and Compiling the DatagramClient source files
Running your Client application on the Phone simulator

Week - 6 Authentication with a Web Server

6.1 Write a sample program to show how to make a SOCKET Connection from j2me phone.

This J2ME sample program shows how to how to make a SOCKET Connection from a J2ME Phone. Many a times there is a need to connect backend HTTP server from the J2ME application. shows how to make a SOCKET connection from the phone to port 80.

6.2 Login to HTTP Server from a J2ME Program

This J2ME sample program shows how to display a simple LOGIN SCREEN on the J2ME phone and how to authenticate to a HTTP server.
Many J2ME applications for security reasons require the authentication of the user. This free J2ME sample program, shows how a J2ME application can do authentication to the backend server.

Note: Use Apache Tomcat Server as Web Server and Mysql as Database Server.

Week - 7 & 8 Web Application using J2ME

The following should be carried out with respect to the given set of application domains: (Assume that the Server is connected to the well-maintained database of the given domain. Mobile Client is to be connected to the Server and fetch the required data value/information)

- Students Marks Enquiry
- Town/City Movie Enquiry
- Railway/Road/Air (For example PNR) Enquiry/Status
- Sports (say, Cricket) Update
- Town/City Weather Update
- Public Exams (say Intermediate or SSC)/ Entrance (Say EAMCET) Results Enquiry

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(R11ITD1104) DISTRIBUTED SYSTEMS

UNIT I

Characterization of Distributed Systems: Introduction, Examples of distributed Systems, Resource sharing and the Web Challenges. Architectural models, Fundamental Models.

Theoretical Foundation for Distributed System: Limitation of Distributed system, absence of
global clock, shared memory, Logical clocks, Lamport's & vectors logical clocks.

Concepts in Message Passing Systems: causal order, total order, total causal order, Techniques for Message Ordering, Causal ordering of messages, global state, termination detection.

UNIT II

Distributed Mutual Exclusion: Classification of distributed mutual exclusion, requirement of mutual exclusion theorem, Token based and non token based algorithms, performance metric for distributed mutual exclusion algorithms.

Distributed Deadlock Detection: system model, resource Vs communication deadlocks, deadlock prevention, avoidance, detection & resolution, centralized dead lock detection, distributed dead lock detection, path pushing algorithms, edge chasing algorithms.

UNIT III

Agreement Protocols: Introduction, System models, classification of Agreement Problem, Byzantine agreement problem, Consensus problem, Interactive consistency Problem, Solution to Byzantine Agreement problem, Application of Agreement problem, Atomic Commit in Distributed Database system.

Distributed Resource Management: Issues in distributed File Systems, Mechanism for building
distributed file systems, Design issues in Distributed Shared Memory, Algorithm for Implementation of Distributed Shared Memory.

UNIT IV

Failure Recovery in Distributed Systems: Concepts in Backward and Forward recovery, Recovery in Concurrent systems, Obtaining consistent Checkpoints, Recovery in Distributed Database Systems.

Fault Tolerance: Issues in Fault Tolerance, Commit Protocols, Voting protocols, Dynamic voting protocols.

UNIT V

Transactions and Concurrency Control: Transactions, Nested transactions, Locks, Optimistic Concurrency control, Timestamp ordering, Comparison of methods for concurrency control.

Distributed Transactions: Flat and nested distributed transactions, Atomic Commit protocols, Concurrency control in distributed transactions, Distributed deadlocks, Transaction recovery.

Replication: System model and group communication, Fault - tolerant services, highly available services, Transactions with replicated data.

TEXT BOOKS

1. Distributed Systems Concepts and Design, G Coulouris, J Dollimore and T Kindberg,Third Edition, Pearson Education.
2. Distributed operating system – Andrew. S. Tanenbaum, PHI.

REFERENCES

1. Advanced Concepts in Operating Systems, Mukesh Singhal, Niranjan G.Shivaratri Tata McGraw-Hill Publishing Co.Ltd. New Delhi, 2001
2. Distributed Systems – Principles and Paradigms, Andrew S.Tanenbaum, Maarten Van Steen, Second Edition, Prentice Hall of India, New Delhi 2008.
3. Distributed Operating Systems, Pradeep K.Sinha ,PHI.
4. "Distributed Computing Principles and Applications", M.L.Liu, Pearson Addison Wesley, 2004.

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(R11CSE1122) SOFTWARE TESTING METHODOLOGIES

UNIT I

Introduction: Purpose of testing-Dichotomies-Software Testing Principles- Bugs, consequences of bugs, Taxonomy of bugs -The Tester's Role in a Software Development Organization-Black box testing and white box testing- Defects -Cost of defects- Defect Classes- Defect Examples ,software testing life cycle.

UNIT II

Flow graphs and Path testing: Basics concepts of path testing-predicates-path predicates and achievable paths- path sensitizing- path instrumentation, application of path testing.
Transaction Flow Testing: Transaction flows- transaction flow testing techniques-
Dataflow testing: Basics of dataflow testing - strategies in data flow testing –application of data flow testing.

UNIT III

Test Case Design Strategies: Using Black Box Approach to Test Case Design - Random Testing – Requirements based testing – Boundary Value Analysis –Equivalence Class Partitioning– Compatibility testing – User documentation testing – Domain testing.
Alpha , Beta Tests – Usability and Accessibility testing – Configuration testing - Compatibility testing – Testing the documentation .

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, k-v charts- State- State Graphs and Transition testing: State graphs- good & bad stategraphs-statetesting
State,state graphs and transition testing: state graphs ,good and bad state graphs ,state testing, testability tips

UNIT V

Graph Matrices and applications: motivational over view ,matrix of graph, relations ,power of matrix, node reduction algorithm .

People and organizational issues in testing: Organization structures for testing teams – testing services - Test Planning – Test Plan Components – Test Plan Attachments – Locating Test Items – test management – test process- bug detection life cycle.

TEXT BOOKS

1. Software Testing – Principles and Practices, Srinivasan Desikan and Gopalaswamy Ramesh, Pearson education, 2006.
2. Software Testing Techniques, Boris Beizer, 2nd Edition, Van Nostrand Reinhold, New York, 1990

REFERENCES

1. Software Testing, Ron Patton, Second Edition, Sams Publishing, Pearson education, 2007
2. Software Testing – Effective Methods, Tools and Techniques, Renu Rajani, Pradeep Oak, Tata McGraw Hill, 2004.
3. "Software Testing in the Real World – Improving the Process", Edward Kit, Pearson Education, 1995.
4. "Foundations of Software Testing – Fundamental algorithms and techniques", Aditya P. Mathur, Dorling Kindersley (India) Pvt. Ltd., Pearson Education, 2008

IV Year B.Tech , IT– II Sem	L	T/P/D	C
Elective - IV	3	1	3

(R11ITD1112) WEB SERVICES

UNIT I

Introduction to Web Services : Emergence of Web Services and Service Oriented Architecture(SOA),the definition of web services, basic operational model of web services, tools and technologies enabling web services, benefits and challenges of using web services.
Web Service Architecture: Web services Architecture and its characteristics, core building blocks of web services, standards and technologies available for implementing web services, web services communication models, basic steps of implementing web services.

UNIT II

Core fundamentals of SOAP: SOAP Message Structure, SOAP encoding, SOAP message exchange models, SOAP communication and messaging, SOAP security.
Developing Web Services using SOAP: Building SOAP Web Services, developing SOAP Web Services using java and Axis, limitations of SOAP.

UNIT III

Describing Web Services: WSDL-WSDL in the world of Web Services, Web Services life cycle, anatomy of WSDL definition document, WSDL bindings,WSDL Tools, limitations of WSDL.
Discovering Web Services-Service discovery, role of service discovery in a SOA,service discovery mechanisms,UDDI-UDDI Registries, uses of UDDI Registry, Programming with UDDI,UDDI data structures, publishing API,Publishing ,searching and deleting information in a UDDI Registry, limitations of UDDI.

UNIT IV

Web Services Interoperability: Means of ensuring Interoperability, Overview of .NET, Creating a .NET client for an Axis Web Service, Challenges in Web Services Interoperability.
Web Services Security: XML security Framework, SAML,kerberoes,X.509,XML Encryption, Web Services-policy,Web Services -secure Conversation, Web Services-trust.

UNIT V

SOA and Web Services: SOA concepts Web Services platform, Service-Level Data Models, Discovery, Security and interaction Patterns, Atomic and Composite services, Service-level communication and alternative transports.

TEXT BOOKS

1. Developing Java Web Services, R.Nagappan, R.Skoczylas, R.P.Sriganesh, Wiley India,rp-2008.
2. Java Web Services Architecture, James McGovern, Sameer Tyagi et al.,Elsevier-2009.

REFERENCES

1. Building Web Services with Java,2nd Edition,S.Graham and others, Pearson Edn.,2008.
2. Java Web Services, D.A.Chappell & T.Jewell, O'Reilly, SPD.
3. "Java Web Services Architecture", McGovern,etal.,"Morgan Kaufmann.
4. Understanding SOA with Web Services, Eric Newcomer and Greg Lomow,Pearson edition-2009.

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Elective - IV	3	1	3

(R11ITD1113) COMPUTER FORENSICS

UNIT I

Computer Forensics Fundamentals: What is Computer Forensics?. Use of Computer Forensics in Law Enforcement, Computer Forensics in Law Enforcement, Computer Forensics Assistance to Human Resources/Employment Proceedings, Computer Forensics Services, Benefits of professional Forensics Methodology, Steps taken by computer Forensics Specialists.

Types of Computer Forensics Technology: Types of Military Computer Forensics Technology, Types of Law Enforcement - Computer Forensic Technology - Types of Business Computer Forensics Technology.

Computer Forensics Evidence and Capture: Data Recovery Defined- Data Back-up and Recovery- The Role of Back-up in Data Recovery- The Data Recovery Solution.

UNIT II

Evidence Collection and Data Seizure: Why Collection Evidence? Collection Options – Obstacles – Types of Evidence – The Rules of Evidence- Volatile Evidence- General Procedure – Collection and Archiving – Methods of Collection – Artifacts – Collection Steps – Controlling Contamination: The chain of Custody.

Duplication and preservation of Digital Evidence: Preserving the Digital Crime Scene – Computer Evidence Processing Steps – Legal Aspects of Collecting Preserving Computer Forensics Evidence. Computer Image Verification and Authentication: Special Needs of Evidential Authentication – Practical Consideration – Practical Implementation.

UNIT III

Computer Forensics analysis and validation: Determining what data to collect and analyze, validating forensic data, addressing data – hiding techniques, performing remote acquisitions.

Network Forensics: Network Forensics overview, performing live acquisitions, developing standard procedures for network forensics, unsing network tools, examining the honeynet project.

UNIT IV

Processing crime and incident scenes: Identifying digital evidence, collecting evidence in private-sector incident scenes, processing law enforcement crime scenes, preparing for a search, securing a computer incident or crime scene, seizing digital evidence at the scene, storing digital evidence, obtaining a digital hash, reviewing a case.

Current computer forensic tools: evaluating computer forensic tool needs, computer forensics software tools, computer forensics hardware tools, validating and testing forensics software.

UNIT V

E-Mail investigations: Exploring the role of E-mail in investigation, exploring the role of the client and server in E-mail, investigating e-mail crimes and violations, understanding e-mail servers, using specialized e-mail forensic tools.

Cell phone and mobile device forensics: Understanding mobile device forensics, understanding acquisition procedures for cell phones and mobile devices.

Working with windows and DOS Systems: Understanding file systems, exploring Microsoft File Structures, Examining NTFS Disks, Understanding whole disk encryption, windows registry, Microsoft startup tasks, MS-DOS Startup tasks, virtual machines.

TEXT BOOKS

1. Computer forensics, computer crime investigation by John R.Vacca, Firewall Media, New Delhi.
2. Computer forensics and investigations by Nelson, Phillips Enfinger Steuart, CENGAGE Learning.

REFERENCE BOOKS

1. Real Digital Forensics by Keith J.Jones, Rechard Bejtlich, Curtis W.Rose, Addison-Wesley Pearson Education.
2. Computer Evidence Collection & Presentation by Christopher L.T.Brown, Firewall Media.
3. Homeland Security, Techniques & Technologies by Jesus Mena, Firewall Media
4. Software forensics Collecting Evidence from the scene of a digital crime by Robert M.Slade, TMH 2005.

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Elective - IV	3	1	3

(R11ITD1124) BUSINESS INTELLIGENCE APPLICATIONS

UNIT I

Introduction to Business Intelligence

Introduction to digital data and its types – structured, semi-structured and unstructured. Introduction to OLTP, OLAP (MOLAP, ROLAP, HOLAP), BI Definitions & Concepts.

UNIT II

Business Intelligence framework

BI Framework Data Warehousing concepts and its role in BI, BI Infrastructure Components – BI Process, BI Technology, BI Roles & Responsibilities, Business Applications of BI, BI best practices

UNIT III

Basics of Data Integration (Extraction Transformation Loading),

Concepts of data integration, needs and advantages of using data integration, introduction to common data integration approaches, Meta data - types and sources, Introduction to data quality, data profiling concepts and applications, introduction to ETL using Pentaho data Integration (formerly Kettle)

UNIT IV

Introduction to Multi-Dimensional Data Modeling

Introduction to data and dimension modeling, multidimensional data model, ER Modeling vs. multi dimensional modeling, concepts of dimensions, facts, cubes, attribute, hierarchies, star and snowflake schema, introduction to business metrics and KPIs, creating cubes using Microsoft Excel

UNIT V

Basics of Enterprise Reporting

A typical enterprise, Malcolm Baldrige - quality performance framework, balanced scorecard, enterprise dashboard, balanced scorecard vs. enterprise dashboard, enterprise reporting using MS Access / MS Excel, best practices in the design of enterprise dashboards

REFERENCES

1. Business Intelligence by David Loshin
2. Business intelligence for the enterprise by Mike Biere
3. Business intelligence roadmap by Larissa Terpeluk Moss, ShakuAtre
4. An introduction to Building the Data Warehouse – IBM

5. Business Intelligence For Dummies – Swain Scheps
6. Successful Business Intelligence: Secrets to making Killer BI Applications by Cindi Howson
7. Information dashboard design by Stephen Few

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Elective - V	3	1	3

(R11ITD1114) MULTIMEDIA AND APPLICATION DEVELOPMENT

UNIT I

Fundamental concepts in Text and Image: Multimedia and hypermedia, world wide web, overview of multimedia software tools. Graphics and image data representation graphics/image data types, file formats, Color in image and video: color science, color models in images, color models in video.

UNIT II

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

UNIT III

ActionScript-I: ActionScript Features, Object-Oriented ActionScript ,AS3 vs AS2, Functions, methods, and parameters,Comments, Communicating with symbol instances, Instance properties and methods,Dynamic and input text, Custom functions, Variables, Data types, Datatypes and Type Checking.Action Script II: Classes ,Inheritance, Interfaces, Packages,Exceptions.

UNIT IV

Multimedia data compression: Lossless compression algorithm: Run-Length Coding, Variable Length Coding, Dictionary Based Coding, Arithmetic Coding, Lossless Image Compression, Lossy compression algorithm: Quantization, Transform Coding, Wavelet-Based Coding, Embedded Zerotree of Wavelet Coefficients Set Partitioning in Hierarchical Trees (SPIHT).

UNIT V

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

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, Mediaon-Demand(MOD).

TEXT BOOKS

1. Fudamentals of Multimedia by Ze-Nian Li and Mark S. Drew PHI/Pearson Education

2. Essentials ActionScript 3.0, 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(FocalPress)
4. Multimedia Applications, Steinmetz, Nahrstedt, Springer.

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Elective - V	3	1	3

(R11ITD1115) DESIGN PATTERNS

UNIT I

Introduction: What Is a Design Pattern?, Design Patterns in Smalltalk MVC, Describing Design Patterns, The Catalog of Design Patterns, Organizing the Catalog, How Design Patterns Solve Design Problems, How to Select a Design Pattern, How to Use a Design Pattern,what to Expect from Design Patterns, A Brief History.

UNIT II

Creational Patterns: Abstract Factory, Builder, Factory Method, Prototype, Singleton, Discussion of Creational Patterns.

Structural Pattern Part-I: Adapter, Bridge, Composite. Decorator, açade, Flyweight, Proxy.

UNIT III

Behavioral Patterns Part-I: Chain of Responsibility, Command, Interpreter, Iterator.

UNIT IV

Behavioral Patterns Part-II: Mediator, Memento, Observer, State, Strategy, Template Method,Visitor, Discussion of Behavioral Patterns.

UNIT V

A Case Study: Designing a Document Editor : Design Problems, Document Structure, Formatting, Embellishing the User Interface, Supporting Multiple Look-and-Feel Standards, Supporting Multiple Window Systems, User Operations Spelling Checking and Hyphenation, Summary

TEXT BOOKS

1. Design Patterns By Erich Gamma, Pearson Education
2. Design Patterns Explained By Alan Shalloway,Pearson Education.

REFERENCES

1. Pattern's in JAVA Vol-I By Mark Grand ,Wiley DreamTech.
2. Pattern's in JAVA Vol-II By Mark Grand ,Wiley DreamTech.
3. JAVA Enterprise Design Patterns Vol-III By Mark Grand ,Wiley DreamTech.
4. Head First Design Patterns By Eric Freeman-Oreilly-spd

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Elective - V	3	1	3

(R11ITD1116) BIOINFORMATICS

UNIT I

Introduction to Bioinformatics: Scope of Bioinformatics, History of Bioinformatics; Biological information resources and retrieval system Elementary commands and protocols, ftp, telnet, http

UNIT II

Basic Sequencing: DNA mapping and sequencing , Map Alignment , sequencing methods like Shotgun and Sanger method

UNIT III

Sequencing Alignment and Dynamic Programming: BLAST, Heuristic Alignment algorithms , global sequence alignments-Needleman Wunsch algorithm, Smith-Waterman algorithm-Local sequence alignments

UNIT IV

Evolutionary Trees and Phylogeny: Multiple sequence alignment and phylogenetic analysis.

UNIT V

Databases: Introduction to Biological databases, Organization and management of databases, Structure databases- PDB(Protein Data Bank), Molecular modeling databases(MMDB),Primary databases NCBL,EMBL,DDBJ, Secondary Databases-Swissprot, KEGG, Bio Chemical databases- KEGG, BRENDA, WIT, EXPASY

TEXT BOOKS

1. Bioinformatics Basics, Applications in Biological Science and Medicine by Hooman H. Rashidi and Lukas K.buehler CAC Press 2000
2. Algorithms on strings trees and sequences Dan Gusfield, Cambridge University Press 1997

REFERENCES

1. Bioinformatics: David Mount 2000,CSH Publications
2. Bioinformatics: A machine Learning Approach P.Baldi. S.Brunak, MIT Press 1988
3. Developing Bioinformatics Computer Skills", Gibas C, Jambeck P
4. Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins" , Baxevanis AD, Ouellette BFF (eds):

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Elective - V	3	1	3

(R11CSE1106) INTRODUCTION TO MAINFRAME SYSTEMS

UNIT I

Evolution of Mainframe hardware & Mainframes OS and Terminology: Overview of Computer Architecture -Classification of Computers - micro, mini, mainframes and super computer - Mainframe computer - key features - benefits Evolution of Mainframes - Different hardware systems, Operating systems on mainframes, Batch processing vs. online processing - mainframe operating system. - Evolution - concepts of Address space, Buffer management - Virtual storage - paging - swapping - Dataset management in mainframes

UNIT II

Z/OS and its Features: Z-operating system (Z/OS) - Virtual storage - Paging process - storage Managers - Program execution modes - Address space - Multiple virtual system(MVS) , MVS address space, Z/OS address space - Dataset - sequential and partial dataset - Direct access storage device(DASD) -Access methods - Record formats - Introduction to virtual storage access methods(VSAM) - Catalog - VTOC

UNIT III

Overview of JCL & Overview of DB2: Introduction to Job Control language - Job processing - structure of JCL statements - Various statements in JCL - JOB statement - EXEC statement - DD statement - JCL procedures and IBM utility programs.

Introduction to DB2 – System Service component, Database Service component, Locking Service component, Distributed Data Facility Services component, Stored Procedure component, catalogs and optimizer

DB2 Objects and Data Types - DB2 Objects Hierarchy, Storage groups, Database, Table space, Table, Index, Clustered index, Synonyms and aliases, Views, Data Types.

DB2 SQL programming – Types of SQL statements, DCL, DDL, DML, SPUFI utility.

Embedded SQL programming – Host variable, DECLGEN utility, SQLCA, single/multiple row manipulation, cursors, scrollable cursors.

UNIT IV

COBOL Programming

Introduction – History, evolution and Features, COBOL program Structure, steps in executing COBOL Program.

Language Fundamentals – Divisions, sections, paragraphs, sections, sentences and statements, character set, literals, words, figurative constants, rules for forming user defined words, COBOL coding sheet.

Data division – Data names, level numbers, PIC and VALUE clause, REDEIFNES, RENAMES and USAGE clause

Procedure Division – Input / Output verbs, INITIALIZE verb, data movement verbs, arithmetic verbs, sequence control verbs.
File processing – Field, physical / logical records, file, file organization (sequential, indexed and relative) and access mode, FILE-CONTROL paragraph, FILE SECTION, file operations.
File handling verbs – OPEN, READ, WRITE, REWRITE, CLOSE.
Table processing – Definition, declaration, accessing elements, subscript and index, SET statement, SEARCH verb, SEARCH ALL verb, comparison.
Miscellaneous verbs – COPY, CALL, SORT, MERGE, STRING, UNSTRING verbs.

UNIT V

Mainframe Application Development guidelines

COBOL coding standards, relation between a COBOL file handling program and JCL, Different types of ABEND codes, COBOL-DB2 program pre-compilation, DBRM (Database Request Module), Application plan/packages, program execution methods (EDIT JCL, foreground and background modes).

TEXT BOOKS

1. MVS JCL, Doug Lowe, Mike Murach and Associates
2. Gary DeWard Brown, JCL Programming Bible (with z/OS) fifth edition, Wiley India Dream Tech, 2002.
3. z/OS V1R4.0 MVS JCL Reference found online at http://www-1.ibm.com/support/docview.wss?uid=pub1sa22759706
4. z/OS V1R1.0 MVS JCL Reference found online at http://publibz.boulder.ibm.com/cgibin/bookmgr_OS390/BOOKS/iea2b600/CCONTENTS
5. COBOL - Language Reference, Ver 3, Release 2, IBM Redbook.
6. COBOL - Programming Guide, Ver 3, Release 2, IBM Redbook.
7. Nancy Stern & Robert A Stern, “Structured Cobol Programming”, John Wiley & Sons, New York, 1973.
8. M.K. Roy and D. Ghosh Dastidar, “Cobol Programming”, Tata McGraw Hill, New York, 1973.
9. Newcomer and Lawrence, Programming with Structured COBOL, McGraw Hill Books, New York, 1973.
10. Craig S Mullins, DB2 Developer’s Guide, Sams Publishing, 1992.
11. Gabrielle Wiorkowski & David Kull, DB2 Design & Development Guide, Addison Wesley, 1992.COBOL - Language Reference, Ver 3, Release 2, IBM Redbook.