

ACADEMIC REGULATIONS
COURSE STRUCTURE AND
DETAILED SYLLABUS

Computer Science and Engineering

B.TECH. FOUR YEAR DEGREE COURSE

(Applicable for the batches admitted from 2012-2013)



**VNR VIGNANA JYOTHI INSTITUTE OF
ENGINEERING AND TECHNOLOGY**

An Autonomous Institute

Approved by AICTE & Affiliated to JNTUH

Accredited by NBA and NAAC with 'A' Grade

Bachupally, Nizampet (S.O), Hyderabad – 500090, Andhra Pradesh, India

Phone: 040-23042758/59/60; FAX: 040-23042761

E-Mail: postbox@vnrvjiet.ac.in, Website: www.vnrvjiet.ac.in



**VNR VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY
HYDERABAD**

An Autonomous Institute

Approved by AICTE, New Delhi and Govt. of A.P & Affiliated to JNTUH

ACADEMIC REGULATIONS FOR B.TECH. DEGREE COURSE

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

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 / NRI

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 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

The candidate 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 100 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 Mid Semester 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. 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 subject is assigned as follows:
 - (a) 25 marks: 80% from the best performed Mid examination and 20% from the other Mid examination.
 - (b) 5 marks: Average of the two assignment marks
- iii. For practical subjects there shall be a continuous evaluation during the Semester for **30 marks and 70 marks for end examination**. Out of the 30 marks, **day-to-day work in the laboratory shall be evaluated for 10 marks**, and 10 marks for practical examination (two practical examinations will be conducted and the average of the two examinations will be taken into account) and 10 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 Mid examination (the average of the two examinations will be taken into account) and 70 marks for end semester examination.** There shall be **two Mid examinations** in a Semester.
- V There shall be an **industry-oriented mini-Project**, in collaboration with an industry of their specialization, to be taken up during the a summer 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 Midterm assessment for industry oriented mini project. However, attending the shadow engineering program is a pre – requisite for evaluating industry – oriented mini project.** Students should submit a report on learning outcomes of the shadow engineering. Every student should attend shadow engineering programming an industry for a week days during second year I or II semester.
- 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 will be awarded 50 marks in which 40 marks will be evaluated for seminar report and 10 marks for MTP Record by the committee.**
- 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 Midterm 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 Midterm Evaluation and 140 marks for the Semester end Examination.** The viva-voce shall be conducted by a committee comprising of an external examiner, Head of the Department and the project supervisor and one senior faculty. The evaluation of project work shall be conducted at the end of the IV year II Semester. **The Midterm 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.

(b) Practical Courses

Each lab course is evaluated for 70 marks. The examination shall be conducted by the laboratory teacher and another senior teacher concerned with the subject of the same/other department/Industry. One 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.
- 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 not promoted to the next Semester unless he satisfies the attendance requirement of the present Semester, as applicable. He 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 semester 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 Midterm evaluation and end semester 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 the following examinations,**
 - Two regular and one supplementary examinations of I year I Semester
 - One Regular and One Supplementary exam of I year II Semester
 - one regular examination of II year I Semester irrespective
- 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,**
 - 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 Cumulative Grade Point Average (**CGPA**).
- v. In addition to the above 200 credits the student must complete the non credit courses also. The non-credit courses awarded with a grade of satisfactory or not satisfactory based on the attendance of the student. Minimum attendance for the non-credit course is 75%.
- vi. The student should also register and complete any two value added courses offered by the Institute.
- vii. 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 stands 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 semester examination in a subject, but absent or has failed in the end semester 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**

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 and other Academic Requirements** .
- iii) complete the non-credit courses and value added courses as per their course structure.

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.

7. CGPA System:

Method of awarding absolute grades and grade points:

The **absolute grading method** is followed, based on the total marks obtained in internal and external examinations. Grades and grade points are assigned as per the Table given below

B.Tech Program: The Absolute Grading Method is followed, based on the total marks obtained in internal and external examinations. Grades and Grade points are assigned as given below

Marks Obtained	Grade	Description of Grade	Grade Points(GP) Value Per Credit
>=90	O	Outstanding	10.00
>=80 and <89.99	A+	Excellent	9.00
>=70 and <79.99	A	Very Good	8.00
>=60 and <69.99	B	Good	7.00
>=50 and <59.99	C	Fair	6.00
>=40 and <49.99	D	Pass	5.00
<40	F	Remedial	
Not Appeared the Exam(s)	N	Absent	

The student is eligible for the award of the B.Tech degree with the class as

CGPA	CLASS
≥ 7.5	First Class with Distinction
≥ 6.5 and < 7.5	First class
≥ 5.5 and < 6.5	Second Class
≥ 5.0 and < 5.5	Pass class

mentioned in the Table.

Calculation of Semester Grade Points Average (SGPA):

The performance of each student at the end of the each semester is indicated in terms of SGPA. The SGPA is calculated as below:

$$SGPA = \frac{\text{Total Earned Weighted Grade Points for that Semester}}{\text{Total Credits for the Semester}}$$

$$SGPA = \frac{\sum_{i=1}^P C_i * G_i}{\sum_{i=1}^P C_i}$$

Where 'C_i' = Number of Credits allotted to particular subject 'i'

'G_i' = Grade Point corresponding to the letter grade awarded in that subject 'i'

'i' = 1, 2, ..., P represent the number of subjects for that particular semester

* SGPA is calculated and awarded for the candidates who pass all the courses in a semester.

Calculation of Cumulative Grade Point Average (CGPA) for Entire Programme.

The CGPA is calculated as below:

Assessment of the overall performance of a student is obtained by calculating Cumulative Grade Point Average (CGPA), which is weighted average of the grade points obtained in all subjects during the course of study.

$$CGPA = \frac{\sum_{i=1}^m C_i * G_i}{\sum_{i=1}^m C_i}$$

Where C_i = Number of credits allotted to a particular subject 'i'

G_i = Grade Point corresponding to the letter grade awarded in that subject 'i'

$i = 1, 2, \dots, m$ represent the number of subjects of the entire program.

Grade lower than D in any subject is not considered for CGPA calculation. The CGPA is awarded only when the student acquires the required number of credits prescribed for the program.

Grade Card

The grade card issued shall contain the following:

- a) The credits for each subject offered in that semester
- b) The letter grade and grade point awarded in each subject
- c) The **SGPA/CGPA**
- d) Total number of credits earned by the student up to the end of that semester.
- e) Award list indicating the marks awarded to the student.

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 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 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 discrepancy/ambiguity/doubt arises in the above rules and regulations, the decision of the Principal shall be final.
 - iv. 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 2013-2014)

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

15. Malpractice Rules

Disciplinary Action for Malpractices/Improper Conduct in Examinations

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

		forfeits the seat. The performance of the original candidate who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all end semester examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.
4.	Smuggles the Answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all end semester examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
5.	Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks.	Cancellation of the performance in that subject.
6.	Refuses to obey the orders of the Chief Superintendent/Assistant –	In case of students of the college, they shall be expelled from examination

	<p>Superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer-in-charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the College campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.</p>	<p>halls and cancellation of their performance in that subject and all other subjects the candidate(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The candidates are also debarred and forfeit their seats. In case of outsiders, they will be handed over to the police and a police case is registered against them.</p>
7.	<p>Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall.</p>	<p>Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.</p>

8.	Possess any lethal weapon or firearm in the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat.
9.	If student of the college, who is not a candidate for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	<p>If the student belongs to the college, expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat.</p> <p>Person(s) who do not belong to the College will be handed over to police and, a police case will be registered against them.</p>
10.	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year.
11.	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	Cancellation of the performance in that subject and all other subjects the candidate has appeared including practical examinations and project work of that semester/year.
12.	If any malpractice is detected which is	

	not covered in the above clauses 1 to 11 shall be reported to the academic council of the Institute for further action to award suitable punishment.	
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Malpractices identified by squad or special invigilators

Punishments to the candidates as per the above guidelines.

Malpractice identified at Spot center during valuation

The following procedure is to be followed in the case of malpractice cases detected during valuation, scrutiny etc. at spot center.

- 1) Malpractice is detected at the spot valuation. The case is to be referred to the malpractice committee. Malpractice committee will meet and discuss/question the candidate and based on the evidences, the committee will recommend suitable action on the candidate.
- 2) A notice is to be served to the candidate(s) involved through the Principal to his address and to the candidate(s) permanent address regarding the malpractice and seek explanations.
- 3) The involvement of staff who are in charge of conducting examinations, invigilators valuing examination papers and preparing / keeping records of documents relating to the examinations in such acts (inclusive of providing in correct or misleading information) that infringe upon the course of natural justice to one and all concerned at the examinations shall be viewed seriously and recommended for award of appropriate punishment after thorough enquire.
- 4) Based on the explanation and recommendation of the committee action may be initiated.

5) Malpractice committee:

- | | |
|---|----------|
| i. Controller of Examinations | Chairman |
| ii. Assistant controller of Evaluation | Member |
| iii. Chief Examiner of the subject/subject expert | Member |
| iv. Concerned Head of the Department | Member |

VNR Vignana Jyothi Institute of Engineering & Technology

B. TECH Computer Science Engineering

I YEAR I SEMESTER

COURSE STRUCTURE

Subject Code	Subject Name	Lectures	T/P/D	Credits
MTH1101	Mathematics – I	3	1	3
PHY1101	Engineering Physics	3	1	3
CHE1101	Engineering Chemistry	3	0	3
ENG1101	English	3	0	3
CSE1101	Computer Programming	3	0	3
EEE1152	Basic Electrical Engineering	4	0	4
ENG1201	English Language Communication Skills Laboratory-1	0	3	2
CSE1201	Computer Programming Laboratory	0	3	2
EPC1201	Engineering Physics & Engineering Chemistry Laboratory	0	3	2
Total		19	11	25

VNR Vignana Jyothi Institute of Engineering & Technology

B. TECH Computer Science Engineering

I YEAR II SEMESTER

COURSE STRUCTURE

Subject Code	Subject Name	Lectures	T/P/D	Credits
MTH1102	Mathematics – II	3	1	3
MTH1104	Numerical Analysis and Linear Programming	3	1	3
PHY1104	Applied Physics	3	1	3
CED1105	Environmental Studies	3	1	3
ITD1102	Data Structures	3	0	3
MED1105	Engineering Drawing	2	4	4
MED1202	Workshop Practice	0	3	2
ITD1202	Data Structures Laboratory	0	3	2
ENG1202	English Language Communications Skills Laboratory-II	0	3	2
Total		17	17	25

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

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B. TECH Computer Science Engineering

II YEAR I SEMESTER

COURSE STRUCTURE

Subject Code	Subject Name	Lectures	T/P/D	Credits
MTH1106	Probability and Statistics	3	1	3
ECE1158	Basic Electronics	3	1	3
ITD1103	Advanced Data Structures	4	1	4
CSE1122	Mathematical Foundation for Computer Science	3	0	3
CMS1101	Business Economics and Financial Analysis	4	0	4
CSE1102	Digital Logic Design	4	0	4
ITD1203	Advanced Data Structures Laboratory	0	3	2
ECE1252	Basic Electronics Laboratory	0	3	2
NCC1101	Human Values & Professional Ethics	2	Non Credit Audit Course	
Total		23	9	25

VNR Vignana Jyothi Institute of Engineering & Technology

B. TECH Computer Science Engineering

II YEAR II SEMESTER

COURSE STRUCTURE

Subject Code	Subject Name	Lectures	T/P/D	Credits
CSE1103	Formal Languages and Automata Theory	4	0	4
CSE1104	Principles of Programming Languages	3	1	3
ITD1104	Computer Organization	4	0	4
CSE1105	Design and Analysis of Algorithms	3	1	3
CSE1106	Database Management Systems	4	0	4
ITD1105	Object Oriented Programming through JAVA	3	1	3
CSE1202	Database Management Systems Laboratory	0	3	2
ITD1204	Object Oriented Programming through JAVA Laboratory	0	3	2
Total		21	9	25

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

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B. TECH Computer Science Engineering

III YEAR I SEMESTER

COURSE STRUCTURE

Subject Code	Subject Name	Lectures	T/P/D	Credits
CSE1107	Software Engineering	4	0	4
ECE1109	Microprocessors and Micro controllers	4	0	4
ITD1106	Computer Networks	4	0	4
CSE1108	Computer Graphics & Animation	4	0	4
ITD1107	Operating Systems	3	1	3
ITD1205	Operating Systems & Computer Networks Laboratory	0	3	2
ECE1206	Microprocessors and Microcontrollers Laboratory	0	3	2
ENG1204	Advanced English Communication Skills Laboratory	0	3	2
Total		19	10	25

VNR Vignana Jyothi Institute of Engineering & Technology

B. TECH Computer Science Engineering

III YEAR II SEMESTER

COURSE STRUCTURE

Subject Code	Subject Name	Lectures	T/P/D	Credits
Open Elective				
CED1147	Disaster Management	3	0	3
ITD1126	Green IT			
MED1160	Introduction to operations Research			
CSE1121	Cyber security			
CSE1123	Artificial Intelligence	4	0	4
ITD1109	Linux Programming	4	1	4
CSE1109	Compiler Design	4	1	4
CSE1110	Object Oriented Analysis and Design	4	0	4
CSE1203	Object Oriented Analysis and Design Laboratory	0	3	2
CSE1204	Linux Programming Laboratory	0	3	2
CSE1205	Compiler Design Laboratory	0	3	2
NCC1102	Soft Skills and Personality Development	2	Non Credit Audit Course	
Total		21	11	25

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

VNR Vignana Jyothi Institute of Engineering & Technology

B. TECH Computer Science Engineering

IV YEAR I SEMESTER

COURSE STRUCTURE

Subject Code	Subject Name	Lectures	T/P/D	Credits
ITD1110	Web Technologies	3	1	3
CSE1111	Data Warehousing and Data Mining	3	1	3
CSE1112	Cryptography and Network Security	3	1	3
CMS1102	Management Science	4	0	4
Elective – I				
ITD1118	Wireless and Mobile Computing	3	0	3
ITD1114	Building Enterprise Applications			
CSE1113	Distributed Data Bases			
CSE1114	Soft computing			
Elective – II				
ITD1112	Mobile Application Development	3	0	3
CSE1115	Advanced Computer Architecture			
ITD1117	Bio – Informatics			
CSE1116	Design Patterns			
ITD1208	Web Technologies Laboratory	0	3	2
CSE1206	Network security and Data Mining Laboratory	0	3	2
CSE1301	Industry Oriented Mini Project	0	6	2
Total		19	15	25

VNR Vignana Jyothi Institute of Engineering & Technology

B. TECH Computer Science Engineering

IV YEAR II SEMESTER

COURSE STRUCTURE

Subject Code	Subject Name	Lectures	T/P/D	Credits
CSE1117	Software Project Management	3	1	3
Elective – III				
CSE1118	Semantic Web and Social Networks	3	0	3
ECE1113	Digital Image Processing			
CSE1119	Business Intelligence Applications			
CSE1120	Introduction to Mainframe Systems			
Elective – IV(Inter Departmental Elective)		3	0	3
ECE1155	VLSI Systems			
ECE1124	Embedded Real Time Operating Systems			
EIE1118	Robotics and Automation			
ITD1122	Cloud Computing			
CSE1302	Technical Seminar	0	3	2
CSE1303	Comprehensive Viva	0	3	2
CSE1304	Project Work	0	18	12
Total		09	25	25

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

(MTH1101) MATHEMATICS – I

(Advanced Calculus)

UNIT I

Differential Calculus

Mean value theorems - Rolle's theorem, Lagrange's theorem, Cauchy's theorem, and generalized mean value theorem (Taylor's Theorem) (statements only), Curvature and Radius of curvature, Curve tracing – Cartesian, polar and parametric curves (standard curves only)

UNIT II

Functions of Several Variables

Partial differentiation; Euler's theorem, Functional dependence; Jacobian; Maxima and Minima of functions of two variables with constraints and without constraints.

UNIT III

Improper integrals and Multiple integrals

Improper Integrals; Beta, Gamma, and Error integrals - Properties and simple applications. Applications of integration to lengths, volumes and surface areas in cartesian and polar coordinates. Multiple integrals - double and triple integrals, change of variables (Cylindrical and Spherical polar coordinates) and change of order of integration.

UNIT-IV

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.

UNIT V

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.

TEXT BOOKS

1. Calculus and Analytic Geometry by Thomas and Finney, 9th edition; Publisher: Pearson Education.
2. Higher Engineering Mathematics – by Dr.B. S. Grewal, 40th edition, Publisher: Khanna Publishers.
3. Schaum's Outline of Vector Analysis by Murray R. Spiegel (2011); 2nd edition; Publisher: Tata McGraw Hill.

REFERENCES

1. Elementary Analysis: The Theory of Calculus by Kenneth Ross; Publisher: Springer
2. Advanced Engineering Mathematics by Erwin Kreyszig, 8th edition; Publisher: John Wiley.

VNR Vignana Jyothi Institute of Engineering & Technology

I Year B.Tech– I sem	L	T/P/D	C
	3	1	3

(PHY1101)ENGINEERING PHYSICS

UNIT –1:

INTERFERENCE:

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

DIFFRACTION-I:

Distinguish between Fraunhofer and Fresnel diffraction, diffraction at single slit (Qualitative and Quantitative (Phasors approach)).

UNIT -2

DIFFRACTION-II

Diffraction at double slit, circular aperture, and multiple slits (grating)(Qualitative Approach), Resolution of spectral lines, Rayleigh criterion, and resolving power of grating.

POLARIZATION

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

UNIT -3:

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 –Semiconductor Laser – Applications of lasers.

FIBER OPTICS:

Principle of optical fiber and properties – 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.

UNIT -4:

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 Wien'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 -5

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 (Qualitative).

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; and Concept of effective mass of an electron.

TEXT BOOKS:

- (1) Physics vol.2, by Halliday, Resnick and Krane; John Wiley & Sons
- (2) Concepts of Modern physics by Arthur Beiser, McGraw Hill Inc.
- (3) Introduction to Solid State Physics by Charles Kittel : John Wiley & Sons

REFERENCE BOOKS:

- (1) Engineering Physics by R.K.Gaur and S.L.Gupta; Dhanpat Rai and Sons
- (2) Applied Physics by P.K.Mittal, IK International Publishing House (P) Ltd.
- (3) Optics by Ghatak and Thyagarajan, Tata Mc Graw
- (4) Engineering Physics by G Sahashra Buddhe; University Press
- (5) Elements of Solid State Physics by J.P.Srivatsva, PHI Publishers
- (6) Engineering Physics by Dr M Chandra Shekar and Dr P. Appala Naidu, VGS Book links.
- (7) Introduction to Optical Communication by G. Keiser
- (8) Quantum Mechanics by Gupta Kumar Sharma

VNR Vignana Jyothi Institute of Engineering & Technology

I B.Tech CSE, IT – I sem	L	T/P/D	C
CE, ME, AE, ECE, EEE, EIE – II sem	3	0	3

(CHE1101) ENGINEERING CHEMISTRY

UNIT I

Electrochemical cells and batteries

Conductance-factors effecting conductance, conductometric titrations; cells: types of cells, cell representation, electrode potential; Standard electrode potential; Electrochemical series; Nernst equation; Reference electrodes – hydrogen, calomel 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 – methanol – oxygen fuel cells, advantages of fuel cells; Solar cells - principle, and applications.

UNIT II

Corrosion and its control

Introduction; Causes and effects of corrosion; Different types of corrosion; Theories of corrosion – chemical, electrochemical corrosion (reactions); Factors affecting corrosion – nature of metal (galvanic series; over voltage; purity of metal; nature of oxide film; nature of corrosion product), and nature of environment (effect of temperature; effect of pH; humidity; effect of oxidant).

Corrosion control methods – cathodic protection, sacrificial anode, and impressed current cathode;

Surface coatings – methods of application on metals (hot dipping; galvanizing; tinning; cladding; electroplating), and organic surface coatings (paints - constituents and functions).

UNIT III

III a) Polymers

Introduction; Types of polymerization; Plastics - thermoplastic resins, and thermoset resins; Compounding & fabrication of plastics; Preparation, properties, and engineering applications of polyethylene, PVC, PS, Teflon, bakelite, nylon.

III b) Rubber

Natural rubber- processing, vulcanization; Elastomers (Buna-s; Butyl rubber; Thiokol rubbers); Fiber reinforced plastics (FRP) and their applications.

UNIT IV

Water

Introduction; Hardness - causes, expression of hardness, units, types of hardness, estimation of temporary & permanent hardness of water, and 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 and Electro dialysis (desalination processes).

UNIT V

Nanomaterials

Introduction; Preparation and applications of nanomaterials with special reference to carbon nanotubes.

Insulators

Classification of insulators; characteristics of thermal & electrical insulators and their applications; Superconductors - Nb-Sn alloy, $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$; Applications of superconductors.

TEXT BOOKS

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

REFERENCES

1. Text Book of Engineering Chemistry by S.S. Dhara & Mukkanti; Publisher: S.Chand & Co.
2. Engineering Chemistry by O G Palanna
3. Text Book of Engineering Chemistry by R.Gopalan, D.Venkappayya, Sulochana Nagarajan; Publisher: Vikas Publishers.
4. Engineering Chemistry by R.P.Mani, S.N. Mishra, B.Rama Devi ,Cengage Learning Publications.

VNR Vignana Jyothi Institute of Engineering & Technology

I Year B.Tech (Common to all Branches)

L	T/P/D	C
3	0	3

(ENG1101) 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 : Review of Grammar

- | | |
|----------------------------|-------------------------------------|
| i) Common Errors | v) Use of Articles and Prepositions |
| ii) Subject-Verb Agreement | vi) Conjunctions |
| iii) Adverbs | vii) pronoun reference |
| iv) Transitional elements | |

Unit II : Prose 1

1. Heaven's Gate by Pico Iyer
2. The Connoisseur by Nergis Dalal

Unit III Reading and Writing Skills

- i) Reading Comprehension -- Skimming & scanning
- ii) Reading Comprehension -- Intensive reading
- iii) Reading Comprehension -- Critical Analysis
- iv) Paragraph Writing
- v) Letter Writing
- vi) Memo Writing

Unit IV : Prose 2

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

Unit V : Advanced Writing Skills

1. Comparison and Contrast Pattern
2. Cause and Effect Pattern
3. Classification
4. Analogy
5. Problem-Solution Pattern

Prescribed Text Books

1. **Enjoying Everyday English** by A. Ramakrishna Rao
2. **Effective Technical Communication** by Ashraf Rizvi
3. **Technical Writing Process and Product** by Gerson Sharon J. and Steven Gerson. 3rd edition, New Jersey: Prentice Hall 1999

References

1. M. Raman and S. Sharma, 2004; Technical Communication : Principles and Practices, OUP, (Indian Edition)
2. Blanton, L.L. 1993; Composition Practice, Book 4 ,Second Edition, Heinle & Heinle Publishers, pp. 54
3. Georges, T.M. 1996; A course in Analytical Writing for Science and Technology,
<http://www.mspiggy.etl.noaa.gov/write/>
4. Neufeld, J.K. 1987; A Handbook for Technical Communication, Prentice-Hall, Inc. pp.20,65-68
5. Yalden, J. 1987; Principles of Course Design for Language Teaching, Cambridge University Press
6. David F. Beer and David McMurrey, Guide to Writing as an Engineer, 2nd ed., Wiley, 2004, ISBN: 0471430749.
7. Greaney, G.L. 1997; Less is More: Summary Writing and Sentence Structure in the Advanced ESL Classroom, The Internet TESL Journal, Vol.III, No.9
<http://iteslj.org/Techniques/Greaney-Writing.html>

VNR Vignana Jyothi Institute of Engineering and Technology

I Year B.Tech CSE , IT,ECE,EEE,EIE – I Sem

L	T/P/D	C
3	0	3

(CSE1101) COMPUTER PROGRAMMING

UNIT - I

Computer fundamentals-Hardware, software, computer language , translators, Program Development steps-Algorithms, Pseudo code, flow charts, Introduction to C Language – History, Simple C Program, Identifiers, Basic data types, user defined data types, Variables, Constants, type qualifiers, Managing Input / Output, Operators, Expressions, Precedence and Associativity, Expression Evaluation, Type conversions, Simple C Programming examples.

UNIT - II

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

Arrays – Basic concepts, one-dimensional arrays, two – dimensional arrays, multidimensional arrays, C programming examples.

UNIT - III

Introduction to Structured Programming, Functions- basics, user defined functions, inter function communication, Standard functions, Storage classes-auto, register, static, extern, scope rules, arrays to functions, recursive functions, example C programs.

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

UNIT - IV

Derived types – Structures – Basic concepts, nested structures, arrays of structures, structures and functions, unions, bit fields, 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

Preprocessor Directives, Dynamic Memory Allocation

File I/O – Basic concepts, text files and binary files, file input / output operations, file status functions (error handling), C programming examples, Command-Line Arguments.

TEXT BOOKS:

1. C programming A Problem-Solving Approach by Behrouz A.Forouzan,E.V.Prasad,Richard F.Gilberg
2. C How to Program Paul Deitel and Harvey Deitel , PH
3. Computer Programming and Data Structures by E Balagurusamy, Tata McGraw Hill.

REFERENCES:

1. Let Us C Yashavant kanetkar BPB
2. The C Programming Language by Brian W. Kernighan, Dennis M. Ritchie
3. Absolute beginner's guide to C, Greg M. Perry, Edition 2,Publisher: Sams Pub., 1994

VNR Vignana Jyothi Institute of Engineering and Technology

I Year B.Tech. – I –SEM IT/ CSE

T	P	C
4	0	4

(EEE1152) BASIC ELECTRICAL ENGINEERING

UNIT – I

Introduction to Electrical Engineering: Basic circuit components, types of elements, Ohm's law, types of sources, Kirchhoff's laws, resistive networks, inductive networks, capacitive networks, star-delta and delta-star transformation, simple problems.

UNIT-II

Alternating Quantities: Principle 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, simple problems.

UNIT-III

Direct current machines: Principle of operation and construction of a dc machine, e.m.f equation, Torque production in a dc machine, Types of DC machines (All the above topics are only qualitative treatment).

UNIT-IV

Transformers: Principle of operation, Constructional Details, Ideal Transformer and Practical Transformer, Losses, Open circuit and short circuit Tests, Efficiency and Regulation (All the above topics are only elementary treatment and simple problems).

UNIT V

A.C Machines: Three phase induction motor: principle of operation, slip and rotor frequency, torque (simple problems). Synchronous Motor: Principle of operation, EMF equation (Simple problems).

TEXT BOOKS:

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

REFERENCES :

1. Theory and Problems of Basic Electrical Engineering by D.P.Kothari & I.J. Nagrath PHI.
2. Principles of Electrical Engineering by V.K Mehta, S.Chand Publications.
3. Essentials of Electrical and Computer Engineering by David V. Kerns, JR. J. David Irwin Pearson.
4. Electrical circuits by Sudhkar and Shyam Mohan-TMH

VNR Vignana Jyothi Institute of Engineering & Technology

I Year B.Tech (Common to CSE, IT, ME, AME)

L T/P/D C
0 3 2

(ENG1201) ENGLISH LANGUAGE COMMUNICATION SKILLS LABORATORY –I

The English language Communication Skills Lab aims to provide practice in all the four skills of LSRW, with a special emphasis on listening and speaking skills.

Syllabus for Lab Sessions

Unit 1

Multimedia Lab

1. Sounds of English
2. Listening Comprehension
3. Vocabulary Lesson 1

Communication Skills Lab: Introduction of Self and others

Unit 2

Multimedia Lab

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

Communication Skills Lab: Seeking and Giving Information

Unit 3

Multimedia Lab

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

Communication Skills Lab: Giving and Taking Instructions

Unit 4

Multimedia Lab

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

Communication Skills Lab: Role Play/ Situational Dialogues

Unit 5

Multimedia Lab

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

- Communication Skills Lab** :
- i) JAM/ Short Talk
 - ii) Information Transfer
 - a) Data Analysis
 - b) Interpretation of Graph

Multimedia Lab Requirements

The English Language Lab shall have two parts:

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

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- o **Lingua TOEFL CBT Insider**, by Dreamtech
- o **TOEFL & GRE** (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)

VNR Vignana Jyothi Institute of Engineering and Technology

I Year B.Tech CSE , IT,ECE,EEE,EIE – I Sem

L	T/P/D	C
0	3	2

(CSE1201) COMPUTER PROGRAMMING LABORATORY

Week 1

- Basic Linux commands
- Simple C programs -to implement basic arithmetic operations – sum, average, product, smallest, largest of the numbers, difference, quotient and remainder of given numbers etc.

Week 2

Programs on if, else-if, nested if, else if ladder - largest and smallest of given numbers, to find the grade of a student based on marks, roots of a quadratic equation etc.

Week 3

- Programs on switch-case – to check the type of a given character, to find the grade of a student etc.
- Programs on while and do-while- to find factorial, Fibonacci series, GCD, $\sin(x)$, $\cos(x)$ series , to check whether a given number is an Armstrong, Palindrome, Perfect, number conversion, and Prime number etc.

Week 4

Programs on for loop- sum of n natural numbers, factorial, $\sin(x)$, to generate Pascal's triangle etc.

Week 5

- Programs on nested loops – check for Fibonacci prime, Pyramids of numbers, generation of prime numbers in the given range, multiplication table etc
- programs using break, goto, continue.

Week 6

- Programs on 1-D array-finding Minimum and maximum element ,Sorting and Searching etc.
- Programs on 2-D array – Sum, product and Multiplication of two Matrices etc.

Week 7

- Programs on Functions-Implementation of user defined functions categories, passing of arrays to functions etc.
- Programs on recursion - factorial of a given integer, GCD of two given integers etc.

Week 8

- a. Programs on String handling functions-Copying, reverse, substring, concatenation.
- b. Programs on structure and unions.

Week 9**Midterm exam****Week 10**

Programs using pointers- pointer basic operations, pointers and functions etc

Week 11

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

Week 12

Programs on files-Implementation of file handling functions.

Week 13

- a. Programs on files error handling.
- b. Programs on Dynamic memory allocation

Week 14

Programs on command line arguments.

Week 15

Programs on preprocessor directives

Week 16**Internal Lab Exam**

VNR Vignana Jyothi Institute of Engineering and Technology

I Year B.Tech CSE , IT-I Sem

L	T/P/D	C
0	3	2

(EPC1201)ENGINEERING PHYSICS & CHEMISTRY LAB COURSE

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 wedge shaped film
6. Energy gap of a semiconductor material
7. To determine the rigidity modulus of material of a wire
8. Melde's experiment
9. Sonometer Experiment
10. AC frequency by sonometer method
11. Numerical Aperture and Acceptance angle of an optical fiber cable
12. Attenuation and Bending losses in optical fiber
13. Stewart Gee's experiment
14. Characteristics of LED/Laser Diode.
15. Photo cell/ Solar Cell

Book: Essential Practical Lab Manual in Physics: by P.Raghavendra Rao

LIST OF EXPERIMENTS

1. Titrimetry

- a) 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) pH metry

- a) Titration of strong acid vs strong base by pH metry

3. Physical properties

- a) Determination of viscosity of sample oil by Redwood viscometer.

4. Preparations:

- a) Preparation of soap
- b) Preparation of Nano particles.

TEXT BOOKS

1. Laboratory Manual on Engineering Chemistry by S.K.Bhasin and Sudha Rani; Publisher: Dhanpat Rai.
2. Laboratory Manual on Engineering Chemistry by Y.Bharathi Kumari and Jyotsna Cherukuri; Publisher: VGS Book Links.

VNR Vignana Jyothi Institute of Engineering & Technology

I Year B.Tech CSE & IT – II sem

L	T/P/D	C
3	1	3

(MTH1102) 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, row Echelon form, and normal form; Solution of linear systems - direct methods - LU decomposition, LU decomposition from Gauss elimination, and solution of Tri-diagonal systems by Thomas algorithm; Eigen values, eigen vectors, and their properties - Linear dependence and independence; Cayley-Hamilton theorem (without proof) - 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; 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 and Euler-Cauchy's 2nd order differential equations, applications to mechanical systems and Simple harmonic motion.

UNIT V

Laplace transform and application to ODE

Laplace transform of standard functions; Inverse transform-first shifting theorem; Dirac's delta function; Convolution theorem; Periodic function; Differentiation and integration of transforms; Application of Laplace transforms to ordinary differential equations.

TEXT BOOKS

1. Differential Equations, with Applications and Historical Notes by George F. Simmons and John S. Robertson (2008) 2nd Edition; Publisher: Tata McGraw Hill.
2. A First Course in Differential Equations by Dennis G. Zill; Publisher: Brooks Cole.
3. Advanced Engineering Mathematics by Dennis G. Zill, Warren S. Wright, and Michael R. Cullen, 4th edition; Publisher: Jones & Bartlett Learning.

REFERENCES

1. Advanced Engineering Mathematics by Erwin Kreyszig, 8th edition; Publisher: John Wiley.
2. Advanced Engineering Mathematics by Peter V. O'Neil, 9th Edition; Publisher: Cengage Learning.
3. Elementary Differential Equations and Boundary Value Problems by William E. Boyce and Richard C. Diprima; Publisher: Wiley.
4. Linear Algebra and its applications by David C Clay; Publisher: Pearson Education.

VNR Vignana Jyothi Institute of Engineering & Technology

I Year B.Tech CSE&IT – II Sem

L	T/P/D	C
3	1	3

(MTH1104) 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 their 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 Integration

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 Moulton method, and Milne's method.

UNIT IV

Numerical solutions of partial differential equations (PDE)

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

LINEAR PROGRAMMING

UNIT V

Linear programming

linear programming - Basic concepts; -problem formulation, graphical method, canonical and standard forms of LPP simplex method, Artificial variables techniques- M method, Transportation problems: Balanced transportation problem-North-West corner rule, Least cost method, Vogel's approximation method and MODI method.

TEXT BOOKS

1. Elementary Numerical Analysis – an algorithmic approach by Samuel D. Conte and Carl De Boor (2006); 3rd edition; Publisher: Tata McGraw Hill.
2. Elementary Numerical Analysis by Dr. B.S.Grewal, 4th edition, Publisher: Khanna Publishers
3. Operations Research: Theory and Applications by Kanthi Swaroop, 4th edition, Macmillan Publishers India Ltd.

REFERENCES

1. Advanced Engineering Mathematics by Erwin Kreyszig, 8th Edition; Publisher: John Wiley and Sons.
2. Advanced Engineering Mathematics by Peter V. O'Neil, 9th Edition; Publisher: Cengage Lear

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3	1	3

(PHY1104) APPLIED PHYSICS
(Common for CSE & IT)

UNIT -1

ADVANCED QUANTUM MECHANICS:

Schrodinger equation revisited: Time dependent wave equation, Linearity and Superposition, Expectation values and Operators (Position, Momentum and Energy operators), Finite Potential well, Tunnel Effect, Problems.

UNIT -2

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 – Introduction to LED, BJT and FET.

UNIT -3

MAGNETIC PROPERTIES OF MATERIALS:

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 – Ferrites and their applications.

UNIT -4

DIELECTRIC PROPERTIES:

Electric dipole, Dipole moment, Dielectric constant, Electronic, Ionic and Orientation Polarization – Calculation of Polarizabilities – Frequency dependence of Polarization- Internal fields – Clausius – Mossotti equation –Piezo and Ferro electricity.

UNIT -5

SUPERCONDUCTORS:

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

TEXT BOOKS:

1. Concepts of Modern physics by Arthur Beiser, McGraw Hill Inc.
2. Applied Physics by P.K.Mittal, IK International Publishing House (P) Ltd
3. Electronic Devices and circuits by Milliman and Halkias

REFERENCES

1. Engineering Physics by Dr M Chandra Shekar and Dr P. Appala Naidu, VGS Book links.
2. Engineering Physics by G Sahashra Buddhe; University Press
3. Quantum Mechanics by Gupta Kumar Sharma
4. Elements of Solid State Physics by J.P.Srivatsva, PHI Publishers
5. Engineering Physics by M.R.Srinivasan, New Age Publishers
6. Solid State Physics by M.A. Wahab.

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I Year B. Tech	L	T/P/D	C
(Common to all branches)	3	1	3

(CED1105) ENVIRONMENTAL STUDIES

UNIT-I

Introduction, Definition, scope and importance, Ecosystems: Introduction, types, characteristic features, structure and functions of ecosystems. Bio geo chemical cycle, Classification of Eco system.

UNIT-II

Natural Resources :classification of Resources, Land resources, Land as resource, Common property resources, Land degradation, Soil erosion and desertification, Effects of modern agriculture, fertilizer –pesticide problems, Forest resources, Use and over-exploitation.

Mining and dams – their effects on forest and tribal people, Water resources, Use and over- utilization of surface and groundwater, Floods, droughts, Water logging and salinity, Dams –benefits and costs, Conflicts over Water. Energy resources

UNIT III

Bio-diversity and its conservation, Value of bio-diversity -consumptive and productive use, social, ethical, aesthetic and option values, Bio-geographical classification of India – India as a mega diversity habitat, Threats to bio-diversity –Hot-spots, habitat loss, poaching of wild life, loss of species, seeds, etc. Conservation of bio-diversity – Insitu and Ex-situ conservation.

UNIT IV

Environmental Pollution –Local and Global Issues, Nature of thermal pollution and nuclear hazards, Global warming, Acid rain, Ozone depletion. Environmental case studies.

UNIT V

Environmental Problems in India, Drinking water, sanitation and public health, Effects of the activities on the quality of environment, Water scarcity and groundwater depletion, Controversies on major dams – resettlement and rehabilitation of people: problems and concerns, Rain water harvesting, cloud seeding and watershed management. Economy and Environment, The economy and environment interaction, Economics of development, preservation and conservation, Sustainability: theory and practices, Limits to growth, Equitable use of resources for sustainable life styles, Environmental Impact Assessment.

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

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I Year B.Tech CSE , IT,ECE,EEE,EIE – II Sem

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(ITD1102) DATA STRUCTURES

UNIT-1

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 – 2

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

UNIT-3

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

UNIT-4

Trees – Definitions, Binary tree representation, Binary search tree, binary tree traversals.

Graphs – Definitions, Graph representations, Graph traversals.

UNIT-5

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& 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 & Data Structures, E. Balagurusamy, TMH.
4. C Programming & Data Structures, P. Dey, M Ghosh R Thereja, Oxford University Press
5. C& Data structures – E V Prasad and N B Venkateswarlu, S. Chand&Co.

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I Year B.Tech

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(MED 1105) ENGINEERING DRAWING (Common to EEE, ECE, EIE, CSE & IT)

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

Isometric Scale, Isometric drawing and Isometric projections of lines, planes and simple solids.

UNIT – V

Conversion of orthographic views into isometric views for simple objects. Construction of orthographic projections for given isometric projections.

TEXT BOOKS :

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

REFERENCES:

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

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I Year B.Tech CSE & IT – II Sem

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(MED1202) WORKSHOP PRACTICE (8 + 8 Weeks)

TRADES FOR EXERCISES

At least two exercises from each trade:

1. Carpentry
2. Fitting
3. Welding
4. Electrical Wiring
5. Lathe Operations

IT WORK SHOP EXERCISES

1. Computer Hardware: Identification of Peripherals
2. Assembling and disassembling of a PC
3. Simple diagnostic exercises – Related to hardware
4. Installation of Windows Operating System
5. Installation of Linux Operating System
6. Linux Basic Commands
7. Simple diagnostic exercises –Related to Operating System

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)

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I Year B.Tech CSE , IT,ECE,EEE,EIE – II Sem

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(ITD1202) 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 implement tree traversals.

WEEK 15:

1. Implementation of a Graph representation using Adjacency Matrix
2. Write a program to implement graph traversals.

WEEK 16: Final Internal Lab Exam

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I Year B.Tech (Common to CSE, IT, ME, AME)	L	T/P/D	C
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(ENG 1202) 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 1

Multimedia Lab :

1. Grammar – Active and Passive Voice
2. Vocabulary Lesson 6
3. Listening Comprehension

Communication Skills Lab :

- i) Data Analysis (Writing)
- ii) Interpretation of isuals

Unit 2

Multimedia Lab :

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

Communication Skills Lab : Presentation Skills : Oral Presentation

Unit 3

Multimedia Lab :

1. Grammar -- Language Analysis
2. Vocabulary Lesson 8

Communication Skills Lab : Presentation Skills : PPTs

Unit 4

Multimedia Lab :

1. Grammar – Common Errors
2. Writing : Self Introduction (in the Written Form)
3. Vocabulary Lesson 9
4. Listening Comprehension

Communication Skills Lab : Debate

Unit 5

Multimedia Lab :

1. Introduction to Technical Writing

A. Definition of a Technical Term

B. Description of a Mechanism

C. Description of a Technical Process

2. Vocabulary Lesson 10

Communication Skills Lab : Group Discussions

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II Year B.Tech CSE – I SEM

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(MTH1106) 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. Binomial , Poisson and Normal distributions–properties. Sampling distributions, Sampling distribution of means (σ known and unknown)

UNIT II

Test of Hypothesis

Test of hypothesis, point estimation, interval estimation, null hypothesis, alternate hypothesis, type I, type II errors, critical region, confidential interval for mean, Difference between the means Confidential interval for the proportions. Test of hypothesis for the proportions- single and difference between the proportions

UNIT III

Small samples

Confidence interval for the t- distribution, test of hypothesis-t distributions, F distributions, Chi square distributions

UNIT IV

Correlation and Regression

Coefficient of correlations, Regression coefficient, the lines of regression, the rank correlation

UNIT V:

Reliability theory and Time Series analysis

Basic concepts, Normal failure law, Exponential failure law, The Weibull failure law and reliability of systems, Time series defined , 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. Mille I.R. and Freund J.E., "Probability and Statistics for Engineers", Prentice-Hall, 1995.
2. Meyer , "Introductory Probability and Statistics", 2nd edition, Oxford and Ibh .
3. S.P. Gupta " Statistical Methods" , Sultan Chand and sons

REFERENCES

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

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II Year B.Tech CSE – I SEM

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(ECE1158) BASIC ELECTRONICS

UNIT I: Diodes, 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, static and dynamic resistance levels, p-n diode as a rectifier, half wave and full wave rectifiers, C- filter, Breakdown mechanisms in p-n junction diodes, zener diode characteristics, zener diode as a regulator.

UNIT II: Bipolar Junction Transistor

Junction transistor, Transistor current components, Transistor Construction, BJT operation, BJT symbol, Detailed study of currents in a transistor Input and output characteristics of transistor in Common Base, Common Emitter and Common Collector Configurations, Relation between alpha and beta, transistor as an amplifier, Operating point, Need for biasing.

UNIT III: Field Effect Transistor

The JFET Construction and principal of operation, symbol, Pinch off voltage, Drain and Transfer characteristics, MOSFET principal of operation, symbol, MOSFET Characteristics in Enhancement and Depletion Mode.

UNIT IV: Introduction to Amplifiers

Definition of Voltage gain, Current gain, input resistance and output resistance in Amplifiers.

Concept of feedback, classification of feedback amplifiers, General characteristics of negative feedback amplifiers, Effect of feedback on amplifiers, Introduction to feedback topologies. Barkhausen criteria, principle of operation of LC and crystal oscillators

UNIT V: Special Purpose Electronic Devices

Principle of Operation and Characteristics of UJT, Principle of Operation of SCR, DIAC, TRIAC, Photo Diode, LED and LCD

TEXT BOOKS

1. Electronic Devices and Circuits – J.Millman, C.C.Halkias, and Satyabratha Jit, Tata McGraw Hill, 2nd Edition, 2007.
2. Electronic Devices and Circuits – R.L. Boylestad and Louis Nashelsky, Pearson/Prentice Hall, 11th Edition, 2006.
3. Electronic Devices and Circuits- S. S Salivahanan, N. Suresh Kumar, A. Vallava Raju,2nd Edition.,TMH, 2010

REFERENCES

1. Integrated Electronics - J.Millman and Christos.C.Halkias, and Satyabratha, Jit Tata McGraw Hill, 2nd Edition, 2008.
2. Electronic Devices and Circuits – T.F. Bogart Jr., J.S.Beasley and G.Rico, Pearson Education, 6th Edition, 2004.
3. Electronic Devices and Circuits – David A Bell, Oxford University Press, 5th edition (2008)

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II Year B.Tech CSE – I SEM

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(ITD1103) 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 deallocation (new and delete), exception handling.

UNIT II

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

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.

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II Year B. Tech, CSE – I SEM

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(CSE1122) 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 & 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

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II Year B.Tech CSE – I SEM

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(CMS1101) BUSINESS ECONOMICS & 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, Demand Analysis, Elasticity of Demand and Demand Forecasting:

Definition, Nature and Scope of Managerial Economics- Demand Analysis Determinants, Law of Demand and its exceptions.

Elasticity of Demand and Demand Forecasting:

Definitions, Types, Measurement and significance of Elasticity of Demand. Demand Forecasting, Factors governing demand forecasting, methods of demand forecasting (survey methods, statistical methods, expert opinion method, test marketing, controlled experiments, judgmental approach to demand forecasting)

UNIT-III

Cost Analysis, Theory of production and Market Structures:

Cost Analysis:

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

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 of 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, 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.

UNIT-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, Interest coverage ratio), and profitability Ratios (Gross profit ratio, net profit ratio, operating ratio, P/E ratio and EPs).

TEXT BOOKS:

1. Aryasri: Managerial; Economics and Financial Analysis, TMH, 2009.
2. Varshney & Maheswari: Managerial Economics , Sultan Chand, 2009.

REFERENCES:

1. Ambriah Gupta, Financial Accounting for Management, Pearson Education, New Delhi, 2010.
2. H.Craig Peterson & W. Cris Lewis, Managerial Economics PHI, 2010.

(CSE1102) DIGITAL LOGIC DESIGN

UNIT-I

NUMBERS SYSTEMS AND CODES:-

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 John Wiley

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

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II Year B.Tech CSE – I SEM

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(ECE1252) BASIC ELECTRONICS LABORATORY

Part A: (Only for viva-voce Examination)

ELECTRONIC WORKSHOP PRACTICE(in 3 lab sessions):

Identification, Specification, testing of R,L,C components (color codes), Potentiometers (SPDT, DPDT, and DIP), Coils, Gang Condensers, Relays, Bread Board, PCB's, Identification, Specification, testing of Active devices : Diodes, BJT, Low power JFET's, MOSFET's, Power Transistors, LED's, LCD's, SCR, UJT.

Study and operation of - Multimeters, Function Generator, Regulated Power Supplies, CRO

Part B: (For Laboratory Examination – Minimum of 10 experiments)

- V-I characteristics of PN junction Diode.
- Zener diode V-I characteristics
- Zener diode as voltage regulator.
- Half Wave rectifier with C-filter
- Full wave Rectifier with C- filter.
- Characteristics of CE- configuration.
- Characteristics of CB configuration.
- FET characteristics.
- UJT characteristics
- SCR characteristics
- CE amplifier
- LC oscillator

VNR Vignana Jyothi Institute of Engineering & Technology

(NCC1101) HUMAN VALUES AND PROFESSIONAL ETHICS

Course Description

Objectives

To develop the ability to distinguish between what is of value and what is superficial in life.

To develop the ability to face difficult situations in life boldly and resolve them confidently.

To enable students to progress from discrimination to commitment.

To Encourage the students to understand values in life.

Syllabus

1. Self-confidence
3. Peer Pressure-Irregular life style
4. The Power of Self- determination
5. Human relationship—trust and respect- resolving conflict
6. Anger-A sign of helplessness
7. Interaction and ragging
8. Right Utilization of physical facilities
9. Unhappiness -Unfulfilled expectations
10. Setting goals- long term and short term goals-handling responsibilities
11. Dealing with people while coordinating work
12. Coping with stress-Identifying one's interests and strengths
13. Time Management-Planning and aligning with one's goals
14. Skills and Values
15. The role of values in Society

Course Book

The resource material that has been prepared by IIIT can be used apart from material that is available in the websites. Later text books can be identified for the facility of the students.

Evaluation

This course would only have a pass/ fail grade. Participation in discussions, submission of assignments and weekly reports and a final report will be used in evaluation.

Outcome

At the end of the course the students would become sensitive towards human values. They would understand commitment and responsibility. They would be able to bring harmony in the society they live.

TEXT BOOKS

1. Mike Martin and Roland Schinzinger, "Ethics in Engineering", McGraw -Hill, New York 1996.
2. Govindarajan M, Natarajan S, Senthil Kumar V. S, "Engineering Ethics", Prentice Hall of India, New Delhi, 2004

REFERENCES

1. Charles D. Fleddermann, "Engineering Ethics", Pearson Education / Prentice Hall, New Jersey, 2004 (Indian Reprint now available).
2. Charles E Harris, Michael S. Protchard and Michael J Rabins, "Engineering Ethics–Concepts and Cases", Wadsworth Thompson Learning, United States, 2000 (Indian Reprint now available)
3. John R Boatright, "Ethics and the Conduct of Business", Pearson Education, New Delhi, 2003.
4. Edmund G Seebauer and Robert L Barry, "Fundamentals of Ethics for Scientists and Engineers", Oxford University Press, Oxford, 2001.
5. Naagarazan, R.S. 'A Textbook on Professional Ethics and Human Values' 2006.

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(CSE1103) FORMAL LANGUAGES AND AUTOMATA THEORY

UNIT-I

Fundamentals: strings, Alphabet, Language, Operations, Chomsky hierarchy of languages, Finite state machine Definitions, finite automation model, acceptance of strings and languages, DFA and NFA, transition diagrams and language recognizers. NFA with ϵ transitions –Equivalence between NFA with and without ϵ transitions, NFA to DFA conversion, minimization FSM, equivalence between two FSM's, Output machines- Moore and Mealy machine.

UNIT –II

Regular Languages : Regular Sets , Regular Expressions , identity Rules, Constructing Finite automata for a given regular expressions, Conversion of Finite automata to regular expressions, Pumping lemma of regular sets , closure properties of regular sets (proofs not required). Regular Grammars – right linear and left linear grammars, equivalence between regular grammar and FA,

UNIT –III

Context Free Grammar, derivation trees, sentential forms, right most and left most derivations of strings. Ambiguity in Context free Grammars. Minimization of Context free grammars, CNF, GNF, Pumping Lemma for Context Free Languages. Enumeration of properties of CFL (proofs omitted).

Push Down Automata- definition, model, acceptance of CFL, Acceptance by final state and acceptance by empty state and its equivalence, Equivalence of CFL and PDA (proofs not required), Introduction to DCFL and DPDA.

UNIT –IV

Turing Machine: Definition, model, Design of TM, computable functions, recursively enumerable languages. Church's hypothesis, counter machine, types of Turing Machines (proofs not required)

UNIT –V

Computability Theory: Linear Bounded Automata and context sensitive languages, LR (0) grammar, decidability of problems, Universal TM, Un decidable problems about Turing Machine – Post's Correspondence Problem - The classes P and NP.

TEXT BOOKS

1. H.E.Hopcroft, R.Motwani and J.D Ullman, "Introduction to Automata Theory, Languages and Computations", Second Edition, Pearson Education, 2003.

REFERENCES

1. H.R.Lewis and C.H.Papadimitriou, "Elements of The theory of Computation", Second Edition, Pearson Education/PHI, 2003
2. J.Martin, "Introduction to Languages and the Theory of Computation", Third Edition, TMH, 2003.
3. Micheal Sipser, "Introduction of the Theory and Computation", Thomson Brokecole, 1997.

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(CSE1104) PRINCIPLES OF PROGRAMMING LANGUAGE

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-2

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-3

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-4

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-5

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 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. LISP Patric Henry Winston and Paul Horn Pearson Education.
5. Programming in PROLOG Clocksin, Springer.

(ITD1104)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, Register Transfer, Arithmetic Micro operations, Logic Micro operations, Shift Micro operations 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, Instruction 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

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(CSE1105) DESIGN AND ANALYSIS OF ALGORITHMS

UNIT I

Introduction: Algorithm, Psuedo code 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, Principle of optimality, applications-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 Generator ,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.Leiserson 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, McGraw Hill.
3. Data structures and Algorithm Analysis in C++, Allen Weiss, Second edition, Pearson Education.
4. Design and Analysis of algorithms, Aho, Ullman and Hopcroft, Pearson Education.
5. Algorithms Richard Johnsonbaugh and Marcus Schaefer, Pearson Education

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(CSE1106) 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 – Comparison of Indexing with Hashing.

TEXTBOOKS.

1. Database System Concepts, Silberschatz, Korth , Fifth Edition, McGraw hill (1,2,3 & 5 Units)
2. Database Management Systems, Raghuramakrishnan, Johannes Gehrke, TATA Mc Graw Hill(1,2,3 & 5 Units)
3. Introduction to Database Systems, C.J.Date, Pearson Education (4th Unit)

REFERENCES :

1. Fundamentals of Database Systems, Elmasri Navrate Pearson Education
2. Data base Systems design, Implementation, and Management, Peter Rob & Carlos Coronel 7th Edition.

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(ITD1105) OBJECT ORIENTED PROGRAMMING THROUGH JAVA

UNIT I

Introduction to Java

Introduction: Creation of Java, Java buzzwords, OOP Principles, Encapsulation, Inheritance and Polymorphism, Classes and Objects: Creating and usage objects, introducing methods, constructors, usage of static with data and methods, usage of final with data, access control, this key word, garbage collection, overloading methods and constructors, parameter passing, recursion, nested classes and inner classes, String Handling

UNIT-II

Inheritance, Packages and Interfaces

Basic concepts, member access rules, usage of super key word, forms of inheritance, method overriding, abstract classes, dynamic method dispatch, using final with inheritance, the Object class. Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, differences between classes and interfaces, defining an interface, implementing interface, applying interfaces, variables in interface and extending interfaces.

UNIT-III

Exception Handling and Multithreading

Concepts of Exception handling, types of exceptions, usage of try, catch, throw, throws and finally keywords, Built-in exceptions, creating own exception sub classes, Concepts of Multithreading, differences between process and thread, thread life cycle, creating multiple threads using Thread class, Runnable interface, Synchronization, thread priorities, inter thread communication, daemon threads, deadlocks, thread groups.

UNIT-IV

Event Handling, AWT Controls

Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes.

AWT : Concepts of components, container, panel, window, frame, canvas, Font class, Color class and Graphics, AWT Controls.

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

UNIT-V

Networking, Java Library, JDBC

Networking: InetAddress, TCP/IP sockets, Datagrams, URL, URL connection, String handling, java.util, java.io and java.net packages.

JDBC: Different type of Drivers, Connection establishment, Retrieving and manipulation data from client and storing in data base. Java Library: explore io, util, net, lang, sql, awt packages. Introduction to Java APIs: what is API, discuss APIs in Java SE, Java EE, Java ME

TEXT BOOKS

1. The Complete Reference Java J2SE 5th Edition, Herbert Schildt, TMH Publishing Company Ltd, NewDelhi.
2. Big Java 2nd Edition, Cay Horstmann, John Wiley and Sons.

REFERENCES

1. Java How to Program, Sixth Edition, H.M.Dietel and P.J.Dietel, Pearson Education/PHI
2. Core Java 2, Vol 1, Fundamentals, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.
3. Core Java 2, Vol 2, Advanced Features, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.
4. Beginning in Java 2, Iver Horton, Wrox Publications.
5. Java, Somasundaram, Jaico.
6. Java Networking and AWT API Super Bible, Natraj Nagaratnam, Brian Masco, Arvind Srinivasan, White Group Press

(CSE1202) 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 6: 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 7 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 8: 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 9: Querying

1. Find the names of all Juniors (Level = JR) who are enrolled in a class taught by I. Teacher.
2. Find the age of the oldest student who is either a History major or is enrolled in a course taught by I. 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 'l' in their names.

Experiment 10: 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 11: 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 12: 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 13: 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 11g PL/SQL Programming, M. Laughlin. TMH.
6. SQL Fundamentals, J. Patrick, Pearson Education.

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(ITD1204) OBJECT ORIENTED PROGRAMMING THROUGH JAVA LABORATORY

Objectives:

1. To make the student learn a object oriented way of solving problems.
2. To teach the student to write programs in Java to solve the problems

Recommended Systems/Software Requirements:

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

Week1

- a) Write a Java program that prints all real solutions to the quadratic equation $ax^2 + bx + c = 0$. Read in a, b, c and use the quadratic formula. If the discriminant $b^2 - 4ac$ is negative, display a message stating that there are no real solutions.
- b) The Fibonacci sequence is defined by the following rule:
The first two values in the sequence are 1 and 1. Every subsequent value is the sum of the two values preceding it. Write a Java program that uses both recursive and nonrecursive functions to print the nth value in the Fibonacci sequence.

Week 2

- a) Write a Java program that prompts the user for an integer and then prints out all p prime numbers up to that integer.
- b) Write a Java program to multiply two given matrices.
- c) Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers (Use StringTokenizer class of java.util)

Week 3

- a) Write a Java program that checks whether a given string is a palindrome or not.
Ex: MADAM is a palindrome.
- b) Write a Java program for sorting a given list of names in ascending order.
- c) Write a Java program to make frequency count of words in a given text.

Week 4

- a) Write a Java program that reads a file name from the user, then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes.
- b) Write a Java program that reads a file and displays the file on the screen, with a line number before each line.
- c) Write a Java program that displays the number of characters, lines and words in a

text file.

Week 5

- a) Write a Java program that:
 - i) Implements stack ADT.
 - ii) Converts infix expression into Postfix form
 - iii) Evaluates the postfix expression

Week 6

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

Week 7

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

Week 8

- a) Write a Java program for handling mouse events.

Week 9

- a) Write a Java program that creates three threads. First thread displays "Good Morning" every one second, the second thread displays "Hello" every two seconds and the third thread displays "Welcome" every three seconds.
- b) Write a Java program that correctly implements producer-consumer problem using the concept of interthread communication.

Week 10

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

Week 11

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

Week 12

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

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

Week 13

- a) Write a java program to create an abstract class named Shape that contains an empty method named numberOfSides (). Provide three classes named Trapezoid, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method numberOfSides () that shows the number of sides in the given geometrical figures.
- b) Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines correspond to rows in the table. The elements are separated by commas. Write a java program to display the table using JTable component.

Week 14

- a) Write a java program to establish connection to a database and perform DML operations over the data base.
- b) Design a form which will submit data to a database.
- c) Create a Form to receive data from database

Week 15

- a) Write a java program to make use of APIs

TEXT BOOKS :

1. Java How to Program, Sixth Edition, H.M.Dietel and P.J.Dietel, Pearson Education/PHI
2. Introduction to Java programming, Sixth edition, Y.Daniel Liang, Pearson Education
3. Big Java, 2nd edition, Cay Horstmann, Wiley Student Edition, Wiley India Private Limited.

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III Year B.Tech CSE – I SEM

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(CSE1107) 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. Roger S.Pressman, Software engineering- A practitioner's Approach, McGraw-Hill International Edition, 5th edition, 2001.

REFERENCES

1. Ian Sommerville, Software engineering, Pearson education Asia, 6th edition, 2000.
2. Pankaj Jalote- An Integrated Approach to Software Engineering, Springer Verlag, 1997.
3. James F Peters and Witold Pedryez, "Software Engineering – An Engineering Approach", John Wiley and Sons, New Delhi, 2000.
4. Ali Behforooz and Frederick J Hudson, "Software Engineering \ Fundamentals", Oxford University Press, New Delhi, 1996.

III Year B.Tech ECE – II Sem

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(ECE1109) 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.

UNIT II

Memory and I/O organization of 8086, 8255 PPI – various modes of operation and interfacing to 8086, D/A and A/D converter to 8086 using 8255, memory interfacing 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

Interfacing to 8051: A/D and D/A Converter, Stepper Motor Interface, Key Board Interfacing, LCD Interfacing.

ARM Processor: Fundamentals, Registers, current program status register, pipeline, Exceptions, Interrupt and the vector table.

TEXT BOOKS

1. Microprocessors and interfacing – Douglas V. Hall, TMH, 2nd Edition, 1999.
2. The 8051 microcontrollers and Embedded systems- Mazidi and mazidi, PHI, 2000.
3. ARM System Developer's Guide: Designing and Optimizing System Software- Andrew N. Sloss, Dominic Symes, Chris Wright, Elsevier Inc., 2007

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. Microcontrollers and Applications, Ajay . V. Deshmukh, TMGH,2005.
4. The 8085 Microprocessor : Architecture Programming and Interfacing – K.Uday Kumar, B.S Umashankar, Pearson , 2008.

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III Year B.Tech CSE – I SEM

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(ITD1106) COMPUTER NETWORKS

UNIT I

DATA COMMUNICATIONS: Components – Direction of Data flow – networks – Components and Categories – types of Connections – Topologies –Protocols and Standards – ISO / OSI model

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, framing, Error – detection and correction – Parity – LRC – CRC – Hamming code, flow and error control, Noiseless channels, noisy channels, HDLC, point to point protocols. LAN - Ethernet IEEE 802.3 - IEEE 802.4 - IEEE 802.5 - IEEE 802.11

Medium Access sub layer: Random access, Controlled access, Channalization

UNIT III

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

UNIT iv

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.

UNIT-V

Application Layer: Domain name space, DNS in internet, electronic mail, SMTP,, FTP, WWW, HTTP, SNMP, network security, Cryptography.

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.
5. Larry L.Peterson and Peter S. Davie, “Computer Networks”, Harcourt Asia Pvt. Ltd., Second Edition William Stallings, “Data and Computer Communication”, Sixth Edition, Pearson Education, 2000.

(CSE1108) 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; window-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 sub-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. Donald Hearn & M. Pauline Baker, "Computer Graphics", Pearson Education, 2nd Edition, 2003
2. "Computer graphics principles & practice", second edition in c, foley, VanDam, Feiner and Hughes, Pearson Education
3. Computer Graphics Peter Shirley & Steve Marschner Indian Edition CENGAGE Learning.
4. Computer Graphics C Version by Donald Hearn & M. Pauline Baker, Pearson Education, New Delhi, 2004

REFERENCES

1. "Procedural elements for Computer Graphics", David Rogers, Tata McGraw hill, 2nd edition
2. "Computer Graphics", Steven Harington, TMH
3. "Principles of interactive Computer Graphics" Neuman and sproul, TMH

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III Year B.Tech CSE – I SEM

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(ITD 1107) OPERATING SYSTEMS

UNIT I

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

Process Management – Process concepts threads, scheduling-criteria algorithms, their evaluation, Thread scheduling.

UNIT II:

Concurrency : Process synchronization, the critical- section problem, Peterson's Solution, synchronization Hardware, semaphores, classic problems of synchronization, monitors, Synchronization examples, atomic transactions.

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

UNIT III:

Principles of deadlock – system model, deadlock characterization, deadlock prevention, detection and avoidance, recovery form deadlock. File system Interface- the concept of a file, Access Methods, Directory structure, File system mounting, file sharing, protection.

UNIT IV :

File System implementation- File system structure, file system implementation, directory implementation, directory implementation, allocation methods, free-space management, efficiency and performance, case studies. UNIX, Linux, Windows. Mass-storage structure overview of Mass-storage structure, Disk structure, disk attachment disk scheduling, swap-space management, RAID structure, stable-storage implementation, Tertiary storage structure.

UNIT V :

Protection : Protection, Goals of Protection, Principles of Protection, Domain of protection Access Matrix, Implementation of Access Matrix, Access control, Revocation of Access Rights, Capability- Based systems, Language – Based Protection. Security- The Security problem, program threats, system and network threats cryptography as a security tool, user authentication, implementing security defenses, firewalling to protect systems and networks, computer –security classifications, case studies UNIX, Linux, Windows.

TEXT BOOKS :

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

REFERENCES :

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

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III Year B.Tech CSE – I SEM

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(ITD1205) OPERATING SYSTEMS AND COMPUTER NETWORKS LABORATORY 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

7. Simulate the following CPU scheduling algorithms
8. a) Round Robin b) SJF c) FCFS d) Priority
9. Simulate all file allocation strategies
10. a) Sequential b) Indexed c) Linked
11. Simulate MVT and MFT
12. Simulate all File Organization Techniques
13. a) Single level directory b) Two level c) Hierarchical d) DAG
14. Simulate Bankers Algorithm for Dead Lock Avoidance
15. Simulate Bankers Algorithm for Dead Lock Prevention
16. Simulate all page replacement algorithms

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(ECE1206) MICROPROCESSORS AND MICROCONTROLLERS LABORATORY

1. Programs for 16 bit arithmetic operations for 8086 (using Various Addressing Modes).
2. Program for sorting an array for 8086.
3. Program for searching for a number or character in a string for 8086.
4. Program for string manipulations for 8086.
5. Program for digital clock design using 8086.
6. Interfacing ADC and DAC to 8086 / 8051.
7. Interfacing stepper motor to 8086 / 8051.
8. Programming using arithmetic, logical and bit manipulation instructions of 8051.
9. Program and verify Timer/ Counter in 8051.
10. Program and verify Interrupt handling in 8051
11. UART Operation in 8051.
12. Communication between 8051 kit and PC.
13. Interfacing LCD to 8051.
14. Interfacing Matrix / Keyboard to 8051.

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III Year B.Tech CSE – I SEM

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(ENG1204) 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) 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

Written Communication 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.

Objectives of Writing Component

- i) enable students to write clearly and succinctly
- ii) equip students with the ability to write technical 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

Writing Skills 1

1. Applications and Covering letters
2. Resume Writing
3. Verbal Ability
4. **Oral Communication** :Talking About Yourself

Unit II

1. Writing an SOP
2. Summarizing and Synthesizing Information
3. Oral Communication: Making Presentations

Unit III

1. Writing Project Proposals
2. Oral Communication: Group Discussions

Unit IV

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

Unit V.

Behavioral Skills and Personality Development

1. Building a positive attitude, building a positive personality, Motivation, goal setting & values & vision
2. Problem Solving and Decision Making; Negotiation Skills through Role Play
3. Team Building and Leadership Abilities
4. Social Etiquette

REQUIRED TEXT AND MATERIALS

1. Ashraf Rizvi, M (2005). Effective Technical Communication, Tata Mc Graw Hill Publishing Company Limited, New Delhi.
2. Anderson, Paul V. (2003). Reports. In Paul V. Anderson's Technical Communication: A Reader-Centered Approach (5th ed..) (pp. 457-473). Boston: Heinle.
3. William S. Pfeiffer, (2010) Technical Communication: A Practical Approach (7th ed.). Prentice Hall

References

1. Burnett, Rebecca. *Technical Communication*. 5th Ed., Heinle, 2001
2. Bolter, Jay David. (2001). The late age of print. In Robert P. Yagelski's (Ed.) *Literacies and Technologies: A Reader for Contemporary Writers* (135-145). New York: Longman.
3. Brandt, Deborah. (1998). Sponsors of literacy. *College Composition and Communication* 49.2, 165-185.
4. Gerson Sharon J. and Steven Gerson : *Technical Writing Process and Product*. 3rd edition, New Jersey: Prentice Hall 1999
5. Johnson-Sheehan, Richard. (2007). Starting Your Career. In Richard Johnson-Sheehan's *Technical Communication Today* (2nd ed.) (pp. 388-402). New York: Longman.
6. Markel, Mike. *Technical Communication: Situations and Strategies* (8th EDITION (2006-2007)
7. R. C. Sharma and K. Mohan, *Business Correspondence and Report Writing*, Third Edition, TMH, 2002. (Indian Edition)
8. M. Raman and S. Sharma, *Technical Communication : Principles and Practices*, OUP, 2004. (Indian Edition)

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(Open Elective)

III Year B.Tech CSE, IT – II SEM

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(CED1147) DISASTER MANAGEMENT

UNIT-1

Introduction to disaster

Concepts and definitions (Disaster, Hazard, Vulnerability, Resilience, Risks)

UNIT-II

Disasters: Classifications, Causes, Impacts (including social, economic, political, environment, health, psychosocial, etc.)

Differential impacts-in terms of caste, class, gender, age, location, disability Global trends in disasters. Urban disaster, pandemics, complex emergencies, Climate change

UNIT-III

Approaches to disaster Risk reduction

Disaster cycle-its analysis, phase, Culture of safety, prevention, mitigation and preparedness, community based DRR, Structural measures, roles and responsibilities of community. Panchayati Raj Institutions/Urban Local Bodies (PRIs/ULBs), states, center and other stake-holders.

UNIT-IV

Inter-relationship between Disaster and Development

Factors affecting Vulnerabilities, differential impacts, impact of development projects such as dams, embankments, change in land-use etc. Climate change Adaption. Relevance of indigenous knowledge, appropriate technology and local resources.

UNIT-V

Disaster Risk Management in India

Hazard and vulnerability profile of India, Components of Disaster relief: Water, food, sanitation, shelter, health, waste management, Institutional arrangements (Mitigation, Response and Preparedness, DM Act Policy, Other related polices, plan, programmes and legislation)

Project Work :(Field Work, Case Studies)

The project/fieldwork is meant for students to understand vulnerabilities and to work on reducing disaster risks and to build a culture of safety. Projects must be conceived creatively based on the geographic location and hazard.

Suggested Reading list:

1. Alexander David, Introduction in 'Confronting Catastrophe', oxford University press, 2000
2. Andharia J. Vulnerability in disaster Discourse, JTCDM, Tata Institute of Social Sciences working paper no.8, 2008
3. Blaikie, P, Cannon T, Davis I, Wisner B 1997. At Risk Natural Hazards, Peoples' Vulnerability and Disaster, Rutledge.
4. Coppola P Damon, 2007. Introduction to International Disaster Management.
5. Carter, Nick 1991. Disaster Management: A Disaster Manager's Handbook. Asian Development Bank, Manila Philippines.
6. Cuny, F. 1983. Development and Disasters, Oxford University Press
7. Govt. of India; Disaster Management Act 2005, Government of India, New Delhi.

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(Open Elective)

III Year B.Tech CSE,IT – II SEM

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(ITD1126)GREEN IT

Unit I

Trends and Reasons to Go Green:

Overview and Issues, Problems, Cost savings, Current Initiatives and standards, Global Initiatives

Unit II

Consumption Issues

Minimizing Power Issues, Cooling, Changing the way we work, Going Paper less, Recycling, Hardware Considerations,

Unit III

The Greening Process

Data Center Design and Redesign, Greening your Information Systems, Staying Green

Unit IV

Virtualization

Virtual Server Implementation Plan, Desktop Virtualization, Benefits, Desktop access, Virtual Printing,

Unit V

Data Replication and Disk Technology Advancements

Data Replication Methods, Disk Technology Advancements, The Green data Center, Cloud Computing, Remote Monitoring

Text Book(s)

1. Green IT-Reduce your information system's Environmental Impact while adding to the bottom line Toby J Velte, Anthony T Velte, Robert Elsenpeter – McGraw Hill Publications, 2008
2. Foundation Of Green It, Consolidation, Virtualization, Efficiency, And Roi In The Data Center, Marty Poniatowski- Prentice Hall Publications

References Book(s)

1. Green Computing and Green IT Best Practices on Regulations and Industry Initiatives, Virtualization, Power Management, Materials Recycling and Telecommuting By Jason Harris.
2. Green IT for Sustainable Business Practice- Mark G. O' Neil, BCS The chartered institute for IT
3. The Greening of IT: How Companies Can Make a Difference for the Environment, John P. Lamb, Kindle Edition, IBM Press 2009

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(Open Elective)

III Year B.Tech CSE – II SEM

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(MED1160)INTRODUCTION TO OPERATIONS RESEARCH

UNIT I:

Introduction to Operations Research: Basics definition, scope, objectives, phases, models and limitations of Operations Research, Linear Programming Problem – Formulation of LPP, Graphical solution of LPP, Simplex Method, Artificial variables, Big-M method, Two-phase method, Degeneracy and unbound solution.

UNIT II:

Transportation Problem: Formulation, solution, unbalanced Transportation problem, Finding basic feasible solutions – Northwest corner rule, least cost method and Vogel's approximation method, Optimality test: the stepping stone method and MODI method.

UNIT III:

Assignment model: Formulation, Hungarian method for optimal solution, Solving unbalanced problem, Traveling salesman problem and assignment problem.

Sequencing models: Solution of Sequencing Problem – Processing n Jobs through 2 Machines – Processing n Jobs through 3 Machines – Processing 2 Jobs through m machines–Processing n Jobs through m machines.

UNIT IV:

Dynamic programming: Characteristics of dynamic programming, Dynamic programming approach for Priority Management employment smoothening, Capital budgeting, Stage Coach / Shortest Path, Cargo loading and Reliability problems.

Games Theory: Competitive games, Rectangular game, Saddle point, Minimax (maximin) method of optimal strategies, Value of the game, Solution of games with saddle points, Dominance principle, Rectangular games without saddle point – mixed strategy for 2 X 2 games.

UNIT V:

Replacement Models: Replacement of Items that Deteriorate whose maintenance costs increase with time without change in the money value, Replacement of items that fail suddenly: individual replacement policy, Group Replacement policy.

Inventory models: Inventory costs, Models with deterministic demand – model (a) demand rate uniform and production rate infinite, model (b) demand rate non-uniform and production rate infinite, model (c) demand rate uniform and production rate finite.

TEXT BOOKS:

1. P. Sankara Iyer, "Operations Research", TataMcGraw-Hill, 2008.
2. A. M. Natarajan, P. Balasubramani, A. Tamilarasi, "Operations Research", Pearson Education, 2005.

REFERENCES:

1. J. K. Sharma, "Operations Research Theory & Applications", 3e, Macmillan india Ltd, 2007.
2. P. K. Gupta and D. S. Hira, "Operations Research", S. Chan & Co, 2007.
3. J. K. Sharma, "Operations Research, Problems and Solutions", 3e, Macmillan India Ltd.
4. N. V. S. Raju, "Operations Research", HI-TECH, 2002.

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(Open Elective)

III Year B.Tech-I I-Sem.

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(CSE1121) CYBER SECURITY

UNIT I.

INTRODUCTION: Introduction and Overview of Cyber Crime, Nature and Scope of Cyber Crime, Types of Cyber Crime: Social Engineering, Categories of Cyber Crime, Property Cyber Crime. **CYBER CRIME ISSUES:** Unauthorized Access to Computers, Computer Intrusions, White collar Crimes, Viruses and Malicious Code, Internet Hacking and Cracking, Virus Attacks, Pornography, Software Piracy, Intellectual Property, Mail Bombs, Exploitation, Stalking and Obscenity in Internet, Digital laws and legislation, Law Enforcement Roles and Responses. Security Policy Design, Designing Security Procedures, Risk Assessment Techniques, Security standards, Biba Model, Chinese wall, Bell La Pedula Model.

UNIT II:

SERVICE DELIVERY PROCESS- Service Delivery Process, Service Level Management, Financial Management, Service Management, Capacity Management, Availability Management.

SERVICE SUPPORT PROCESS- Service Support Process, Configuration Management, Incident Management, Problem Management, Change Management, Release Management.

UNIT III:

STORAGE MANAGEMENT- Backup & Storage, Archive & Retrieve, Disaster Recovery, Space Management, Database & Application Protection, Bare Machine Recovery, Data Retention

SECURITY MANAGEMENT- Security, Computer and internet Security, Physical Security, Identity Management, Access Management. Intrusion Detection, Security Information Management.

UNIT IV:

Cyber Forensics- Introduction to Digital Forensics, Forensic Software and Hardware, Analysis and Advanced Tools, Forensic Technology and Practices, Forensic Ballistics and Photography, Face, Iris and Fingerprint Recognition, Audio Video Analysis, Windows System Forensics, Linux System Forensics, Network Forensics Evaluation of crime scene and evidence collection, Usage of tools for disk imaging and recovery processes.

UNIT V

Introduction to Information Security Standards , Laws and Acts: Laws and Ethics, Digital Evidence Controls, Evidence Handling Procedures, Basics of Indian Evidence ACT IPC and CrPC , Electronic Communication Privacy ACT, Legal Policies, ISO 27001, PCI DSS, IT Act, Copy Right Act.

Textbooks:

1. Nelson Phillips and Einfinger Steuart, "Computer Forensics and Investigations", Cengage Learning, New Delhi, 2009.
2. "Management of Information Security", M. E. Whitman, H. J. Mattord, Nelson Education / CENGAGE Learning, 2011, 3rd Edition.
3. "Guide to Computer Forensics and Investigations", B. Nelson, A. Phillips, F. Einfinger, C. Steuart, Nelson Education / CENGAGE Learning, 2010, 4th Edition.
4. Goel Ritendra, Computer Application in Management, New Age International Publishers, New Delhi.
5. Chowdhury G.G., Text Retrieval Systems in information Management, New Age International Publishers, New Delhi.

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(CSE1123) ARTIFICIAL INTELLIGENCE

UNIT I

Introduction to AI – Foundations of AI – History of AI - Intelligent Agents – Agents and Environments – Nature of Environments – Structure of Agents – Problem solving Agents – Problem formulation – Example Problems

UNIT II

Search Techniques – Uninformed Search Strategies – Breadth first search – Depth first search – Depth limited search – Iterative deepening depth first search - Bi-directional search – comparison – Search with partial information - Heuristic search – Greedy best first search – A* search – Memory bounded heuristic search - Heuristic functions - Local search algorithms - Hill climbing – Simulated annealing search - Local beam search – Genetic algorithms

UNIT III

Constraint satisfaction problems – Backtracking search for CSP's - local search for constraint satisfaction problem.

Adversarial search – Games - Minimax algorithm - optimal decisions in multiplayer games - Alpha beta pruning - evaluation functions - cutting off search.

UNIT IV

Knowledge and reasoning – Knowledge based agents – Propositional Logic – Inference – Resolution – Forward and Backward chaining – First-order Logic – Syntax and Semantics – Unification – Resolution – Conjunctive Normal Form – Example Proofs

UNIT V

Planning : Planning problem - Language of planning problems - Expressiveness and extension - Planning with state space search - Forward state space search - Backward state space search - Heuristics for state space search - Partial order planning - Planning graphs.

Learning : Forms of Learning – Inductive learning – Learning Decision Trees.

Text Books:

1. Artificial Intelligence: A modern approach by Stuart Russell and Peter Norvig. 3rd Edition, Prentice Hall, 2010.
2. Fundamentals of new Artificial Intelligence (second edition) by Toshinori Munakata. Springer Second Edition.

References:

1. Artificial Intelligence – Agents and Environments by William John Teahan
2. Bio Inspired Artificial Intelligence

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III Year B.Tech CSE – IISEM

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(ITD1109) 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.

UNIT II

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 III

Linux Files: File Concept, File System Structure, Inodes, File types, The standard I/O (fopen, fclose, fflush, fseek, fgetc, getc, getchar, fputc, putc, putchar, fgets, gets etc.), formatted I/O, stream errors, kernel support for files, System calls, library functions, file descriptors, low level file access - usage of open, creat, read, write, close, lseek, stat family, umask, dup, dup2, fcntl, file and record locking. file and directory management - chmod, chown, links(soft links & hard links - unlink, link, symlink), mkdir, rmdir, chdir, getcwd, Scanning Directories- opendir, readdir, closedir, rewinddir, seekdir, telldir functions.

UNIT IV

Linux Process – Process concept, Kernel support for process, process attributes, process hierarchy, process states, process composition, process control - process creation, waiting for a process, process termination, zombie process, orphan process, system call interface for process management-fork, vfork, exit, wait, waitpid, exec family, system.

Linux 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 V

Interprocess Communication : Introduction to IPC, FIFOs, 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.

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. Beginning Linux Programming, 4th Edition, N.Matthew, R.Stones, Wrox, Wiley India Edition, rp-2008.

REFERENCES:

1. Linux System Programming, Robert Love, O'Reilly, SPD, rp-2007.
2. Unix Network Programming, W.R.Stevens, PHI.
3. Unix for programmers and users, 3rd Edition, Graham Glass, King Ables, Pearson Education, 2003.
4. Advanced Programming in the Unix environment, 2nd Edition, W.R.Stevens, Pearson Education.
5. System Programming with C and Unix, A.Hoover, Pearson.
6. Unix Programming, Kumar Saurabh, 1st Edition, Wiley India pvt Ltd.
7. Unix and Shell programming, B.A.Forouzan and R.F.Gilberg, Cengage Learning.

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III Year B.Tech CSE – II SEM

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(CSE1109) COMPILER DESIGN

UNIT-I

Overview of Compilation: Phases of Compilation – Lexical Analysis, Regular Grammar and regular expression for common programming language features, pass and Phases of translation, interpretation, bootstrapping, data structures in compilation – LEX lexical analyzer generator.

UNIT-II

Top down Parsing: Context free grammars, Top down parsing – Backtracking, LL (1), recursive descent parsing, Predictive parsing, Preprocessing steps required for predictive parsing. Bottom up parsing: Shift Reduce parsing, LR and LALR parsing, Error recovery in parsing , handling ambiguous grammar, YACC – automatic parser generator.

UNIT-III

Semantic analysis: Intermediate forms of source Programs – abstract syntax tree, polish notation and three address codes. Attributed grammars, Syntax directed translation, Conversion of popular Programming languages language Constructs into Intermediate code forms, Type checker.

Symbol Tables: Symbol table format, organization for block structures languages, hashing, tree structures representation of scope information. Block structures and non block structure storage allocation: static, Runtime stack and heap storage allocation, storage allocation for arrays, strings and records.

UNIT-IV

Code optimization: Consideration for Optimization, Scope of Optimization, local optimization, loop optimization, frequency reduction, folding, DAG representation. Data flow analysis: Flow graph, data flow equation, global optimization, redundant sub expression elimination, Induction variable elements, Live variable analysis, Copy propagation.

UNIT-V

Object code generation: Object code forms, machine dependent code optimization, register allocation and assignment generic code generation algorithms, DAG for register allocation.

TEXTBOOKS

1. Principles of compiler design -A.V. Aho . J.D.Ullman; Pearson Education.
2. Modern Compiler Implementation in C- Andrew N. Appel, Cambridge University Press.
3. Systems programming and operating systems – D.M Dhamdhare ,2nd edition,tata McGraw-hill publishing comp pvlted.

REFERENCES

1. lex &yacc – John R. Levine, Tony Mason, Doug Brown, O'reilly
2. Modern Compiler Design- Dick Grune, Henry E. Bal, Cariel T. H. Jacobs, Wiley dreamtech.
3. Engineering a Compiler-Cooper & Linda, Elsevier.
4. Compiler Construction, Loudon, Thomson.

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(CSE1110) 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. Grady Booch, James Rumbaugh, Ivar Jacobson: The Unified Modeling Language User Guide, Pearson Education.
2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado: UML 2 Toolkit, WILEY-Dreamtech India Pvt. Ltd.

REFERENCES

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

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(CSE1203) OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY

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

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

Week 2

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

Week 3

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

Week 4

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

Week 5

Design a Activity Diagram for ATM system, Online Reservation System.

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

Week 6

Design a Component Diagram for ATM system, Online Reservation System.

Design a Deployment Diagram for ATM system, Online Reservation System.

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(CSE1204) LINUX PROGRAMMING LAB

Note: Use Bash for Shell scripts.

Week 1

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 deletes all lines containing a specified word in one or more files supplied as arguments to it.
3. 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.

Week 2

4. Write a shell script that receives any number of file names as arguments checks if every argument supplied is a file or a directory and reports accordingly. Whenever the argument is a file, the number of lines on it is also reported.
5. Write a shell script that accepts a list of file names as its arguments, counts and reports the occurrence of each word that is present in the first argument file on other argument files.
6. Write a shell script to list all of the directory files in a directory.

Week 3

7. Write a shell script to find factorial of a given integer.
8. Write an awk script to count the number of lines in a file that do not contain vowels.
9. Write an awk script to find the number of characters, words and lines in a file.

Week 4

10. Write a c program that makes a copy of a file using standard I/O and system calls.
11. Implement in C the following Unix commands using System calls
A . cat B. ls C. mv
12. Write a program that takes one or more file/directory names as command line input and reports the following information on the file.
A. File type. B. Number of links.
C. Time of last access. D. Read, Write and Execute permissions.

Week 5

13. Write a C program to emulate the Unix ls -l command.
14. Write a C program to list for every file in a directory, its inode number and file name.

15. Write a C program that demonstrates redirection of standard output to a file.Ex: ls > f1.

Week 6

16. Write a C program to create a child process and allow the parent to display "parent" and the child to display "child" on the screen.
17. Write a C program to create a Zombie process.
18. Write a C program that illustrates how an orphan is created.

Week 7

19. Write a C program that illustrates how to execute two commands concurrently with a command pipe. Ex:- ls -l | sort
20. Implement the following forms of IPC. a)Pipes b)FIFO

Week 8

21. Implement Message Queue form of IPC.
22. Write a program to create an integer variable using shared memory concept and increment the variable simultaneously by two processes. Use semaphores to avoid race conditions

Week 9

23. Design TCP iterative Client and server application to reverse the given input sentence

Week 10

24. Design a TCP concurrent server to convert a given text into upper case.
25. Design UDP Client and server application to reverse the given input sentence

Week 11

26. Write a program to implement file locking mechanisms using semaphores.

Week 12

27. Implement shared memory form of IPC.

(CSE1205) COMPILER DESIGN LABORATORY

COMPILER DESIGN

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

```
<program> ::= <block>
<block> ::= { <variabledefinition> <slist> }
| { <slist> }
<variabledefinition> ::= int <vardeflist> ;
<vardeflist> ::= <vardec> | <vardec> , <vardeflist>
<vardec> ::= <identifier> | <identifier> [ <constant> ]
<slist> ::= <statement> | <statement> ; <slist>
<statement> ::= <assignment> | <ifstatement> | <whilestatement>
| <block> | <printstatement> | <empty>
<assignment> ::= <identifier> = <expression>
| <identifier> [ <expression> ] = <expression>
<ifstatement> ::= if <bexpression> then <slist> else <slist> endif
| if <bexpression> then <slist> endif
<whilestatement> ::= while <bexpression> do <slist> enddo
<printstatement> ::= print ( <expression> )
<expression> ::= <expression> <addingop> <term> | <term> | <addingop> <term>
<bexpression> ::= <expression> <relop> <expression>
<relop> ::= < | <= | == | >= | > | !=
<addingop> ::= + | -
<term> ::= <term> <multop> <factor> | <factor>
<multop> ::= * | /
<factor> ::= <constant> | <identifier> | <identifier> [ <expression> ]
| ( <expression> )
<constant> ::= <digit> | <digit> <constant>
<identifier> ::= <identifier> <letterordigit> | <letter>
<letterordigit> ::= <letter> | <digit>
<letter> ::= a|b|c|d|e|f|g|h|i|j|k|l|m|n|o|p|q|r|s|t|u|v|w|x|y|z
<digit> ::= 0|1|2|3|4|5|6|7|8|9
<empty> has the obvious meaning
```

Comments (zero or more characters enclosed between the standard C/Java-style comment brackets /*...*/) can be inserted. The language has rudimentary support for 1-dimensional arrays. The declaration `int a[3]` declares an array of three elements, referenced as `a[0]`, `a[1]` and `a[2]`. Note also that you should worry about the scoping of names. A simple program written in this language is:

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

Experiments on week wise:

Week 7

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

Week 8

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

Week 9

Design Predictive parser for the given language
Design LALR bottom up parser for the above language.

Week 10

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

Week 11

Write program to generate machine code from the abstract syntax tree generated by the parser

Week 12

Write a Yacc Program to construct a parse tree for the given grammar

Write a Lex program to construct a lexical analyzer

TEXT BOOKS

1. Principles of compiler design -A.V. Aho . J.D.Ullman; Pearson Education.
2. Modern Compiler Implementation in C- Andrew N. Appel, Cambridge University Press.

REFERENCES

1. lex &yacc – John R. Levine, Tony Mason, Doug Brown, O'reilly
2. Modern Compiler Design- Dick Grune, Henry E. Bal, Cariel T. H. Jacobs, Wiley dreamtech.
3. Engineering a Compiler-Cooper & Linda, Elsevier.
4. Compiler Construction, Loudon, Thomson.

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(NCC1102) Soft Skills and Personality Development

Introduction

In an era of Technological advances and competition in the job market, it is necessary for students to possess soft skills and effective personal skills in addition to technical skills. It is essential that students possess the ability to convey technical ideas in a sound and simple manner. Planning and execution are the two important activities required for them. It is the execution that requires the soft skills as it most of the times deals with people. This course on “Soft Skills and Personality Development” is aimed at enhancing students’ career prospects.

This course uncovers the principles of soft skills and personality skills, the ways to integrate them in different phases of career that require personal and interpersonal skills. It focuses on transforming the way of one’s thinking and reacting to the environment. It equips the students with self analysis and gain self- control through stress management and conflict management. It also helps students with study skills. It helps students overcome their barriers and achieve excellence in performance and succeed in their chosen field of work.

Objectives

- enable students to convert the conceptual understanding of communication into everyday practice
- train students to ground concepts/ideas in their own experience
- enable students to exercise control over language use
- sensitise students to the nuances of the four basic communication skills – Listening, Speaking, Reading and Writing
- enable students to understand the concept and components of personality, so as to apply the acquired knowledge and march towards excellence in their academic careers.
- train students to become aware of their thinking styles and to enable them to convert thinking into performance
- prepare students to evolve mental models for intra-personal and inter-personal transactions make students reflect and improve their use of body language – posture, gesture, facial expression, tone sharpen memory skills and other study skills, which are vital for academic excellence.bring outthe creativity and latent talents of students through goal setting
- train students for positive thinking to keep them in good stead at the time of crisis.

SYLLABUS

Unit I: Introduction to Personality Development

1. Definition and Basics of personality
 - Determinants of Personality- biological, psychological and socio-cultural factors
 - Need for personality Development
2. Analyzing strengths and Weaknesses
3. Corporate theories on Personality development
4. Increasing vocabulary
5. Body Language
6. Preparation of Self Introduction
7. Motivation
 - Self-analysis through SWOT
 - Techniques and strategies for self-motivation

Unit II : Techniques in Personality Development Stage I

1. Communication Skills
2. Listening
3. Communication Barriers
4. Overcoming these Barriers
5. Importance of Self Esteem -- Building Self-esteem& Self Confidence
6. Working on attitudes – aggressive, assertive and submissive
7. Goal Setting
8. Leadership and Team Building Skills
9. Group Discussion

Unit III: Techniques in Personality Development Stage II

1. Interpersonal relationships
 - Analysis of ego states, Transactions, Strokes and Life Positions
2. Stress Management
 - Concept, Nature and Dimensions of Stress
 - Causes, Impact and Managing Stress
 - Relaxation Techniques
3. The Power of positive thinking
 - Nurturing creativity, decision-making and problem solving
 - Goals and techniques for positive thinking
 - Enhancement of concentration through positive thinking
4. Projecting a Positive Social Image
 - Grooming & Social Etiquette
 - Voice Modulation
 - Public Speaking

Unit IV: Techniques in Personality Development Stage III

- Conflict Management
- Introduction to Conflict Management
- Levels of Conflict
- Managing Conflict
- Time Management
- Concept
- Importance and Need
- Steps towards better Time Management

Unit V: Memory and Study Skills

- Definition and importance of memory
- Causes of forgetting
- How to forget (thought stopping), how to remember (techniques for improving memory)
- The technique of passing exams-Management of examination fear.

PRACTICAL TRAINING

The course would include the following practical exercises.

- Ice- breaking. Brainstorming and simulation exercises. Thought stopping. Memory and study skills training
- Role play and record work

REFERENCES

1. Mile, D.J (2004). Power of positive thinking. Delhi: Rohan Book Company.
2. Pravesh Kumar (2005). All about self- Motivation. New Delhi: Goodwill Publishing House.
3. Dudley, G.A. (2004). Double your learning power. Delhi: Konark Press. Thomas Publishing Group Ltd.
4. Lorayne, H. (2004). How to develop a super power memory. Delhi: Konark Press. Thomas Publishing Group Ltd.
5. Hurlock, E.B (2006). Personality Development, 28th Reprint. New Delhi: Tata Mc Graw Hill.
6. Windshuttle, Keith and Elizabeth Elliot.1999. Writing, Researching and Communicating: Communication Skills for the Information Age. 3rd Reprint. Tata McGraw-Hill. Australia
7. Dignen, Flinders and Sweeney. English 365. Cambridge University Press
8. Goleman, Daniel. 1998. Working with Emotional Intelligence. Bantam Books. New York
9. Jones, Leo and Richard Alexander. 2003. New International Business English. Cambridge University Press
10. Lucas, Stephen.2001. Art of Public Speaking. Mc-Graw Hill.

11. Tamblin, Doni and Sharyn Weiss. 2000. The Big Book OF Humorous Training Games. 2004 Edition. Tata McGraw-Hill. New Delhi
12. Personality Development by Rajiv K. Mishra. Rupa & Co.
13. Powell. In Company. Macmillan
14. Cotton, et al. Market Leader. Longman
15. Pease, Allan. 1998. Body Language: How to Read Others Thoughts by their Gestures. Sudha Publications. New Delhi
16. Gardner, Howard. 1993. Multiple Intelligences: The Theory in Practice: A Reader. Basic Books. New York
17. De Bono, Edward. 2000. Six Thinking Hats. 2nd Edition. Penguin Books.
18. De Bono, Edward. 1993. Serious Creativity. Reprint. Harper Business.
19. Mohan, Krishna and Meera Bannerji, 2001, Developing Communication Skills. Macmillan.
20. V. Syamala, 2002. Effective English Communication for you. Emerald Publishers, Chennai.

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(ITD1110) 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, JDK 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 Servlets: Lifecycle of a Servlet, JSDK, The Servlet API, The javax.servelet Package, Reading Servlet 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 Servlet.

Introduction to JSP: The Problem with Servlet. 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 Data 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.

(CSE1111) 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 Back propagation, 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.

REFERENCES:

1. Introduction to data mining, Pang-Ning Tan, Michael Steinbach, Vipin Kumar, Addison-Wesley, 2005. ISBN : 0321321367.
2. Mining Introductory and advanced topics –MARGARET H DUNHAM, PEARSON EDUCATION
3. Lecture Notes on Data Mining, Micheal W.Berry, Murray Browne, World Scientific Publishing Co
4. Data Mining Techniques – ARUN K PUJARI, University Press.
5. Data Mining for Association Rules and Sequential Patterns: Sequential and Parallel Algorithms, Jean-Marc Adamo, ISBN: 0387950486
6. The Data Warehouse Life cycle Tool kit – RALPH KIMBALL WILEY STUDENT EDITION.
7. Data Warehousing in the Real World – SAM ANAHORY & DENNIS MURRAY. Pearson Edn Asia.

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(CSE1112) CRYPTOGRAPHY AND 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 Encryption – 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 HASH FUNCTIONS

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

REFERENCES

1. Charles B. Pfleeger, Shari Lawrence Pfleeger, "Security in Computing", Third Edition, Pearson Education, 2003
2. Atul Kahate, "Cryptography and Network Security", 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 Permech, wiley Dreamtech

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(CMS1102) MANAGEMENT SCIENCE

Unit – I

Introduction to Management: Concepts of Management and organization- nature, importance and Functions of Management, Taylor's Scientific Management Theory, Fayol's Principles of Management, Mayo's Hawthorne Experiments, Maslow's Theory of Human Needs, Douglas McGregor's Theory X and Theory Y, Herzberg's Two-Factor Theory of Motivation, System and Contingency approach to management, Planning: Meaning – Significance – Types of Plans – Decision making & Steps in Decision making Process, Leadership Styles, Social responsibilities of Management.

Organizing: Meaning – Features –process of organization – Principles of organization - Elements of organizations – Organization chart – span of control (Graicunas Formulae), Centralisation and Decentralisation, Types of mechanistic and organic structures of organisation (Line organization, Line and staff organization, functional organization, Committee organization, matrix organization, Virtual Organisation, Cellular Organisation, team structure, boundaryless organization, inverted pyramid structure, lean and flat organization structure) and their merits, demerits and suitability.

Unit – 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, SWOT Analysis, Steps in Strategy Formulation and Implementation, Generic Strategy alternatives, balance score card, Capability Maturity Model (CMM)/People capability maturity model (PCMM).

Unit – IV

- (A) **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
- (B) **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.
- (C) **Marketing:** Functions of Marketing, Marketing Mix, and Marketing Strategies based on Product Life Cycle, Channels of distribution

Unit – V

Project Management (PERT/CPM) : Network Analysis, Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Identifying critical path, Probability of Completing the project within given time, Project Cost Analysis, Project Crashing. (Simple problems)

TEXT BOOKS:

1. Aryasri: Management Science, TMH,2009

REFERENCES:

1. Stoner, Freeman, Gilbert, Management, 6th Ed, Pearson Education, New Delhi, 2004
2. Principles and Practice Management - L.M.Prasad, Sultan chand Publications, New Delhi
3. Kotler Philip, Garyarmstrong, Prafullay. Agnihotri, EU Haque, "Principles of Marketing", 2010, 13TH Ed, Pearson Education Prentice Hall of India.
4. Michael Armstrong, "Human Resource Management", 2010, Kogan Page.
5. N.D. Vohra, "Quantitative Techniques in Management", 2010, 4th Ed.TMH.
6. Mahadevan. B, "Operations Management", 2010, Pearson Education.
7. V.S.P. Rao and V., Hari Krishna, "Strategic Management", 2010, Text and Cases, Excel Books, New Delhi.

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(ITD1118) WIRELESS AND MOBILE COMPUTING

UNIT I

Introduction to Wireless Networks:

Wireless LAN: Infrared vs radio transmission, Infrastructure and ad hoc networks, IEEE 802. 11-System architecture, protocol architecture, Physical layer, Medium access control layer and MAC management. HIPER LAN-protocol architecture, physical layer channel access control sub layer, information bases and networking. Bluetooth-User scenarios, Physical layer, MAC Layer, Networking, Security and Link Management.

UNIT II

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

(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.

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 , localization, MAC issues, Routing protocols, global state routing(GSR), Destination sequenced distance vector routing (DSDV), Dynamic source routing (DSR), Ad Hoc on demand distance vector routing

(AODV), Temporary ordered routing algorithm (TORA), QoS in Ad Hoc Networks, Applications & Challenges of a MANET .

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

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IV Year B.Tech CSE – I SEM

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(ITD1114) BUILDING ENTERPRISE APPLICATION

UNIT-I

Introduction: Challenges of Enterprise Application Development, The Platform for Enterprise Solutions, J2EE Application Scenarios: Multitier Application Scenario, Stand-Along Client Scenario, Web-Centric Application Scenario, Business-to-Business Scenario, MVC Architecture

J2EE Platform Technologies: Component Technologies, Platform Roles and Services, Service Technologies, Communication technologies.

UNIT –II

Client Tier: Requirements and constraints- Operating Environment, Deployment, Web clients-protocols, Content format, types of web clients, EJB Clients, Enterprise information system clients

Web Tier: Web Applications and Web Containers, Dynamic content creation, Internationalization and Localization, Application Designs, Application Migration

Unit –III

Enterprise Java beans Tier: Business Logic, Enterprise Beans as J2EE Business Objects, Session Beans, and Design Guidelines

Enterprise Information System Tier: Enterprise Information System Capabilities and Limitations. Enterprise Information System Integration Scenarios, Relational Database Management System Access, Application Component Provider Tasks, Application Programming Model.

Unit –IV

Transaction Management : Properties of Transactions, J2EE Platform Transactions, Scenarios,JTA Transactions ,Transactions in Applets and Application Clients ,Transactions in Web Components ,Transactions in Enterprise Information systems

Unit –V

Security : Security Threats and Mechanisms, Authentication-Protection ,Authentication Mechanisms , Authentication Call Patterns , Auto-Registration, Exposing Authentication Boundaries with References , Authorization ,Protecting Messages-Integrity Mechanisms, Confidentiality Mechanisms , Identifying Sensitive Components ,Ensuring Confidentiality of Web Resources

Text Book :

Designing Enterprise Applications with the Java™ 2 Platform, Enterprise Edition ,
Nicholas Kasseem and the Enterprise Team Version

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(CSE1113) 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.

UNIT – II

Distributed Database design – A frame work, the design of database fragmentation, the allocation of fragments. 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.

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IV Year B.Tech CSE – I SEM

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(CSE1114)SOFT COMPUTING

UNIT-I

Introduction : Neural Networks, Fuzzy Logic, Genetic Algorithms, Hybrid Systems, Soft Computing, Soft Computing Constituents, Soft Computing Characteristics.

Artificial Neural Networks : Introduction, Fundamental Concept, Evolution of Neural Networks, Basic models of ANN, Important Terminologies.

UNIT-II

Supervised Learning Networks : Introduction, Perceptron Networks, Adaptive Linear Neuron, Back propagation Network. Associative Memory Networks : Introduction, Training Algorithms for pattern association and Hopfield Networks.

UNIT-III

Unsupervised Learning Network : Introduction, Fixed Weight Competitive Nets, Kohonen Self-Organizing Feature Maps, Counter Propagation Networks.

Fuzzy Sets : Introduction, Classical Sets, Fuzzy Sets, Classical Relations, Fuzzy Relations

UNIT-IV

Membership functions- Features, Fuzzification, Membership value assignments, Defuzzification Methods, Fuzzy Arithmetic, Fuzzy Measures, Fuzzy Inference Systems, Fuzzy Logic Control Systems

UNIT-V

Genetic Algorithms- Introduction, Basic operators and terminology, Traditional Algorithm vs Genetic Algorithm, Simple GA, General GA, Classification of GA, Genetic Programming, Applications of GA.

Applications of Soft Computing : Internet Search Technique, Hybrid Fuzzy Controllers.

Text Books:

1. Principles of Soft Computing- S N Sivanandam, S N Deepa, Wiley India, 2007
2. Neuro-Fuzzy and Soft Computing A Computational Approach to Learning and Machine Intelligence – J.S.R.Jang, C.T.Sun, E.Mizutani, PHI

References:

1. Artificial Intelligence and Soft Computing- Behavioral and Cognitive Modeling of the Human Brain- Amit Konar, CRC press, Taylor and Francis Group.
2. Soft Computing and Intelligent System Design -Fakhreddine O Karray, Clarence D Silva,. Pearson Edition, 2004.
3. Artificial Intelligence – Patric Henry Winston – Third Edition, Pearson Education.
4. Fuzzy Sets and Fuzzy Logic Theory and Applications – George J.Klir, Bo Yuan
6. Genetic Algorithms in Search, Optimization and Machine Learning – David E.Goldberg Addison-Wesley
7. An Introduction to Genetic Algorithms – Melanie Mitchell, MIT Press
8. Artificial Neural Networks – B.Yegnanarayana.

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(ITD1112) 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 CSE – I SEM

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(CSE1115) ADVANCED COMPUTER ARCHITECTURE

UNIT – I

Fundamentals of Computer design- Technology trends- cost price and their trends- measuring and reporting performance - quantitative principles of computer design.

UNIT – II

Instruction set principles and examples- Classifying instruction set architecture - memory addressing- type and size of operands- operations in the instruction set- instructions for control flow- encoding an instruction set.

UNIT – III

Instruction level parallelism (ILP)and its dynamic exploitation – Concepts and challenges-overcoming data hazards- reducing branch costs with dynamic hardware prediction – high performance instruction delivery- hardware based speculation

ILP software approach- compiler techniques- static branch protection - VLIW approach - H.W support for more ILP at compile time.

UNIT – IV

Memory hierarchy design- Cache performance- reducing cache misses penalty and miss rate – virtual memory.

Multiprocessors and thread level parallelism- symmetric shared memory architectures- distributed shared memory- Synchronization- multi threading.

UNIT – V

Storage systems - Types – Buses - RAID- errors and failures - designing an I/O system in five easy pieces..**Inter connection networks and clusters** - interconnection network media – practical issues in interconnecting networks – clusters- designing a cluster.

TEXT BOOKS

1. Computer Architecture A quantitative approach 3rd edition John L. Hennessy & David A. Patterson Morgan Kufmann (An Imprint of Elsevier)

REFERENCES

1. “Computer Architecture and parallel Processing” Kai Hwang and A.Briggs International Edition McGraw-Hill.
2. Advanced Computer Architectures, Dezso Sima, Terence Fountain, Peter Kacsuk, Pearson.
3. Parallel Computer Architecture, A Hardware / Software Approach, David E. Culler, Jaswinder Pal singh with Anoop Gupta, Elsevier

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IV Year B.Tech CSE – I SEM

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(ITD1117) BIO-INFORMATICS

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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IV Year B.Tech CSE – I SEM

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(CSE1116) 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.

UNIT-II

A Case Study : Designing a Document Editor :Design Problems, Document Structure, Formatting, Embellishing the User Interface, Supporting Multiple Look-and-Feel Standards, Supporting Multiple Window Systems, User Operations Spelling Checking and Hyphenation, Summary .

UNIT-III

Creational Patterns :Abstract Factory, Builder, Factory Method, Prototype, Singleton, Discussion of Creational Patterns. Structural Pattern Part-I :Adapter, Bridge, Composite

UNIT-IV

Structural Pattern Part-II :Decorator, façade, Flyweight, Proxy. Behavioral Patterns Part-I :Chain of Responsibility, Command, Interpreter, Iterator. Behavioral Patterns Part-I :Chain of Responsibility, Command, Interpreter, Iterator.

UNIT-V

Behavioral Patterns Part-II :Mediator, Memento, Observer, State, Strategy, Template Method ,Visitor, Discussion of Behavioral Patterns. What to Expect from Design Patterns, A Brief History, The Pattern Community An Invitation, A Parting Thought.

TEXT BOOK :

1. Design Patterns By Erich Gamma, 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-sp
5. Design Patterns Explained By Alan Shalloway, Pearson Education.

(ITD1208) WEBTECHNOLOGIES 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

A working computer system with either Windows or Linux

A web browser either IE or firefox

Tomcat web server

XML editor like Altova Xml-spy [www.Altova.com/XMLSpy – free] , Stylusstudio , etc.,

A database either Mysql or Oracle

JVM(Java virtual machine) must be installed on your system

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	Description of the Web Site
ECE	
EEE	
CIVIL	

Fig 1.1

2) LOGIN PAGE:

This page looks like below:

Logo	Web Site Name
------	---------------

Home	Login	Registration	Catalogue	Cart
------	-------	--------------	-----------	------

CSE	Login : Password:
ECE	
EEE	
CIVIL	

3) CATALOGUE 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:

Snap shot of Cover Page.

Book Title, Author Name, Publisher.

Price.

Add to cart button.

Logo	Web Site Name
------	---------------

Home	Login	Registration	Catalogue	Cart
CSE			Book : XML Bible Author : Winston Publication : Wiely	\$ 40.5
ECE				
EEE				
CIVIL				

*	Book : AI Author : S.Russel Publication : Princeton hall	\$ 63
---	--	-------

*	Book : Java 2 Author : Watson Publication : BPB publications	\$ 35.5
---	---	---------

*	Book : HTML in 24 hours Author : Sam Peter Publication : Sam publication	\$ 50
---	---	-------

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	Book name	Price	Quantity	Amount
CSE				
ECE				
EEE				
CIVIL	Java 2	\$35.5	2	\$70
	XML bible	\$40.5	1	\$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.

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

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

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-index:1">LAYER 2</div>
```

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-index:4">LAYER 2</div>
```

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 servlet 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 servlet 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.

(CSE1206) NETWORK SECURITY AND DATA MINING LAB

NETWORK SECURITY

Week 1: Understanding of cryptographic Algorithm and Implementation of the same in C or C++.

Week 2: Using open ssl for web server – Browser Communication using GNU PGP

Week 3: Performance Evaluation of Various Cryptographic Algorithm. Working with Sniffers for Monitoring network communication.

Week 4: Using IP TABLES on Linux and setting the Filtering rules.

Week 5: Configuring S/ MIME for e-mail Communication. Understanding the buffer overflow and format string attacks.

Week 6: Using NMAP for Ports monitoring. Implementation of proxy based security protocols in C or C++ with features like Confidentiality, Integrity and authentication.

Following are the some of the web links which help to solve the above experiments.

http://linuxcommand.org/man_pages/openssl1.html

<http://www.openssl.org/docs/apps/openssl.html>

<http://www.queen.clara.net/pgp/art3.html>

<http://www.ccs.omi.gov/~hongo/mail/resourses/contrib/gpg-gpg-howto/gpg-howto.html>

<http://netfiles.uiuc.edu/ehowes/www/gpg/pg-com-0.html>

<http://www.ethereal.com/docs/user-guide/>

DMDW Lab

1. Introduction to the Weka machine learning toolkit – Part 1
2. Introduction to the Weka machine learning toolkit – Part 2
3. Classification using the Weka toolkit
4. Performing data preprocessing for data mining in Weka
5. Performing clustering in Weka
6. Association rule analysis in Weka
- 7.

Week 7:

Title

Introduction to the Weka machine learning toolkit

Aim

To learn to use the Weka machine learning toolkit

Requirements

How do you load Weka?

1. What options are available on main panel?
2. What is the purpose of the the following in Weka:
 1. The Explorer
 2. The Knowledge Flow interface
 3. The Experimenter
 4. The command-line interface
3. Describe the **arff** file format.
4. Press the Explorer button on the main panel and load the weather dataset and answer the following questions
 1. How many instances are there in the dataset?
 2. State the names of the attributes along with their types and values.
 3. What is the class attribute?
 4. In the histogram on the bottom-right, which attributes are plotted on the X,Y- axes? How do you change the attributes plotted on the X,Y-axes?
 5. How will you determine how many instances of each class are present in the data
 6. What happens with the Visualize All button is pressed?
 7. How will you view the instances in the dataset? How will you save the changes?

Week 8:

1. What is the purpose of the following in the Explorer Panel?
 1. The Preprocess panel
 1. What are the main sections of the Preprocess panel?
 2. What are the primary sources of data in Weka?
 2. The Classify panel
 3. The Cluster panel
 4. The Associate panel
 5. The Select Attributes panel
 6. The Visualize panel.
2. Load the weather dataset and perform the following tasks:
 1. Use the unsupervised filter Remove With Values to remove all instances where the attribute 'humidity' has the value 'high'?
 2. Undo the effect of the filter.
 3. Answer the following questions:
 1. What is meant by filtering in Weka?
 2. Which panel is used for filtering a dataset?
 3. What are the two main types of filters in Weka?

4. What is the difference between the two types of filters? What is the difference between an attribute filter and an instance filter?
3. Load the iris dataset and perform the following tasks:
 1. Press the Visualize tab to view the Visualizer panel.
 2. What is the purpose of the Visualizer?
 3. Select one panel in the Visualizer and experiment with the buttons on the panel.

Week 9:

Title

Classification using the Weka toolkit

Aim

To perform classification on data sets using the Weka machine learning toolkit

Requirements

1. Load the 'weather.nominal.arff' dataset into Weka and run Id3 classification algorithm.

Answer the following questions

1. List the attributes of the given relation along with the type details
2. Create a table of the weather.nominal.arff data
3. Study the classifier output and answer the following questions
 1. Draw the decision tree generated by the classifier
 2. Compute the entropy values for each of the attributes
 3. What is the relationship between the attribute entropy values and the nodes of the decision tree?
4. Draw the confusion matrix? What information does the confusion matrix provide?
5. Describe the following quantities:

1. TP Rate	2. FP Rate
3. Precision	4. Recall

Week 10:

Title

Performing data preprocessing tasks for data mining in Weka

Aim

To learn how to use various data preprocessing methods as a part of the data mining

Requirements

Application of Discretization Filters

1. Perform the following tasks
 1. Load the 'sick.arff' dataset
 2. How many instances does this dataset have?
 3. How many attributes does it have?
 4. Which is the class attribute and what are the characteristics of this attribute?

5. How many attributes are numeric? What are the attribute indexes of the numeric attributes?
6. Apply the Naive Bayes classifier. What is the accuracy of the classifier?
2. Perform the following tasks:
 1. Load the 'sick.arff' dataset.
 2. Apply the supervised discretization filter.
 3. What is the effect of this filter on the attributes?
 4. How many distinct ranges have been created for each attribute?
 5. Undo the filter applied in the previous step.
 6. Apply the unsupervised discretization filter. Do this twice:
 1. In this step, set 'bins'=5
 2. In this step, set 'bins'=10
 3. What is the effect of the unsupervised filter filter on the dataset?
 7. Run the the Naive Bayes classifier after apply the following filters
 1. Unsupervised discretized with 'bins'=5
 2. Unsupervised discretized with 'bins'=10
 3. Unsupervised discretized with 'bins'=20.
 8. Compare the accuracy of the following cases
 1. Naive Bayes without discretization filters
 2. Naive Bayes with a supervised discretization filter
 3. Naive Bayes with an unsupervised discretization filter with different values for the 'bins' attributes.

Week 11:

Title

Performing clustering using the data mining toolkit

Aim

To learn to use clustering techniques

Requirements

1. Perform the following tasks:
 1. Load the 'bank.arff' data set in Weka.
 2. Write down the following details regarding the attributes:
 1. names
 2. types
 3. values.
 3. Run the Simple K-Means clustering algorithm on the dataset
 1. How many clusters are created?
 2. What are the number of instances and percentage figures in each cluster?
 3. What is the number of iterations that were required?
 4. What is the sum of squared errors? What does it represent?
 5. Tabulate the characteristics of the centroid of each cluster.

6. Visualize the results of this clustering (let the X-axis represent the cluster name, and the Y-axis represent the instance number)
 1. Is there a significant variation in age between clusters?
 2. Which clusters are predominated by males and which clusters are predominated by females?
 3. What can be said about the values of the region attribute in each cluster?
 4. What can be said about the variation of income between clusters?
 5. Which clusters are dominated by married people and which clusters are dominated by unmarried people?
 6. How do the clusters differ with respect to the number of children?
 7. Which cluster has the highest number of people with cars?
 8. Which clusters are predominated by people with savings accounts?
 9. What can be said about the variation of current accounts between clusters?
 10. Which clusters comprise mostly of people who buy the PEP product and which ones are comprised of people who do not buy the PEP product?
4. Run the SimpleKMeans algorithm for values of K (no. of clusters) ranging from 1 to 12. Tabulate the sum of squared errors for each run. What do you observe about the trend of the sum of squared errors?
5. For the run with K=12, answer the following questions:
 1. Is there a significant variation in age between clusters?
 2. Which clusters are predominated by males and which clusters are predominated by females?
 3. How do the clusters differ with respect to the number of children?
 4. Which clusters comprise of people who buy the PEP product and which ones are comprised of people who do not buy the PEP product?
 5. Do you see any differences in your ability to evaluate the characteristics of clusters generated for K=6 versus K=12? Why does this difference arise?

Week 12:

Title

Using Weka to determine Association rules

Aim

To learn to use Association algorithms on datasets

Requirements

1. Perform the following tasks
 1. Define the following terms
 1. item and item set

2. Association
 3. Association rule
 4. Support of an association rule
 5. Confidence of an association rule
 6. Large item set
 7. Association rule problem
2. What is the purpose of the Apriori Algorithm
 2. Perform the following tasks:
 1. Load the 'vote.arff' dataset
 2. Apply the Apriori association rule
 3. What is the support threshold used? What is the confidence threshold used?
 4. Write down the top 6 rules along with the support and confidence values.
 5. What does the figure to the left of the arrow in the association rule represent?
 6. What does the figure to the right of the arrow in the association rule represent?
 7. For rule 8, verify that numerical values used for computation of support and confidence are in accordance with the data by using the Preprocess panel. Then compute the support and confidence values. Are they above the threshold values?
 3. Perform the following tasks:
 1. Load the dataset 'weather.nominal.arff'.
 2. Apply the Apriori association rule
 1. Consider the rule "temperature=hot ==> humidity=normal." Compute the support and confidence for this rule.
 2. Consider the rule "temperature=hot humidity=high ==> windy=TRUE." Consider the support and confidence for this rule.
 3. Is it possible to have a rule like the following rule:
"outlook=sunny temperature=cool" ==> humidity=normal play=yes
 4. Perform the following tasks:
 1. Load the bank-data.csv file.
 2. Apply the Apriori association rule algorithm. What is the result? Why?
 3. Apply the supervised discretization filter to the age and income attributes.
 4. Run the Apriori rule algorithm
 5. List the rules that were generated.

(CSE1117) 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.

REFERENCES

1. Software Project Management, Bob Hughes and Mike Cotterell: Tata McGraw-Hill Edition.
2. Software Project Management, Joel Henry, Pearson Education.
3. Software Project Management in practice, Pankaj Jalote, Pearson Education.2005.

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(CSE1118) SEMANTIC WEB AND SOCIAL NETWORKS

UNIT I

Thinking and Intelligent Web Applications, The Information Age, The World Wide Web, Limitations of Today's 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 Technology, 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.

REFERENCE BOOKS:

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.

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(ECE1113) DIGITAL IMAGE PROCESSING

UNIT I

Fundamentals of Image Processing: 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.

Morphological Image Processing: Dilation and Erosion, Opening and closing, the hit or miss Transformation, 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.

REFERENCES:

1. Digital Image Processing-William K.Pratt, 3rd Edition, John Willey, 2004.
2. Fundamentals of Digital Image Processing-A.K.Jain, PHI, 1989.
3. Digital Image Processing using MATLAB - Rafael C. Gonzalez, Richard E.Woods and Steven L.Edding 2nd, TMH. 2010.
4. Digital Image Processing and Computer Vision – Somka, Hlavac, Boyl, Cengage Learning, 2008.
5. Introduction to image Processing and Analysis – John C. Russ, J. Christian Russ, CRC Press, 2010

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(CSE1119) 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

Reference Books:

The courseware including PowerPoint and notes are available for the Elective. In addition, following reference books can also be used:

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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(CSE1120) 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 1

Introduction – History, evolution and Features, COBOL program Structure, steps in executing COBOL - 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, REDEFINES, RENAME 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).

REFERENCE 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/cgiibin/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 Wiorowski & David Kull, DB2 Design & Development Guide, Addison Wesley, 1992.
12. C J Date & Colin J White, A Guide to DB2, Addison Wesley.
13. IBM Manual: DB2 Application Programming and SQL guide.
14. IBM Manual: DB2 SQL Reference.
15. DB2 Version 7 Information Center found online at <http://publib.boulder.ibm.com/infocenter/db2v7luw/index.jsp>

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(ECE1155) VLSI SYSTEMS

UNIT I

1. Review of microelectronics and Introduction to MOS technology: Introduction, IC technology: Diffusion, Photolithography, wafer fabrication, etching of different layers, oxidation, epitaxial formation etc, Introduction MOS and related VLSI technology – NMOS-CMOS-BICMOS Technologies used in VLSI circuits.

UNIT II

BASIC ELECTRICAL PROPERTIES : Basic Electrical Properties of MOS ,CMOS and BiCMOS Circuits: I_{ds} - V_{ds} relationships, MOS transistor threshold Voltage, g_m , g_{ds} , figure of merit w_o , Pass transistor, NMOS inverter, CMOS Inverter

UNIT III

MOS and BICMOS circuit design process: MOS layers – stick diagrams – design rules and layout – Lambda based design rules, Contact cuts , CMOS Lambda based design rules, Layout Diagrams for logic gates.

GATE LEVEL DESIGN AND LAYOUT: Architectural issues, Switch logic networks: Gate logic, Alternate gate circuit: Pseudo-NMOS, Dynamic CMOS logic. Basic circuit concepts, Sheet Resistance R_S and its concept to MOS, Area capacitance of layers, delay unit, wiring capacitances, choice of layers.

UNIT IV

SUBSYSTEM DESIGN: Subsystem Design, Shifters, Adders, ALUs, Multipliers: Array multiplier, Serial-Parallel multiplier, Parity generator, Comparators, Zero/One Detectors, Up/Down Counter, Memory elements.

UNIT V

Introduction to VHDL, Different modeling styles of VHDL, Introduction to different CAD tools for design and simulation of VLSI, Introductory concepts about testing and testability of VLSI circuits.

Text Books:

1. Basic VLSI design by Douglas A, Pucknell, Kamran Eshraghian, Prantice Hall, 1996 3rd edition.
2. CMOS VLSI Design – A circuits and systems perspective, Neil H.E Weste , David Harris , Ayan Banerjee, pearson ,2009.

Reference book:

- 1 .CMOS logic circuit Design – John P. Uyemura , Springer , 2007
2. Modern VLSI Design –Wayne Wolf, Pearson Education , 3rd Edition, 1997.
3. VLSI Design – A.Albert Raj, Latha PHI, 2008.

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(ECE1124) EMBEDDED REAL TIME OPERATING SYSTEMS

UNIT 1:

FUNDAMENTALS OF EMBEDDED SYSTEMS

Definition – Classification of Embedded Systems - Processors in the system - Other Hardware units. Software components - Examples for embedded systems, Design issues and trends

UNIT 2:

EMBEDDED HARDWARE DEVELOPMENT ENVIRONMENT:

Processor Architecture- Structured units of a processor - Processor selection factors. Common memory devices - Memory selection - Memory map - Internal devices & I/O devices, Serial devices - Parallel port devices, Timer and Counting devices - Direct memory access, Communication Interface Standards,.

UNIT 3:

EMBEDDED SOFTWARE DEVELOPMENT ENVIRONMENT: ‘

Embedded System Development Process, Embedded Operating systems, Types of Embedded Operating systems, Host and Target machines, Linkers/Locators for embedded software, getting embedded software into the target system, Testing on host machine.

UNIT 4:

REAL TIME OPERATING SYSTEMS CONCEPTS -I:

Typical OS structure - RTOS structure - The context of its use - Schedule management for multiple tasks - Scheduling in real time - RTOS task scheduling models – Round Robin, Round Robin with Interrupts, Priority driven- Preemptive and Non-preemptive scheduling

UNIT 5:

REAL TIME OPERATING SYSTEMS CONCEPTS -II:

Tasks and Task states, Tasks and Data, Semaphores and shared data, Message queues, Mailboxes and Pipes, Timer functions, events, Memory management, Interrupt routines in an RTOS environment.

Case study of RTOS using MUCOS. Case study for RTOS based programming - Coding for Automatic Chocolate vending machine using MUCOS.

TEXT BOOKS :

1. An Embedded Software Primer – David E. Simon, Pearson Ed., 2005.
2. Embedded systems - architecture, programming and design - Raj Kamal; Tata McGraw Hill

REFERENCES :

1. Real time Systems", J. W. S. Liu, Pearson
2. The 8051 Microcontroller & Embedded Systems using Assembly and C by Ayala &Gadre, Cengage Publications

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(EIE1118) ROBOTICS AND AUTOMATION

UNIT I

Basic Concepts & Power Sources

Fundamentals:

An over view of Robotics, classification of Robots, Robot Component, Robot degrees of freedom, Robot Joints, Robot Coordinates, Robot reference frames, Programming modes, Robot Characteristics.

Actuators:

Characteristics of activating system, comparison of activating system Hydraulic devices, Pneumatic devices, electric motors, magnetostrictive actuators.

UNIT II

Sensors, Manipulators and Grippers

Sensors: Sensors characteristics, Position sensors, velocity sensors, acceleration sensors, torques sensors, micro switches, lighten infrared sensors, touch and tactile sensors, proximity sensors, range finders.

Manipulators: Construction of Manipulators, Manipulator Dynamic and Force Control, Electronic and Pneumatic manipulators.

Grippers: Robot end effectors

Classification, drive system for Gripper, Mechanical Grippers, Magnetic Grippers, Vacuum Grippers, Adhesive Grippers, Hooks, Scoops and other Miscellaneous Devices, Gripper force Analysis and Gripper Design, Active and passive Grippers.

UNIT III

Kinematics & Path Planning

Robots as mechanisms, matrix representation, homogeneous transformation matrices, inverse of transformation of matrices, forward and inverse kinematics of robots, denavit-hartenberg representation of forward kinematics equations of robots, the inverse kinematic solution of robots, inverse kinematic programming of Robots, Jacobian, Differential motions of a frame, interpretation of the differential change, differential changes between frames, differential motions of a robot and its handframe, lagrangian mechanics, effective moments of a inertia, dynamic equations for multiple degree of freedom robot, static force analysis of robots.

UNIT IV

Low level and high level vision

Image acquisition, Illumination Techniques, Imaging Geometry, Some Basic Relationships between Pixels, Segmentation, Description, Segmentation and Description of 3-D Structures, Recognition, Interpretation.

UNIT V

Robot Applications

Material Transfer and Machine loading/unloading: General Considerations in Robot Material Handling, Material Transfer application, Machine loading and unloading. Liquid handling and pumping.

Processing operations: Spot welding, Continuous Arc Welding, Spray Coating, other processing operations using Robots,

Assembly and Inspection: Assembly and Robot Assembly automation, Parts Presentation methods, Assembly operations, compliance and the Remote Center Compliance (RCC) Device, Assembly system configuration, Adaptable-Programmable assembly system, Designing for Robotic Assembly, Inspection Automation.

Text Books:

1. Introduction to Robotics, Analysis, System, Applications by Saeed B. Niku.-PHI
2. Robotics / Fu K S/ McGraw Hill.
3. Industrial Robotics / Groover M P /Pearson Edu.

References:

1. Fundamentals of Robotics Analysis and control. By Robert J.Schelling, PHI
2. I Robotics Technology and Flexible Automation / SR Deb
3. Robotic Engineering / Richard D. Klaffer, Prentice Hall

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IV Year B.Tech IT,CSE–II Sem

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(ITD1122) CLOUD COMPUTING

UNIT I UNDERSTANDING CLOUD COMPUTING

Cloud Computing – History of Cloud Computing – Cloud Architecture – Cloud Storage –Why Cloud Computing Matters – Advantages of Cloud Computing – Disadvantages of Cloud Computing – Companies in the Cloud Today – Cloud Services

UNIT II DEVELOPING CLOUD SERVICES

Web-Based Application – Pros and Cons of Cloud Service Development – Types of Cloud Service Development – Software as a Service – Platform as a Service – Web Services – On-Demand Computing – Discovering Cloud Services Development Services and Tools – Amazon Ec2 – Google App Engine – IBM Clouds

UNIT III CLOUD COMPUTING SECURITY ARCHITECTURE

Cloud security fundamentals-Vulnerability assessment tool for cloud- Privacy and Security in cloud - Cloud computing security architecture: Architectural Considerations- General Issues- Trusted - Cloud computing- Secure Execution Environments and Communications- Micro-architectures; Identity Management and Access control Identity management- Access control, Autonomic Security

UNIT IV CLOUD COMPUTING FOR EVERYONE

Centralizing Email Communications – Collaborating on Schedules – Collaborating on To-Do Lists – Collaborating Contact Lists – Cloud Computing for the Community – Collaborating on Group Projects and Events – Cloud Computing for the Corporation

UNIT V CLOUD COMPUTING CASE STUDIES

Cloud computing case studies: Google App Engine – IBM Clouds –Windows live – Micro soft dynamic CRM- Salesforce.com CRM- App Exchange – Amazon S3 – Oracle OBIEE

Text Books:

1. Michael Miller, Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online, Que Publishing, August 2008.
2. Haley Beard, Cloud Computing Best Practices for Managing and Measuring Processes for On-demand Computing, Applications and Data Centers in the Cloud with SLAs, Emereo Pty Limited, July 2008.
3. Cloud Computing a Practical Approach by Anthony T.Velte, Toby J.Velte Robert Elsenpeter, Tata Mc Graw Hill Edition 2010.
4. Gautam Shroff, Enterprise Cloud Computing: Technology, Architecture, applications, Cambridge University Press, 2010.
5. Ronald Krutz Russell Dean Vines, Cloud Security

References:

1. Cloud Computing: A Practical Approach, Anthoey T Velte, et.al McGraw Hill,
2. Cloud Computing Bible by Barrie Sosinsky, Wiley India
3. Cloud Application Architectures by George Reese, Oreilly Publishers
4. Cloud Computing Virtualization Specialist Complete Certification Kit- Study Guide Book, by Ivanka Menken.