ACADEMIC REGULATIONS (JBIET R-14), COURSE STRUCTURE AND SYLLABI FOR B. TECH

B.Tech. Regular Four Year Degree Programme
(For the batches admitted from the Academic Year 2014 - 2015)

&

B.Tech. (Lateral Entry Scheme)
(For the batches admitted from the Academic Year 2015 - 2016)

Note: The regulations hereunder are subject to amendments as may be made by the Academic Council of the College from time to time. Any or all such amendments will be effective from such date and to such batches of candidates (including those already pursuing the program) as may be decided by the Academic Council of JBIET.
ACADEMIC REGULATIONS- R14 FOR B. TECH. (REGULAR)
Applicable for the students of B. Tech. (Regular) from the Academic Year 2014-15 and onwards

1. Award of B. Tech. Degree

A student will be declared eligible for the award of B. Tech. Degree if he fulfills the following academic regulations:

1.1 The candidate shall pursue a course of study for not less than four academic years and not more than eight academic years (i.e. No student is allowed to have more than four times detention)
1.2 After eight academic years of course of study, the candidate is permitted to write the examinations for two more years.
1.3 The candidate shall register for 213 credits and secure 206 credits with compulsory subjects as listed in Table-1.

<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Subject Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>All practical subjects</td>
</tr>
<tr>
<td>2</td>
<td>Industry oriented mini project</td>
</tr>
<tr>
<td>3</td>
<td>Comprehensive Assignment</td>
</tr>
<tr>
<td>4</td>
<td>Industrial Internship</td>
</tr>
<tr>
<td>5</td>
<td>Comprehensive Viva-Voce</td>
</tr>
<tr>
<td>6</td>
<td>Seminar</td>
</tr>
<tr>
<td>7</td>
<td>Project work</td>
</tr>
</tbody>
</table>

2. Forfeiting B.Tech Degree

The students, who fail to fulfill all the academic requirements for the award of the degree within ten academic years from the year of their admission, shall forfeit their seats in B. Tech. course.
3. Courses of study

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

<table>
<thead>
<tr>
<th>Branch Code</th>
<th>Branch</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>02</td>
<td>Electrical and Electronics Engineering</td>
</tr>
<tr>
<td>03</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>04</td>
<td>Electronics and Communication Engineering</td>
</tr>
<tr>
<td>05</td>
<td>Computer Science and Engineering</td>
</tr>
<tr>
<td>12</td>
<td>Information Technology</td>
</tr>
<tr>
<td>19</td>
<td>Electronics and Computer Engineering</td>
</tr>
<tr>
<td>25</td>
<td>Mining Engineering</td>
</tr>
</tbody>
</table>

4. Credits

Each course is normally assigned a certain number of credits as follows:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Periods /Week</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>04+1*/4</td>
<td>04</td>
</tr>
<tr>
<td></td>
<td>03+1*/3</td>
<td>03</td>
</tr>
<tr>
<td>Practical</td>
<td>03</td>
<td>02</td>
</tr>
<tr>
<td>Drawing</td>
<td>01+03</td>
<td>03</td>
</tr>
<tr>
<td>Mini Project</td>
<td>--</td>
<td>02</td>
</tr>
<tr>
<td>Comprehensive Assignment</td>
<td>-</td>
<td>02</td>
</tr>
<tr>
<td>Industrial Internship</td>
<td>-</td>
<td>02</td>
</tr>
<tr>
<td>Comprehensive Viva Voce</td>
<td>--</td>
<td>02</td>
</tr>
<tr>
<td>Seminar</td>
<td>6</td>
<td>02</td>
</tr>
<tr>
<td>Project</td>
<td>15</td>
<td>10</td>
</tr>
</tbody>
</table>

*Tutorial

5. Distributions and Weightage of Marks

5.1 The performance of a student in each semester shall be evaluated subject-wise for a maximum of 100 marks for a theory and 75 marks for a practical subject. In addition, industry-oriented mini-project, Comprehensive Assignment, Industrial Internship, seminar, Comprehensive viva and project work shall be evaluated for 50, 50, 50, 50, 100 and 200
marks, respectively.

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

5.3 For theory subjects, during a semester there shall be 2 mid-term examinations. Each mid-term examination consists of 2 parts. Part-A contains objective and Part-B contains descriptive questions and assignment. The Part-A and Part-B shall be for 10 marks each with a total duration of 1 hour 20 minutes. The Part-A is set with 20 bits of multiple choice, fill-in the blanks and matching type of questions for a total of 10 marks. The Part-B shall contain 4 full questions (two from each unit for first mid and minimum one from each unit in the second mid) out of which, the student has to answer 2 questions, each carrying 5 marks. While the first mid-term examination shall be conducted in first Two Units of the syllabus, the second mid-term examination shall be conducted in last Three Units. Five (5) marks are allocated for Assignments (as specified by the subject teacher concerned). The first Assignment should be submitted before the conduct of the first mid-examination, and the second Assignment should be submitted before the conduct of the second mid-examination. The total marks secured by the student in each mid-term examination are evaluated for 25 marks, and the average of the two mid-term examinations shall be taken as the final marks secured by each candidate. If any candidate is absent from any subject of a mid-term examination with a valid reason (only medical reasons are allowed), re-examination will be conducted for such student.

The details of End Examination Question Paper pattern is as follows:

- **The End semesters Examination will be conducted for 75 marks which consist of two parts viz. i). Part-A for 25 marks, ii). Part –B for 50 marks**
- **Part-A is compulsory question which consists of Five questions, one from each unit and carries 5 marks each.**
- **Part-B consists of five Questions (numbered from 2 to 6) carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. For each question there will be an “either” “or” choice (that means there will be two questions from each unit and the student should answer any one question)**

5.4 For practical subjects there shall be a continuous evaluation during a semester for 25 sessional marks and 50 end semester examination marks. Out of the 25 marks for internal evaluation, day-to-day work in the laboratory shall be evaluated for 15 marks and internal practical examination shall be evaluated for 10 marks conducted by the laboratory teacher concerned. The end semester examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the other colleges which are decided by the examination branch of JBIET.

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

5.6 There shall be Science based Mini-Project, to be taken up during the vacation after I year II Semester examination for regular students, after II year I Semester for Lateral Entry students and it will be evaluated in II Year II semester. However, the Science based mini-project marks will be added in II year II Semester. The Comprehensive Assignment shall be submitted in a report form and presented before the committee. It shall be evaluated for 50 marks. The committee consists of head of the department, and the supervisor of the Comprehensive Assignment and a senior faculty member of the department. There shall be no external marks for Comprehensive Assignment.

5.7 As per the direction from the state Government a New Course ‘Gender Sensitization’ has been introduced for B.Tech 2-2 Students who are studying under JBIET R14 regulation. This is a compulsory Subject and posses ‘2’ Credits. It should be treated as a lab subject with two credits from the academic Year 2015-2016.

5.8 There shall be an Industrial internship, in collaboration with an industry of their specialization, to be taken up during the vacation after II year II Semester examination and it will be evaluated in III Year II semester. The Industrial internship report shall be submitted in a report form and presented before the committee. It shall be evaluated for 50 marks. The committee consists of head of the department, and internship supervisor and a senior faculty member of the department. There shall be no external marks for internship.

5.9 There shall be an industry-oriented Mini-Project, in collaboration with an industry of their specialization, to be taken up during the vacation after III year II Semester examination. However, the mini-project and its report shall be evaluated along with the project work in IV year II Semester. The industry oriented mini-project shall be submitted in a report form and presented before the committee. It shall be evaluated for 50 marks. The committee consists of an external examiner, head of the department, the supervisor of the mini-project and a senior faculty member of the department. There shall be no internal marks for industry-oriented mini-project.

5.10 There shall be a seminar presentation in IV year II Semester. For the seminar, the student shall collect the information on a specialized topic and prepare a technical report, showing his understanding of the topic, and submit it to the department. It shall be evaluated by the departmental committee consisting of head of the department, seminar supervisor and a senior faculty member. The seminar report shall be evaluated for 50 marks. There shall be no external examination for the seminar.
5.11 There shall be a Comprehensive Viva-Voce in IV year II semester. The Comprehensive Viva-Voce will be conducted by a Committee consisting of Head of the Department and two Senior Faculty members of the Department. The Comprehensive Viva-Voce is intended to assess the student’s understanding of the subjects he studied during the B. Tech. course of study. The Comprehensive Viva-Voce is evaluated for 100 marks by the Committee. There are no internal marks for the Comprehensive Viva-Voce.

5.12 Out of a total of 200 marks for the project work, 50 marks shall be allotted for Internal Evaluation and 150 marks for the End Semester Examination (50 marks for thesis, 50 marks for successful execution of the project and 50 marks for Viva Voce). The End Semester Examination of the project work shall be conducted by the same committee as appointed for the industry-oriented mini-project. In addition, the project supervisor shall also be included in the committee. The topics for Comprehensive Assignment, Industrial Internship, industry oriented mini project, and seminar and project work shall be different from one another. The evaluation of project work shall be made at the end of the IV year. The Internal Evaluation shall be on the basis of two seminars given by each student on the topic of his project.

5.13 The Laboratory marks and the sessional marks awarded by the examiners are subject to scrutiny and scaling by the college wherever necessary. In such cases, the sessional and laboratory marks awarded by the examiners will be referred to a Committee. The Committee will arrive at a scaling factor and the marks will be scaled accordingly. The recommendations of the Committee will be final and binding. The laboratory records and internal test papers shall be preserved and should be produced before the Committees as and when required.

6. Attendance Requirements

6.1 A student is eligible to write the End Semester examinations only if he acquires a minimum of 75% of attendance in aggregate of all the subjects.

6.2 Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester may be granted by the College Academic Committee

6.3 Shortage of Attendance below 65% in aggregate shall not be condoned and student will be detained on account of shortage of attendance below 65%.

6.4 A student who is short of attendance in semester may seek re-admission into that semester when offered within 4 weeks from the date of the commencement of class work.

6.5 Students whose shortage of attendance is not condoned in any semester are not eligible to write their end semester examination of that class and their registration stands cancelled.
6.6 A stipulated fee shall be payable towards condonation of shortage of attendance.
6.7 A student will be promoted to the next semester if he satisfies the attendance requirement of the present semester, as applicable, including the days of attendance in sports, games, NCC and NSS activities.
6.8 If any candidate fulfills the attendance requirement in the present semester, he shall not be eligible for readmission into the same class.

7. Minimum Academic Requirements

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

7.1 A student is deemed to have satisfied the minimum academic requirements if he/she has earned the credits allotted to each theory/practical design/drawing subject/project and secures not less than 35% of marks in the end semester exam, and minimum 40% of marks in the sum total of the mid-term and end semester exams.
7.2 A student shall be promoted from first year to second year if he fulfills the minimum attendance requirement.
7.3 A student will not be promoted from II year to III year unless he fulfills the academic requirement of 40 credits up to II year II semester or 30 credits up to II year I semester from all the examinations, whether or not the candidate takes the examinations.
7.4 A student shall be promoted from III year to IV year only if he fulfills the academic requirements of 60 credits up to III year II semester or 50 credits up to III year I semester from all the examinations, whether or not the candidate takes the examinations.
7.5 A student shall register and put up minimum attendance in all 213 credits and earn 206 credits. Marks obtained in the best 204 credits shall be considered for the calculation of percentage of marks.
7.6 Students who fail to earn 206 credits as indicated in the course structure within ten academic years (8 years of study + 2 years additionally for appearing for exams only) from the year of their admission, shall forfeit their seat in B.Tech. Course and their admission stands cancelled.

8 Course Pattern

8.1 The entire course of study is for four academic years. I, II, III and IV years shall be on semester pattern.
8.2 A student, eligible to appear for the end examination in a subject, but absent from it or has failed in the end semester examination, may write the exam in that subject during the period of supplementary exams.
8.3 When a student is detained for lack of credits/shortage of attendance, he may be re-admitted into the next semester. However, the academic regulations under which he was first admitted shall continue to be applicable to him.

9 Award of Class

After a student has satisfied the requirements prescribed for the completion of the program and is eligible for the award of B. Tech. Degree, he shall be placed in one of the following four classes:
The marks obtained in internal evaluation and end semester examination shall be shown separately in the memorandum of marks.

### 10 Minimum Instruction Days

The minimum instruction days for each semester shall be 90 days. Tentative Schedule must be as per the pattern given below.

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Instructions Days</th>
<th>16 Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mid Term Examinations</td>
<td>2 Weeks</td>
</tr>
<tr>
<td></td>
<td>Preparation &amp; Practical Examinations</td>
<td>2 Weeks</td>
</tr>
<tr>
<td></td>
<td>End Examinations</td>
<td>2 Weeks</td>
</tr>
<tr>
<td>Semester Break</td>
<td></td>
<td>2 Weeks</td>
</tr>
<tr>
<td>Second Semester</td>
<td>Instructions Days</td>
<td>16 Weeks</td>
</tr>
<tr>
<td></td>
<td>Mid Term Examinations</td>
<td>2 Weeks</td>
</tr>
<tr>
<td></td>
<td>Preparation &amp; Practical Examinations</td>
<td>2 Weeks</td>
</tr>
<tr>
<td></td>
<td>End Examinations</td>
<td>2 Weeks</td>
</tr>
<tr>
<td>Summer Break</td>
<td></td>
<td>6 weeks</td>
</tr>
</tbody>
</table>

### 11. Branch Transfer of students

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

### 12. Transfer of students from other colleges/universities

Transfer of students from the Constituent Colleges of JNTUH or from other Colleges/Universities shall be considered only on a case-to-case basis by the Academic Council of the Institute while following rules as in the force at that time promulgated by JNTUH and State government of Telangana.

### 13. Withholding Of Results

If the student has not paid the dues, if any, to the college or if any case of indiscipline is pending against him, the result of the student will be withheld and he will not be allowed into the next semester. His degree will be withheld in such cases.

### 14. Transitory regulations

14.1 Discontinued, detained, or failed candidates are eligible for readmission, as and when next offered.
14.2 After the revision of the regulations, the students of the previous batches will be given two chances for passing in their failed subjects, one supplementary and the other regular. If the students cannot clear the subjects in the given two chances, they shall be given equivalent subjects as per the revised regulations which they have to pass in order to obtain the required number of credits.

14.3 In case of transferred students from other Universities and colleges, the credits shall be transferred to JBIET as per the academic regulations and course structure of the JBIET.

15. General

15.1 Wherever the words “he”, “him”, “his”, occur in the regulations, they include “she”, “her”, “hers”.

15.2 The academic regulation should be read as a whole for the purpose of any interpretation.

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

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

15.5 The students seeking transfer to JBIET from various other Universities/ Institutions have to pass the failed subjects which are equivalent to the subjects of JBIET, and also pass the subjects of JBIET which the candidates have not studied at the earlier Institution on their own without the right to sessional marks. Further, though the students have passed some of the subjects at the earlier institutions, if the same subjects are prescribed in different semesters of JBIET, the candidates have to study those subjects in JBIET in spite of the fact that those subjects are repeated.

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ACADEMIC REGULATIONS R14 FOR B. TECH. (LATERAL ENTRY SCHEME)

Applicable for the students admitted into II year B. Tech. (LES) from the Academic Year 2014-15 and onwards

1. Eligibility for award of B. Tech. Degree (LES)

1.1 The LES candidates shall pursue a course of study for not less than three academic years and not more than six academic years.

1.2 They shall be permitted to write the examinations for two more years after six academic years of course work.

1.3 The candidate shall register for 163 credits and secure 156 credits from II to IV year B.Tech. Program (LES) for the award of B.Tech. degree with compulsory subjects as listed in Table-2.

<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Subject Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>All practical subjects</td>
</tr>
<tr>
<td>2</td>
<td>Industry oriented mini project</td>
</tr>
<tr>
<td>3</td>
<td>Comprehensive Assignment</td>
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<td>4</td>
<td>Industrial Internship</td>
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<tr>
<td>5</td>
<td>Comprehensive Viva-Voce</td>
</tr>
<tr>
<td>6</td>
<td>Seminar</td>
</tr>
<tr>
<td>7</td>
<td>Project work</td>
</tr>
</tbody>
</table>

1.4 The students, who fail to fulfil the requirement for the award of the degree in 8 consecutive academic years (6 years of study + 2 years additionally for appearing exams only) from the year of admission, shall forfeit their seats.

1.5 The attendance regulations of B. Tech. (Regular) shall be applicable to B.Tech. (LES).
2. **Promotion Rule**

A student shall be promoted from second year to third year if he fulfills the minimum attendance requirement.

A student shall be promoted from III year to IV year only if he fulfils the academic requirements of 40 credits up to III year II semester or 30 credits up to III year I semester from all the examinations, whether or not the candidate takes the examinations.

3. **Award of Class**

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

<table>
<thead>
<tr>
<th>Class Awarded</th>
<th>% of marks to be secured</th>
<th>From the aggregate marks secured for 154 Credits. (i.e. II year to IV year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Class with Distinction</td>
<td>70% and above</td>
<td></td>
</tr>
<tr>
<td>First Class</td>
<td>Below 70% but not less than 60%</td>
<td></td>
</tr>
<tr>
<td>Second Class</td>
<td>Below 60% but not less than 50%</td>
<td></td>
</tr>
<tr>
<td>Pass Class</td>
<td>Below 50% but not less than 40%</td>
<td></td>
</tr>
</tbody>
</table>

The marks obtained in the internal evaluation and the end semester examination shall be shown separately in the marks memorandum.

4. All other regulations as applicable to B. Tech. 4-year degree course (Regular) will hold good for B. Tech. (Lateral Entry Scheme).
# MALPRACTICES RULES

## DISCIPLINARY ACTION FOR / IMPROPER CONDUCT IN EXAMINATIONS

<table>
<thead>
<tr>
<th>Nature of Malpractices/Improper conduct</th>
<th>Punishment</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>If the candidate:</em></td>
<td></td>
</tr>
<tr>
<td>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)</td>
<td>Expulsion from the examination hall and cancellation of the performance in that Subject only.</td>
</tr>
<tr>
<td>(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.</td>
<td>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.</td>
</tr>
<tr>
<td>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.</td>
<td>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 and kept with the examination branch.</td>
</tr>
<tr>
<td>3. Impersonates any other candidate in connection with the examination.</td>
<td>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,</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>4.</th>
<th>Smuggles in the Answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination.</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>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.</td>
<td>Cancellation of the performance in that subject.</td>
</tr>
<tr>
<td>6.</td>
<td>Refuses to obey the orders of the Chief Superintendent/Assistant – Superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in-charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs of outsiders, they will be handed over to the</td>
<td>In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the candidate(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The candidates also are debarred and forfeit their seats. In case of outsiders, they will be handed over to the</td>
</tr>
</tbody>
</table>
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.

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>7.</strong></td>
<td>Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
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<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>8.</strong></td>
<td>Possess any lethal weapon or firearm in the Examination hall.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
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<thead>
<tr>
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<tbody>
<tr>
<td><strong>9.</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
|   | Student of the colleges expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>subjects of that semester/year. The candidate is also debarred and forfeits the seat. Person(s) who do not belong to the College will be handed over to police and, a police case will be registered against them.</td>
<td>10. Comes in a drunken condition to the examination hall.</td>
<td>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.</td>
</tr>
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<td>11. Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.</td>
<td>Cancellation of the performance in that subject and all other subjects the candidate has appeared including practical examinations and project work of that semester/year examinations.</td>
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<td>12. If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the University for further action to award suitable punishment.</td>
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**Malpractices identified by squad or special invigilators**

1. Punishments to the candidates as per the above guidelines.
2. Punishment for invigilators: (if the squad reports that the invigilator is also involved in encouraging malpractices)
   (i) A show cause notice shall be issued to the invigilator.
   (ii) Impose a suitable fine on the invigilator.

* *** *
# INFORMATION TECHNOLOGY

## COURSE STRUCTURE – R14

### I B.Tech – I Semester

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**Note:** All End Examinations (Theory and Practical) are of three hours duration.

**T** – Tutorial, **L** – Theory, **P** – Practical, **D** – Drawing, **C** – Credits.

**Total No of Credits = 213**
UNIT - I:
- Word Formation - Word Disintegration.
- Root/Base Word - Word Origin.
- Affixation - Prefix & Suffix.
- Synonym/Antonym - Homophone/Homonym/Homograph.
- Use of Dictionary & Thesaurus.
- Phrasal Verbs, Idioms.
- One Word Substitutes.
- Collocations.
- Technical Vocabulary.

UNIT - II:
Grammar
- Parts of Speech - Introduction to English Grammar
- All about - Noun, Pronoun, Verb, Adverb
- Adjective, Preposition, Conjunction, Interjection
- Articles - Use of Articles A, An and The.
- Punctuations.
Tenses
- Tenses in English.
- Use of appropriate Tenses in different contexts.
- Use of Tenses in Narration.

UNIT - III:
Improving Reading Skills
- Reading for Specific Purposes.
- Reading for General Information.
- Reading for facts.
- Reading between/beyond the lines.
- Reading for Skimming & Scanning.
- Dialogue Reading.
- Comprehension.

UNIT - IV:
Basics of Writing
- Syntax & Sentence Structure.
- Construction of Proper Sentences in English.
- Sentences Types - Purposes.
- Email Etiquette.
- Note Making and Note Taking.
UNIT - IV:
Common Errors in English
- Subject-Verb Agreement.

TEXT BOOK:
1. Language In Use - Intermediate: Self-Study Workbook with Answer Key/2008
   Adrian Doff, PB Cambridge University Press.
2. English Vocabulary in Use: Pre-Intermediate & Intermediate (PB +CD ROM)/3rd

REFERENCE BOOKS:
1. Technical Communication: Principles And Practice (With Dvd) 2nd Edition (English)
   2nd Edition Sangeeta Sharma, Meenakshi Raman, Oxford University Press
   Sons Active Grammar with Answer Level 1,2 &3 Davis Cambridge University Press
J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY  
UGC AUTONOMOUS  

B.Tech. IT  
I Year - I Semester  

MATHEMATICS – I  
(Common to all branches)

UNIT - I:  
Sequences – Series  
Basic definitions of Sequences and Series – Convergence and divergence – Ratio test – Comparison test – Integral test – Cauchy’s root test – Raabe’s test – Absolute and conditional convergence.  
Function of Single Variable  
Rolle’s Theorem – Lagrange’s Mean Value Theorem – Cauchy’s mean value Theorem – Generalized mean value theorem (all theorems without proof).

UNIT - II:  
Function of Several Variables  
Functional dependence – Jacobian – Maxima and Minima of functions of two variables with constraints and without constraints.

UNIT - III:  
Curve Tracing: Cartesian, polar and parametric curves.  
Geometrical applications of Differential Calculus: Radius of Curvature, Centre and Circle of Curvature-Evolutes and Envelopes

UNIT - IV:  
Multiple Integrals: Double and triple integrals – change of order of integration – change of variable.

UNIT - V:  
Vector integrals theorem: Green’s –Stoke’s and Gauss’s Divergence Theorems (Statement & their verification).

TEXT BOOK:  

REFERENCE BOOKS:  
2. Engineering Mathematics-I by T.K.V. Iyengar & B.Krishna Gandhi & Others, S.Chand  
ENGINEERING PHYSICS
(Common to ECE,EEE,CSE,IT,ECM)

UNIT - I
Crystallography


UNIT - II
Defects in solids:
Vacancies, Substitution, Interstitial, Concentration of Frenkel and Schottky Defects, line defects (Qualitative) & Burger’s Vector

Principles of Quantum Mechanics:
Waves and Particles, de Broglie Hypothesis, Matter Waves, G.P.Thomson, Davisson and Germer’s Experiment, Heisenberg uncertainty principle, Schrödinger’s Time Independent Wave Equation – Physical Significance of the Wave Function – Particle in a One-Dimensional potential well (Zero point energy).

UNIT - III
Dielectric Properties:

Magnetic Properties:

UNIT - IV
Superconductivity:
Concept of superconductivity, Properties of Superconductors, Type-I and Type-II superconductor, BCS Theory, Applications of Superconductors.

Semiconductor Physics:
Fermi Level in Intrinsic and Extrinsic Semiconductors, Calculation of carrier concentration in Intrinsic & Extrinsic Semiconductors, Hall Effect and its Applications.
UNIT - V
Lasers:

Optical fiber:

TEXT BOOKS:
2. Engineering Physics - P.K Palaniswamy (Scitech Publications India) Pvt Ltd, Fifth Print 2010)

REFERENCE BOOKS:
1. Engineering Physics - Senthilkumar ((Vrb Publishers Limited)
UNIT - I:

Introduction to C Language – History, Simple C Program, Structure of a 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:

TEXT BOOKS:
2. The C Programming Language, by Brian W. Kernighan, Dennis M. Ritchie

REFERENCE BOOKS:
1. C programming A Problem-Solving Approach by Behrouz A.Forouzan
2. Programming with C, B.Gottfried, 3rd edition, Schaum’s outlines, TMH.
UNIT - I
INTRODUCTION TO ENGINEERING DRAWING:

SCALES:
Different types of Scales, Plain scales, Vernier Scale, Digonal Scale, Scales of chords.

UNIT - II
CONSTRUCTION OF CURVES USED IN ENGINEERING PRACTICE:
a) Conic Sections Ellipse- General, Concxcentric Circle, Arcs of circle and Oblong Method Parabola- General, Tangent and Rectangle Methods Hyperabola-General, Point/Rectangle Method 
b) Cycloid, Epicycloid and Hypocycloid 
c) Involute for Circle, Rectangle and Triangle

UNIT - III
PROJECTIONS OF POINTS AND LINES:
Principles of Orthographic Projections – Conventions – First and Third Angle, Projections of Points and Lines inclined to planes, True lengths, traces.

UNIT - IV
PROJECTIONS OF PLANES:
Projections of regular Planes, auxiliary planes and Auxiliary projection inclined to both planes.

UNIT - V
PROJECTIONS OF SOLIDS:
Projections of Regular Solids inclined to both planes – Auxiliary Views.

TEXT BOOKS:
1. Engineering Drawing, N.D. Bhat / Charotar

REFERENCE BOOKS:
1. Engineering Drawing – Basant Agrawal, TMH
EXPERIMENT-I:
Simple C programs - to implement basic arithmetic operations – sum, average, product, smallest, largest of the numbers, difference, quotient and remainder of given numbers etc.

EXPERIMENT - II:
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.

EXPERIMENT - III:
\(a\). Programs on switch-case – to check the type of a given character, to find the grade of a student etc.
\(b\). 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.

EXPERIMENT - IV:
Programs on “for loop” - sum of n natural numbers, factorial, sin(x), to generate Pascal’s triangle etc.

EXPERIMENT - V:
\(a\). Programs on nested loops – check for Fibonacci prime, Pyramids of numbers, generation of prime numbers in the given range, multiplication table etc.
\(b\). Programs using break, go to, and continue.

EXPERIMENT - VI:
\(a\). Programs on 1-D array-finding Minimum and maximum element, Sorting and Searching etc.
\(b\). Programs on 2-D array – Sum, product and Multiplication of two Matrices etc.

EXPERIMENT - VII:
\(a\). Programs on Functions-Implementation of user defined functions categories, passing of arrays to functions etc.
\(b\). Programs on recursion - factorial of a given integer, GCD of two given integers etc.

EXPERIMENT - VIII:
\(a\). Programs on String handling functions-Copying, reverse, substring, concatenation.
\(b\). Programs on structure and unions.
**EXPERIMENT - IX:**
Programs using pointers- pointer basic operations, pointers and functions etc.

**EXPERIMENT - X:**
Programs on pointers and structures, Pointers and arrays, pointers and strings.

**EXPERIMENT - XI:**
Programs on files-Implementation of file handling functions. Programs on files error handling. Programs on Dynamic memory allocation.

**EXPERIMENT - XII:**
Programs on command line arguments. Programs on preprocessor directives.

**EXPERIMENT - XIII:**
Program draws basic shapes such as circle, line, rectangle, ellipse and display text on screen using c graphics. Smiling face Animation using c graphics displaying face at random position on screen.
ENGINEERING PHYSICS LAB
(Common to ECE,EEE,CSE,IT,ECM)

COURSE OBJECTIVES:

To develop a good experiment skills so as to apply theoretical knowledge in the experimental verification

Minimum ten Experiments out of Twelve

List of Experiments:

EXPERIMENT-I: Torsional pendulum.
EXPERIMENT-II: Melde’s experiment – Transverse and longitudinal modes.
EXPERIMENT-III: Time constant of an R-C circuit.
EXPERIMENT-IV: L-C-R circuit.
EXPERIMENT-V: Magnetic field along the axis of current carrying coil – Stewart and Gees method.
EXPERIMENT-VI: Study the characteristics of LASER sources.
EXPERIMENT-VII: Study the characteristics of light emitting diode.
EXPERIMENT-VIII: Evaluation of numerical aperture of given fiber.
EXPERIMENT-IX: Bending losses in optical fiber.
EXPERIMENT-X: Energy gap of a material of p-n junction.
EXPERIMENT-XI: Impedance Analysis/Dielectric constant of Measurements of materials.
EXPERIMENT-XII: Analysis of XRD spectra.
ENGINEERING WORKSHOP
(Common to all branches)

TRADES FOR EXPERIMENT

Three exercises from each trade

   (i) Carpentry
   (ii) Fitting
   (iii) Black Smithy
   (iv) Welding

TRADES FOR DEMONSTRATION & EXPOSURE

   (i) Power Tools in Construction, Wood working, Electrical Engineering works and Mechanical Engineering
   (ii) Plumbing

TEXT BOOKS:

ENGLISH LAB
(Common to all branches)

MULTI-MEDIA LANGUAGE LAB

EXPERIMENT/ACTIVITY - I: Introduction to Phonetics

EXPERIMENT/ACTIVITY - II: Sounds of English- Vowels, Diphthongs

EXPERIMENT/ACTIVITY - III: Consonants

EXPERIMENT/ACTIVITY - IV: Introduction to Stress, Rhythm and Intonation

EXPERIMENT/ACTIVITY - V: Improving Listening Skills

ENGLISH COMMUNICATION SKILLS LAB

EXPERIMENT/ACTIVITY - VI: Self Introduction,

EXPERIMENT/ACTIVITY - VII: Introducing others

EXPERIMENT/ACTIVITY - VIII: Agreeing/Disagreeing and Asking Questions

EXPERIMENT/ACTIVITY - IX: ‘Just A Minute’ Sessions (JAM) & Situational Dialogues

EXPERIMENT/ACTIVITY - X: Describing Objects / Situations / People.


EXPERIMENT/ACTIVITY - XII: Debate
J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS

B.Tech. IT  L  T-P-D  C
I Year - II Semester  3  0-0-0  3

TECHNICAL ENGLISH
(Common to all branches)

UNIT - I:
Formal & Informal Writing
-Formal & Informal Writing, Cover Letter.

UNIT -II:
Writing Techniques
-Developing Paragraphs - Cohesion.
-Developing passage by arranging paragraphs.

UNIT - III:
Official Correspondence
- Types of Business Correspondence.

UNIT - IV:
-e-Writing
-e-Mail Etiquette.

UNIT - V:
Presentation Skills
- Paper, Seminars, Conferences, Symposia, Workshop presentation.
- Power Point Presentation (Microsoft Office Suit).
- Project Proposal Presentation.

TEXT BOOKS:
2. Strengthen Your Writing - V.R. Narayanaswami -Orient Longman

REFERENCE BOOKS:
UNIT - I:
Differential equations of first order and their applications

Higher Order Linear differential equations and their applications
Linear differential equations of second and higher order with constant coefficients, RHS term of the $f(x)=e^{ax}$, $\cos ax$, $x^n$, $e^{ax}$ $V(x)$, $x^n$ $V(x)$ and method of variation of parameters. Applications on bending of beams, Electrical circuits, simple harmonic motion.

UNIT - II:
Laplace transform and its application to Ordinary differential equations

UNIT - III:
Fourier Series
Determination of Fourier coefficients – Fourier series – even and odd functions – Fourier series in an arbitrary interval- even and odd periodic continuation – Half-range Fourier sine and cosine expansions.

UNIT - IV:
Transforms

Z-Transform: Z-Transform-Properties-Damping rule-shifting rule-Initial & Final value theorems-convolution theorem –solution of difference equations by Z-transform.

UNIT - V:
Partial differential equations
Introduction and Formation of partial equation by elimination of arbitrary constants and arbitrary functions, solutions of first order linear (Lagrange) equation and nonlinear (Standard type) equations-Classification of PDE-Finite difference methods for: Elliptic, Hyperbolic & Parabolic equations-solution of Heat equation(one dimensional)
TEXT BOOKS:

REFERENCE BOOKS:
UNIT - I:
**Electrochemistry and Batteries:**
Concept of Electrochemistry, Conductance-Electrolyte in solution, Conductance-Specific, Equivalent and molar conductance, Kolrausch’s Law, application of conductance. EMF: Galvanic Cells, Reference Electrode, Nernst equation, galvanic series, Application of EMF measurements.

**Batteries:** Primary and secondary cells, (lead-Acid cell, Ni-Cd cell, Lithium cells). Application’s of batteries. Fuel cells – Hydrogen – Oxygen fuel cells, advantages of fuel cells.

UNIT - II:
**Polymers:**

UNIT - III:
**Energy sources:**

UNIT - IV:
**Water Technology:**

UNIT - V:
**Photochemistry:**
Nanochemistry:

TEXT BOOKS:

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

UNIT - II:
Stacks-Operations, array and linked representations of stacks, stack applications-infix to postfix conversion, postfix expression evaluation, recursion implementation. Queues-operations, array and linked representations. Circular Queue operations, Dequeue, applications of queue.

UNIT - III:

UNIT - IV:

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

TEXT BOOKS:
2. Data Structures Using C (Paperback) by Aaron M. Tenenbaum

REFERENCE BOOKS:
PROFESSIONAL ETHICS
(Common to ECE, EEE, CSE, IT, ECM)

UNIT - I:
Basic Concepts
Introduction, terminology, stakeholders, governing edicts, contextual aspects, ethical dilemmas, life skills, emotional intelligence, Indian and western thoughts on ethics, value education, dimensions of ethics, setting goals in life, importance of morality and ethics, basic ethical principles, moral development theories, classification of ethical theories, some basic theories, moral issues, moral dilemmas autonomy.

UNIT - II:
Professional and Professionalism
Introduction, meaning of profession, professionals, professionalism, professional association, professional’s roles and professional risks, professional accountability, successful professional, ethics and profession, engineering profession, engineering as social experimentation, engineering professionals, engineering ethics, roles of engineers, balanced outlook on law, rights and responsibilities as citizens, professional responsibilities, professional rights.

UNIT - III:
Global issues and Safety
Introduction, current scenario, business ethics, environmental ethics, computer ethics, media ethics, war ethics, bio-ethics, research ethics, intellectual property right, safety and risk, assessment of risk, risk and cost, engineers responsibility for safety, risk benefit, analysis, risk cause and management, case studies, providing for safe exit, ethical issues of safety.

UNIT - IV:
Ethical codes and audits
Introduction, need for ethical codes, sample codes, corporate codes, limitations of the codes, need for ethical audit, ethical profile of organizations, ethical standards and bench marketing, audit brief, ethical auditors, procedure for ethical audit, ethical audit report, examples.

UNIT - V:
Human values and ethical living
Introduction, terminology, domains of learning, human values, attitudes, values, attitudes and professionals, needs of life, harmony in life, what is ethical living, case studies.

TEXT BOOKS:
REFERENCE BOOKS:

UNIT - I:
Solution of Algebraic and Transcendental Equations

Interpolation:

UNIT - II:
Solution for linear systems

UNIT - III:
Vector Spaces & Linear Transformations

UNIT - IV:
Eigen Values & Eigen Vectors

UNIT - V:
Numerical Differentiation & Numerical solution of IVP’s in ODE
Numerical Differentiation:
Derivatives using Forward, Backward & central difference formulae.
Numerical solution of IVP’s in ODE:

TEXT BOOKS:

REFERENCE BOOKS:
2. Engineering Mathematics-I by T.K.V. Iyengar & B.Krishna Gandhi & Others, S.Chand
EXPERIMENT - I:
Write a C program that uses functions to perform the following operations on singly linked list:
I) Creation II) Insertion III) Deletion IV) Traversal V) merge two single linked lists.

EXPERIMENT - II:
Write a C program that uses functions to perform the following operations on doubly linked list.

EXPERIMENT - III:
Write a C program that uses functions to perform the following operations on circular linked list:

EXPERIMENT - IV:
Write C programs that implement stack operations using
I) Arrays II) Linked Lists.

EXPERIMENT - V:
I) Write a program to convert infix expression to postfix expression using stack.
II) Write a program to evaluate postfix expression.

EXPERIMENT - VI:
I) Programs using recursion.
II) Write a program to convert infix expression to prefix expression using stack.

EXPERIMENT - VII:
Write a program to implement Linear queue using
I) Arrays II) Linked Lists.

EXPERIMENT - VIII:
Write a program to perform following operations on a circular Queue
I) insertions II) deletions III) search and count.

EXPERIMENT - IX:
Write a program to perform following operations on a circular DeQueue
I) insertions II) deletions III) search and count.

EXPERIMENT - X:
I) Write a program to implement Linear search
II) Write a program to implement Binary Search.
EXPERIMENT - XI:
Write C programs that implement the following sorting methods to sort a given list of integers in ascending order:
I) Bubble sort II) Selection sort III) Insertion Sort

EXPERIMENT - XII:
Write C programs that implement the following sorting methods to sort a given list of integers in ascending order:
I) Merge sort II) Quick sort

EXPERIMENT - XIII:
Implementation of a binary tree representation using
I) Arrays II) Linked Lists

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

TEXT BOOKS:
2. Data Structures Using C (Paperback) by Aaron M. Tenenbaum

REFERENCE BOOKS:
3. C Programming & Data Structures, E. Balagurusamy, TMH.
J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS

B.Tech. IT  L  T-P-D  C
I Year - II Semester  0  0-3-0  2

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

Introduction:
- Laboratory safety and precautions.
- Preparation of solution.
- Determination of unknown concentration of given solutions and calculations.

Titrimetry:
1. Estimation of hardness of water by EDTA method.

Mineral Analysis:
2. Determination of percentage purity of pyrolusite.

Instrumental Methods:
3. Conductometric titration of 
a) strong acid Vs strong base
   b) Weak acid vs strong base
   c) Mixture of acids vs strong base
4. Effect of dilution on conductance for
   i) Strong acids, ii) weak acids and iii) Ionic salts.
5. Determination of ferrous iron in cement by colorimetric method
6. Estimation of Copper by Colorimetric method.

Physical Properties:
7. Determination of viscosity of sample oil by Oswald’s viscometer

Preparations:

Demonstration Experiments:
10. Preparation of Thiokol rubber.

TEXT BOOKS:
2. Inorganic quantitative analysis, Vogel.

REFERENCE BOOKS:
1. Text Book of engineering chemistry by R. N. Goyal and Harrmendra Goel.
IT WORKSHOP
(Common to ECE,EEE,CSE,IT,ECM)

EXPERIMENT-I: Familiarizing with Computer Hardware
Identify the peripherals of a computer, components in a CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral and submit to your instructor.

EXPERIMENT-II: PC Assembly
Every student should disassemble and assemble the PC back to working condition. Also students need to go through the video which shows the process of assembling a PC. A video would be given as part of the course content.

EXPERIMENT-III: Installation of Windows
Every student should individually install MS windows on the personal computer.

EXPERIMENT-IV: Installation of Linux
Every student should install Linux on the computer. This computer should have windows installed. The system should be configured as dual boot with both windows and Linux.

EXPERIMENT-V: Hardware Troubleshooting:
Students have to be given a PC which does not boot due to improper assembly or defective peripherals. They should identify the problem and fix it to get the computer back to working condition.

EXPERIMENT-VI: Software Troubleshooting:
Students have to be given a malfunctioning CPU due to system software problems. They should identify the problem and fix it to get the computer back to working condition.

EXPERIMENT-VII: Networking Concepts
Orientation & Connectivity Boot Camp: Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Surfing the Web: Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop up blockers. Also, plug-ins like Macromedia Flash and JRE for applets should be configured.
EXPERIMENT-VIII: Internet and Search Engines
Search Engines & Netiquette: Students should know what search engines are and how to use the search engines. A few topics would be given to the students for which they need to search on Google / yahoo / Bing. Cyber Hygiene: Students would be exposed to the various threats on the internet and would be asked to configure their computer to be safe on the internet. They need to first install antivirus software, configure their personal firewall and windows update on their computer. Then they need to customize their browsers to block pop ups, block active x downloads to avoid viruses and / or worms.

EXPERIMENT-IX: Word Processor
The mentor needs to give an overview of Microsoft (MS) office / Libre Office tool - Overview of toolbars, saving files, Using help and resources, rulers, format painter. Overview of formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option, Inserting Table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check, Track Changes. Overview of Creating a Table of Content, Newspaper columns, Images from files and clipart. Drawing toolbar and Word Art, Formatting Images, Textboxes, Paragraphs and Mail Merge in word.

EXPERIMENT-X: Spread Sheet
The mentor needs to tell the importance of MS Excel / Libre office Calc tool - teach toolbars, saving excel files, Using help and resources. Create employee payroll using functions. Other features to be covered are Cell Referencing, Charts, Renaming and Inserting worksheets, Hyper linking, LOOKUP/VLOOKUP, Sorting, Conditional formatting.

EXPERIMENT-XI: Presentation
The mentor needs to give overview of MS Power Point / Libre office Impress tool – to create basic power point presentation. PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows. Students need to create a PPT and present it.

EXPERIMENT-XII: Virtual Box Installation
Installing multiple operating systems on your PC using (virtual box) / hyper-v / VM Ware
PROBABILITY AND STATISTICS
(Common to ECE,EEE,CSE,IT,ECM,MIE)

UNIT - I:
Probability
Distributions
Binomial, Poisson & normal distributions related properties. Sampling distributions –Sampling
distribution of means (σ known and Unknown).

UNIT - II:
Testing of Hypothesis
Testing of Hypothesis I: Tests of hypothesis point estimations – interval estimations. Large
samples, Null hypothesis - Alternate hypothesis type I, & type II errors – critical region,
confidence interval for mean testing of single variance. Difference between the mean.
Testing of Hypothesis II: Confidence interval for the proportions. Tests of hypothesis for
proportions single and difference between the proportions.

UNIT - III:
Small samples
Confidence interval for the t- distribution – Tests of hypothesis – t - distributions,
F- distributions, χ² distribution. Test of Hypothesis.

UNIT - IV:
Correlation & Regression: Coefficient of correlation – Regression Coefficient – The lines of
regression – The rank correlation
Curve Fitting: Fitting of straight-second degree curve- exponential curve-power curve by
method of Least squares.

UNIT - V:
Queuing Theory: Arrival Theorem - Pure Birth process and Death Process M/M/1 Model.
Preliminary adjustments before analyzing time series. Measurement of trend by the method of
least squares, method of moments.

TEXT BOOKS:

REFERENCE BOOKS:
2. Engineering Mathematics-I by T.K.V. Iyanaar & B.Krishna Gandhi & Others, S.Chand
MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE
(Common for CSE, IT)

UNIT - I:
Mathematical Logic

UNIT - II:
Relations
Properties of Binary Relations, equivalence, transitive closure, compatibility and partial ordering relations, Lattices, Hasse diagram. Functions: Inverse Function Composition of functions, recursive Functions, Lattice and its Properties, Algebraic structures: Algebraic systems Examples and general properties, Semi groups and monads, groups sub groups’ homomorphism, Isomorphism.

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

UNIT - IV:
Recurrence Relation
Generating Functions, Function of Sequences Calculating Coefficient of generating function, Recurrence relations, solving recurrence relation by substitution and Generating funds. Characteristics roots solution of In homogeneous Recurrence Relation.

UNIT - V:
Graph Theory
Representation of Graph, 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:
REFERENCE BOOKS:


UNIT - I:

UNIT - II:
Overview Of Java Language: Java History – Features of java, java Programming Structure, Java Tokens, Constants, Variables, Expressions, Overview of arrays and strings, Concept of Classes, objects, accessing class members, constructors, overloading of methods and constructors, This, static members, String Buffer class, Wrapper classes, Command Line Arguments.

UNIT - III:
Inheritance and Interfaces: Defining a sub class, inheritance types, sub class constructor, Final, super, Runtime polymorphism in java, runtime polymorphism using virtual functions in C++. Abstract methods and classes, visibility control, Defining Interfaces, extending interfaces, implementing interfaces.
Packages: Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, Exploring java.io, java.util.

UNIT - IV:
Exception Handling and Multithreaded Programming: Types of errors- Compile time and Run time errors, Exceptions, Types of Exceptions, Syntax of Exception handling code, Multiple catch statements, Using finally statement, Throwing our own exceptions.
Introduction to threads: Creating Threads, life cycle of a thread, Thread priority, synchronization, and daemon Threads.

UNIT - V:
Applet Programming: Introduction, how applet differ from applications, building applet code, applet life cycle, passing parameters to applets.
Event Handling: Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes.
TEXT BOOKS:
1. Object Oriented Programming with C++, 6e, E Balagurusamy, Tata McGraw-Hill Education.
2. Java: the complete reference, 7th edition, Herbert schildt, TMH.

REFERENCE BOOKS:
3. Object Oriented Programming with JAVA, 4e, E Balagurusamy, Tata McGraw-Hill Education.
UNIT - I:
Ecosystems & Natural Resources, Biodiversity: Classification of Resources: Living and Non-Living resources, Renewable and Non-Renewable resources. Water resources: use and over utilization, Land resources, land degradation, Forest resources, Mineral resources uses & Exploitation Energy resources: growing energy needs, use of alternate energy sources. Concept of ecosystem, Classification of ecosystem, Functions of ecosystem, Food chains, Food webs and ecological pyramids, Flow of energy, Biogeochemical cycles, Biomagnifications, carrying capacity.

UNIT - II:
Species, Ecosystem Diversity, Hotspots, Value Of Biodiversity, Threats To Biodiversity, Conservation Of Biodiversity: In-Situ And Ex-Situ Conservation & Environmental Pollution And Control: Classification of pollutions and pollutants, causes, effects of water, air, noise pollution, Introduction to control technologies: Water (primary, secondary, tertiary), Air(particulate and gaseous emissions), Soil(conservation and remediation), Noise(controlling devices) Solid waste, (Municipal) types, collection and disposal methods, characteristics of e-waste & hazardous waste, biomedical waste management. Biological disasters, pandemic and epidemics, Biological warfare.

UNIT - III:

UNIT - IV:
Environmental Impact Assessment (Eia) And Environmental Management Plan: definition of Impact, classification of impacts, methods of baseline data acquisition. Impacts on different components: such as human health resources, air, water, flora, fauna and society, EIA guide lines as per ministry of environment & forest, impact assessment methodologies. Environmental Impact Statement (EIS). Environmental management plan (EMP).

UNIT - V:
Environmental Policy, Legislation, Rules And Regulations & Towards Sustainable Future: Concept of Sustainable Development, Threats to Sustainability, Strategies for achieving Sustainable development, Environmental Ethics, Environmental Economics, Concept of Green Computing, Green chemistry and low Carbon life styles.: National Environmental Policy,

TEXT BOOKS:
1. **TEXT BOOK OF ENVIRONMENTAL Science and Technology** by M.Anji Reddy 2007
2. **Principles of Environmental Science and Engineering** by P.Venugopal Rao

REFERENCE BOOKS:
1. **Introduction to Environmental Studies** by K.Mukkanti
2. **Tata McgrawHill**: Introduction to Environmental Studies by Benny Joseph
3. **Environmental Studies** by Erach Bharucha 2005, University Grants Commission, University Press.
BASIC ELECTRICAL ENGINEERING
(Common to CSE, IT, MIE)

UNIT - I:
Introduction to Electrical Circuits: ohm’s law, basic circuit components, Kirchhoff’s laws. Simple problems.
Network Analysis: Basic definitions, types of elements, types of sources, resistive networks, inductive networks, capacitive networks, series parallel circuits, star delta and delta star transformation. Network theorems- Superposition, Reciprocity Thevenins”s, Norton’s, Maximum power transfer theorems and simple problems.

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

UNIT - III:
D.C Generators and D.C motors:
Principle of operation of dc machines, types of D.C generators, e.m.f equation in D.C generator. Principle of operation of dc motors, types of D.C motors, losses and torque equation, losses and efficiency calculation in D.C generator.

UNIT - IV:
A.C. Machines :
Transformer- Principles of operation, Constructional Details, Ideal Transformer and Practical Transformer, Losses, Transformer Test, Efficiency and Regulation Calculations (All the above topics are only elementary treatment and simple problems). Three phase induction motor, principle of operation, slip and rotor frequency, torque (simple problems).

UNIT - V:
Basic Instruments:
Introduction, classification of instruments, operating principles, essential features of measuring instruments, Moving coil permanent magnet (PMMC) instruments, Moving Iron of Ammeters And Voltmeters (elementary Treatment only) Single phase dynamo wattmeter.

TEXT BOOKS:
2. Basic Electrical Engineering - by M.S.Naidu and S. Kamakshiah – TMH.
REFERENCE BOOKS:

1. **Basic Electrical Engineering** - by T.K.Nagasarkar and M.S. Sukhija Oxford University Press.

2. **Electrical and Electronic Technology** - by Hughes – Pearson Education.

UNIT - I:
P-N Junction Diode
Qualitative Theory of p-n Junction, p-n Junction as a Diode, Diode Equation, Volt-Ampere Characteristics, Temperature dependence of VI characteristic, Ideal versus Practical – Resistance levels (Static and Dynamic), Transition and Diffusion Capacitances, Diode Equivalent Circuits, Load Line Analysis, Breakdown Mechanisms in Semiconductor Diodes, Zener Diode Characteristics.

UNIT - II:
Special Purpose Electronic Devices
Principle of Operation and Characteristics of Tunnel Diode (with the help of Energy Band Diagram) and Varactor Diode, Principle of Operation of Schottky Barrier Diode, SCR, and Semiconductor Photo Diode. Introduction to UJT and UJT characteristics
Diode Applications: The p-n junction as a Rectifier, Half wave Rectifier, Full wave Rectifier, Bridge Rectifier, Harmonic components in a Rectifier Circuit, Inductor Filters, Capacitor Filters, L- Section Filters, π- Section Filters, Comparison of Filters, Voltage Regulation using Zener Diode.

UNIT - III:
Bipolar Junction Transistor

UNIT - IV:
Small Signal Low Frequency BJT Models
BJT Hybrid Model for CE, CB and CC Configuration, simplified H-parameter model Determination of h-parameters from Transistor Characteristics, Comparison of CB, CE, and CC Amplifier Configurations, Conversion of h-parameters CE to CB, CE to CC, vice versa.

UNIT - V:
Field Effect Transistor
The Junction Field Effect Transistor (Construction, principle of operation, symbol) – Pinch-off Voltage - Volt-Ampere characteristics, Biasing of FET, FET as Voltage Variable Resistor, Comparison of BJT and FET. The JFET Small Signal Model, Generalized FET amplifier,
common source Amplifier, common Gate Amplifier and common Drain Amplifier.

**MOSFET:** MOSFET (Construction, principle of operation, symbol), MOSFET Characteristics in Enhancement and Depletion modes.

**TEXT BOOKS:**

**REFERENCE BOOKS:**
ELECTRONIC DEVICES AND CIRCUITS LAB
(Common to ECE, EEE, CSE, IT, ECM)

PART A: (Only for Viva-voce Examination)

ELECTRONIC WORKSHOP PRACTICE (in 3 lab sessions):

1. Identification, Specifications, Testing of R, L, C Components (Color Codes),
   Potentiometers, Switches (SPDT, DPDT, and DIP), Coils, Gang Condensers, Relays,
   Bread Boards, PCB's.
2. Identification, Specifications and Testing of Active Devices, Diodes, BJT's,
   Low power JFET’s, MOSFET’s, Power Transistors, LED’s, LCD’s, SCR, UJT.
3. Study and operation of
   - Multimeters (Analog and Digital).
   - Function Generator.
   - Regulated Power Supplies.

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

1. Forward & Reverse Bias Characteristics of PN Junction Diode.
2. Zener diode characteristics and Zener as voltage Regulator.
3. Input & Output Characteristics of Transistor in CB Configuration.
4. Input & Output Characteristics of Transistor in CE Configuration.
5. Half Wave Rectifier with & without filters.
6. Full Wave Rectifier with & without filters.
7. FET characteristics.
11. Frequency Response of Common Source FET amplifier
12. SCR characteristics.
13. UJT Characteristics
PART C:

Equipment required for Laboratories:

1. Regulated Power supplies (RPS) - 0-30 V
2. CRO’s - 0-20 MHz.
3. Function Generators - 0-1 MHz.
4. Multimeters
5. Decade Resistance Boxes/Rheostats
6. Decade Capacitance Boxes
7. Ammeters (Analog or Digital) - 0-20 µA, 0-50µA, 0-100µA, 0-200µA, 0-10 mA.
8. Voltmeters (Analog or Digital) - 0-50V, 0-100V, 0-250V
9. Electronic Components - Resistors, Capacitors, BJTs, LCDs, SCRs, UJTs, FETs, LEDs, MOSFETs, diodes Ge& Si type, Transistors – npn,pnp type).
Any Ten of the experiments are required to be conducted as compulsory experiments:

1. Verification of Thevenin’s and Norton’s theorem.
2. Verification of Maximum power transfer theorem.
3. Verification of Superposition & Reciprocity theorem.
5. Brake test on D.C. Shunt motor
6. Speed control of D.C. Shunt motor by
   a). Armature voltage control  b). Field control
7. O.C. & S.C.Test on 1-Φ transformer
9. Load test on DC series Generator.
10. Open circuit characteristics of DC shunt generator.
EXPERIMENT - I:
   a) Write a C++ program implement the concept of Class and Object.
   b) Write a C++ program to find the Fibonacci sequence The first two values in the Sequence is 1 and 1.

EXPERIMENT - II:
   a) Write a C++ program to implement method overloading and constructor overloading.
   b) Write a C++ program to implement Friend function.

EXPERIMENT - III:
   a) Write a C++ program to implement the concept of operator overloading(Unary and Binary operators).
   b) Write a C++ program to implement the concept of types of Inheritance.

EXPERIMENT - IV:
   a) Write a C++ program to implement the concept of Runtime polymorphism using virtual function.
   b) Write a C++ program to implement the concept of Class and Function Template.

EXPERIMENT - V:
   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) Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.

EXPERIMENT - VI:
   a) Write a Java program that prompts the user for an integer and then prints out all 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.

EXPERIMENT - VII:
   a) Write a java program to implement concept of implementing Interfaces and Extending Interface.
   b) Write a java program to create user defined package and import it.

EXPERIMENT - VIII:
   a) Write a program to implement Exception Handling Mechanism in C++ and Java.
   b) Write a java program to create User defined Exception.
EXPERIMENT - IX:
   a) Write a java program to create Multiple threads using Thread Class and Runnable Interface.
   b) Write a java program to implement the concept of Thread Priorities.

EXPERIMENT - X:
   a) Develop an applet that displays a simple message.
   b) Write a java program to Handle Mouse and Keyboard Events.

EXPERIMENT - XI:
   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.

EXPERIMENT - XII:
   a) Write a java program to create an abstract class named Shape that contains an empty method named number Of Sides (). Provide three classes named trapezoid, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method number Of Sides () 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 table component.

TEXT BOOKS:
   1. Object Oriented Programming with C++, 6e, E Balagurusamy, Tata McGraw-Hill Education.
   2. Java: the complete reference, 7th edition, Herbert schildt, TMH.

REFERENCE BOOKS:
UNIT - I:
Basic Structure of Computers

UNIT - II:
Digital Logic Circuits - I

UNIT - III:
Computer Arithmetic
Algorithms for fixed point and floating point addition, subtraction, multiplication and division operations. Hardware Implementation of arithmetic and logic operations, High performance arithmetic. Instruction Set & Addressing: Memory Locations and Addresses, Machine addresses and sequencing, Various Addressing Modes, Instruction Formats, Basic Machine Instructions. IA-32 Pentium example.

UNIT - IV:
Processor Organization
Introduction to CPU, Register Transfers, Execution of Instructions, Multiple Bus Organization, Hardwired Control, Micro programmed Control Memory Organization: Concept of Memory, RAM, ROM memories, memory hierarchy, cache memories, virtual memory, secondary storage, memory management requirements.

UNIT - V:
Input / Output Organization
Introduction to I/O, Interrupts- Hardware, Enabling and disabling Interrupts, Device Control, Direct memory access, buses, interface circuits, standard I/O Interfaces.
TEXT BOOKS:

REFERENCE BOOKS:
UNIT - I:

ER diagrams – Beyond ER Design Entities, Attributes and Entity sets – Relationships and Relationship sets – Additional features of ER Model – Concept Design with the ER Model

UNIT - II:
Introduction to the Relational Model
-Integrity Constraint Over relations – Enforcing Integrity constraints – Querying relational data – Logical data base Design – Introduction to Views – Destroying /altering Tables and Views.

Relational Algebra

UNIT - III:
Form of Basic SQL Query
-Examples of Basic SQL Queries – Introduction to Nested Queries – Correlated Nested Queries Set – Comparison Operators – Aggregative Operators – NULL values – Comparison using Null values – Logical connectivity”s – AND, OR and NOT – Impact on SQL Constructs – Outer Joins – Disallowing NULL values – Complex Integrity Constraints in SQL Triggers and Active Data bases.

Schema refinement

UNIT - IV:
Transaction Concept

Recovery and Atomicity
-Log – Based Recovery – Recovery with Concurrent Transactions – Buffer Management –
Failure with loss of nonvolatile storage-Advance Recovery systems- Remote Backup systems.

**UNIT - V:**

**Data on External Storage**

**Advanced Database Management System**
Introduction to Distributed Database-Reference Architecture, fragmentation, Allocation, Joins

**TEXT BOOKS:**

**REFERENCE BOOKS:**
3. *Introduction to Database Systems*, C.J.Date Pearson Education.
J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS

B.Tech. IT

II Year - II Semester

OOPS THROUGH PYTHON
(Common to CSE, IT)

UNIT - I:
Programming paradigms; Structured programming vs object oriented programming, OOPs fundamentals- class, object, abstraction, encapsulation, polymorphism, and inheritance; Introduction to Python Getting started to Python- an interpreted high level language, interactive mode and script mode. Variables, Expressions and Statements Values and types, Variables and keywords, statements, evaluating expressions, operators and operands, order of operations, composition. Functions function calls, type conversion, type coercion, pre-defined functions, composition, user define functions, flow of execution, passing parameters, function parameters and scope. Conditionals and recursion modulus operator, Boolean expression, logical operators, conditional execution, alternative execution, chained and nested conditionals, return statement; Recursion, infinite recursion.

UNIT - II:
Python data structures Strings Creating, initializing and accessing the elements; String operators, comparing strings using relational operators; String functions and methods. Lists: Concept of mutable lists, creating, initializing and accessing the elements, traversing, appending, updating and deleting elements; List operations; List functions and Methods, list parameters, nested lists, Matrices.

Dictionaries
Concept of key-value pair, creating, initializing and accessing the elements in a dictionary, dictionary operations traversing, appending, updating and deleting elements, Dictionary functions and methods.

Tuples
Mutability and tuples, Immutable concept, creating, initializing and accessing the elements in a tuple, Tuple functions.

UNIT - III:
Object oriented programming using Python: creating python classes, classes and objects: user defined compound types, attributes, instances as arguments, instances as return values, objects are mutable, copying; classes and functions: pure function, modifiers; Exceptions: raising exceptions, handling exceptions, exception hierarchy.

UNIT - IV:

UNIT - V:
Files handling and Exceptions: Text files, writing variables, Directories, Pickling; Database Programming in Python: Connection module, connect MySQL Data base, perform DDL, DML and DQL operations.
TEXT BOOKS:

REFERENCE BOOKS:
OPERATING SYSTEMS
(Common to CSE, IT, ECM)

UNIT - I:

UNIT - II:
Concurrency: Process Synchronization, 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, Page-Table Structure, Segmentation, Virtual Memory, Demand Paging, Page-Replacement Algorithms, Frames Allocation, Thrashing.

UNIT - III:

UNIT - IV:

UNIT - V:

TEXT BOOKS:

REFERENCE BOOKS:
2. Operating System A Design Approach-Crowley, TMH.
UNIT - I:
Introduction

UNIT - II:
Divide and Conquer
General Method, Applications: Binary Search, Quick Sort, Merge Sort, Stassen’s Matrix Multiplication.
Greedy Method
General Method Applications: Job Sequencing with Deadlines, 0/1 Knapsack Problem, Minimum Cost Spanning Trees: Prim’s and Kruskal’s Algorithms, 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: Nqueen Problem, Recursive Permutation Generator, 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:

**REFERENCE BOOKS:**


OOPS THROUGH PYTHON LAB
(Common to CSE,IT)

EXPERIMENT - I:
1. Write a python program to obtain user input data (int, float, string) and display.
2. Write a python program to find the roots of a quadratic equation
3. Write a python program to perform arithmetic operations (+, -, *, /, %) for given input values and printout the result values.

EXPERIMENT - II:
1. Write a python programs that use both recursive and non-recursive functions to find the factorial of a given integer
2. Operators and Operands in Python: (Arithmetic, relational and logical operators), operator precedence, Expressions and Statements.
3. (Assignment statement); Taking input (using raw input () and input ()) and displaying output (print statement); Putting Comments.

EXPERIMENT - III:
1. Write python programs to perform operation on Strings using following functions: len, capitalize, find, isalnum, isalpha, isdigit, lower, islower, isupper, upper, lstrip, rstrip, isspace, istitle, partition, replace, join, split, count, decode, encode, swapcase.
2. Enter the details of 5 students and display the details sequentially.

EXPERIMENT - IV:
1. Write python programs to perform List operators: (joining, list slices)
2. Write python programs to perform List functions: len, insert, append, extend, sort, remove, and reverse, pop.
3. Write python programs to check whether the string is palindrome or not?

EXPERIMENT - V:
1. Write python programs to perform Tuple functions: cmp(), len(), max(), min(), tuple()
2. Write python programs to check whether the word is present in the tuple or not?
3. Write python programs to Take a string as (“1234567890”) and create a pair {(1,2),(3,4),(5,6),(7,8),(9,0)} using tuple.

EXPERIMENT - VI:
1. Write python programs to perform Dictionary functions & Methods: cmp, len, clear(), get(), has_key(), items(), keys(), update(), values() .
2. Write python programs to Create a list of animal using dictionary variable “animal” and find out if the specific animal present in the list or not?
EXPERIMENT - VII:
1. Write a python program to create a class, its objects and accessing attributes.
2. Create a Customer class and check the balance and withdraw and deposit some amount.

EXPERIMENT - VIII:
Write a python script to implement exception handling.
1. Check whether the input no is integer or not.
2. Handel the exceptions that are come at the time of division.

EXPERIMENT - IX:
Write a python script to perform inheritance.

EXPERIMENT - X:
Write a python script to perform various FILE handling operations.
Open, close, read, write, copy.

EXPERIMENT - XI:
1. Write a python script to connect to the database and perform DDL operations.
2. Create table, insert data into table and display the table data.

EXPERIMENT - XII:
Write a python script to connect to the database and perform various DML and DQL operations.

REFERENCE BOOKS:
OPERATING SYSTEMS LAB
(Common to CSE, IT, ECM)

1. Simulate the following CPU scheduling algorithms
   a) Round Robin  
   b) SJF.

2. Simulate the following CPU Scheduling algorithms
   a) FCFS  
   b) Priority.

3. Simulate all file allocation strategies.
   a) Sequential  
   b) Indexed  
   c) Linked.

4. Simulate MVT and MFT.

5. Simulate the following File Organization Techniques
   a) Single level directory  
   b) Two level.

6. Simulate the following File Organization Techniques
   a) Hierarchical  
   b) DAG.

7. Simulate Disk scheduling algorithms
   a) FCFS  
   b) SSTF  
   c) SCAN  
   d) C-SCAN  
   e) LOOK.

8. Simulate Bankers Algorithm for Dead Lock Avoidance.


10. Simulate all page replacement algorithms
    a) FIFO  
    b) LRU  
    c) LFU Etc. …

11. Simulate Paging Technique of memory management.

12. Simulate on Allocation of Frames.
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.
5. Creating the database.
6. Querying. Students are supposed to work on these steps EXPERIMENT wise and finally create a complete "Database System" to Roadway Travels.

Examples are given at every experiment for guidance to students.

Experiment - I:
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.

Example: Entities:
1. BUS.
2. Ticket.
3. Passenger.
Relationships:

1. Reservation.
2. Cancellation.

PRIMARY KEY ATTRIBUTES:

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

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

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

Experiment - II:
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.

Example:
E-R diagram for bus

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

Experiment - III:
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.

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Address</th>
<th>Passport ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ticket_id</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**Experiment - IV:**

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

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

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

**Passenger**

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Address</th>
<th>Passport ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passport ID</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Passport ID</th>
<th>Ticket_id</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
You can do the second and third normal forms if required. Any how Normalized tables are given at the end.

**Experiment - V:**

**Installation of Mysql and Practicing DDL and DML commands**

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

Example for creation of a normalized “Passenger” table.

```
CREATE TABLE Passenger (Passport_id INTEGER PRIMARY KEY,
   Name VARCHAR (50) Not NULL,
   Age Integer Not NULL,
   Sex Char,
   Address VARCHAR (50) Not NULL);
```

Similarly create all other tables.

**Note: Detailed creation of tables is given at the end.**

Insert data into the above tables.

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

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

**Inserting values into “Bus” table**

Insert into Bus values (1234,'hyderabad', ‘tirupathi’);
Insert into Bus values (2345,'hyderabd','Banglore');
Insert into Bus values (23,'hyderabd','Kolkata');
Insert into Bus values (45,'Tirupathi','Banglore');
Insert into Bus values (34,'hyderabd','Chennai');

**Inserting values into “Passenger” table:**

Insert into Passenger values (1, 45,'ramesh', 45,'M’, ’abc123’);
Insert into Passenger values (2, 78,’geetha’, 36,’F’,’abc124’);
Insert into Passenger values (45, 90,’ram’, 30,’M’,’abc12’);
Insert into Passenger values (67, 89,’ravi’, 50,’M’,’abc14’);
Insert into Passenger values (56, 22,’seetha’, 32,’F’,’abc55’);
Few more Examples of DML commands

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

Experiment 6: Querying
In this EXPERIMENT 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 ‘r’ 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 - VII: Querying (continued...)
You are going to practice queries using Aggregate functions (COUNT, SUM, AVG, and MAX and MIN),

GROUP BY, HAVING and Creation and dropping of Views.

1. Write a Query to display the Information present in the Passenger and cancellation tables.
   Hint: Use UNION Operator.
2. Display the number of days in a EXPERIMENT on which the 9W01 bus is available.
3. Find number of tickets booked for each PNR_no using GROUP BY CLAUSE.
   Hint: Use GROUP BY on PNR_No.
4. Find the distinct PNR numbers that are present.
5. Find the number of tickets booked by a passenger where the number of seats is greater than 1.
   Hint: Use GROUP BY, WHERE and HAVING CLAUSES.
6. Find the total number of cancelled seats.
7. Display the details of passengers who travelled within the last 3 months.
8. Create a view for the details of passengers who cancelled their tickets.

Experiment - VIII:  

Experiment - IX: 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 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 start with the letter “p”.
14. Display all the teachers whose names contain letter ‘a’ or ‘I’ in their names.

Experiment - X: 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 - XI: Cursors

In this EXPERIMENT 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 new level table.
3. Write a cursor program to display the details of Senior Level students.

Experiment - XII: 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.

Eg: CREATE PROCEDURE myProc()
BEGIN
SELECT COUNT(Tickets) FROM Ticket WHERE age>=40;
End;
Experiment - XIII: Triggers

In this EXPERIMENT you are going to work on Triggers. Creation of insert trigger, delete trigger, update trigger. Practice triggers using the above database.

Eg: CREATE TRIGGER updcheck BEFORE UPDATE ON passenger
    FOR EACH ROW
    BEGIN
    IF NEW.TickentNO > 60 THEN
    SET New.Tickent no = Ticket no;
    ELSESET New.Ticketno = 0;
    END IF;
    END;

REFERENCE BOOKS:
1. Introduction to SQL,Rick F.Vander Lans,Pearson education.
2. Oracle PL/SQL Programming,Steven Feuerstein,SPD.
3. SQL & PL/SQL for Oracle 10g,Black Book, Dr.P.S.Deshpande,Dream Tech.
UNIT - I:
Gender: Why should we study it?.
Socialization: Making women, Making Men, Introduction, Preparing For Womanhood, Growing up male, First lessons in caste, Different masculinities.

UNIT - II:
Housework: The Invisible Labour
“My mother does not work”, “Share the load”, Missing Women: Sex Selection and Its Consequences, Declining sex ratio, Demographic consequences, Point of view, Gender and the structure of knowledge, Further reading: Unacknowledged women artists of Telangana, Sexual Harassment: Say No! Sexual harassment, not eve-teasing, Coping with everyday harassment, Further reading. “Chupulu”.

UNIT - III:
Women’s Work: Its Politics and Economics,
Fact and fiction, Unrecognized and unaccounted work, Further reading: Wages and conditions of work, Domestic Violence: Speaking Out, Is home a safe place? When women unite [Film], Rebuilding lives, Further reading: New forums for justice.

UNIT - IV:
Whose History? Questions for Historians and Others,
Reclaiming a past, Writing other histories, further reading: Missing pages from modern Telangana history, Gender Spectrum: Beyond the Binary, Two or many?, Struggles with discrimination, Thinking about Sexual Violence, Blaming the victim, “I fought for my life…”, Further reading: The caste face of violence.

UNIT - V:
Just Relationships: Being Together as Equals, Mary kom and Onler, Love and acid just do not mix, Love letters, Mothers and fathers, Further Reading: Rosa Parks – The brave heart.

TEXT BOOKS:
1. Towards a world of equals by A.Suneetha Susic Tharu publication Telugu academy Hyderabad.
J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS

B.Tech. IT L T-P-D C
III Year - I Semester 3 1-0-0 3

AUTOMATA AND COMPILER DESIGN

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

Context Free grammars and top down parsing: Context free grammars, derivation, parse trees, ambiguity LL(K) grammars and LL(1) parsing.

UNIT - II:
Bottom up parsing: handle pruning LR Grammar Parsing, LALR parsing, parsing ambiguous grammars, YACC programming specification.


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

UNIT - IV:
Run time storage: Storage organization, storage allocation strategies scope access to now local names, parameters, language facilities for dynamics storage allocation.

Code optimization: Principal sources of optimization, optimization of basic blocks, peephole optimization, flow graphs, Data flow analysis of flow graphs.

UNIT - V:

TEXT BOOKS:

REFERENCE BOOKS:
2. Compiler Construction, LOUDEN, Thomson.
UNIT - I:
Introduction to Intellectual property: Introduction, types of intellectual property, international organizations, agencies and treaties, importance of intellectual property rights.

UNIT - II:
Trade Marks: Purpose and function of trade marks, acquisition of trade mark rights, protectable matter, selecting and evaluating trade mark, trade mark registration processes.

UNIT - III:
Law of copy rights: Fundamental of copy right law, originality of material, rights of reproduction, rights to perform the work publicly, copy right ownership issues, copy right registration, notice of copy right, international copy right law.
Law of patents: Foundation of patent law, patent searching process, ownership rights and transfer

UNIT - IV:
Trade Secrets: Trade secrete law, determination of trade secrete status, liability for misappropriations of trade secrets, protection for submission, trade secrete litigation.
Unfair competition: Misappropriation right of publicity, False advertising.

UNIT - V:
New development of intellectual property: new developments in trade mark law; copy right law, patent law, intellectual property audits.
International overview on intellectual property, international - trade mark law, copy right law, international patent law, international development in trade secrets law.

TEXT BOOKS:
1. Intellectual property right, Deborah, E. Bouchoux, cengage learning.

REFERENCE BOOKS:
DISASTER MANAGEMENT
OPEN ELECTIVE
(Common to CSE, IT, ECM)

UNIT-I:
Introduction to Disasters; Examples; Information Availability, Causes of Information Unavailability, Measuring Information Availability, Consequences of Downtime; Failure Analysis, Single Point of Failure, Fault Tolerance, Multipathing Software.

UNIT-II:

UNIT-III:
Local Replication, Source and Target, Uses of Local Replica, Data Consistency, Local Replication Technologies, Restore and Restart Considerations Creating Multiple Replicas, Management Interface.
Remote Replication: Modes of Remote Replication, Remote Replication Technologies Network Infrastructure.

UNIT-IV:

UNIT-V:

TEXT BOOKS:

REFERENCES:
1. Information Management & Computer Security, Port Elizabeth Technikon, Port Elizabeth, MCB UP Ltd.
2. Information Security Management Systems, Godesberger Allee, BSI.
UNIT – I

UNIT – II

UNIT – III
Replacement: Introduction – Replacement of items that deteriorate with time – when money value is not counted and counted – Replacement of items that fail completely, group replacement Theory Of Games: Introduction – Minimax (maximin) – Criterion and optimal strategy – Solution of games with saddle points – Rectangular games without saddle points – dominance principle – m X 2 & 2 X n games -graphical method..

UNIT – IV
Inventory: Introduction – Single item – Deterministic models – Purchase inventory models with one price break and multiple price breaks – shortages are not allowed – Stochastic models – demand may be discrete variable or continuous variable – Instantaneous production. Instantaneous demand and continuous demand and no set up cost- Single period model

UNIT – V

TEXT BOOKS:
1. Operations Research /J.K.Sharma 4e. /MacMilan

REFERENCES :
2. Operations Research: Methods & Problems / Maurice Saseini, Arhur Yaspan & Lawrence Friedman
3. Introduction to O.R /Taha 8e/PHI
UNIT- I
Introduction to Cyber Law, Evolution of Computer Technology, emergence of Cyber space. Cyber Jurisprudence, Jurisprudence and law, Doctrinal approach, Consensual approach, Real Approach, Cyber Ethics, Cyber Jurisdiction, Hierarchy of courts, Civil and criminal jurisdictions, Cyberspace-Web space, Web hosting and web Development agreement, Legal and Technological Significance of domain Names, Internet as a tool for global access.

UNIT- II

UNIT III
Cyber law and related Legislation: Patent Law, Trademark Law, Copyright, Software – Copyright or Patented, Domain Names and Copyright disputes, Electronic Data Base and its Protection, IT Act and Civil Procedure Code, IT Act and Criminal Procedural Code, Relevant Sections of Indian Evidence Act, Relevant Sections of Bankers Book Evidence Act, Relevant Sections of Indian Penal Code, Relevant Sections of Reserve Bank of India Act, Law Relating To Employees And Internet, Alternative Dispute Resolution, Online Dispute Resolution (ODR).

UNIT IV

UNIT V

TEXT BOOKS:
2. Information Security policy & implementation Issues, NIIT, PHI

REFERENCE BOOKS:
1. Cyber CRIME notorious Aspects of the Humans & net Criminals activity in Cyber World Barna Y Dayal D P Dominant Publisher
2. Cyber Crime Impact in the new millennium, Marine R.C. Author press
3. Spam Attack, Cyber Stalking & abuse, Barna Y, Dayal D P Dominant publisher
UNIT - I:
**Introduction to Software Engineering**: The evolving role of software, Changing Nature of Software, Software myths.

**A Generic view of process**: Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

**Process models**: The waterfall 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.

**System models**: Context Models, Behavioral models, Data models, Object models, structured methods.

UNIT - III:
**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.

**Object-Oriented Design**: Objects and object classes, An Object-Oriented design process, Design evolution.

**Performing User interface design**: Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation.

UNIT - IV:
**Testing Strategies**: A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.

**Product metrics**: Software Quality, 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.

**Risk management**: Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan.

UNIT - V:
TEXT BOOKS:


REFERENCE BOOKS:

3. Fundamentals of Software Engineering, Rajib Mall, PHI, 2005
UNIT - I:

**Overview of the Internet:** Protocol, Layering Scenario, TCP/IP Protocol Suite: The OSI Model, Internet history standards and administration; Comparison of the OSI and TCP/IP reference model.

**Physical Layer:** Guided transmission media, wireless transmission media.

**Data Link Layer** - design issues, CRC codes, Elementary Data Link Layer Protocols, sliding window protocol.

UNIT - II:

**Multi Access Protocols** - ALOHA, CSMA, Collision free protocols, Ethernet- Physical Layer, Ethernet Mac Sub layer, data link layer switching & use of bridges, learning bridges, spanning tree bridges, repeaters, hubs, bridges, switches, routers and gateways.

UNIT - III:

**Network Layer:** Network Layer Design issues, store and forward packet switching connection less and connection oriented networks-routing algorithms-optimality principle, shortest path, flooding, Distance Vector Routing, Control to Infinity Problem, Hierarchical Routing, Congestion control algorithms, admission control.

UNIT - IV:

**Internetworking:** Tunneling, Internetwork Routing, Packet fragmentation, IPv4, IPv6 Protocol, IP addresses, CIDR, IMCP, ARP, RARP, DHCP.

**Transport Layer:** Services provided to the upper layers elements of transport protocol-addressing connection establishment, connection release, Connection Release, Crash Recovery.

UNIT - V:


**Application Layer**- Introduction, providing services, Applications layer paradigms, Client server model, Standard client-server application-HTTP, FTP, electronic mail, TELNET, DNS, SSH.
TEXT BOOKS:


REFERENCES BOOKS:

UNIT - I
Basic Tags of HTML, Introduction HTML5, new HTML5 Form input Types. Cascading Style Sheets.
Introduction to java script: declaring variables, functions, event handlers (onClick , onsubmit etc). Form validation.

UNIT - II

UNIT - III
Introduction to Servlets: Common Gateway Interface (CGI), Lifecycle of a Servlet, Deploying Servlet, Servlet API, Reading Servlet parameters, Reading initialization parameters, handling Http Request & Responses. Session tracking, cookies. Connecting to a database using JDBC.

UNIT - IV

UNIT - V

TEXT BOOKS:

REFERENCE BOOKS:
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

Process – Process concept, Kernel support for process, process attributes, process control - process creation, waiting for a process, process termination, zombie process, orphan process, Process APIs.

UNIT - IV
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.

Interprocess Communication: Introduction to IPC, Pipes and FIFOs, Introduction to three types of IPC-message queues, semaphores and shared memory.

Message Queues- Kernel support for messages, UNIX system V APIs for messages, client/server example.

Semaphores-Kernel support for semaphores, UNIX system V APIs for semaphores.

Shared Memory- Kernel support for shared memory, UNIX system V APIs for shared memory, semaphore and shared memory example.
UNIT -V
Multithreaded Programming: Differences between threads and processes, Thread structure and uses, Threads and Lightweight Processes, POSIX Thread APIs, Creating Threads, Thread Attributes, Thread Synchronization with semaphores and with Mutexes, Example programs.
Sockets: Introduction to Sockets, Socket Addresses, 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.(UNIT III to UNIT VIII)

REFERENCE BOOKS:
2. Linux System Programming, Robert Love, O'Reilly, SPD.
EXPERIMENT I:  
Implement the data link layer framing methods such as character, character stuffing and bit stuffing.

EXPERIMENT II:  
Implement on a data set of characters the three CRC polynomials - CRC 12, CRC 16 and CRC CCIP.

EXPERIMENT III:  
Implement Dijkstra's algorithm to compute the shortest path through a graph.

EXPERIMENT IV:  
Take an example subnet graph with weights indicating delay between nodes. Now obtain Routing table at each node using distance vector routing algorithm.

EXPERIMENT V:  
Take an example subnet of hosts. Obtain broadcast tree for it.

EXPERIMENT VI:  
Take a 64 bit playing text and encrypt the same using DES algorithm.

EXPERIMENT VII:  
Write a program to break the above DES coding.

EXPERIMENT VIII:  
Using RSA algorithm Encrypt a text data and Decrypt the same.

EXPERIMENT IX:  
Implementation of Hamming Code.

EXPERIMENT X:  
Simulation of Stop and wait protocol

EXPERIMENT XI:  
Simulation of TCP client and server program

EXPERIMENT XII:  
Using sniffing tool capture packets and analyze
TEXT BOOKS:

REFERENCES BOOKS:
WEB TECHNOLOGIES LAB

EXPERIMENT I:
Create HOME PAGE for online book store

EXPERIMENT II:
Create login page for online book store.

EXPERIMENT III:
Create CATOLOGUE PAGE for online book store

EXPERIMENT IV:
Create registration form with the following fields Name, Password, confirm password, E-mail id, Phone number, Sex, Date of birth, Address for online book store.

EXPERIMENT V:
Write JavaScript to validate the following fields of the above registration modify web page appearance using CSS.

EXPERIMENT VI:
Write an XML file which will display all your subjects Books information such as title, author, isbn, name of the publisher. Create a DTD, XML Schemas to validate this XML document. Create CSS, XSL to display XML data.

EXPERIMENT VII:
Install XAMPP and JOOMLA or Word Press and test.

EXPERIMENT VIII:
Write Servlet Program to read data submitted from Registration form and store it into the MySql database.

EXPERIMENT IX:
Write a user validation web application to read username and password submitted by the user and return successful login if the data matches, otherwise failure login.

EXPERIMENT X:
Write a PHP program to store current date-time in a COOKIE and display the “Last visited on” date-time on the web page upon reopening of the same page.

EXPERIMENT XI:
Write a PHP program to store page views count in SESSION, to increment the count on each refresh, and to show the count on web page.

EXPERIMENT XII:
Using PHP and MySQL, develop a program to accept book information viz. Accession number,
title, authors, edition and publisher from a web page and store the information in a database and to search for a book with the title specified by the user and to display the search results with proper headings.

TEXT BOOKS:
1. Web Technologies: HTML, JAVASCRIPT, PHP, JAVA, JSP, ASP.NET, XML and Ajax, Black Book

REFERENCE BOOKS:
Note: Use Bash for Shell scripts.

EXPERIMENT I:
   a) Write a shell script that accepts a file name, starting and ending line numbers as arguments and displays all the lines between the given line numbers.
   b) Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.

EXPERIMENT II:
   a) Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.
   b) Write a shell script that 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.

EXPERIMENT III:
   a) 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.
   b) Write a shell script to list all of the directory files in a directory.

EXPERIMENT IV:
   a) Write a shell script to find factorial of a given integer.
   b) Write an awk script to count the number of lines in a file that do not contain vowels.

EXPERIMENT V:
   a) Write an awk script to find the number of characters, words and lines in a file.
   b) Write a c program that makes a copy of a file using standard I/O and system calls.

EXPERIMENT VI:
   a) Implement in C the following Unix commands using System calls
      A. cat  B. ls  C. mv
   b) 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.

EXPERIMENT VII:
   a) Write a C program to emulate the Unix ls –1 command.
   b) Write a C program to list for every file in a directory, its inode number and file name.
EXPERIMENT VIII:
  a) Write a C program that demonstrates redirection of standard output to a file. Ex: ls > f1.
  b) 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.

EXPERIMENT IX:
  a) Write a C program to create a Zombie process.
  b) Write a C program that illustrates how an orphan is created.

EXPERIMENT X:
  a) Write a C program that illustrates how to execute two commands concurrently with a
     command pipe. Ex: -ls -l | sort
  b) Write C programs that illustrate communication between two unrelated processes using
     named pipe.

EXPERIMENT XI:
  a) Write a C program to create a message queue with read and write permissions to write 3
     messages to it with different priority numbers.
  b) Write a C program that receives the messages (from the above message queue as
     specified in (21)) and displays them.

EXPERIMENT XII:
  a) Write a C program to allow cooperating processes to lock a resource for exclusive use,
     using a) Semaphores  b) flock or lockf system calls.
  b) Write a C program that illustrates suspending and resuming processes using signals.

EXPERIMENT XIII:
  a) Write a C program that implements a producer-consumer system with two processes.
     (Using Semaphores).
  b) Write client and server programs(using c) for interaction between server and client
     processes using Unix Domain sockets.

EXPERIMENT XIV:
  1. Write client and server programs(using c) for interaction between server and client
     processes using Internet Domain sockets.
  2. Write a C program that illustrates two processes communicating using shared memory.

TEXT BOOKS:

REFERENCE BOOKS
PRINCIPLES OF PROGRAMMING LANGUAGES

UNIT I:

UNIT II:
**Data types:** Introduction, 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 III:
**Subprograms and Blocks:** Fundamentals of sub-programs, Scope of life time of varaibles, static and dynamic scope, design issues of subprograms and operations, local referencing environments, parameter passing methods, overloaded sub-programs, generic sub-programs, parameters that are sub-program names, design issues for functions user defined overloaded operators, co routines.

UNIT IV:
**Abstract Data types:** Abstractions and encapsulation, introductions to data abstraction, design issues, language examples, C++ parameterized ADT, object oriented programming in small talk, C++, Java, C#, Ada 95. Concurrency: Subprogram level concurrency, semaphores, monitors, massage passing, Java threads, C# threads. Exception handling: Exceptions, exception Propagation, Exception handler in Ada, C++ and Java. Logic Programming Language: Introduction and overview of logic programming, basic elements of prolog, application of logic programming.

UNIT V:
**Functional Programming Languages:** Introduction, fundamentals of FPL, LISP, ML, Haskell, application of Functional Programming Languages and comparison of functional and imperative Languages.

**TEXT BOOKS:**


**REFERENCE BOOKS:**

3. LISP Patric Henry Winston and Paul Horn Pearson Education.
UNIT I
Introduction: Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Data Mining Task Primitives, Integration of a Data Mining System with a Database or a Data Warehouse System, Major issues in Data Mining.
Data Preprocessing: Need 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, Further Development of Data Cube Technology, 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, Attribute-Oriented Induction.
Mining Frequent Patterns, Associations and Correlations: Basic Concepts, Efficient and Scalable Frequent Itemset Mining Methods, Mining various kinds of Association Rules, From Association Mining to Correlation Analysis, Constraint-Based Association Mining.

UNIT III
Classification and Prediction: Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Rule-Based Classification, Classification by Backpropagation, Support Vector Machines, Associative Classification, Lazy Learners, Other Classification Methods, Prediction, Accuracy and Error measures, Evaluating the accuracy of a Classifier or a Predictor, Ensemble Methods.

UNIT IV
Cluster Analysis Introduction: Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Hierarchical Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Clustering High-Dimensional Data, Constraint-Based Cluster Analysis, Outlier Analysis.
Mining Streams, Time Series and Sequence Data: Mining Data Streams, Mining Time-Series Data, Mining Sequence Patterns in Transactional Databases, Mining Sequence Patterns in Biological Data, Graph Mining, Social Network Analysis and Multirelational Data Mining.

UNIT V
Mining Object, Spatial, Multimedia, Text and Web Data: Multidimensional Analysis and Descriptive Mining of Complex Data Objects, Spatial Data Mining, Multimedia Data Mining, Text Mining, Mining the World Wide Web.
Applications and Trends in Data Mining: Data Mining Applications, Data Mining System Products and Research Prototypes, Additional Themes on Data Mining and Social Impacts of Data Mining.

TEXT BOOKS:

2. Introduction to Data Mining – Pang-Ning Tan, Michael Steinbach and Vipin Kumar, Pearson education.

REFERENCE BOOKS:

UNIT-I:
Introduction: Purpose of testing, Dichotomies, model for testing, consequences of bugs, taxonomy of bugs. Basics concepts of path testing, predicates, path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing.

UNIT-II:
Transaction Flow Testing: Transaction flows, transaction flow testing techniques. Dataflow testing:- Basics of dataflow testing, strategies in dataflow testing, application of dataflow testing. Domain Testing:-domains and paths, Nice & ugly domains, domain testing, domain and interface testing, domains and testability.

UNIT-III:
Paths, Path products and Regular expressions: Path products & path expression, reduction procedure, applications, regular expressions & flow anomaly detection.

UNIT-IV:

UNIT-V:
Graph Matrices and Application: Motivational overview, matrix of graph, relations, power of a matrix, node reduction algorithm, building tools. Regression testing, Rapid testing, Performance testing of a data base application and HTTP connection for website access.

TEXT BOOKS:

REFERENCE BOOKS:
1. The craft of software testing - Brian Marick, Pearson Education.
2. Software Testing Techniques – SPD (Oreille)
ADHOC SENSOR NETWORKS
ELECTIVE-I
(Common to CSE, IT, ECM)

UNIT-I: Introduction to Ad Hoc Wireless Networks

UNIT-II: Data Transmission in MANETs
The Broadcast Storm, Multicasting, Geocasting, TCP over Ad Hoc Networks-TCP Protocol overview, TCP and MANETs, Solutions for TCP over Ad Hoc. **Security in MANETs:** Security in Ad Hoc Wireless Networks, Key Management, Secure Routing, Cooperation in MANETs, Intrusion Detection Systems.

The Mica Mote, Sensing and Communication Range, Design Issues, Energy consumption, Clustering of Sensors, Applications. Sensor Node Hardware

UNIT-IV: Data Retrieval in Sensor Networks
Classification of WSNs, MAC Layer, Routing Layer, High-Level Application Layer Support, Adapting to the Inherent Dynamic Nature of WSNs.

UNIT-V: Security in WSNs

**TEXT BOOKS:**

**REFERENCE BOOKS:**
UNIT I:
Introduction to Storage Technology: Review data creation and the amount of data being created and understand the value of data to a business, challenges in data storage and data management, Solutions available for data storage, Core elements of a data center infrastructure, role of each element in supporting business activities.

UNIT II:
Storage Systems Architecture Hardware and software components of the host environment, Key protocols and concepts used by each component , Physical and logical components of a connectivity environment, Major physical components of a disk drive and their function, logical constructs of a physical disk, access characteristics, and performance Implications, Concept of RAID and its components, Different RAID levels and their suitability for different application environments: RAID 0, RAID 1, RAID 3, RAID 4, RAID 5, RAID 0+1, RAID 1+0, RAID 6, Compare and contrast integrated and modular storage systems, High-level architecture and working of an intelligent storage system.

UNIT III:
Introduction to Networked Storage: Evolution of networked storage, Architecture, components, and topologies of FC-SAN, NAS, and IP-SAN, Benefits of the different networked storage options, understand the need for long-term archiving solutions and describe how CAS fulfills the need, understand the appropriateness of the different networked storage options for different application environments.

UNIT IV:
Information Availability & Monitoring & Managing Datacenter List reasons for planned/unplanned outages and the impact of downtime, Impact of downtime, Differentiate between business continuity (BC) and disaster recovery (DR), RTO and RPO, Identify single points of failure in a storage infrastructure and list solutions to mitigate these failures, Architecture of backup/recovery and the different backup/recovery topologies, replication technologies and their role in ensuring information availability and business continuity, Remote replication technologies and their role in providing disaster recovery and business continuity capabilities. Identify key areas to monitor in a data center, Industry standards for data center monitoring and management, Key metrics to monitor for different components in a storage infrastructure, Key management tasks in a data center.
UNIT V:
Securing Storage and Storage Virtualization Information security, Critical security attributes for information systems, Storage security domains, List and analyzes the common threats in each domain, Virtualization technologies, block-level and file-level virtualization technologies and processes.

TEXT BOOKS:
1. EMC Corporation, Information Storage and Management, Wiley.

REFERENCE BOOKS:
1. EMC Corporation, Information Storage and Management, Wiley,
UNIT I:

UNIT –II:
CORBA with Java:Distributed programming with Java RMI; Overview of CORBA, CORBA IDL, Client/server programming with CORBA & Java. XML Technology XML–Name Spaces–Structuring With Schemas and DTD-presentation Techniques–Transformation–XML Infrastructure.

UNIT-III:

UNIT-IV:
Agent and User Experience: Interacting with Agents-Agent From Direct Manipulation to Delegation-Interface Agent Metaphor with Character -Designing Agents-Direct Manipulation versus Agent Path to Predictable

UNIT V:

TEXT BOOKS:

REFERENCE BOOKS:
UNIT I
Evolution and Emergence of Web Services – Evolution of distributed computing. Core distributed computing technologies – client/server, CORBA, JAVA RMI, Micro Soft DCOM, MOM, Challenges in Distributed Computing, role of J2EE and XML in distributed computing, emergence of Web Services and Service Oriented Architecture (SOA). Introduction to Web Services – The definition of web services, basic operational model of web services, tools and technologies enabling web services, benefits and challenges of using web services.

UNIT II
Web Service Architecture – Web services Architecture and its characteristics, core building blocks of web services, standards and technologies available for implementing web services, web services communication, basic steps of implementing web services. Describing Web Services – WSDL introduction, non functional service description, WSDL1.1 Vs WSDL 2.0, WSDL document, WSDL elements, WSDL binding, WSDL tools, WSDL port type, limitations of WSDL.

UNIT III:

UNIT IV:
Registering and Discovering Services: The role of service registries, Service discovery, Universal Description, Discovery, and Integration, UDDI Architecture, UDDI Data Model, Interfaces, UDDI Implementation, UDDI with WSDL, UDDI specification, Service Addressing and Notification, Referencing and addressing Web Services, Web Services Notification.

UNIT V
TEXT BOOKS:
1. Developing Java Web Services, R. Nagappan, R. Skoczylas, R.P. Sriganesh, Wiley India

REFERENCE BOOKS:
1. XML, Web Services, and the Data Revolution, F.P.Coyle, Pearson Education.
3. Java Web Services, D.A. Chappell & T. Jewell, O’Reilly, SPD.
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. Class & Object Diagrams: Terms, concepts, modeling techniques for Class & Object Diagrams.

UNIT-III
Basic Behavioral Modeling-II: Use cases, Use case Diagrams, Activity Diagrams.

UNIT-IV
Advanced Behavioral Modeling: Events and signals, state machines, processes and Threads, time and space, state chart diagrams.

UNIT-V
Architectural Modeling: Component, Deployment, Component diagrams and Deployment diagrams.

TEXTBOOKS
2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado: UML 2 Toolkit, WILEY-DreamtechIndia Pvt. Ltd.

REFERENCE BOOKS:
Credit Risk Assessment

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

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

1. Knowledge Engineering. Find a loan officer who is willing to talk. Interview her and try to represent her knowledge in the form of production rules.
2. Books. Find some training manuals for loan officers or perhaps a suitable textbook on finance. Translate this knowledge from text form to production rule form.
3. Common sense. Imagine yourself as a loan officer and make up reasonable rules which can be used to judge the credit worthiness of a loan applicant.
4. Case histories. Find records of actual cases where competent loan officers correctly judged when, and when not to, approve a loan application.

The German Credit Data:

Actual historical credit data is not always easy to come by because of confidentiality rules. Here is one such dataset, consisting of 1000 actual cases collected in Germany. (Download from web) In spite of the fact that the data is German, you should probably make use of it for this assignment. (Unless you really can consult a real loan officer!)

A few notes on the German dataset

• DM stands for Deutsche Mark, the unit of currency, worth about 90 cents Canadian (but looks and acts like a quarter).

• owns_telephone. German phone rates are much higher than in Canada so fewer people own telephones.

• foreign_worker. There are millions of these in Germany (many from Turkey). It is very hard to get German citizenship if you were not born of German parents.

• There are 20 attributes used in judging a loan applicant. The goal is the classify the applicant into one of two categories, good or bad.
(Turn in your answers to the following tasks)

**EXPERIMENT I:** Study thoroughly the credit assessment problem.

**EXPERIMENT II:** List all the categorical (or nominal) attributes and the real-valued attributes separately.

**EXPERIMENT III:** What attributes do you think might be crucial in making the credit assessment? Come up with some simple rules in plain English using your selected attributes.

**EXPERIMENT IV:** One type of model that you can create is a Decision Tree - train a Decision Tree using the complete dataset as the training data. Report the model obtained after training.

**EXPERIMENT V:** Suppose you use your above model trained on the complete dataset, and classify credit good/bad for each of the examples in the dataset. What % of examples can you classify correctly? (This is also called testing on the training set) Why do you think you cannot get 100 % training accuracy?

**EXPERIMENT VI:** Is testing on the training set as you did above a good idea? Why or Why not?

**EXPERIMENT VII:** One approach for solving the problem encountered in the previous question is using cross-validation? Describe what cross-validation is briefly. Train a Decision Tree again using cross-validation and report your results. Does your accuracy increase/decrease? Why?

**EXPERIMENT VIII:** Check to see if the data shows a bias against "foreign workers" (attribute 20), or "personal-status" (attribute 9). One way to do this (perhaps rather simple minded) is to remove these attributes from the dataset and see if the decision tree created in those cases is significantly different from the full dataset case which you have already done. To remove an attribute you can use the preprocess tab in Weka's GUI Explorer. Did removing these attributes have any significant effect? Discuss.

**EXPERIMENT IX:** Another question might be, do you really need to input so many attributes to get good results? Maybe only a few would do. For example, you could try just having attributes 2, 3, 5, 7, 10, 17 (and 21, the class attribute (naturally)). Try out some combinations. (You had removed two attributes in problem 7. Remember to reload the arff data file to get all the attributes initially before you start selecting the ones you want.)

**EXPERIMENT X:** Sometimes, the cost of rejecting an applicant who actually has a good credit (case 1) might be higher than accepting an applicant who has bad credit (case 2). Instead of counting the misclassifications equally in both cases, give a higher cost to the first case (say cost 5) and lower cost to the second case. You can do this by using a cost matrix in Weka. Train your Decision Tree again and report the Decision Tree and cross-validation results. Are they significantly different from results obtained in problem 6 (using equal cost)?
EXPERIMENT XI: Do you think it is a good idea to prefer simple decision trees instead of having long complex decision trees? How does the complexity of a Decision Tree relate to the bias of the model?

EXPERIMENT XII: You can make your Decision Trees simpler by pruning the nodes. One approach is to use Reduced Error Pruning - Explain this idea briefly. Try reduced error pruning for training your Decision Trees using cross-validation (you can do this in Weka) and report the Decision Tree you obtain? Also, report your accuracy using the pruned model. Does your accuracy increase?

EXPERIMENT XIII: How can you convert a Decision Trees into "if-then-else rules", Make up your own small Decision Tree consisting of 2-3 levels and convert it into a set of rules. There also exist different classifiers that output the model in the form of rules - one such classifier in Weka is rules.PART, train this model and report the set of rules obtained. Sometimes just one attribute can be good enough in making the decision, yes, just one ! Can you predict what attribute that might be in this dataset? OneR classifier uses a single attribute to make decisions (it chooses the attribute based on minimum error).

EXPERIMENT XIV: Report the rule obtained by training a one R classifier. Rank the performance of j48, PART and oneR.

TEXT BOOKS:
2. Introduction to Data Mining – Pang-Ning Tan, Michael Steinbach and Vipin Kumar, Pearson education.

REFERENCE BOOKS:
SOFTWARE TESTING LAB

EXPERIMENT I:
Write programs in „C” Language to demonstrate the working of the following constructs:
   i) do...while ii) while….do

EXPERIMENT II:
Write programs in „C” Language to demonstrate the working of the following constructs:
   i) if…else ii) switch. iii) for

EXPERIMENT III:
“A program written in „C” language for Matrix Multiplication fails” Introspect the causes for its failure and write down the possible reasons for its failure.

EXPERIMENT IV:
Take any system (e.g. ATM system) and study its system specifications and report the various bugs.

EXPERIMENT V:
Write the test cases for any known application (e.g. Banking application).

EXPERIMENT VI:
Create a test plan document for any application (e.g. Library Management System).

EXPERIMENT VII:
Study of Quick Test Professional for functional testing.

EXPERIMENT VIII:
Testing the performance of a webpage.

EXPERIMENT IX:
Study of any test management tool (e.g. Quality Center).

EXPERIMENT X:
Study of any open source-testing tool (e.g. Test Link).

EXPERIMENT XI:
Study of any bug tracking tool (e.g. Bugzilla).

EXPERIMENT XII:
Take a mini project (e.g. University admission, Placement Portal) and execute it. During the Life cycle of the mini project create the various testing documents* and final test report document
TEXT BOOKS:

REFERENCE BOOKS:
1. The craft of software testing - Brian Marick, Pearson Education.
2. Software Testing Techniques – SPD(Oreille)
EXPERIMENT I-VII: (CASE STUDY OF UNIFIED LIBRARY SYSTEM)

1. The student should take up the case study of **Unified Library System** which is mentioned in the theory, and Model it in different views i.e Use case view, logical view, component view, Deployment view, Database design, forward and Reverse Engineering, and Generation of documentation of the project.

**Design the following diagrams for Unified Library System.**

1.1 Class Diagram  
1.2 Object Diagram  
1.3 Component Diagram  
1.4 Deployment Diagram  
1.5 Use case Diagram  
1.6 Activity Diagram  
1.7 State machine Diagram  
1.8 Sequence Diagram

EXPERIMENT VIII-XIV: (CASE STUDY OF ATM SYSTEM)

2. The student should take up the case study of **ATM System** which is mentioned in the theory, and Model it in different views i.e Use case view, logical view, component view, Deployment view, Database design, forward and Reverse Engineering, and Generation of documentation of the project.

**Design the following diagrams for ATM System.**

1.1 Class Diagram  
1.2 Object Diagram  
1.3 Component Diagram  
1.4 Deployment Diagram  
1.5 Use case Diagram  
1.6 Activity Diagram  
1.7 State machine Diagram  
1.8 Sequence Diagram

TEXT BOOKS:

REFERENCE BOOKS:
1. The craft of software testing - Brian Marick, Pearson Education.  
2. Software Testing Techniques – SPD(Oreille)  
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, Internet Standards and RFCs, Buffer overflow & format string vulnerabilities, TCP session hijacking, ARP attacks, route table modification, UDP hijacking, and man-in-the-middle attacks.

UNIT - II
Conventional Encryption Principles: Conventional encryption algorithms, cipher block modes of operation, location of encryption devices, key distribution Approaches of Message Authentication, Secure Hash Functions and HMAC. Public key cryptography principles: public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management.

UNIT - III
Authentication Applications: Kerberos, X.509 Directory Authentication Service. Electronic Mail Security: Pretty Good Privacy (PGP) and Secure /Multipurpose Internet Mail Extension (S/MIME)

UNIT – IV

UNIT - V

TEXT BOOKS:
2. Hack Proofing your network by Ryan Russell, Dan Kaminsky, Rain Forest Puppy, Joe Grand, David Ahmad, Hal Flynn Ido Dubrawsky, Steve W.Manzuik and Ryan Perme, Wiley Dreamtech

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

UNIT II

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

UNIT IV

UNIT V
Multimedia Information Retrieval, Models and Languages, Data Modeling, Query Languages, Indexing and Searching. Libraries and Bibliographical systems, online IR system, OPACs, Digital Libraries. 180

TEXT BOOKS
1. Information Storage and Retrieval systems Theory and Implementation Second Edition

REFERENCE BOOKS
3. Modern Information Retrieval By Yates Pearson Education.
MOBILE APPLICATION DEVELOPMENT

UNIT I:

UNIT II:
J2ME Best Practices and Patterns: The Reality of Working in a J2ME World, Best Practices, Commands, Items, and Event Processing, J2ME User Interfaces, Display Class, The Palm OS Emulator, Command Class, Item Class, Exception Handling

UNIT III:
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.

UNIT V:
JDBC and Embedded SQL: Model Programs, Tables, Indexing, Inserting Data into Tables, Selecting Data from a Table, Metadata, Updating Tables, Deleting Data from a Table, Joining Tables, Calculating Data, Grouping and Ordering Data, Sub queries, VIEWS.
TEXT BOOK

REFERENCE BOOKS
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
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.

UNIT IV

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

REFERENCE BOOKS
SOFTWARE ARCHITECTURE AND DESIGN PATTERN
ELECTIVE-II
(Common to CSE, IT)

UNIT I

UNIT II
Analyzing Architectures Architecture Evaluation, Architecture design decision making, ATAM, CBAM. Moving from one system to many Software Product Lines, Building systems from off the shelf components, Software architecture in future.

UNIT III
Patterns Pattern Description, Organizing catalogs, role in solving design problems, Selection and usage. Creational and Structural patterns Abstract factory, builder, factory method, prototype, singleton, adapter, bridge, composite, façade, fly weight.

UNIT IV
Behavioral patterns Chain of responsibility, command, Interpreter, iterator, ediator, memento, observer, state, strategy, template method, visitor.

UNIT V
Case Studies A-7E – A case study in utilizing architectural structures, The World Wide Web - a case study in interoperability, Air Traffic Control – a case study in designing for high availability, Celsius Tech – a case study in product line development,

TEXT BOOKS:

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

UNIT II
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 202

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:

REFERENCE BOOKS:
UNIT I

UNIT-II

UNIT-III

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

UNIT-V

TEXT BOOKS:

REFERENCE BOOKS:
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) 151

TEXT BOOKS
2. Software Project Management, Joel Henry, Pearson Education.

REFERENCE BOOKS
UNIT – I  Introduction to Scripting and PERL
Scripts and Programs, Origin of Scripting, Scripting Today, Characteristics of Scripting Languages, Uses for Scripting Languages, Web Scripting, and the universe of Scripting Languages. PERL- Names and Values, Variables, Scalar Expressions, Control Structures, arrays, list, hashes, strings, pattern and regular expressions, subroutines.

Advanced PERL:
Finer points of looping, pack and unpack, filesystem, eval, datastructures, packages, modules, objects, interfacing to the operating system, Creating Internet ware applications, Dirty Hands Internet Programming, security Issues.

UNIT – II

UNIT III
Advanced PHP Programming:
PHP and Web Forms, Files, PHP Authentication and Methodolgies - Hard Coded, File Based, Database Based, IP Based, Login Administration, Uploading Files with PHP, Sending Email using PHP, PHP Encryption Functions, the Mcrypt package, Building Web sites for the World.

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

UNIT – V Python

TEXT BOOKS:
1. The World of Scripting Languages, David Barron, Wiley Publications.
REFERENCE BOOKS:
1. Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHP. J.Lee and B.Ware (Addison Wesley) Pearson Education.
2. Programming Python, M.Lutz, SPD.
UNIT I

UNIT II

UNIT III
Computer Forensics analysis and validation: Determining what data to collect and analyze, validating forensic data, addressing data – hiding techniques, performing remote acquisitions.
Network Forensics: Network Forensics overview, performing live acquisitions, developing standard procedures for network forensics, using network tools, examining the honeynet project.

UNIT IV
Processing crime and incident scenes: Identifying digital evidence, collecting evidence in private-sector incident scenes, processing law enforcement crime scenes, preparing for a search, securing a computer incident or crime scene, seizing digital evidence at the scene, storing digital evidence, obtaining a digital hash, reviewing a case.
Current computer forensic tools: evaluating computer forensic tool needs, computer forensics software tools, computer forensics hardware tools, validating and testing forensics software.

UNIT V
E-Mail investigations: Exploring the role of E-mail in investigation, exploring the role of the client and server in E-mail, investigating e-mail crimes and violations, understanding e-mail
servers, using specialized e-mail forensic tools.
Cell phone and mobile device forensics: Understanding mobile device forensics, understanding acquisition procedures for cell phones and mobile devices.
Working with windows and DOS Systems: Understanding file systems, exploring Microsoft File Structures, Examining NTFS Disks, Understanding whole disk encryption, windows registry, Microsoft startup tasks, MS-DOS Startup tasks, virtual machines.

TEXT BOOKS

REFERENCE BOOKS
1. Real Digital Forensics by Keith J.Jones, Rechard Bejtlich, Curtis W.Rose, Addison-Wesley Pearson Education.
UNIT I
Introduction, Application areas of Computer Graphics, overview of graphics systems, video-display devices, raster-scan systems, random scan systems, graphics monitors and work stations and input devices

UNIT II
Output primitives: Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms. Filled area primitives: Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms
2-D Geometrical transforms: Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems.

UNIT III
2-D Viewing: The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland–Hodgeman polygon clipping algorithm.

UNIT IV
3-D Object representation: Polygon surfaces, quadric surfaces, spline representation, Hermite curve, Bezier curve and B-spline curves, Bezier and B-spline surfaces. Basic illumination models, polygon rendering methods.
3-D Geometric transformations: Translation, rotation, scaling, reflection and shear transformations, composite transformations, 3-D viewing: Viewing pipeline, viewing coordinates, view volume and general projection transforms and clipping.

UNIT V
Visible surface detection methods: Classification, back-face detection, depth-buffer, scan-line, depth sorting, BSP-tree methods, area sub-division and octree methods

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

REFERENCE BOOKS:
EMBEDDED SYSTEMS
(Common to IT, ECM)

UNIT -I:
Embedded Computing: Introduction, complex systems and microprocessor, the embedded system design process, formalisms for system design, design examples.

UNIT -II:
The 8051 Architecture: Introduction, 8051 micro controller hardware, input/output ports and circuits, external memory, counter and timers, serial data input/output, interrupts.
Basic Assembly Language Programming Concepts: The assembly language programming process, programming tools and techniques, programming the 8051. Data transfer and logical instructions, arithmetic operations, decimal arithmetic, jump and call instructions.

UNIT -III:
Introduction to Real-Time Operating Systems: 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.
Basic Design Using a Real-Time Operating System: Principles, semaphores and queues, hard real-time scheduling considerations, saving memory and power, an example RTOS like uC-OS (open source).

UNIT -IV:
Embedded Software Development Tools: Host and target machines, linker/locators for embedded software, getting embedded software into the target system
Debugging Techniques: Testing on host machine, using laboratory tools, an example system.

UNIT -V:
Introduction to advanced Architectures: ARM and SHARC, processor and memory organization and instruction level parallelism; networked embedded systems: bus protocols, I²C bus and CAN bus; internet-enabled systems, design example-elevator controller.

TEXT BOOKS:
1. Wayne Wolf (2008), Computers as Components-principles of embedded computer system design, Elseveir, New Delhi, India.

REFERENCE BOOKS:
EXPERIMENT - I: Installation of Java Wireless Toolkit (J2ME)

EXPERIMENT - II: Working with J2ME Features:
Create a Hello World program which creates to following kind of menu.

- Cut.
- Copy.
- Paste.
- delete.
- Select all.
- Unselect all.

EXPERIMENT-III: Event Handling.
Create a menu which has the following options:

- cut - can be on/off
- copy - can be on/off
- paste - can be on/off
- delete - can be on/off
- select all - put all 4 options on
- unselect all - put all 4 options off

EXPERIMENT-IV: Input checking
Create an MIDP application which examine, that a phone number, which a user has entered is in the given format.

- Area code should be one of the following: 040, 041, 050, 0400, 044
- There should 6-8 numbers in telephone number (+ area code)

EXPERIMENT- V: Threads & High Level UI:
3.1. Create a slide show which has three slides, which includes only text. Program should change to the new slide after 5 seconds. After the third slide program returns to the first slide.

EXPERIMENT-VI: High-level UI
Create a MIDP application, which show to the user 5-10 quiz questions. All questions have 4 possible options and one right option exactly. Application counts and shows to the user how many right answers were right and shows them to user.

EXPERIMENT-VII: Create a MIDP application, where the user can enter player name and points. The program saves the information to the record using RMS at MIDP device. Program should also print out the top 10 player list to the end user. You can use this class in your game if you made own class for saving and reading record sets.
EXPERIMENT-VIII: Working on Drawing and Images
Create a slide show which has three slides, which includes pictures at PNG format. Program should change to the new slide other 5 seconds.

EXPERIMENT-IX: Create a MIDP application, which draws a bar graph to the display. Data values can be given at int[] array.

EXPERIMENT-X: Create a MIDP application, which draws a bar graph to the display. Data values can be given at int[] array. You can enter four data (integer) values to the input text field.

EXPERIMENT – XI: Developing Networked Applications using the Wireless Toolkit
- Creating a Simple Client-Server Application
- Create, compile and run a basic UDP-based client-server application.
- Creating the Datagram Server project

EXPERIMENT – XII: Authentication with a Web Server
- Write a sample program to show how to make a SOCKET Connection from j2me phone.
- Login to HTTP Server from a J2ME Program

Note: Use Apache Tomcat Server as Web Server and Mysql as Database Server.

EXPERIMENT - XIII & XIV Web Application using J2ME
The following should be carried out with respect to the given set of application domains:
(Assume that the Server is connected to the well-maintained database of the given domain. Mobile Client is to be connected to the Server and fetch the required data value/information)
- Students Marks Enquiry
- Town/City Movie Enquiry
- Railway/Road/Air (For example PNR) Enquiry/Status
- Sports (say, Cricket) Update
- Town/City Weather Update
- Public Exams (say Intermediate or SSC)/ Entrance (Say EAMCET) Results Enquiry

Divide Student into Batches and suggest them to design database according to their domains and render information according the requests.

TEXT BOOKS:

REFERENCE BOOKS:
J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS

B. Tech. IT L T-P-D C
IV Year I- Semester 0 0-3-0 2

EMBEDDED SYSTEMS LABORATORY

(Using 89c51 SDK (Software Development Kit))

EXPERIMENT I: Write a simple assembly program on Arithmetic Operations

EXPERIMENT II: Write a simple assembly program on Logical Operations.

EXPERIMENT III: Write a program on Addressing modes.

EXPERIMENT IV: Write a program to Read inputs from switches in 89c51 SDK

EXPERIMENT V: Write a program to read inputs and blink the LEDs in different patterns in 89cSDK.

EXPERIMENT VI: Write a Program for serial Communication between Microcontrollers to PC vice versa

- For Microcontroller to PC communication the data should be transferred from microcontroller to PC Terminal window.
- For PC to microcontroller communication the data should be transferred from PC terminal window to Microcontroller LCD display.

EXPERIMENT VII: Write a Program for Encryption and Decryption.

- Use 4x3 keyboard interface (for enter data)
- Use LCD interface (display data)
- Use serial Communication (display data at PC terminal window)

EXPERIMENT VIII: Develop necessary interfacing circuit to read data from a temperature sensor and process using 89c51 SDK, the data has to be displayed on a PC Terminal window.

EXPERIMENT IX: Sort RTOS on to 89c51 Microcontroller and verify.

- Run 2 to 3 tasks simultaneously on 89c51 SDK
- Use LCD interface, LED interface, Serial communication.

EXPERIMENT X: Write a program to read input from switches display the switch number in seven segment display and Develop necessary interfacing circuit to process display. (example: if we press switch 1 it should display 1 on the seven segment display)

EXPERIMENT XI: Write a program to read input from switches and turn on bulb which can work with 230 V AC using relay interface, develop necessary interfacing circuit for 89c52SDK. (example: if we press switch 1 it should turn on bulb 1 vice versa)

EXPERIMENT XII: Write a program to display Real time Clock on SEVEN SEGMENT DISPLAY and Develop necessary interfacing circuit to process TIME display.
EXPERIMENT XIII: Write a program to implement calculator which can execute basic operations such as addition, subtraction, multiplication and division and develop necessary interfacing circuit for process the operations with 89c52 SDK.

- Use Keyboard Interface (for read input from user)
- Use 2-line LCD Interface (for display the input and display the output).

EXPERIMENT XIV: Write a program that generate ramp signal on the DAC output.

TEXT BOOKS:
2. The 8051 micro controller & Embedded Systems using assembly and C By Kenneth J.Ayala Dhananjay V.Gadre
KNOW YOURSELF/ SELF DISCOVERY and SOFT SKILLS

EXPERIMENT-I: Introduction—Importance of Knowing Yourself
   Process of knowing yourself—SWOT analysis
   Benefits of SWOT analysis---Using SWOT analysis
   SWOT analysis grid—questions to complete the grid

EXPERIMENT-II: Introduction – What are soft skills?—importance of soft skills
   Selling your skills—Attributes regarded as soft skills—Soft Skills
   Social Soft Skills—Thinking Soft Skills—Negotiating –Exhibiting your Soft Skills

EXPERIMENT-III: Identifying your soft skills—Improving your soft skills –Train Yourself
   Top 60 soft skills—Practicing soft skills—Measuring Attitudes

Time and Stress Management

EXPERIMENT-IV: Introduction—The 80-20 rule—take a good look at the people around you—Examine your work
   Sense of time management —around you—examine your work—sense of time management
   Time is money—features of time—three secrets of time management

EXPERIMENT-V: Time management matrix—analysis of time matrix—effective scheduling
   Grouping of activities—five steps to successful time management
   Difficulties in time management—evils of not planning—interesting facts about time
   Deal say of spending a day—time wasters—time savers—realizing the value of time
   Time circle planner.
   Introduction –Meaning—Effects , Kinds , and Sources of Stress
   Case study—spotting stress—stress management tips

Activity III Developing Positive Attitude
EXPERIMENT-VI: Introduction—meaning –features of attitudes—attitude and human behavior
    : Passive, Aggressive and Behavior
   Formation of attitudes—change of attitudes—what can you do to change attitude?
   Ways of changing attitude in a person—attitude in a workplace
   Features of a good team player
EXPERIMENT-VII: The power of positive attitude—developing positive attitude
   Obstacles in developing positive attitude—staying negative—examples of negative attitude
   Overcoming negative attitude—negative attitude and its results.

Activity IV  Body Language
EXPERIMENT-VIII: Introduction—body talk—Voluntary and involuntary body language
   Forms of body language—parts of body language—origin of body language
   Uses of body language—Body language in building interpersonal relations

EXPERIMENT-IX: Body language in building interpersonal relations—reasons to study body language
   Improving your body language—types of body language—gender differences
   Body language—shaking hands
   Interpreting body language

Activity V  Practice in Presentation Skills
EXPERIMENT-X: Types of Presentations
   Do’s and Don’ts of Presentation Skills

EXPERIMENT-XI: Body language in presentation skills
EXPERIMENT-XII: Examples—Aspects, etc

TEXT BOOKS:
   1. Soft Skills: Know Yourself and Know the World—Dr. K. Alex-S. Chand Publishing-2010

REFERENCE BOOKS:
UNIT-I:
Introduction to Managerial Economics, Concepts of Managerial Economics:
Demand Analysis: Law of Demand, Elasticity of demand & Demand Forecasting.
Production and cost Analysis: Production functions, Laws of Returns, Economies of scale.

UNIT-II:
Market Structures: Different types of Markets.
Pricing: Methods of Pricing and strategies, Skimming and Penetration Pricing.
Capital budgeting: Estimation of fixed and working capital, Methods & sources of raising capital. Methods of capital budgeting, Traditional and Discounted Techniques.

UNIT-III:
Management: Functions of management. Taylor’s scientific management theory, Fayol’s principles of management.
Designing of organization structures: Different Methods with Merits and demerits and their suitability.
Human Recourse Management: Recruitment, Selection, Training and Development and Permanence Appraisal.

UNIT-IV:
Operation Management: Types of plant layout, Methods of production, work, study-procedure involved in Methods study and work Measurement. Statistical quality control. $\bar{x}$, R, C & P charts.

UNIT-V:
Material Management: Objectives, Need for Inventory Control, EOQ, ABC Analysis, VED Analysis, Purchase procedure, stores Management.
Marketing: Functions, Marketing Mix, Marketing strategies based on product life cycle, channels of distributions.
TEXT BOOKS:
1. Managerial Economics & Financial Accounting – Prentice Hall of India: Dr. M. Kasi Reddy, Dr. S. Saraswathi

REFERENCE BOOKS:
UNIT-I:
Principles of Parallel and Distributed Computing, Introduction to cloud computing, Cloud computing Architecture, cloud concepts and technologies, cloud services and platforms, Cloud models, cloud as a service, cloud solutions, cloud offerings, introduction to Hadoop and Mapreduce.

UNIT-II:

UNIT-III:
Enterprise cloud computing Paradigm, Federated cloud computing Architecture, SLA Management in Cloud Computing, Developing the cloud: cloud application Design.

UNIT-IV:
Python Basics, Python for cloud, cloud application development in python, Cloud Application Development in Python.
Programming Google App Engine with Python: A first real cloud Application, Managing Data in the cloud, Google app engine Services for Login Authentication, Optimizing UI and Logic, Making the UI Pretty: Templates and CSS, Getting Interactive. Map Reduce Programming Model and Implementations.

UNIT-V:
Cloud management, Organizational Readiness and change management in the cloud age ,Cloud Security, Data security in the cloud, Legal Issues in the Cloud , Achieving Production Readiness for the cloud Services

TEXT BOOKS:

REFERENCE BOOKS:
2. Cloud computing: Dr Kumar Saurab Wiley India 2011.
3. Code in the Cloud: Mark C.Chu-Carroll 2011, SPD.( Second part of IV UNIT)
UNIT-I:

UNIT-II:
Business Process Reengineering

UNIT-III:
Erp Packages
Overview of ERP packages – PEOPLE SOFT, SAP-R/3, BAAN IV, MFG/PRO, IFS/AVALON, ORACLE- FINANCIAL, Survey of Indian ERP Packages regarding their Coverage, performance & cost.

UNIT-IV:
Erp Implementation
ERP Implementation- issues, Role of Consultants, Vendors, Users, - Need for training, customization. ERP implementation methodology and post implementation issues and options.

UNIT-V:
Erp Case Studies
ERP Case Studies In Hrm, Finance, Production, Product Database, Materials, Sales & Distribution.

TEXT BOOKS:

REFERENCE BOOKS:
ADVANCED MOBILE COMPUTING
ELECTIVE-IV
(Common to CSE, IT)

UNIT I: INTRODUCTION

UNIT II: MOBILE INTERNET PROTOCOL AND TRANSPORT LAYER

UNIT III: MOBILE TELECOMMUNICATION SYSTEM
Global System for Mobile Communication (GSM) – General Packet Radio Service (GPRS) – Universal Mobile Telecommunication System (UMTS).

UNIT IV: MOBILE AD-HOC NETWORKS

UNIT V: MOBILE PLATFORMS AND APPLICATIONS

TEXT BOOK:

REFERENCE BOOKS:
J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS

B.Tech IT

IV Year – II Semester

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VISUAL PROGRAMMING TECHNIQUES
ELECTIVE-IV
(Common to CSE, IT)

UNIT-I

UNIT-II
Controls – Modal and Modeless Dialog – Property – Data I/O – Sound – Timer

UNIT-III
Memory management – SDI – MDI – MFC for Advanced windows user Interface – status bar and Toolbars – Tree view – List view – Threads

UNIT-IV
ODBC – MFC Database classes – DAO - DLLs – Working with Images

UNIT-V
COM Fundamentals – ActiveX control – ATL – Internet Programming

TEXT BOOK:

REFERENCE BOOKS:
UNIT-I:
Big Data Analytics: What is big data, History of Data Management; Structuring Big Data; Elements of Big Data; Big Data Analytics; Distributed and Parallel Computing for Big Data; Big Data Analytics: What is Big Data Analytics, What Big Data Analytics Isn’t, Why this sudden Hype Around Big Data Analytics, Classification of Analytics, Greatest Challenges that Prevent Business from Capitalizing Big Data; Top Challenges Facing Big Data; Why Big Data Analytics Important; Data Science; Data Scientist; Terminologies used in Big Data Environments; Basically Available Soft State Eventual Consistency (BASE); Open source Analytics Tools.

UNIT-II:
Understanding Analytics and Big Data: Comparing Reporting and Analysis, Types of Analytics; Points to Consider during Analysis; Developing an Analytic Team; Understanding Text Analytics.

UNIT-III:
Understanding MapReduce Fundamentals and HBase: The MapReduce Framework; Techniques to Optimize MapReduce Jobs; Uses of MapReduce; Role of HBase in Big Data Processing; Storing Data in Hadoop: Introduction of HDFS, Architecture, HDFC Files, File system types, commands, org.apache.hadoop.io package, HDF, HDFS High Availability; Introducing HBase, Architecture, Storing Big Data with HBase, Interacting with the Hadoop Ecosystem; HBase in Operations-Programming with HBase; Installation, Combining HBase and HDFS.

UNIT-IV:
Big Data Technology Landscape and Hadoop: NoSQL, Hadoop; RDBMS versus Hadoop; Distributed Computing Challenges; History of Hadoop; Hadoop Overview; Use Case of Hadoop; Hadoop Distributors; HDFC (Hadoop Distributed File System), HDFC Daemons, read, write, Replica Processing of Data with Hadoop; Managing Resources and Applications with Hadoop YARN.

UNIT-V:
Social Media Analytics and Text Mining: Introducing Social Media; Key elements of Social Media; Text mining; Understanding Text Mining Process; Sentiment Analysis, Performing Social Media Analytics and Opinion Mining on Tweets; Mobile Analytics: Introducing Mobile Analytics; Define Mobile Analytics; Mobile Analytics and Web Analytics; Types of Results from Mobile Analytics; Types of Applications for Mobile Analytics; Introducing Mobile Analytics Tools;
TEXT BOOKS:
1. BIG DATA and ANALYTICS, Seema Acharya, Subhasinin Chellappan, Wiley publications.

REFERENCE BOOKS:
1. BUSINESS ANALYTICS 5e, BY Albright |Winston
UNIT-I:
Introduction to Internet of Things – Definition and Characteristics of IoT,
Physical Design of IoT – IoT Protocols, IoT communication models, IoT Communication APIs
IoT enabled Technologies – Wireless Sensor Networks, Cloud Computing, Big data analytics,
Communication protocols, Embedded Systems, IoT Levels and Templates.
Domain Specific IoTs – Home, City, Environment, Energy, Retail, Logistics, Agriculture,
Industry, health and Lifestyle.

UNIT-II:
IoT and M2M – Software defined networks, network function virtualization, difference between
SDN and NFV for IoT Basics of IoT System Management with NETCOZF, YANG- NETCONF,
YANG, SNMP NETOPEER.

UNIT-III:
Introduction to Python - Language features of Python, Data types, data structures, Control of
flow, functions, modules, packaging, file handling, data/time operations, classes, Exception
handling Python packages - JSON, XML, HTTPLib, URLLib, SMTPLib.

UNIT-IV:
IoT Physical Devices and Endpoints - Introduction to Raspberry PI-Interfaces (serial, SPI, I2C)
Programming – Python program with Raspberry PI with focus of interfacing external gadgets,
controlling output, reading input from pins.

UNIT-V:
IoT Physical Servers and Cloud Offerings – Introduction to Cloud Storage models and
communication APIs Webserver – Web server for IoT, Cloud for IoT, Python web application
frameworkDesigning a RESTful web API.

TEXT BOOKS:
1. Internet of Things - A Hands-on Approach, Arshdeep Bahga and Vijay Madisetti,
2. Getting Started with Raspberry Pi, Matt Richardson & Shawn Wallace, O'Reilly (SPD),
UNIT-I:
Introduction to Cybercrime: Introduction, Cybercrime and Information security, who are cybercriminals, Classifications of Cybercrimes, Cybercrime: The legal Perspectives and Indian Perspective, Cybercrime and the Indian ITA 2000, A Global Perspective on Cybercrimes.

UNIT-II:

UNIT- III:
Cybercrimes and Cyber security: the Legal Perspectives: Introduction: Cyber Crime and Legal Landscape around the world, Why Do We Need Cyber laws: The Indian Context, The Indian IT Act, Challenges to Indian Law and Cybercrime Scenario In India, Digital signatures and the Indian IT Act, Amendments to the Indian IT Act, Cybercrime and Punishment Cyber law, Technology and Students: Indian Scenario.

UNIT- IV :
Understanding Computer Forensics
Introduction, Historical background of Cyber forensics, Digital Forensics Science, The Need for Computer Forensics, Cyber Forensics and Digital evidence, Forensics Analysis of Email, Digital Forensics Lifecycle, Chain of Custody concept, Network Forensics, Approaching a computer, Forensics Investigation, Challenges in Computer Forensics, Special Tools and Techniques Forensics Auditing

UNIT-V:
Cyber Security: Organizational Implications
TEXT BOOKS:
2. Introduction to Cyber Security, Chwan-Hwa(john) Wu, J. David Irwin. CRC Press T&F Group

REFERENCE BOOK:
UNIT-I :
INTRODUCTION - Well-posed learning problems, Designing a learning system, Perspectives and issues in machine learning
Concept learning and the general to specific ordering – Introduction, A concept learning task, Concept learning as search, Find-S: finding a maximally specific hypothesis, Version spaces and the candidate elimination algorithm, Remarks on version spaces and candidate elimination, Inductive bias.

UNIT-II :
Decision Tree learning – Introduction, Decision tree representation, Appropriate problems for decision tree learning, The basic decision tree learning algorithm, Hypothesis space search in decision tree learning, Inductive bias in decision tree learning, Issues in decision tree learning
Artificial Neural Networks – Introduction, Neural network representation, Appropriate problems for neural network learning, Perceptions, Multilayer networks and the back propagation algorithm, Remarks on the back propagation algorithm, An illustrative example face recognition. Advanced topics in artificial neural networks
Evaluation Hypotheses – Motivation, Estimation hypothesis accuracy, Basics of sampling theory, A general approach for deriving confidence intervals, Difference in error of two hypotheses, Comparing learning algorithms.

UNIT-III :
Bayesian learning – Introduction, Bayes theorem, Bayes theorem and concept learning, Maximum likelihood and least squared error hypotheses, Maximum likelihood hypotheses for predicting probabilities, Minimum description length principle, Bayes optimal classifier, Gibbs algorithm, Naïve Bayes classifier, An example learning to classify text, Bayesian belief networks
The EM algorithm.
Computational learning theory – Introduction, Probability learning an approximately correct hypothesis, Sample complexity for Finite Hypothesis Space, Sample Complexity for infinite Hypothesis Spaces, The mistake bound model of learning - Instance-Based Learning - Introduction, k -Nearest Neighbour Learning, Locally Weighted Regression, Radial Basis Functions, Case-Based Reasoning, Remarks on Lazy and Eager Learning.
UNIT-IV :
Analytical Learning - Introduction, Learning with Perfect Domain Theories: Prolog-EBG Remarks on Explanation-Based Learning, Explanation-Based Learning of Search Control Knowledge

UNIT-V :
Combining Inductive and Analytical Learning – Motivation, Inductive-Analytical Approaches to Learning, Using Prior Knowledge to Initialize the Hypothesis, Using Prior Knowledge to Alter the Search Objective, Using Prior Knowledge to Augment Search Operators, Reinforcement Learning – Introduction, The Learning Task, Q Learning, Non-Deterministic, Rewards and Actions, Temporal Difference Learning, Generalizing from Examples, Relationship to Dynamic Programming

TEXT BOOKS:
1. Machine Learning – Tom M. Mitchell, - MGH

REFERENCE BOOKS:
GROUP DISCUSSION

EXPERIMENT-I: Dynamics of Group discussion—tips for Group Discussion—Traits tested in GD
EXPERIMENT-II: Non-verbal Communication in GD
EXPERIMENT-III: Body language in GD

INTERVIEW SKILLS

EXPERIMENT-IV: Introduction—types of Interview
EXPERIMENT-V: FAQ’s in Interview
EXPERIMENT-VI: Reasons for rejecting a candidate
EXPERIMENT-VII: On the day of interview
EXPERIMENT-VIII: common mistakes in interview
EXPERIMENT-IX: Post interview etiquette
EXPERIMENT-X: Dress code and tips for job seekers at interview
EXPERIMENT-XI: Body language in Interview skills

MOCK INTERVIEW
EXPERIMENT-XII: Parameters to evaluate students’ performance

TEXT BOOKS:
1. Soft Skills: Know Yourself and Know the World—Dr. K. Alex—S. Chand Publishing-2010

REFERENCE BOOKS: