GITAM UNIVERSITY

(Declared as Deemed to be University U/S 3 of UGC Act, 1956)

REGULATIONS & SYLLABUS

Of

B.Tech. (Information Technology )

(w.e.f. 2014-15 admitted batch)

Gandhi Nagar Campus, Rushikonda
VISAKHAPATNAM – 530 045
Website: www.gitam.edu
REGULATIONS
(W.e.f. 2012-013 admitted batch)

1.0 ADMISSIONS

1.1 Admissions into B.Tech (Information Technology) programme of GITAM University are governed by GITAM University admission regulations.

2.0 ELIGIBILITY CRITERIA

2.1 A pass in 10+2 or equivalent examination approved by GITAM University with Physics, Chemistry and Mathematics.

2.2 Admissions into B.Tech will be based on an All India Entrance Test (GAT) conducted by GITAM University and the rule of reservation, wherever applicable.

3.0 STRUCTURE OF THE B.Tech. PROGRAMME

3.1 The Programme of instruction consists of:

(i) A general core programme comprising Basic Sciences, Basic Engineering, Humanities & Social Sciences and Mathematics.
(ii) An engineering core programme imparting to the student the fundamentals of engineering in the branch concerned.
(iii) An elective programme enabling the students to take up a group of departmental / interdepartmental courses of interest to him/her.

In addition, a student has to

(i) carry out a technical project approved by the department and submit a report.
(ii) undergo summer training in an industry for a period prescribed by the department and submit a report.

3.2 Each academic year consists of two semesters. Every branch of the B.Tech programme has a curriculum and course content (syllabi) for the courses recommended by the Board of Studies concerned and approved by Academic Council.

4.0 CREDIT BASED SYSTEM
4.1 Each course is assigned a certain number of credits which will depend upon the number of contact hours (lectures & tutorials) per week.

4.2 In general, credits are assigned to the courses based on the following contact hours per week per semester.

One credit for each Lecture / Tutorial hour.

One credit for two hours of Practicals.

Two credits for three (or more) hours of Practicals.

4.3 The curriculum of B.Tech programme is designed to have a total of 190 to 200 credits for the award of B.Tech degree.

4.4 Every course of the B Tech programme will be placed in one of the nine groups of courses with minimum credits as listed in the Table 1.

4.5 - Table 1: Group of Courses

<table>
<thead>
<tr>
<th>S.No,</th>
<th>Group of Courses</th>
<th>Code</th>
<th>Minimum credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Humanities &amp; Social Sciences</td>
<td>HS</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>Basic Sciences</td>
<td>BS</td>
<td>17</td>
</tr>
<tr>
<td>3</td>
<td>Mathematics</td>
<td>MT</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Basic Engineering</td>
<td>BE</td>
<td>26</td>
</tr>
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<td>5</td>
<td>Core Engineering</td>
<td>CE</td>
<td>68</td>
</tr>
<tr>
<td>6</td>
<td>Departmental Elective</td>
<td>DE</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>Inter Departmental Elective</td>
<td>IE</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>Project Work</td>
<td>PW</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>Industrial Training</td>
<td>IT</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>160</td>
</tr>
</tbody>
</table>

5.0 MEDIUM OF INSTRUCTION

The medium of instruction (including examinations and project reports) shall be English.

6.0 REGISTRATION

Every student has to register himself/herself for each semester individually at the time specified by the Institute / University.
7.0 CONTINUOUS ASSESSMENT AND EXAMINATIONS

7.1 The assessment of the student’s performance in each course will be based on continuous internal evaluation and semester-end examination. The marks for each of the component of assessment are fixed as shown in the Table 2.

Table 2: Assessment Procedure

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Component of assessment</th>
<th>Marks allotted</th>
<th>Type of Assessment</th>
<th>Scheme of Examination</th>
</tr>
</thead>
</table>
| 1     | Theory                  | 40             | Continuous evaluation | 1. Best two mid examinations of the three mid examinations for 15 marks each for a total of 30 marks  
|       |                         | 60             | Semester-end examination | 2. Remaining 10 marks are given by the teacher by conducting quiz / assignments / surprises tests etc. |
| 2     | Practicals              | 100            | Continuous evaluation | (i) 40 marks are allotted for record work and regular performance of the student in the lab.  
|       |                         |                |                   | (ii) One examination for a maximum of 20 marks shall be conducted by the teacher handling the lab course at the middle of the semester  
|       |                         |                |                   | (iii) One examination for a maximum of 40 marks shall be conducted at the end of the semester (as scheduled by the Head of the Department concerned). |
3 Project work (VII & Eighth Semester) 100 Project evaluation

(i) 50 marks are allotted for continuous evaluation of the project work throughout the semester by the guide.

(ii) 50 marks are allotted for the presentation of the project work & viva-voce at the end of the semester.*

4 Industrial Training (Seventh Semester) 100 Industrial training evaluation

(i) 50 marks are allotted for report submission and seminar presentations after completion of the training.

(ii) 50 marks are allotted for the viva-voce at the end of the semester.*

* Head of the Department concerned shall appoint two examiners for conduct of the examination.

8.0 RETOTALLING, REVALUATION & REAPPEARANCE

8.1 Re-totaling of the theory answer script of the end-semester examination is permitted on a request made by the student by paying the prescribed fee within ten days of the announcement of the result.

8.2 Revaluation of the theory answer script of the end-semester examination is also permitted on a request made by the student by paying the prescribed fee within fifteen days of the announcement of the result.

8.3 A Student who has secured ‘F’ Grade in any theory course / Practicals of any semester shall have to reappear for the semester end examination of that course / Practicals along with his / her juniors.

8.4 A student who has secured ‘F’ Grade in Project work / Industrial Training shall have to improve his report and reappear for viva – voce Examination of project work at the time of special examination to be conducted in the summer vacation after the last academic year.

9.0 SPECIAL EXAMINATION

9.1 A student who has completed the stipulated period of study for the degree programme concerned and still having failure grade (‘F’) in not more than 5 courses (Theory / Practicals), may be permitted to appear for the special examination, which shall be conducted in the summer vacation at the end of the last academic year.

9.2 A student having ‘F’ Grade in more than 5 courses (Theory/practicals) shall not be permitted to appear for the special examination.
10.0 ATTENDANCE REQUIREMENTS

10.1 A student whose attendance is less than 75% in all the courses put together in any semester will not be permitted to attend the end - semester examination and he/she will not be allowed to register for subsequent semester of study. He /She has to repeat the semester along with his / her juniors.

10.2 However, the Vice Chancellor on the recommendation of the Principal / Director of the University College / Institute may condone the shortage of attendance to the students whose attendance is between 66% and 74% on genuine medical grounds and on payment of prescribed fee.

11.0 GRADING SYSTEM

11.1 Based on the student performance during a given semester, a final letter grade will be awarded at the end of the semester in each course. The letter grades and the corresponding grade points are as given in Table 3.

Table 3: Grades & Grade Points

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade points</th>
<th>Absolute Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>10</td>
<td>90 and above</td>
</tr>
<tr>
<td>A+</td>
<td>9</td>
<td>80 – 89</td>
</tr>
<tr>
<td>A</td>
<td>8</td>
<td>70 – 79</td>
</tr>
<tr>
<td>B+</td>
<td>7</td>
<td>60 – 69</td>
</tr>
<tr>
<td>B</td>
<td>6</td>
<td>50 – 59</td>
</tr>
<tr>
<td>C</td>
<td>5</td>
<td>40 – 49</td>
</tr>
<tr>
<td>F</td>
<td>Failed, 0</td>
<td>Less than 40</td>
</tr>
</tbody>
</table>

11.2 A student who earns a minimum of 5 grade points (C grade) in a course is declared to have successfully completed the course, and is deemed to have earned the credits assigned to that course. However, a minimum of 24 marks is to be secured at the semester end examination of theory courses in order to pass in the theory course.
12.0 GRADE POINT AVERAGE

12.1 A Grade Point Average (GPA) for the semester will be calculated according to the formula:

\[ \text{GPA} = \frac{\sum (C \times G)}{\sum C} \]

Where

- \( C \) = number of credits for the course,
- \( G \) = grade points obtained by the student in the course.

12.2 Semester Grade Point Average (SGPA) is awarded to those candidates who pass in all the courses of the semester.

12.3 To arrive at Cumulative Grade Point Average (CGPA), a similar formula is used considering the student’s performance in all the courses taken in all the semesters completed up to the particular point of time.

12.4 The requirement of CGPA for a student to be declared to have passed on successful completion of the B.Tech programme and for the declaration of the class is as shown in Table 4.

<table>
<thead>
<tr>
<th>Class</th>
<th>CGPA Required</th>
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</thead>
<tbody>
<tr>
<td>Distinction</td>
<td>( \geq 8.0^* )</td>
</tr>
<tr>
<td>First Class</td>
<td>( \geq 7.0 )</td>
</tr>
<tr>
<td>Second Class</td>
<td>( \geq 6.0 )</td>
</tr>
<tr>
<td>Pass</td>
<td>( \geq 5.0 )</td>
</tr>
</tbody>
</table>

* In addition to the required CGPA of 8.0, the student must have necessarily passed all the courses of every semester in first attempt.

13.0 ELIGIBILITY FOR AWARD OF THE B.TECH DEGREE
13.1 **Duration of the Programme:**

A student is ordinarily expected to complete the B Tech. programme in eight semesters of four years. However a student may complete the programme in not more than six years including study period.

13.2 However the above regulation may be relaxed by the Vice Chancellor in individual cases for cogent and sufficient reasons.

13.3 A student shall be eligible for award of the B.Tech degree if he / she fulfils all the following conditions.

a) Registered and successfully completed all the courses and projects.

b) Successfully acquired the minimum required credits as specified in the curriculum corresponding to the branch of his/her study within the stipulated time.

c) Has no dues to the Institute, hostels, Libraries, NCC / NSS etc, and

d) No disciplinary action is pending against him / her.

13.4 The degree shall be awarded after approval by the Academic Council.
### B.Tech. (IT) First Semester

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Course Code</th>
<th>Name of the Course</th>
<th>Category</th>
<th>Scheme of Instruction</th>
<th>Scheme of Examination</th>
<th>Credit to be awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hours per week</td>
<td>Duration in Hrs.</td>
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<tr>
<td>1</td>
<td>EUREG 101</td>
<td>Engg. English – I</td>
<td>HS</td>
<td>3</td>
<td>3</td>
<td>60 40 3</td>
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<td>2</td>
<td>EURMT 102</td>
<td>Engg. Mathematics</td>
<td>MT</td>
<td>4</td>
<td>3</td>
<td>60 40 4</td>
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<td>3</td>
<td>EURPH 103</td>
<td>Engg. Physics - I</td>
<td>BS</td>
<td>4</td>
<td>3</td>
<td>60 40 4</td>
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<tr>
<td>4</td>
<td>EURCH 104</td>
<td>Engg. Chemistry – I</td>
<td>BS</td>
<td>4</td>
<td>3</td>
<td>60 40 4</td>
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<tr>
<td>5</td>
<td>EURCS 105</td>
<td>Programming with C</td>
<td>BE</td>
<td>3</td>
<td>3</td>
<td>60 40 3</td>
</tr>
</tbody>
</table>

**DRAWING / PRACTICALS:**

- EURCS 113 Programming with C Lab | BE | --- | 3 | 3 | -- | 100 | 2
- EURCH 114/214 Engg. Chemistry Lab | BS | --- | 3 | 3 | -- | 100 | 2
- EUREE 118 C and Numerical programming Lab | BE | --- | 3 | 3 | -- | 100 | 2

Total: 18 09 --- 300 500 24

### B.Tech. (IT) Second Semester

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Course Code</th>
<th>Name of the Course</th>
<th>Category</th>
<th>Scheme of Instruction</th>
<th>Scheme of Examination</th>
<th>Credit to be awarded</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hours per week</td>
<td>Duration in Hrs.</td>
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<td>L/T D/P</td>
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<tr>
<td>1</td>
<td>EUREG 201</td>
<td>Engg. English – II</td>
<td>HS</td>
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<td>3</td>
<td>60 40 3</td>
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<tr>
<td>2</td>
<td>EURMT 202</td>
<td>Higher Engineering Mathematics – I</td>
<td>MT</td>
<td>3</td>
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<tr>
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<td>EURMT 203</td>
<td>Higher Engineering Mathematics – II</td>
<td>MT</td>
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<td>60 40 3</td>
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<tr>
<td>4</td>
<td>EURPH 204</td>
<td>Engg. Physics - II</td>
<td>BS</td>
<td>3</td>
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<td>60 40 3</td>
</tr>
<tr>
<td>5</td>
<td>EURCH 205</td>
<td>Engg. Chemistry – II</td>
<td>BS</td>
<td>3</td>
<td>3</td>
<td>60 40 3</td>
</tr>
<tr>
<td>6</td>
<td>EURCS 206</td>
<td>Object Oriented programming with C+</td>
<td>BE</td>
<td>3</td>
<td>3</td>
<td>60 40 3</td>
</tr>
</tbody>
</table>

**DRAWING / PRACTICALS:**

- EURPH 212/112 Engg. Physics Lab | BS | --- | 3 | 3 | -- | 100 | 2
- EURCS 213 Objected oriented programming with C++ Lab | BE | --- | 3 | 3 | -- | 100 | 2
- EURIE 215/115 Engineering Graphics Practice | BE | --- | 4 | 3 | -- | 100 | 2

Total: 18 10 --- 360 540 24
### Third Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Name of the Course</th>
<th>Category</th>
<th>Credits</th>
<th>Marks</th>
<th>Hours per week</th>
<th>Semester End Exam</th>
<th>Con. Eval.</th>
<th>Total</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>EURIT- 301</td>
<td>Basic Electronics</td>
<td>BE</td>
<td>3</td>
<td>60</td>
<td>40</td>
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<td>3</td>
<td>-</td>
<td>-</td>
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<tr>
<td>EURIT- 302/ EURCS 302</td>
<td>Environmental Studies</td>
<td>HS</td>
<td>4</td>
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<td>100</td>
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<tr>
<td>EURIT- 303</td>
<td>Discrete Mathematical Structures</td>
<td>CE</td>
<td>4</td>
<td>60</td>
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<tr>
<td>EURIT- 304</td>
<td>Probability &amp; Statistics</td>
<td>MT</td>
<td>3</td>
<td>60</td>
<td>40</td>
<td>100</td>
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<td>-</td>
<td>-</td>
<td>3</td>
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<tr>
<td>EURIT- 305</td>
<td>Switching theory &amp; digital logic circuits</td>
<td>CE</td>
<td>3</td>
<td>60</td>
<td>40</td>
<td>100</td>
<td>3</td>
<td>-</td>
<td>-</td>
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<tr>
<td>EURIT- 311</td>
<td>Switching theory &amp; digital logic circuits lab</td>
<td>CE</td>
<td>2</td>
<td>-</td>
<td>100</td>
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<td>-</td>
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<tr>
<td>EURIT- 312</td>
<td>Basic Electronics Lab</td>
<td>BE</td>
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<td>EURIT- 313</td>
<td>Communications Skills Lab</td>
<td>HS</td>
<td>2</td>
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### Fourth Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Name of the Course</th>
<th>Category</th>
<th>Credits</th>
<th>Marks</th>
<th>Hours per week</th>
<th>Semester End Exam</th>
<th>Con. Eval.</th>
<th>Total</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>EURIT- 401/ EURCS 401</td>
<td>Computer Organization</td>
<td>CE</td>
<td>4</td>
<td>60</td>
<td>40</td>
<td>100</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>4</td>
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</tr>
<tr>
<td>EURIT- 402</td>
<td>Data Structures and Algorithms</td>
<td>CE</td>
<td>4</td>
<td>60</td>
<td>40</td>
<td>100</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>4</td>
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</tr>
<tr>
<td>EURIT- 403</td>
<td>Graphics and Multimedia</td>
<td>CE</td>
<td>4</td>
<td>60</td>
<td>40</td>
<td>100</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>4</td>
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</tr>
<tr>
<td>EURIT- 404</td>
<td>Electrical Circuits and Machines</td>
<td>BE</td>
<td>3</td>
<td>60</td>
<td>40</td>
<td>100</td>
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<tr>
<td>EURIT- 405/ EURCS 405</td>
<td>Software Engineering</td>
<td>CE</td>
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<tr>
<td>EURIT- 411</td>
<td>Data Structures and Algorithms lab</td>
<td>CE</td>
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<td>-</td>
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<td>Graphics and Multimedia Lab</td>
<td>CE</td>
<td>2</td>
<td>-</td>
<td>100</td>
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<tr>
<td>EURIT- 413</td>
<td>Industrial Tour</td>
<td>IT</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Name of the Course</th>
<th>Category</th>
<th>Credits</th>
<th>Marks</th>
<th>Hours per week</th>
<th>Semester End Exam</th>
<th>Con. Eval.</th>
<th>Total</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>Total</th>
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<tbody>
<tr>
<td>EURIT- 401/ EURCS 401</td>
<td>Computer Organization</td>
<td>CE</td>
<td>4</td>
<td>60</td>
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<td>CE</td>
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<td>Graphics and Multimedia</td>
<td>CE</td>
<td>4</td>
<td>60</td>
<td>40</td>
<td>100</td>
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<td>BE</td>
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## Fifth Semester

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## Sixth Semester

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**Seventh Semester**

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**Eighth Semester**

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B.Tech. (IT) ELECTIVES

Department Electives I and II (any two subjects)

- Software Project management
- Embedded Systems
- Network Management Systems
- C# and .Net
- Distributed operating systems
- E-Commerce
- Mobile Computing
- Advanced Databases
- Introduction to biotechnology
- Advanced computer architecture
- Image Processing
- Data Mining and Data warehousing

Department Electives III

- Bioinformatics
- Cloud computing
- Soft Computing
- Information Technology And Cyber laws
- Human Computer Interaction
- Real Time Systems.

Inter department Electives I and II (any Two)

- Medical informatics
- Robotics and automation
- ERP and supply chain management
- Remote Sensing & GIS
- Operations Research & Engineering Management
- Human Values, Ethics And Intellectual Property Right
- Nanotechnology
- Graph Theory
- Introduction to modern algebra
- Entrepreneurship
- Digital Signal Processing.

Details of category wise minimum credits as per AICTE norms and actual credits allocated are as follows:

<table>
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<tr>
<th>S.No</th>
<th>Category</th>
<th>Code</th>
<th>Allocated credits</th>
<th>Minimum as per AICTE norms</th>
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<td>9.</td>
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Total 191 160
B.Tech. (IT) First Semester

EUREG 101: ENGINEERING ENGLISH-I

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UNIT- - I: Introduction to Communication
Role and Importance of Communication, Features of Human Communication
Process of Communication, Types of Communication: Verbal and Non-Verbal
Importance of Listening in Effective Communication, Barriers to Communication

UNIT- - II : Effective Vocabulary
Words Often Confused, One-word Substitutes, Idiomatic Usage, Using Dictionary and Thesaurus

UNIT- - III : Functional Grammar
Functions: Making proposals, Offering suggestions, Apologizing, Requesting,
Offering and Refusing help, Giving and asking for information, Making
complaints, Interrupting, Giving and asking directions, Inviting, Asking
Permission, Expressing ability, etc.,
Articles, Prépositions, Tenses, Concord

UNIT- - IV: Communication through Writing
Paragraph writing
Communication through letters: official and personal letters, letters of complaint,
letters of enquiry and responses.
Résumé writing, Cover letters, E-mail etiquette, Punctuation

UNIT- - V: Reading for Enrichment
Sachin Tendulkar, Michael Jackson

Text Books Prescribed:
1. E. Suresh Kumar et al., Enriching Speaking and Writing Skills, Orient Blackswan, 2012.

Reference Books:
B.Tech. (IT) First Semester

EURMT 102: ENGINEERING MATHEMATICS

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UNIT-I: First order Differential Equations
Formation – Variables separable – Homogeneous, non Homogeneous, Linear and Bernoulli equations. Exact equations - Applications of first order differential equations – Orthogonal Trajectories, Newton’s law of cooling, law of natural growth and decay.

UNIT-II: Higher order Differential Equations

UNIT-III: Mean Value Theorems
Rolle’s, Lagrange’s and Cauchy’s mean value theorems, Taylor’s and Maclaurin’s theorems and applications (without proofs).

UNIT-IV: Infinite Series

UNIT-V: Linear Algebra

Text Books Prescribed:

References:
Calculus and Analytic Geometry Thomas / Finney Sixth edition - Narosa Publishing House

Note: The figures in parentheses indicate approximate number of expected hours of Instruction.
The aim of the course is to impart knowledge in basic concepts of Physics relevant to Engineering applications.

UNIT - I (9 hours)

UNIT - II (10 hours)
ELECTROMAGNETIC OSCILLATIONS AND ALTERNATING CURRENTS: Energy Stored in a Capacitor and an Inductor - LC Oscillations (Qualitative and Quantitative) - Analogy to Mechanical Motion-Damped Oscillations - Damped Oscillations in an RLC Circuit - Alternating Current (Including Equations for Voltages and Currents) - Fundamental Definitions - Cycle, Time period, Frequency, Amplitude, Phase, Phase Difference, Root Mean Square (RMS) value, Average Value, Form Factor, Quality Factor, Power in Alternating Current Circuits - Forced Oscillations and Resonance - The Series RLC Circuit.


UNIT-III (8 hours)

UNIT-IV (8 hours)

UNIT-V (9 hours)

Prescribed Books:
Engineering, Physics     P.K. Palani samy. Scitech Publications (India) Pvt Ltd., Chennai
Reference Books:
Note: The figures in parentheses indicate approximate number of expected hours of instruction.
Eurch 104: Engineering Chemistry I

<table>
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UNIT- I. WATER TECHNOLOGY - SOURCES AND PURIFICATION OF WATER: (8 hours)

Sources of Water – Impurities in Water – Hardness of Water – Temporary and Permanent Hardness.

UNIT- II. WATER TECHNOLOGY - SOFTENING METHODS AND BOILER TROUBLES: (8 hours)


UNIT- III. SURFACE CHEMISTRY AND NANOCHEMISTRY: (9 hours)

Colloids: Types of Colloids – Preparation of Colloidal solutions – Micelles – Applications of Colloids

Adsorption: Classification – Adsorption of Gasses on solids - Applications of Adsorption


UNIT- IV. POLYMERS: (9 hours)


UNIT- V. ENGINEERING MATERIAL SCIENCE: (11 hours)

Refactories: - Classification - criteria of a good refractory. Preparation and properties of silica, magnesite and silicon carbide refractories - clay bond, silica nitride bond and self bond in silicon carbide.


Ceramics: – Structural clay products, white wares and Chemical stone wares.

Cement: Chemical composition of Portland cement, Manufacture- Setting and Hardening of Cement.

Text Books Prescribed:


Reference Books:

- Material Science and Engineering, V. Raghavan.
**EURCS 105: CS116: PROGRAMMING with C**

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<tr>
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**UNIT - I**
(8 periods)
Algorithm, flowchart, program development steps, structure of C program, Compilers, Linker, Preprocessor, identifiers, basic data types and sizes, Constants, variables, operators, expressions, type conversions, conditional expressions, precedence and order of evaluation. Input-output statements, statements and blocks, programming examples.

**UNIT - II**
(8 periods)
Control Structures: if and switch statements, loops- while, do-while and for statements, break, continue, goto and labels.
Designing structured programs, Functions, basics, parameter passing, block structure, user defined functions, standard library functions, recursive functions, Comparison of Iteration and Recursion, header files, C preprocessor, storage classes- extern, auto, register, static, scope rules, example c programs.

**UNIT - III**
(8 periods)
Arrays: concepts, declaration, definition, accessing elements, storing elements, arrays and functions, two-dimensional and multi-dimensional arrays, applications of arrays.
Pointers: concepts, initialization of pointer variables, pointers and function arguments, address arithmetic, Character pointers and functions, pointers to pointers, pointers and multidimensional arrays, dynamic memory management functions, command line arguments, c program examples.

**UNIT - IV**
(8 periods)
Strings: What are Strings, Arrays of Strings and Standard Library String Functions.
Derived types: structures- declaration, definition and initialization of structures, accessing structures, nested structures, arrays of structures, structures and functions, pointers to structures, self referential structures, unions, typedef, bitfields, C program examples.

**UNIT - V**
(8 periods)
Input and output - concept of a file, File Structure, text files and binary files, streams, standard I/O, Formatted I/O, file I/O operations, error handling, C program examples.

**Text Books:**

**Reference Books:**
1. Programming with ANSI and Turbo C by Ashok N. Kamthane, published by PEARSON Education

---

* ***
1. a) Write a C program to ask the user to enter one char (Upper-Case letter) check whether user entered a Upper-case letter or not (by using relational and logical operators) and then if user has entered a Upper-case letter convert into a Lower-case letter? (hint: Upper-case means capital letters, use ASCII information to check for Upper-case and convert)

2. Write a C program to ask the user to enter two integers and apply all arithmetic operations on those print the corresponding values? (hint : +,-,*/,%)

3. Write a C program to Determine the ranges of char, short, int and long int variables both signed and unsigned
   (i) By using sizeof operator (ii) By printing appropriate values from standard header (limits.h)

4. a) Write a Program to Find the Roots of a Quadratic Equation using if else and Switch statements.
   b) Write a Program which Generates One Hundred Random Integers in the Range of 1 To 100, store them in an array and then prints the average. Write three versions of the program using Different Loop Constructs.

5. a) Write a C program to find the sum of individual digits of a positive integer.
   b) A Fibonacci Sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of the sequence.
   c) Write a C program to calculate the following
   \[
   \text{Sum} = 1 - x^2/2! + x^4/4! - x^6/6! + x^8/8! - x^{10}/10!
   \]

6. a) Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
   b) Write C programs that use both recursive and non-recursive functions
      i) To find the factorial of a given integer.
      ii) To find the GCD (greatest common divisor) of two given integers.
      iii) To solve Towers of Hanoi problem.

7. a) Write a C program to find both the largest and smallest number in a list of integers.
b) Write a program to read set of elements in the array and sort them in ascending order.
c) Write a C program that uses functions to perform the following:
   i) Addition of Two Matrices
   ii) Multiplication of Two Matrices
   iii) Transpose of a given Matrix

8. a) Write a C program that uses functions to perform the following operations:
   i) To insert a sub-string in to given main string from a given position.
   ii) To delete n Characters from a given position in a given string.

b) Write a C program to determine if the given string is a palindrome or not

c) Given an Array of Strings Write a Program to Sort the String in Dictionary Order.

9. Write a C program that uses functions to perform the following operations:
   i) Reading a complex number
   ii) Writing a complex number
   iii) Addition of two complex numbers

10. Write a C program that uses functions to perform the following operations:
    a) Count number of characters, words in a file.
    b) Write a C program to reverse the first n characters in a file.
    (Note: The file name and n are specified on the command line.)
    c) Write a C program which copies one file to another.
The objective of the Laboratory Practicals is to make the student to acquire the basic Concepts on Engineering Chemistry.

2. Determination of sodium carbonate in soda ash.
4. Estimation of Calcium on Portland cement.
6. a) Estimation of Active Chlorine Content in Bleaching Power.
   b) Determination of Hardness of a Ground Water Sample.
7. Determination of Chromium (VI) in Potassium Dichromate
8. Determination of Copper in a Copper Ore.
   b) Determination of Surface Tension of a Liquid.
10. a) Determination of Mohr’s Salt by potentiometric method.
    b) Determination of Strength of an acid by pH metric method.
### B.Tech. (IT) First Semester

**EUREE 118/218: ELECTRICAL & ELECTRONIC WORKSHOP LAB**

<table>
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<th>Category</th>
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</table>

#### List of Experiments

1. **a. Study of Electrical Symbols**
   - **b. Study of Electrical Components**
2. **a. One way Control of a Lamp**
   - **b. Two way Control of a Lamp**
3. **A Lamp controlled from three different places**
4. **Study of Cathode Ray Oscilloscope & Signal Generator**
5. **Study of Electronics Components with Symbols**
6. **Tube Light wiring**
7. **Bread Board connections**
8. **Half Wave Diode Rectifier**
9. **Living Room wiring**
10. **Godown wiring**
11. **Verification of OHMS law**
12. **Soldering & De – Soldering Techniques & Precautions**
13. **Fan wiring**
14. **Doctors Room wiring**
15. **Series & Parallel Connections of Lamps ( Dim & Bright connections )**
16. **PCB Design**
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UNIT- – I: Interpersonal Communication:
Introduction to Interpersonal Communication, Models of Interpersonal Relationship Development, Team Work, Persuasion Techniques

UNIT- – II: Spoken Communication:
Importance of spoken communication, Basics of Spoken English
Situational Dialogues, Speech Making: Formal and Informal

UNIT- – III: Developing Vocabulary and Correcting Common Errors:
Homonyms, Homophones and Homographs, Synonyms and Antonyms
Oral and Written

UNIT- – IV: Information Transfer:
Using charts, Figures, Tables, Pictograms, Maps, Note Making
Note Taking

UNIT- – V: Reading for Enrichment
Sir Mokshagundam Visvesvaraya
Steve Jobs: The Early Years

Text Book Prescribed:

Reference Books:
B.Tech. (IT) Second Semester

EURMT202: HIGHER ENGINEERING MATHEMATICS – I

<table>
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UNIT-I: Partial Differentiation-1

Introduction to Partial differentiation - Total derivative - Differentiation of implicit functions - Geometrical interpretation - Tangent plane and normal to a surface - Change of variables - Jacobians.

UNIT-II: Partial differentiation-2

Taylor’s theorem for functions of two variables. Total differential - Maxima and minima of functions of two variables - Lagrange’s method of undetermined multipliers - Differentiation under the integral sign, Leibnitz’s Rule.

UNIT-III: Fourier Series

Euler’s formulae - Conditions for a Fourier expansion - Functions having points of discontinuity - Change of interval - Odd and even functions - Expansions of odd or even periodic functions - Half range series and practical Harmonic Analysis.

UNIT-IV: Partial differential equations


UNIT-V: Applications of Partial Differential Equations


Text Books Prescribed:

Text Books Prescribed:


References:


Note: The figures in parentheses indicate approximate number of expected hours of Instruction.
B.Tech. (IT) Second Semester

EURMT203: HIGHER ENGINEERING MATHEMATICS – II

<table>
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</table>

The objective of the course is to impart knowledge in Basic concepts of Mathematics relevant to Engineering applications.

**UNIT-I: Multiple Integrals-I**

Double integrals - Change of order of integration, Double integrals in Polar coordinates - Areas enclosed by plane curves,

**UNIT-II: Multiple Integrals-II**

Triple integrals - Volume of solids - Change of variables - Area of a curved surface, Beta and Gamma functions – Properties - Relation between beta and gamma functions – Dirichlet’s integrals of type I and type II.

**UNIT-III: Vector Differentiation**

Scalar and vector fields - Gradient, Divergence and Curl - Directional derivative – Identities - Irrotational and Solenoidal fields.

**UNIT-IV: Vector Integration**

Line, Surface and Volume integrals - Green’s theorem in the plane - Stoke’s and Gauss divergence theorems - Introduction of orthogonal curvilinear co-ordinates, Cylindrical co-ordinates and Spherical polar co-ordinates (self study)

**UNIT-V: Laplace transforms**

Transforms of elementary functions - Properties of Laplace transforms - Existence conditions - Inverse transforms - Transforms of derivatives and integrals - Multiplication by \( t^a \) - Division by \( t \) - Convolution theorem. Applications to ordinary differential equations and simultaneous linear equations with constant coefficients - UNIT- step function - UNIT- impulse function - Periodic functions.

**Text Books Prescribed:**


**References:**


**Note:** The figures in parentheses indicate approximate number of expected hours of Instruction.
The aim of the course is to impart knowledge in basic concepts of physics relevant to engineering applications.

UNIT – I (9 hours)

DIFFRACTION: Introduction - Differences between Fresnel and Fraunhofer Diffractions - Single Slit Diffraction (Qualitative and Quantitative Treatment) - Differences between Interference and Diffraction - Gratings and Spectra-Multiple Slits - Diffraction Grating - X-ray Diffraction - Bragg’s Law.

UNIT – II (9 hours)


UNIT – III (10 hours)

UNIT – IV (9 hours)

UNIT – V (8 hours)
FIBRE OPTICS: Introduction - Optical Paths in Fibre - Optical Fibre and Total Internal Reflection - Acceptance Angle and Cone of a Fibre - Fibre Optics in Communications - Applications.

NANOSCIENCE: History – Definition - Size Dependent Properties (Qualitative): Mechanical and Electrical - Growth Techniques: Top Down (PVD, Ball Milling) - Bottom Up (Sol-Gel and Co-Precipitation) - Applications.

Prescribed Books:

Physics part I & II

Applied Physics
P.K. Palani samy. Scitech Publications (India) Pvt Ltd., Chennai

Reference Books:

Modern Physics

Solid State Physics

Materials Science
M. Arumugam. Anuradha Agencies, Kumbhakonam.

A Text Book of Enng. Physics
Kshirsagar & Avadhanulu. S.Chand and Co.

The Feynman Lectures on Physics
Addison-Wesley.

Note: The figures in parentheses indicate approximate number of expected hours of instruction.
UNIT-I. NON-CONVENTIONAL ENERGY SOURCES AND APPLICATIONS: (9 hours)


**Solar:** Photoelectric cells – Applications of Solar Cells

UNIT-II. CORROSION ENGINEERING: (11 hours)


UNIT-III. FUEL TECHNOLOGY: CALORIFIC VALUE AND SOLID FUELS: (9 hours)


UNIT-IV. FUEL TECHNOLOGY: LIQUID FUELS: (8 hours)


UNIT-V. LUBRICANTS: (8 hours)


Text Books Prescribed:

Reference Books:

Note: The figures in parentheses indicate approximate number of hours of Instruction.
EURCS206: OBJECT ORIENTED PROGRAMMING WITH C++

<table>
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**UNIT-I**
C++ Basics: Keywords, Constants, Data Types, Dynamic Initialization of Variables, Reference Variables, Operators in C++.
C++ Class Overview: Class Definition, Objects, Class Members, Access Control, Class Scope.

**UNIT-II**
Dynamic memory allocation and deallocation (new and delete), Parameter passing methods, static class members, Arrays of Objects, Objects as Function Arguments, Default Arguments, Const Arguments, Inline functions, Function Overloading, Friend Functions, this pointer, pointers to data members and member function.

**UNIT-III**
Constructors, Parameterized Constructors, Multiple Constructors in a Class, Constructors with Default Arguments, Dynamic initialization of Objects, Copy Constructors, Dynamic Constructors, Destructors.
Introduction to inheritance, Defining Derived Classes, Single Inheritance, Multiple Inheritance, Multi Level Inheritance, Hierarchical Inheritance, Hybrid Inheritance, Virtual Base Classes, Abstract Classes, Constructors in Derived Classes.

**UNIT-VI**
Introduction to pointers, Pointers to Objects, Pointers to Derived Classes, compile time polymorphism, Run time polymorphism, Virtual Functions, Pure Virtual Functions, Virtual Destructors, Operator overloading, Rules for Operator overloading, overloading of binary and unary operators.
Files in C++: File I/O, Unformatted and Binary I/O, file handling library functions.

**UNIT-V**
Templates: Introduction, Class Templates, Class Templates with Multiple Parameters, Function Templates, Function Templates with Multiple Parameters, Member Function Templates.
Exception Handling: Basics of Exception Handling, Types of exceptions, Exception Handling Mechanism, Throwing and Catching Mechanism, Rethrowing an Exception, Specifying Exceptions.

**Text Book:**
2. **Computer Science : A Structured Approach Using C++** second edition by Behrouz A. Forouzan and Richard F. Gilberg

**Reference Books:**
2. **Object- Oriented Programming with ANSI and Turbo C++ , 1/e** by Ashok Kamthane
3. **Problem Solving, Abstraction, and Design using C++ (6TH 11)**
   Frank L. Friedman
B.Tech. (IT) Second Semester  
EURPH 212/112: ENGINEERING PHYSICS LAB

<table>
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2. Thermal Conductivity of a Bad Conductor – Lee’s Method.  
10. Determination of Refractive Indices (o and e) of a Bi-Refringent Material (Prism).  
15. Determination of Band Gap in a Semiconductor.  
17. VI Characteristics of a pn-junction diode  
18. Response of a series RLC Circuit

* * *
B.Tech. (IT) Second Semester
EURCS 213: OBJECTED ORIENTED PROGRAMMING LAB WITH C++

<table>
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1. Write a CPP program that contains a function to exchange values of two arguments (swap) by using pointers and reference parameters.
2. Write a CPP program to find the given string is palindrome or not. Declare private member function to find palindrome of the given string and access it using public member function.
3. Write a CPP program to find transpose of 2D matrix and allocate memory dynamically to the matrix using dynamic memory allocation. Initialize and display contents of the matrix and deallocate memory.
4. Write a CPP program to add two polynomials of any degree using object as function arguments. Hint: create two objects each represent one polynomial equation.
5. Write a CPP program to add corresponding elements of two 2D matrices using friend function. Create two classes each capable of storing one 2D matrix. Declare the matrix under private access specifier and access them outside the class.
6. Write a program to find total and average marks of each student in class. Create a student class with student number, name, 6 subject marks as its members and initializes the details. Use friend class that access the details of student and calculates total, average marks and prints the result.
7. Write a program to add two matrices of same copy. Create two objects of the class and each of which refers one 2D matrix. Use constructor to allocate memory dynamically and use copy constructor to allocate memory when one array object is used to initialize another.
8. Write a Program to Generate Fibonacci Series by using Constructor to Initialize the Data Members.
9. Write a program for finding area of different geometric shapes (circle, Rectangle, cube). Use function overloading with type, order, sequence of arguments to find the area of shapes.
10. Write a program which prompts the user to enter a string and returns the length of the longest sequence of identical consecutive characters within the string using pointers to data members and member function. For example, in the string "aaaAAAAAjjB", the longest sequence of identical consecutive characters is "AAAAA".
11. Write a program to calculate gross and net pay of employee from basic salary. Create employee class which consists of employee name, emp_id, basic salary as its data members. Use parameterized constructor in the derived class to initialize data members of the base class and calculate gross and net pay of the employee in the derived class.

12. Write a program to calculate bonus of the employees. The class master derives the information from both admin and account classes which intern derives information from class person. Create base and all derived classes having same member functions called getdata, display data and bonus. Create a base class pointer that capable of accessing data of any class and calculates bonus of the specified employee. (Hint: Use virtual functions)

13. Write a program to add two matrices of mxn size using binary operator overloading.

14. Write a program to find transpose of a given matrix of mxn size using unary operator overloading.

15. Write a program to concatenate one string to another using binary operator overloading.

16. Write a program that uses functions to perform the following operations:
   a) To copy contents of one file into another file.
   b) To replace a word with other word in a given file?
   c) To count the no of occurrences of a word in a given file

17. Write a program to sort a given set of elements using function template.

18. Write a program to search a key element in a given set of elements using class template.

19. Write a program to find average marks of the subjects of a student. Throw multiple exceptions and define multiple catch statements to handle division by zero as well as array index out of bounds exceptions.

20. Write a program to find factorial of a given number. Throw multiple exceptions and define multiple catch statements to handle negative number and out of memory exception. Negative number exception thrown if given number is negative value and out of memory exception is thrown if the given number is greater than 20.
B.Tech. (IT) Second Semester

**EURME215/115: ENGINEERING GRAPHICS PRACTICE**

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<th>Category</th>
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1. Introduction to AutoCAD, Beginning a new drawing, exploring and interacting with the drawing window, saving and opening a file, Coordinate systems (Cartesian, polar and relative co-ordinate system) (1 hr practice)

2. Introduction to draw commands – line, circle, rectangle, polygon etc. (1 hr practice)

3. Introduction to modify commands – extend, trim, chamfer, rotate, etc. (1 hr practice)

4. Introduction to dimensioning and object properties. (1 hr practice)

5. Engineering Curves – Conics – general method, cycloid, epicycloids, hypocycloid, involutes. (1 hr practice)

6. Projection of planes (2 hr practice)

7. Sections and sectional views of solids – prism, pyramid, cylinder, cone (2 hr practice)

8. Developments of solids – prism, pyramid, cylinder, cone. (2 hr practice)

9. Intersection of solids – prism to prism, cylinder to cylinder (1 hr practice)

10. ** **
B.Tech. (IT) Third Semester

EURIT-301: BASIC ELECTRONICS

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UNIT- I

**Semiconductor diode:** Classification of semiconductors- Conductivity of Semiconductors- characteristics of PN junction diode-half wave rectifier- full wave rectifier-bridge rectifier-ripple factor – efficiency – regulation-zener diode-LED-Varactor diode- photodiode.

UNIT- II

**Transistors:** The bipolar junction transistor- operation of PNP and NPN transistors, CB,CC,CE, Configuration Transistors biasing – Types of biasing and analysis & stability.

UNIT- III

**Transistor amplifiers:** CB, CE, CC amplifiers – small signal analysis of single stage BJT amplifiers – RC couple amplifier and its frequency response.

UNIT- IV

**Field effect transistors:** Junction field effect transistor-JFET characteristics biasing the FET– small signal model of FET- MOSFET- depletion and enhancement.

UNIT- V

**Feedback amplifier and oscillators (Elementary treatment only):** Basic concept of feedback- effects of negative feedback- feedback topologies – oscillator- RC Phase shift oscillator- Weinbridge oscillator- crystal oscillator.

**Text Books:**
1. Electronic devices and Circuits --- S. Salivahan, N Suresh Kumar, A. Vallavaraj 3rd edition, TMH.

**References:**
1. Integrated Electronics ---- Milliman and Halkias 3rd edition,  
3. Electronic Devices and Circuits --- C. Dharmaraj & BT Krishna 2nd edition Person Education
B.Tech. (IT) Third Semester

EURIT-302: ENVIRONMENTAL STUDIES

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UNIT- I


UNIT- II

UNIT- III


UNIT- IV


UNIT- V


Text Books:

1. Text book of environmental studies for undergraduates courses by Erach Bharucha, Published by – University Grants Commission, Universities Press,India.

Reference

B.Tech. (IT) Third Semester

EURIT- 303 : DISCRETE MATHEMATICAL STRUCTURES

<table>
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UNIT- I

UNIT- II

UNIT- III
Algebraic structures: Algebraic systems Examples and general properties, Semi groups and monoids, groups, sub groups, homomorphism, Isomorphism.

UNIT- IV

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

Text Books:
1. Discrete Mathematical Structures with applications to computer science Trembly J.P. & Manohar .P, TMH

Reference Books:
1. Discrete Mathematics with Applications, Thomas Koshy, Elsevier
2. Discrete Mathematical Structures, Bernand Kolman, Roberty C. Busby, Sharn Cutter Ross, Pearson Education/PHI.
3. Discrete Mathematics, Rosen and kamala keerthi vasan, Pearson publications
4. Discrete Mathematical structures Theory and application-Malik & Sen
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**UNIT - I**  

**UNIT - II**  
**Continuous distributions**: Uniform, normal exponential distributions and their properties, rectangular distribution and its properties. Curve fitting – Principle of least squares, method of least squares, working procedure, Fitting of other curves.

**UNIT - III**  
**Multivariate Analysis**: correlation, correlation coefficient, Rank correlation, Regression analysis, \( \chi^2 \) – test for goodness of fit, test for independence. Estimation: Sample, populations, statistic, parameter, sampling distribution, standard error, unbiasedness, efficiency, maximum likelihood estimator, notion & interval estimation.

**UNIT - IV**  
**Testing of Hypothesis**: Formulation of Null Hypothesis, critical regions, level of significance, power of the test.

**UNIT - V**  
**Small sample Tests**: Testing equality of means, testing equality of variances, test of correlation coefficients, test for regression coefficient.  
**Large sample Tests**: Tests based on Normal distribution.

**Text Book**:  

**Reference books**:  
## EURIT- 305 : SWITCHING THEORY & DIGITAL LOGIC CIRCUITS

<table>
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<tr>
<th>Code</th>
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<td>SWITCHING THEORY &amp; DIGITAL LOGIC CIRCUITS</td>
<td>CE</td>
<td>L 3 T - P - Tot 3</td>
<td>C 40 S 60 Tot 100</td>
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### UNIT - I
Digital Computer and Digital Systems, Binary numbers, Number base conversion, octal and Hexadecimal number, complements, binary codes, arithmetic with signed unsigned numbers, addition, subtraction. Binary logic, integrated circuits.

### UNIT - II
Basic definition of Boolean algebra, Axiomatic definition of Boolean algebra, Basic theorems and properties of Boolean algebra, Boolean functions, Standard forms, Digital logic gates, NAND and NOR implementation, IC digital logic families. Introduction to CAD tools, introduction to Verilog.

### UNIT - III
Optimized implementation of logic functions-karnaugh map, strategy for minimization, minimization of product of sums forms, incompletely specified functions, multiple output circuits, multilevel synthesis, a tabular method for minimization, practical considerations, CAD tools.

### UNIT - IV
Introduction to Combinational circuits, Design Procedure, adders, subtractors, design of arithmetic circuits using CAD tools, multiplexers, encoders, decoders, code converters, verilog for combinational circuits.

### UNIT - V
Flip flops, basic latch, gated SR latch, gated D latch, Master-slave and edge triggered D flip flop, T flip flop, JK flip flop, registers, counters, other types of counters, using storage elements with CAD tools, using registers and counters with CAD tools.

### Text Books:

### Reference Books:
EURIT- 311 : SWITCHING THEORY AND DIGITAL LOGIC CIRCUIT LAB

<table>
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<th>Code</th>
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<td>CE</td>
<td>L  T  P  Tot</td>
<td>C  S  TOT</td>
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</tbody>
</table>

1. Realization of NOT, OR, AND, XOR, XNOR gates using universal gates
2. Gray to Binary conversion & vice-versa.
3. Code conversion between BCD and EXCESS-3
4. ODD and even parity generation and checking.
5. 4-bit comparator circuit
6. Design of combinational circuit to drive seven-segment display
7. Design of combinational circuits using multiplexer
8. Adder/Subtractor circuits using Full-Adder using IC and/ or logic gates. B. BCD Adder circuit using IC and/ or logic gates
9. Realization of RS, JK, and D flip flops using Universal logic gates
10. Realization of Asynchronous up/down counter
11. Realization of Synchronous Mod-N counter
12. Digital to Analog conversion
B.Tech. (IT) Third Semester

EURIT- 312 : BASIC ELECTRONICS LAB

<table>
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<tr>
<th>Code</th>
<th>Name of Course</th>
<th>Category</th>
<th>Instruction Hours Per Week</th>
<th>Max Marks</th>
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<tbody>
<tr>
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<td>Basic Electronics Lab</td>
<td>BE</td>
<td>L 3 T 3 P 3 Tot C 100 S 100</td>
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</tr>
</tbody>
</table>

1. Characteristics of PN junction diode
2. Characteristics of zener diode
3. Characteristics of Light emitting diode
4. Half wave rectifier with and without filter
5. Full wave rectifier with and without filter.
6. CRO Application.
7. Input output characteristics of BJT
8. Drain and Transfer characteristics of FET.
9. RC coupled amplifier.
11. Feedback amplifiers.
12. Simulations of above circuits using PSPICE.

**Note:**

*Detailed specification for each of the experiments with the above titles is to be formulated by the instructor and given to the learners before or at the time of commencement of instruction.

* Number of experiments under each title may not be limited to ONE.
B.Tech. (IT) Third Semester

EURIT- 313: ADVANCED COMMUNICATION SKILLS AND ENGLISH LANGUAGE LAB

<table>
<thead>
<tr>
<th>Code</th>
<th>Name of Course</th>
<th>Category</th>
<th>Instruction Hours Per Week</th>
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<td>Advanced Communication Skills and English Language Lab</td>
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<td>-  3  3  100</td>
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<td>100</td>
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</table>

UNIT- - I
Report writing: Types of reports, Writing technical reports and scientific papers , Writing a Statement of Purpose

UNIT- - II
Presentation Skills: Make effective presentations, expressions which can be used in presentations, use of non-verbal communication, coping with stage fright, handling question and answer session, Audio-visual aids, PowerPoint presentations., Seminar Skills

UNIT- - III
Interview Skills: planning and preparing for interviews, facing interviews confidently, use of suitable expressions during interviews.

UNIT- - IV
Group Discussion: objectives of a GD; Types of GDs; Initiating, continuing and concluding a GD.

UNIT- - V
Debate: difference between debate and group discussion, essentials of a debate, conducting a debate. Telephone Etiquette

English Language Laboratory

Introduction to Phonetic Transcription: Phonemes: Vowels, Consonants and Diphthongs, Syllabification, Weak and Strong Forms, Word Stress

Difficulties of Indian Speakers of English: Sound, Stress and Intonation Problems

Use of Dictionary to Develop Pronunciation: Advantages of using a dictionary, Effective use of dictionary and thesaurus.

Fluency and Continuous Speech: Problems
(Fluency Techniques, Pauses, Intonation, Styles of Speech - Formal and Informal)

Prescribed Text Book:

Reference Books:
UNIT- I

UNIT- II
Central Processing UNIT-: Introduction, General Register Organization, Stack Organization, Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Program Control.

UNIT- III

UNIT- IV

UNIT- V
Memory Organization: Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memory, Cache Memory, Virtual Memory.

Text Books:

Reference Books:
B.Tech. (IT) Fourth Semester

EURIT-402: DATA STRUCTURES AND ALGORITHMS

UNIT- I
Introduction to Data Structures: Introduction to Data Structures: Time Complexity, Big O notation, Running Times, Best Case, Worst Case, Average Case, Factors depends on running time, Abstract Data Types, Pointers, Arrays, Dynamic Memory Allocation and Classes in C++, matrices, special and sparse matrices. Linked Lists: single linked list, double linked list, circular linked list.

UNIT- II

UNIT- III

UNIT- IV

UNIT- V
Graphs: graphs, Linked representation of graphs. Graph traversal and spanning Forests.

Text Books:
   a) Tata Mc-Graw Hill.

References:
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, rubber band techniques, dragging

UNIT- II
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 & 3-D Co-ordinate system, Translation, Rotation, Scaling, Reflection Inverse transformation, matrix representations and homogeneous coordinates, Parallel and perspective projection

UNIT- III Composite transformation, world coordinate system, screen coordinate system, Viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland, Sutherland –Hodgeman polygon clipping algorithm, Line Clipping Algorithms, curves and fractals, Beizier Method, B-spline Method.


Text Books:
2) Fundamentals of Multimedia by Ze-Nian Li and Mark S. Drew PHI/Pearson Education
3) Essentials Action Script 2.0, Colin Moock, SPD O,REILLY.
4) Flash MX Action Script for designers, Doug Sahlin, Dreamtech Wiley.

Reference Books:
2) Principles of Interactive Computer Graphics”, Neuman and Sproul, TMH.
3) Fundamentals of Multimedia by Ze-Nian Li and Mark S. Drew PHI/Pearson, Education
4) Essentials Action Script 2.0, Colin Moock, SPD O,REILLY.
5) Action Script Cookbook, Joey Lott, SPD-Oreilly.
B.Tech. (IT) Fourth Semester

EURIT- 404 : ELECTRICAL CIRCUITS &MACHINES

<table>
<thead>
<tr>
<th>Code No</th>
<th>Name of Course</th>
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<tr>
<td>EURIT-404</td>
<td>Electrical circuits and Machines</td>
<td>BE</td>
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</table>

UNIT - 1

UNIT - 2

UNIT - 3

UNIT - 4

UNIT - 5

**Text Books**
2. Principles of electrical Engineering and Electronics, V.K Mehta. S.Chand & co. First Multicolor Edition

**References:**
EURIT- 405 : SOFTWARE ENGINEERING

<table>
<thead>
<tr>
<th>Code No</th>
<th>Name of Course</th>
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<td>Software Engineering</td>
<td>CE</td>
<td>3 1 - 4</td>
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</table>

UNIT- I:

UNIT- II
Requirements engineering, Construction Requirements engineering tasks, Initiating Requirements engineering Process, Eliciting Requirements, Building the Analysis Model, Negotiating Requirements, Validating Requirements, Requirements Analysis, Object Oriented Analysis, Scenario-Based Modeling, Flow-Oriented Modeling, Class-Based Modeling.

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, Performing User interface design : Golden rules, User interface analysis and design, interface analysis.

UNIT- IV
Testing Strategies, A strategic approach to software testing, strategic issues, test strategies for conventional software, Validation testing, System testing. Testing Tactics, Software testing fundamentals, White-Box testing, Basic Path testing, Control Structure testing, Black-Box testing. Product metrics, Software Quality, A frame work for Product Metrics, Metrics for analysis model, Metrics for design model, Metrics for source code, Metrics for testing, Metrics for maintenance, Metrics for process and products, Software Measurement, Metrics for software quality.

UNIT- V

Text Book:

References:
**B.Tech. (IT) Fourth Semester**

**EURIT- 411 : Data Structures and Algorithms Lab**

<table>
<thead>
<tr>
<th>Code</th>
<th>Name of Course</th>
<th>Category</th>
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</tbody>
</table>

Develop algorithms and write programs in C++ to implement the following:

1. Operation on arrays – insertion and deletion.
2. Linked lists-creation, insertion, deletion of a single, double and circular lists.
3. Stack- operations using arrays and linked lists.
4. Infix to postfix conversion.
5. Evaluation to postfix expression.
6. Queue- operations using arrays and linked lists.
7. Queue, circular-operations.
8. Binary tree traversals- In order, pre order, post order using recursion.
9. Binary tree traversals- In order, pre order, post order using non recursion.
10. Linear and binary search.
13. Polynomial addition and multiplication.
14. Depth first search of a graph.

15. Breadth first search of a graph.

Note:

Detailed description of problems is to be given by the instructor before or at the time of instruction.
B.Tech. (IT) Fourth Semester

EURIT- 412 : Graphics & Multimedia lab

<table>
<thead>
<tr>
<th>Code</th>
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<th>Instruction Hours Per Week</th>
<th>Max Marks</th>
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<tbody>
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<td>Graphics &amp; Multimedia lab</td>
<td>CE</td>
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</table>

1. Write a program to implement DDA line drawing algorithm

2. Write a program to implement Bresenham's line drawing algorithm.

3. Write a program to implement Bresenham's circle drawing algorithm.

4. Write a program to draw an ellipse using Bresenham's algorithm.

5. Write a program to perform various transformations on line, square & rectangle.

6. Write a program to implement Cohen Sutherland line clipping algorithm.

7. Write a program to implement polygon filling using edge fill/seed fill/boundary fill.

8. Write a program to implement Cohen-Sutherland polygon clipping algorithm to clip a polygon with a Pattern.

Multimedia programs

1. Assigning Actions to an Object, and a Button

2. Creating Loops

3. Creating a Function, Calling a Function

4. Detecting the Player Version

5. Checking the System language

6. Detecting Display Settings

7. Tinting a Movie Clip’s Color

8. Controlling a Movie Clip’s Color with Sliders
B.Tech. (IT) Fifth Semester

EURIT- 501 : Design and Analysis of algorithms

<table>
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<th>Code No</th>
<th>Name of Course</th>
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<td>CE</td>
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<td>40 60 100</td>
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</tbody>
</table>

UNIT- I

UNIT- II

UNIT- III
Dynamic Programming: The general method -- Multistage graphs -- all pairs shortest paths -- optimal binary search trees -- reliability design -- the traveling sales person problem.

UNIT- IV

UNIT- V

Text Books:

Reference Books:
B.Tech. (IT) Fifth Semester

EURIT-502: OBJECT ORIENTED ANALYSIS AND DESIGN

<table>
<thead>
<tr>
<th>Code No</th>
<th>Name of Course</th>
<th>Category</th>
<th>Instruction Hours Per Week</th>
<th>Max Marks</th>
<th>Credits</th>
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<td>OBJECT ORIENTED ANALYSIS AND DESIGN</td>
<td>CE</td>
<td>L 3  T 1  P - 4 C 40  S 60  Tot 100</td>
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</table>

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

UNIT-III
Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams, class diagrams.

UNIT-IV
Advanced Behavioral Modeling: Events and signals, state machines, processes and threads, time and space, state chart diagrams. Advanced structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages, instances.

UNIT-V

Text books:
2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado: UML 2 Toolkit, WILEY-Dreamtech India Pvt. Ltd.

Reference books:
UNIT-I
Introduction to DBMS: Overview, File system vs DBMS, Advantages of DBMS, Storage data, queries, Transaction Management, DBMS structure. E-R model: Entities, Attributes and Entity sets, Relationship and Relationship sets, Features of ER model, Conceptual database design with ER model.

UNIT-II
Relational model: Integrity constraints over relations and enforcement, Querying relation data, Logical database design, views, destroying/altering tables and views Relational algebra and calculus.

UNIT-III
SQL: Basic SQL, Query, union, interest, except, Nested Queries, Aggregated Operation, Null values, Embedded SQL, cursors, ODBC and JDBC, Triggers and Active database, designing active databases.

UNIT-IV
Schema refinement and Normal forms: Schema refinement, fds, fds reasoning normal forms, decomposition, normalization.

UNIT-V
Transaction management, concurrency control & crash recovery
Transaction concept, transactions and schedules, concurrent execution of transactions, lock-based concurrency control, crash recovery. Concurrency control - lock management, specialized locking techniques, concurrency control without locking. Crash Recovery- Aries, recovering from a system crash, media recovery.

Text Book:

Reference Book:
B.Tech. (IT) Fifth Semester
EURIT- 504 : ARTIFICIAL INTELLIGENCE

<table>
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<th>Code No</th>
<th>Name of Course</th>
<th>Category</th>
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<td>INTELLIGENCE</td>
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UNIT- I
Introduction to Artificial Intelligence, Artificial Intelligence Problems, Artificial Intelligence Techniques, problems, Problem space and search-defining the problem as a state space search, Production System, Problem characteristics, Heuristic Search Technologies Generate & Test Hill Climbing, Best First search, Problem reduction, Constraint satisfaction, Means Endo Analysis

UNIT - II

UNIT- III

UNIT - IV

UNIT - V
Natural Language Processing: Introduction, Syntactic Analysis, Semantic Analysis, Discusses and Pragmatic Processing. Introduction and Fundamentals of Artificial Neural Networks: Biological prototype, Artificial Neuron, Single layer Artificial, Neural Networks, Multilayer Artificial Neural Networks, Training of Artificial Neural Networks.

Text Books:
1) Artificial Intelligence- Rich E & Knight K TMH (1991)
2) Neural Computing: Theory and practice – Waserman

Reference Book:
1) Artificial Intelligence Structures and Strategies complex problem solving – George F. Lugar Pearson Education
2) Neural Networks: A Comprehensive Foundation 2/e – Symen Pearson Education.
3) Introduction to Artificial Intelligence & Expert Systems-Dan w. patterson (Pearson Education)
UNIT- I
Introduction: Creation of Java, importance of Java to internet, byte code, Java buzzwords, OOP Principles, Encapsulation, Inheritance and Polymorphism, data types, variables, declaring variables, dynamic initialization, scope and life time of variables, arrays, operators, control statements, type conversion and casting, compiling and running of simple Java program.

Classes and Objects: Concepts of classes and objects, class fundamentals Declaring objects, assigning object reference variables, introducing methods, constructors, usage of static with data and methods, usage of final with data, access control, this key word, garbage collection, overloading methods and constructors, parameter passing - call by value, recursion, nested classes and inner classes, exploring the String class.

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

UNIT- III
Exception Handling, Multithreading and Event Handling: Concepts of Exception handling, types of exceptions, usage of try, catch, throw, throws and finally keywords, Built-in exceptions, creating own exception sub classes, Concepts of Multithreading, differences between process and thread, thread life cycle, creating multiple threads using Thread class, Runnable interface, Synchronization, thread priorities, inter thread communication, daemon threads, deadlocks, thread groups. Event Handling: Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes.

UNIT- IV

UNIT- V

Text Books:

References:
B.Tech. (IT) Fifth Semester

EURIT- 511 : Data base Management System Lab

<table>
<thead>
<tr>
<th>Code</th>
<th>Name of Course</th>
<th>Category</th>
<th>Instruction Hours Per Week</th>
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<td>CE</td>
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</table>

Creating a database, Simple Queries.

1. Use of Select Statement for queries using
   i) AND, OR, NOT operations.
   ii) Union, Intersection, Projection and Join Operations.
   iii) Sorting and Grouping.

2. Nested queries using SQL.

3. Built in functions of SQL.

4. Update operations using SQL.

5. Use SQL forms.

6. Use of Indexes, creating views and queuing in views.

7. Embedded SQL with C.

Student Evaluation System.

Reference Books

2. PL/pgSQL search internet for necessary documentation.
The student is expected to take up about five mini-projects and model them and produce Use Cases, Analysis Documents - both static & dynamic aspects, Sequence Diagrams and State-Charts, Database Design using Rational Products A sample collection of ideas is given. Numerous other ideas can be found in the pages from the list of references given below.

**Mini-Project - I: A Point-of-Sale (POS) System**
A POS system is a computerized application used to record sales and handle payments; it is typically used in a retail store, it includes hardware components such as a computer and bar code scanner, and software to run the system. It interfaces to various service applications, such as a third-party tax calculator and inventory control. These systems must be relatively fault tolerant; that is, even if remote services are temporarily unavailable they must still be of capturing sales and handling at least cash payments. A POS system must support multiple and varied client-side terminals and interfaces such as browser, PDAs, touch-screens.

**Mini-Project - II: Online Bookshop Example**
Following the model of amazon.com or bn.com, design and implement an online bookstore.

**Mini-Project - III: A Simulated Company**
Simulate a small manufacturing company. The resulting application will enable the user to take out a loan, purchase a machine, and over a series of monthly production runs, follow the performance of their company.

**Mini-Project - IV: A Multi-Threaded Airport Simulation**
several Simulate the operations in an airport. Your application should support multiple aircrafts using runways and gates avoiding collisions/conflicts. Landing: an aircraft uses the runway, lands, and then taxis over to the terminal. Take-Off: an aircraft taxies to the runway and then takes off.

**Mini-Project -V: An Automated Community.y Portal**
Business in the 21st Century is above all BUSY. Distractions are everywhere. The current crop of "enterprise intranet portals" are often high noise and low value, despite the large capital expenditures it takes to stand them up. Email takes up 30 - 70% of an employee's time. Chat and Instant Messaging are either in the enterprise or just around the corner. Meanwhile, management is tasked with unforeseen and unfunded leadership and change-agent roles as well as leadership development and succession management. What is needed is a simplified, repeatable process that enhances communications within an enterprise, while allowing management and peers to self-select future leaders and easily recognize high performance team members in a dynamic way. Additionally, the system should function as a general-purpose content management, business intelligence and peer-review application. Glasscode's goal is to build that system. The software is released under a proprietary license, and will have the following features:

Remote, unattended moderation of discussions However, it will have powerful discovery and business intelligence features, and be infinitely extendable, owing to a powerful API and adherence to Java platform standards.

Encourages peer review and indicates for management potential leaders, strong team players and reinforces enterprise and team goals seamlessly and with zero administration.

**Mini-Project -VI: A Content Management System**

The goal is to enable non-technical end users to easily publish, access, and share information over the web, while giving administrators and managers complete control over the presentation, style, security, and permissions.

**Features:**
- Robust Permissions System
- Templates for easy custom site designs
- Total control over the content
- Search engine friendly URL's
- Role based publishing system
- Versioning control
- Visitor profiling

**Mini-Project-VII: An Auction Application**

Several commerce models exist and are the basis for a number of companies like eBay.com, priceline.com etc. Design and implement an auction application that provides auctioning services. It should clearly model the various auctioneers, the bidding process, auctioning etc.

**Mini-Project -VIII: A Notes and File Management System**
In the course of one's student years and professional career one produces a lot of personal notes and documents. All these documents are usually kept on papers or individual files on the computer. Either way the bulk of the information is often erased corrupted and eventually lost. The goal of this project is to build a distributed software application that addresses this problem. The system will provide an interface to create, organize and manage personal notes through the Internet for multiple users. The system will also allow users to collaborate by assigning permissions for multiple users to view and edit notes.

**Mini-Project - IX: A Customizable Program Editor**
A programmer's editor which will be focused on an individual programmer's particular needs and style. The editor will act according to the specific language the current source file is in, and will perform numerous features, such as auto-completion or file summarization, on the file. These features will be able to be turned on or off by the programmer, and the programming style of the user will be used to create as efficient an editing environment as possible.

**Mini-Project - X: A Graphics Editor**
Design and implement a Java class collection that supports the construction of graph editing applications, i.e., applications that include the ability to draw structured and unstructured diagrams. E.g., The goal of the GEF project is to build a graph editing library that can be used to construct many, high quality graph editing applications. Some of GEF's features are:

A simple, concrete design that makes the framework easy to understand and extend. Node-Port-Edge graph model that is powerful enough for the vast majority of connected graph applications. Model-View-Controller design based on the Swing Java UI library makes GEF able to act as a UI to existing data structures, and also minimizing learning time for developers familiar with Swing. High-quality user interactions for moving, resizing, reshaping, etc. GEF also supports several novel interactions such as the broom alignment tool and selection-action- buttons. Generic properties sheet based on JavaBeans introspection. XML-based file formats based on the PGML standard

**Text Book(s):**


**Reference(s):**

"Object-Oriented Analysis & Design," Andrew Haigh, Tata McGraw-Hill, 2001,

**Various Net Resources and projects:**
http://user-mode-linux.sourceforge.net/case-studies.html
http://www.onesmartclick.com/programming/case-studies.html
http://www.tigris.org/sarvlets/ProjectList?type=P rejects
http://hotscripts.com/
http://www.developingwebs.net/
http://sourceforge.net/projects/
http://governing.com/gpp/gponline.htm
http://www.whitehouse.gov/omb/inforeg/egovstrategy.pdf
http://www.andhrapradesh.com/
http://www.ap-lt.com/
http://www.aponline.gov.in
1. 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.

2. The Fibonacci sequence is defined by the following rule. The first two values in the sequence are 1 and 1. Every subsequent value is the sum of the two values preceding it. Write a Java program that uses both recursive and non-recursive functions to print the \( n \)th value in the Fibonacci sequence.

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

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

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

6. Write a Java program to multiply two given matrices.

7. Write a Java program that reads a line of integers and then displays each integer and the sum of all the integers (use string tokenizer class).

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

9. Write a Java program that reads a file and displays the file on the screen, with a line number before each line.

10. Write a Java program that displays the number of characters, lines and words in a text file.

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

12. Write an applet that displays a simple message.

13. Write an applet that computes the payment of a loan based on the amount of the loan, the interest rate and the number of months. It takes one parameter from the browser: Monthly rate; if true, the interest rate is per month; otherwise the interest rate is annual.

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

15. Write a Java program for handling mouse events.

16. Write a Java program for creating multiple threads.
B.Tech. (IT) Sixth Semester

EURIT-601 : Computer Networks

<table>
<thead>
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<th>Name of Course</th>
<th>Cate- gory</th>
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<td>CE</td>
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</table>

UNIT- I


Reference Models: OSI, TCP/IP and Differences between OSI and TCP/IP. Examples of Networks: Novell Netware, Internet, Connection Oriented Networks.


UNIT- II

IEEE 802.x Standards: Ethernet, Wireless LANS: 802.11 protocol stack, physical layer, MAC sub layer protocol, frame structure and services. Bluetooth, Data link Layer Switching: Bridges from 802.x to 802.y. Local Internetworking, Spanning tree bridges, Remote bridges, Repeaters, Hubs, Bridges, Switches, Routers and Gateways.

UNIT- III


UNIT- IV


UNIT- V

Application Layer: DNS, E-MAIL, WWW, MULTIMEDIA.

Text Books:

Reference Book:
2. Data Communications, Computer Networks and Open Systems by Fred Halsall, 4th Edition – Pearson Education
B.Tech. (IT) Sixth Semester
EURIT-602: Unix and Shell Programming

<table>
<thead>
<tr>
<th>Code No</th>
<th>Name of Course</th>
<th>Category</th>
<th>Instruction Hours Per Week</th>
<th>Max Marks</th>
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<td>Unix and Shell Programming</td>
<td>CE</td>
<td>3 1 - 4</td>
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</table>

UNIT- I:
Introduction to Unix:- Architecture of Unix, Features of Unix, Unix Commands – PATH, man, echo, printf, script, passwd, uname, who, date, stty, pwd, cd, mkdir, rmdir, ls, cp, mv, rm, cat, more, wc, lp, od, tar, gzip.

UNIT- II:
Unix Utilities:- Introduction to unix file system, vi editor, file handling utilities, security by file permissions, process utilities, disk utilities, networking commands, unlink, du, df, mount, umount, find, umask, ulimit, ps, w, finger, arp, ftp, telnet, rlogin. Text processing utilities and backup utilities, detailed commands to be covered are tail, head, sort, nl, uniq, grep, egrep, fgrep, cut, paste, join, tee, pg, comm, cmp, diff, tr, awk, cpio.

UNIT- III:

UNIT- IV:

UNIT- V:

TEXT BOOKS:

REFERENCES:
1. Unix for programmers and users, 3rd edition, Graham Glass, King Ables, Pearson Education.
2. Unix programming environment, Kernighan and Pike, PHI / Pearson Education
UNIT - I
The theory of automata: Definition and description - Transition systems - properties - Acceptability of string - NDFA - Equivalence in between DFA & NDFA. Grammars - Types of Grammars - Grammars and Automata - Regular expressions - Finite Automata and Regular expressions - Regular sets and Regular Grammars. Overview of compilers:
Brief discussion on various phases of Compilers

UNIT-II
Lexical analyzer:

UNIT-III

UNIT-IV

UNIT-V
Symbol tables - Run-time storage administration.

Text books:
1. Introduction to Automata, Languages & Computation by J.E.Hopecraft & Jeffery.D.Ulman
   Person education 3e/2007

References:
3. Introduction to Formal Languages, Automata Theory and computation-Kamala Krithivasan, Pearson publication
B.Tech. (IT) Sixth Semester

EURIT- 604 : Web Technologies

<table>
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UNIT- I:

UNIT- II

UNIT- III

UNIT- IV:

UNIT- V:
Introduction to PHP: Overview of PHP, general server characteristics, Creating PHP Pages, Form handling, Data Base access with PHP & MySQL. Introduction to JSP: The Problem with Servlet. The Anatomy of a JSP Page, JSP Processing, JSP Application Design with MVC Setting Up and JSP Environment: Installing the Java Software Development Kit, Tomcat Server & Testing Tomcat, JSP components, comments, expression, scriplets.

Text books:
2. J2EE The complete Reference by Jim Keogh

Reference books:
1. Core servlets and javaserver pages volume 1: core technologies by marty hall and larry brown pearson.
2. Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia.
4. Murach’s beginning JAVA JDK 5, Murach, SPD.
B.Tech. (IT) Sixth Semester

EURIT- 605 : Operating Systems

<table>
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<tr>
<th>Code No</th>
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</table>

UNIT- I

UNIT- II
Interprocess communication: Race condition, critical section, mutual exclusion, sleep & wakeup, Semaphores, Monitors, classic problems of synchronization, synchronization Hardware.

UNIT- III
Memory Management: Without Swapping, swapping, paging, structure of the page table, segmentation, virtual memory, demand paging, page-Replacement, algorithms, allocation of frames, thrashing.

UNIT- IV

UNIT- V

Text Books:
4. Operating System A Design Approach–Crowley, TMH.
5. 2. Operating systems- A Concept based Approach-D.M.Dhamdhere, 2/e , TMH.
# EURIT- 611 : Computer Network Lab

<table>
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</table>

1. OSI model simulation
2. Implementation of data link framing methods
   a) character count
   b) bit stuffing and de stuffing
   c) character stuffing and de stuffing
3. Parity check
   a) single dimensional data
   b) multi dimensional data
4. Even and odd parity
5. Implementation of crc polynomials
6. Implementation of data link protocols
   a) unrestricted simplex protocol
   b) stop and wait protocol
   c) noisy channel
7. Implementation of sliding window protocols
   a) One Bit sliding window protocol
   b) go back n sliding window protocol
   c) selective repeat sliding window protocol
8. Implementation of routing algorithms
   a) dijkstra’s algorithm
   b) distance vector routing
   c) hierarchical routing
   d) broadcast algorithm
9. Congestion algorithms
   a) token bucket algorithm
   b) leaky bucket algorithm
B.Tech. (IT) Sixth Semester
EURIT-612:

B.Tech. (IT) Sixth Semester
EURIT-612: UNIX and Operating Systems Lab

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</table>

1. Write a shell script to generate a multiplication table.
2. Write a shell script that copies multiple files to a directory.
3. Write a shell script which counts the number of lines and words present in a given file.
4. Write a shell script which displays the list of all files in the given directory.
5. Write a shell script (small calculator) that adds, subtracts, multiplies and divides the given two integers. There are two division options: one returns the quotient and the other returns reminder. The script requires 3 arguments: The operation to be used and two integer numbers. The options are add(-a), subtract(-s), multiply(-m), quotient(-c) and reminder(-r).
6. Write a shell script to reverse the rows and columns of a matrix.
   a) using standard I/O b) using system calls.
7. Implement in C the following Unix commands using system calls.
   a) cat b) ls c) mv
8. Write a C program that illustrates the creation of child process using fork system call.
9. Write a C program that displays the real time of a day every 60 seconds.

PART-B:
1. Simulate the following CPU scheduling algorithms.
   a) Round Robin b) SJF c) FCFS d) Priority.
2. Simulate all file allocation strategies.
   a) Sequential b) Indexed c) Linked.
3. Simulate Bankers Algorithm for Dead Lock Avoidance.
5. Simulate all page replacement algorithms.
   a) FIFO b) LRU c) LFU Etc.
EURIT- 613 **Web Technologies Laboratory**

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1.) Introduction To Web Technologies Lab.
2.) *Introduction To Html*
   A.) Sample Static Webpage.
   B.) Source Code
3.) Introduction To Javascript
   A.) Sample Webpage.
   B.) Source Code.
4.) Introduction To Dhtml
   A.) Sample Dynamic Webpage.
   B.) Source Code.
5.) Introduction To Servlets
   A.) Sample Program.
   B.) Output.
   C.) Sample Program With Database Connectivity.
   D.) Output.
6.) Introduction To JSP (Java Server Page)
   A.) Sample Program.
   B.) Output.
   C.) Sample Program With Database Connectivity.
   D.) Output.
7.) Introduction To PHP
   A.) Sample Program.
   B.) Output.
   C.) Sample Program With Database Connectivity.
   D.) Output.
8.) Introduction To Flash
   A.) Sample Program.
   B.) Output.
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B.Tech. (IT) Seventh Semester

EURIT- 701 : PRINCIPLES OF MANAGEMENT

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UNIT-I

UNIT- II

UNIT-III

UNIT- IV
DIRECTING Creativity and Innovation - Motivation and Satisfaction - Motivation Theories - Leadership Styles - Leadership theories - Communication - Barriers to effective communication - Organization Culture - Elements and types of culture - Managing cultural diversity.

UNIT- V
CONTROLLING Process of controlling - Types of control - Budgetary and non-budgetary control techniques - Managing Productivity - Cost Control - Purchase Control – Maintenance Control - Quality Control - Planning operations.

TEXT BOOKS:

REFERENCES:

B.Tech. (IT) Seventh Semester

EURIT- 702 : CRYPTOGRAPHY AND NETWORK SECURITY

<table>
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</table>
UNIT-I

UNIT- II
Block cipher design principles, Block cipher mode operation, Triple DES, AES algorithm, Stream ciphers, RC4. Introduction to Number Theory: Modular Arithmetic, Euclidean Algorithm, Prime numbers, Fermats and Eulers theorem, testing for primality, Chinese Remainder Theorem, Discrete Logarithms.

UNIT- III

UNIT- IV

UNIT- V

Text book:

References:
UNIT - I

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

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

UNIT-IV

UNIT- --IV

UNIT - VI

TEXT BOOK:

REFERENCES:
2. Software Project Management, Joel Henry, Pearson Education.

B.Tech. (IT) Seventh Semester
DEPARTMENT ELECTIVES – I/II
UNIT-I

UNIT-II

UNIT-III

UNIT-IV

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. Computers as Components-principles of Embedded computer system design, Wayne Wolf, Elsevier.
3. An Embedded Software Primer, David E. Simon, Pearson Education.

REFERENCES:
1. Embedding system building blocks, Labrosse, via CMP publishers.
2. Embedded Systems, Raj Kamal, TMH.
3. Micro Controllers, Ajay V Deshmukhi, TMH.
5. Microcontrollers, Raj kamal, Pearson Education.

B.Tech. (IT) Seventh Semester
UNIT- I

UNIT- II

UNIT- III

UNIT- IV

UNIT- V

TEXT BOOK:
1. Network Management, Principles and Practice, Mani Subrahmanian, second addition Pearson Education.

REFERENCES:
1. Network management, Morris, Pearson Education.

B.Tech. (IT) Seventh Semester
UNIT- I

THE PHILOSOPHY OF .NET


UNIT- II


UNIT- III

C# LANGUAGE FUNDAMENTALS

UNIT- IV
OBJECT ORIENT PROGRAMMING WITH C#
Formal Definition of the C# Class, Defining the “Default Public Interface” of a Type, Recapping the Pillars of OOP, The First Pillar: C#’s Encapsulation Services, Pseudo-Encapsulation: Creating Read - Only Fields, The Second Pillar: C#’s Inheritance Support, Keeping Family Secrets: The “protected” Keyword, Nested Type Definitions, The Third Pillar: C#’s Polymorphic Support, Casting Between Types, Generating Class Definitions Using Visual Studio.NET

UNIT- V
EXCEPTIONS AND OBJECT LIFE TIME

Text Book:

Reference Books:
2. C# 2.0: The Complete Reference, Herbert Schildt, McGraw Hill Osborne Media, 2005

B.Tech. (IT) Seventh Semester
DEPARTMENT ELECTIVES – I/II
EURIT- 726 Distributed operating systems
UNIT-I

UNIT-II
*Synchronization in Distributed System*: Clock synchronization, Mutual Exclusion, Election algorithm, the Bully algorithm, a Ring algorithm, Atomic Transactions, Deadlock in Distributed Systems, Distributed Deadlock Prevention, Distributed Deadlock Detection.

UNIT-III

UNIT-IV
*Distributed file systems*: Distributed file system Design, Distributed file system Implementation, Trends in Distributed file systems.

*Distributed Shared Memory*: What is shared memory, Consistency models, Page based distributed shared memory, shared variables distributed shared memory.

UNIT-V
*Fault Tolerance*: Concepts, Failure Models, Failure Masking by Redundancy
*Process Resilience*: Design Issues, Failure Masking and Replication, Agreement in Faulty Systems

**Text Book:**
1. Distributed Operating System – Andrew S. Tanenbaum, PHI.

**Reference Books:**

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UNIT- I:

UNIT- II:

UNIT- III:
Electronic cash and electronic payment schemes-Internet Monitory payment and Security requirements-Payment and purchase order process-Online electronic cash.

UNIT- IV:
Master card/visa secure electronic transaction: Introduction-Business requirements-concepts-payment processing.E-mail and Secure E-mail Technologies for Electronic Commerce: Introduction, The means of Distribution, A model for message handling and How does E-mail work.

UNIT- V:
Internet and Web Site Establishment: Introduction-Technologies for Web Servers-Internet Tools Relevant to commerce-Internet Applications for commerce-Internet Charges-Internet Access and Architecture-Searching the internet.

Text Books:

Reference:
Frontiers of Electronic Commerce Ravi kalakotar, Andrew B. Whinston Addison- Wesley.
UNIT - - I
Introduction to Mobile Communications and Computing: Introduction to MC, novel applications, a simplified reference model, cellular systems. Medium Access Control: Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA, comparison of S/T/F/CDMA

UNIT - - II
GSM: Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover, Security, and New data services.

UNIT - - III
Mobile Network Layer: Mobile IP (Goals, assumptions, requirements entities and terminology, IP packet delivery, agent discovery, registration, tunneling and encapsulation, optimizations), Dynamic Host Configuration Protocol (DHCP).

UNIT - - IV
Mobile Transport Layer: Traditional TCP (congestion control, slow start, Fast retransmit/fast recovery implications on mobility) Classical TCP Improvements (Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission /time-out freezing, Selective retransmission, Transaction oriented TCP), TCP over 2.5/3G wireless networks

UNIT - - V

TEXT BOOKS:

REFERENCES:
UNIT-I

Review of the fundamental principles of modern database management systems (DBMS): architecture and functionality; relational databases (the relational data model, the relational algebra, SQL); object-oriented databases (ODMG data model and query language); object-relational DBMS: Oracle 10g.

UNIT-II
Query processing and query optimization.

UNIT-III
Transaction Management: ACID properties, concurrency control, and recovery.

UNIT-IV
Distributed databases: Distributed DBMS Architecture, distributed database design, distributed query processing, distributed transaction management

UNIT- V
Heterogeneous databases: architecture, schema translation and schema integration, query processing, transaction management, and alternative transaction models.

Text-books:


References

2. P.A. Bernstein, V. Hadzilacos, N.Goodman,Concurrency Control and Recovery in Database Systems, Addison Wesley,
B.Tech. (IT) Seventh Semester
DEPARTMENT ELECTIVES – I/II
EURIT-730 Introduction to Biotechnology

<table>
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UNIT - I
Basic Science: Principles and applications of the scientific method, Introduction to living organisms: Chemical nature of life, Biomolecules, Enzymes Cellular basis of life Molecular Biology: DNA structure and function, RNA transcription, Protein synthesis, Mutations

UNIT - II

UNIT - III

UNIT - IV
Business and future of biotechnology: Biotechnology applications, Government regulations. Genetic Engineering Tools: General considerations, Identification of genes, Restriction enzymes, Vectors, Selection of cloned DNA. Specific techniques: DNA and RNA analysis-sequencing, genotyping, microarrays; Protein analysis-Proteomics

UNIT - V
Societal Applications: Gene therapy, Recombinant vaccines, Forensic science, Agricultural apps, Stem cell research, Genetic diagnosis, Custom medical care pharmacogenomics, Cloning. Societal Concerns: Privacy of genetic Information, Ethics of medical applications, Safety of genetically engineered products, Environmental effects, Governmental policy, Influences on the developing world, Conflicting cultural views.

Text Books
2. Biotechnology Lab Manual – Ellyn Daugherty

References:
B.Tech. (IT) Seventh Semester

DEPARTMENT ELECTIVES – I/II

EURIT-731 Advanced computer architecture

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UNIT - I
Fundamentals of Computer design- Technology trends- cost- measuring and reporting performance quantitative principles of computer design.
Instruction set principles and examples- classifying instruction set- memory addressing- type and size of operands- addressing modes for signal processing- operations in the instruction set- instructions for control flow- encoding an instruction set.- the role of compiler

UNIT - II
Instruction level parallelism (ILP)- over coming data hazards- reducing branch costs –high performance instruction delivery- hardware based speculation- limitation of ILP.
ILP software approach- compiler techniques- static branch protection- VLIW approach- H.W support for more ILP at compile time- H.W verses S.W Solutions

UNIT - III
Memory hierarchy design- cache performance- reducing cache misses penalty and miss rate – virtual memory- protection and examples of VM.

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

UNIT - V
Storage systems- Types – Buses - RAID- errors and failures- bench marking a storage device- designing a I/O system.

TEXT BOOK:

REFERENCES:
3. Parallel Computer Architecture, A Hardware / Software Approach, David E. Culler, Jaswinder Pal singh with Anoop Gupta, Elsevier
UNIT-I

UNIT-II
Image Enhancement In The Spatial Domain: Basic gray-level transformation, histogram processing, enhancement using arithmetic and logic operators, basic spatial filtering, smoothing and sharpening spatial filters.

UNIT-III
Image Restoration: A model of the image degradation/restoration process, noise models, restoration in the presence of noise—only spatial filtering, Weiner filtering, constrained least squares filtering, geometric transforms; Introduction to the Fourier transform and the frequency domain, estimating the degradation function.
Color Image Processing: Color fundamentals, color models.

UNIT-IV

UNIT-V
Image Segmentation: Detection of discontinuous, edge linking and boundary detection, threshold, region—based segmentation.

Text Book:

References:
2. Introduction to Digital Image Processing with Matlab, Alasdair McAndrew, Thomson Course Technology
B.Tech. (IT) Seventh Semester
DEPARTMENT ELECTIVES – I/II
EURIT- 733  Data Mining and Data warehousing

<table>
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<th>Code No</th>
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UNIT-I
1. Introduction to Data Mining:
Motivation and importance, What is Data Mining, Relational Databases, Data Warehouses, Transactional Databases, Advanced Database Systems and Advanced Database Applications, Data Mining Functionalities, Interestingness of a pattern Classification of Data Mining Systems, Major issues in Data Mining. Data Mining Primitives: What defines a Data Mining Task Architectures of Data Mining Systems.
why Pre-process the Data, Data Cleaning, Data Integration and Transformation Data Reduction, Discretization and Concept Hierarchy Generation

UNIT-II
2. Data Warehouse and OLAP Technology for Data Mining (8)
What is a Data Warehouse? Multi-Dimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, Development of Data Cube Technology, Data Warehousing to Data Mining

UNIT-III
Concept Description: Characterization and comparison
What is Concept Description, Data Generalization and summarization-based Characterization, Analytical Characterization: Analysis of Attribute Relevance, Mining Class Comparisons: Discriminating between different Classes, Mining Descriptive Statistical Measures in large Databases

UNIT-IV
Mining Association rule in large Databases
Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses, From Association Mining to Correlation Analysis, Constraint-Based Association Mining

UNIT-V
Classification and prediction
Concepts and Issues regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Classification by Back propagation, Classification Based on Concepts from Association Rule Mining, Other Classification Methods.
Cluster Analysis
What is Cluster Analysis, Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning algorithms

Text books:
1. Data Mining Concepts and Techniques Jiawei Han and Micheline Kamber Morgan Kaufman Publications

Reference Books:
1. Data Mining Introductory and Advanced Topics, Margaret H Dunhan, Pearson Education.
2. Data Mining, Ian H. Witten Eibe Frank, Morgan Kaufman Publications.
3. Data Mining by Tan, Steinbach, Vipin Kumar, Pearson Education.
B.Tech. (IT) Seventh Semester

EURIT-711: Network Security lab

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NETWORK SECURITY LAB
The following programs should be implemented preferably on ‘UNIX’ platform using ‘C’ language (for 1-7) and other standard utilities available with ‘UNIX’ systems (for 8-10) :-

1. IP-ADDRESSING
2. ENCRYPTION ALGORITHMS
   a) Substitution Cipher
   b) Transposition Cipher
3. Implement the encryption and decryption of 8-bit data using ‘Simplified DES Algorithm’ in ‘C’.
4. Implement ‘Linear Congruential Algorithm’ to generate 5 pseudo-random numbers in ‘C’.
6. Implement the Euclid Algorithm to generate the GCD of an array of 10 integers in ‘C’.
7. Implement RSA algorithm for encryption and decryption in ‘C’.
8. Configure a mail agent to support Digital Certificates, send a mail and verify the correctness of this system using the configured parameters.
9. Configure SSH (Secure Shell) and send/receive a file on this connection to verify the correctness of this system using the configured parameters.
10. Configure a firewall to block the following for 5 minutes and verify the correctness of this system using the configured parameters:
    (a) Two neighborhood IP addresses on your LAN
    (b) All ICMP requests
    (c) All TCP SYN Packets

11. IMPLEMENTATION OF SERVERS
    a) DATE SERVER
    b) CHAT SYSTEM
    c) ECHO SERVER
### B.Tech. (IT) Seventh Semester

**EURIT- 712 Project Phase – I**

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### B.Tech. (IT) Seventh Semester

**EURIT- 713 Industrial Training**

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</table>
UNIT-I


UNIT-II

**Engineering As Social Experimentation**: Engineering as experimentation - engineers as responsible experimenters - codes of ethics-a balanced outlook onlaw-the challenger case study

UNIT-III


UNIT-IV

**Responsibilities And Rights**: Collegiality and loyalty - respect for authority - collective bargaining - confidentiality - conflicts of interest -occupational crime - professional rights - employee rights - intellectual property rights (ipr)-discrimination.

UNIT-V

**Global Issues**: Multinational corporations - environmental ethics-computer ethics-weapons development-engineers as managers-consulting engineers-engineers as expert witnesses and advisors-moral leadership-sample code of conduct.

**Text Book**:

**References** :
UNIT- 1: Overview of Medical Informatics Health data, information, knowledge, Electronic Health Records, Practice Management Systems.

UNIT- 2: Health Information Exchange, Data Standards, Architecture of Information Systems, Health Information Privacy, Health Information Security, Consumer Health Informatics Ethics, Consumer Health Informatics

UNIT- 3: Mobile Technology, Online Medical Resources, Search Engines, Evidence Based Medicine, Clinical Practice Guidelines, Disease Management and Disease Registries

UNIT- 4: Quality Improvement Strategies, Patient Safety and Health Information Technology, Electronic Prescribing, Telehealth and Telemedicine, Picture Archiving and Communication Systems

UNIT- 5: Bioinformatics, Public Health Informatics, E-Research

UNIT-I
**Introduction:** Historical robots, robots in science fiction, future trends of robots, definitions of robots, present application status.

**Robot End Effectors:** Classification of end effectors, drive systems for grippers, mechanical grippers, magnetic grippers, vacuum grippers, adhesive grippers, hooks, scoops and miscellaneous devices, active and passive grippers.

UNIT-II
**Robot Drives Actuators and Control:** Functions of drive system, general types of control, Pump classification, and introduction to pneumatic systems, electrical drives, DC motor and transfer function, stepper motor, drive mechanisms.

UNIT-III
**Robot Kinematics:** Forward and reverse kinematics of 3 DOF arm, forward and reverse kinematics of 4 DOF arm, Homogeneous transformation, kinematics equations using homogeneous transformations.

UNIT-IV
**Robot Sensors:** Need for sensing systems, types of sensor, robot vision, robot tactile system, proximity sensors.

UNIT-V
**Robot applications:** Capabilities of robots, material handling, machine loading and unloading, machining and fettling robot assembly, welding, future applications. Introductory concepts.

**Text Books:**

1) Robotics Technology and Flexible Automation by S.R. Deb
2) James L. Fuller
UNIT- I

UNIT- II
ERP Market and Implementation, SAP AG, Baan Company, Oracle Corporation, People Soft, JD Edwards World Solutions Company. System Software Associates, Inc (SSA)QAD. A Comparative Assessment and Selection of ERP packages and Modules. ERP implementation lifecycle, issue in implementing ERP packages, pre-evaluation screening package evaluation, project planning phase, gap analysis, reengineering configuration, implementation team training testing going live, end user training post implementation (Maintenance mode).

UNIT- III

UNIT- IV
SCM Strategies, Performance Supply chain strategies, achieving strategic fit, value chain Supply chain drivers and obstacles, Strategic Alliance and Outsourcing purchasing aspects of supply chain, Supply chain performance measurement. The balanced score card approach Performance Metrics Planning demand and supply. Demand fore casting in supply chain aggregate planning in supply chain, Predictable variability.

UNIT- V

Text Books

Reference Books
1. Alexis Leon “ERP Demystified”, TMH, New Delhi 2008
2. Janatshah, Supply chain management Personal Publication 2008
B.Tech. (IT) Eighth Semester

INTER DEPARTMENT ELECTIVES – I/II

EURIT- 825 Remote Sensing & GIS

<table>
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<th>Code No</th>
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UNIT-I:
**Fundamentals of Remote Sensing:**

UNIT-II:
**Fundamentals of GIS:**
Introduction, Elements of GIS, Vectorization, Rasterization, Geo-referencing, Map Projections, Digitization Process, Data Base handling, Types of data structures, overlay analysis, surface terrain models – Digital elevation model (DEM), Triangulated irregular network (TIN), and Slope models.

UNIT-III:
**RS & GIS Techniques for Natural resources Management:**
Landuse/land cover classification systems, Forest cover, agriculture and wasteland management. Water resource management.

UNIT-IV:
**RS & GIS Techniques for Infrastructure Planning and Management:**
Urban utilities, cadastral mapping and transport network. GPS Navigation system for various applications.

UNIT-V:
**RS & GIS Techniques for Natural Disasters Management:**
Earthquakes, Landslides, cyclones and Floods – Hazard Zonation, Risk assessment, Relief and Rehabilitation measures.

**Text Books:**
UNIT - I
Operations Research Models; Solving the OR Model; Queuing and Simulation Models; Art of Modeling; More Than Just Mathematics; Phases of an OR.

MODELING WITH LINEAR PROGRAMMING Two-Variable LP Model; Graphical LP Solution; Selected LP Applications.

UNIT - II
THE SIMPLEX METHOD AND SENSITIVITY ANALYSIS
LP Model in Equation Form; The Simplex Method; Artificial Starting Solution; Special Cases in Simplex Method. DUALITY AND POST-OPTIMAL ANALYSIS
Definition of the Dual Problem; Simplex Tableau Computations.

UNIT - III
TRANSPORTATION MODEL AND ITS VARIANTS
Definition of the Transportation Model; Nontraditional Transportation Models; The Transportation Algorithm; The Assignment Model. NETWORK MODELS
Scope and Definition of Network Models; Shortest-Route Problem; CPM and PERT.

UNIT - IV
INTRODUCTION TO ENGINEERING MANAGEMENT
What is Management; The History of Management; Types of Manager; Management Responsibilities; Management Tasks; The Engineering Manager. THE ORGANIZATION
Defining the Organization; Organization Structures; The Quality Organization; Organizational Change; Managing Change.

UNIT - V
STRATEGY FORMULATION The Elements of Corporate Strategy; Strategy Formulation Process; Alliances and Acquisitions; Strategy Formulation Tools and Techniques.
DECISION MAKING The Nature of Management Decision; Decision Making Process; Decision Making Techniques. INFORMATION PRESENTATION Statistical Analysis; Presentation of Data.
FORECASTING MODELS FOR DECISION MAKING Forecasting the Future; Qualitative Methods; The Time Series; Causal Models

Text Books:

Reference Books:
2. Operations Research, S.D. Sharma, Kedarnath, Ramnath & Co
3. Managing Engineering & Technology, Babcock & Morse, Pearson Education.
UNIT- I Values: Concept, Types, Rokeach Value Survey. Different Kinds of Values: Individual, Societal, Material, Psychological, Cultural, Moral And Ethical, Spiritual; The Burgeoning Crises at Each of these levels.

UNIT- II Modern Approach to the Study of Values: Analyzing Individual Human Values such as Creativity, Freedom, Wisdom and Love; Value Spectrum for a Good Life; The Indian Concept of Values, Comparison of eastern and western concept of values. Ethics: Values, Morals and Ethics; Need for Ethics in Professional Life; Kohlberg’s Theory of Moral Development and Its Applicability to Engineers.


Text Books

Reference book/Journal
UNIT-I: Introduction to Nanotechnology
Introduction, Difference between Nanoscience and Nanotechnology, Feynman predictions on Nanotechnology, Examples of nanomaterials - quantum dots, metal nanoparticles, magnetic nanoparticles, carbon nanotubes and nanowires.

UNIT-II: Synthesis and Characterisation of Nanoparticles

UNIT-III: Properties of Nanomaterials
Mechanical, Optical, Electrical, magnetic, electrochemical and chemical sensing properties of Nanomaterials.

UNIT-IV: Nanoelectronics (information and communication technology)
Introduction to Nanoelectromechanical systems (NEMS), Nanolithography, Nanosensors, Microelectromechanical systems (MEMS) - Materials for manufacture of MEMS, Fabrication and application of MEMS.

UNIT-V: Applications of Nanomaterials
Application of Nanomaterials in medicine, energy sector, next-generation computer technology, catalysis, water purification, communication sector, fabric industry, Automobiles and ceramics industry.

Books:

UNIT- 1:

UNIT- 2:

UNIT- 3:
Planar Graphs: Kuratowski two graphs, detection of planarity, geometric dual, thickness and crossing. Matrix representation of graphs:

UNIT- 4:
Colouring and Covering: chromatic number, four colour problem. Directed graphs: Digraphs and binary relations, Euler digraphs.

UNIT- 5:
Algorithms on Graphs: Minimum cost spanning trees, depth first search, strong connectivity, path finding problems, transtive closure algorithm, shortest path algorithm, path problems and matrix multiplication, single source problems.

REFERENCES:
1. Harary, Graph Theory.
2. Narsing Deo, Graph Theory with applications to Engineering and Computer Science.
4. Alan Gibbons, Algorithmic graph theory.
B.Tech. (IT) Eighth Semester
INTER DEPARTMENT ELECTIVES – I/II
EURIT-830 Introduction to modern algebra

UNIT I:
Introduction to Proofs, Elements of Mathematical Logic, Methods of Proof, Review of Set Theory, Functions. Arithmetic in Z: The Division Algorithm, Divisibility, Prime Numbers
First Midterm.

UNIT II:
Modular Arithmetic: Congruence and Congruence Classes, Modular Arithmetic, The Structure of \( Z_p \) when \( p \) is Prime.

UNIT III:
Rings: Definition and Examples of Rings, Basic Properties of Rings, Homomorphisms and Isomorphisms of Rings.

UNIT IV:
The Ring of Polynomials \( F[x] \): Polynomial Arithmetic and the Division Algorithm, Divisibility in \( F[x] \), Irreducible Polynomials and Unique Factorization, Polynomial Functions, Roots, and Reducibility.

UNIT V:
Groups: Definition and Examples of Groups, Basic Properties of Groups, Subgroups, Group Homomorphisms.

B.Tech. (IT) Eighth Semester
INTER DEPARTMENT ELECTIVES – I/II
EURIT-831 ENTREPRENEURSHIP

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UNIT- I
INTRODUCTION:
Meaning, importance, benefits of Entrepreneurship-characterizes, factors of Entrepreneurship-Barriers of Entrepreneurship-Difference between Entrepreneurship and management-Evolution of the concept of entrepreneur-Difference between entrepreneur and entrepreneur. Motivational aspects of entrepreneur (McClelland theory)

UNIT- II
PROJECT IDENTIFICATION AND SELECTION:

UNIT- III
SOURCES OF FINANCE:
Cost of capital-importance of a capital-Basic concepts, rational assumptions-cost of debt, reference, equity capital-source of finance-internal, external sources-institutional finance to entrepreneurs and institutional support to entrepreneurs.

UNIT- IV
PROJECT APPRAISAL:
Concept project appraisal-Methods of project appraisal, Economic analysis, Financial analysis, Market analysis Technical feasibility and Managerial competence (assessment of working and fixed capital Govt. Policies, qualitative methods of market analysis, Life cycle segmentation).

UNIT- V
OWNERSHIP STRUCTURES & EVALUATION OF EDPS:
Ownership structures-sole trader, partnership (Partnership deed) types of partnership-Joint stock companies-Difference between private and a public company – Advantage and disadvantages of the ownership structures – Distinction between MDP and EDP – Training methods and Role playing (Games).

Text Books:

References:
UNIT - I
SIGNS AND SYSTEMS

UNIT- II

UNIT- III

UNIT- IV

UNIT- V

TEXT BOOK

REFERENCES
UNIT- I
Introduction: Basic biology, Genetic material, genes, what molecules code for genes, structure of DNA, what carries information between DNA and proteins, Proteins, analysis of DNA, Why bioinformatics.

UNIT- II
Exhaustive Search: Restriction mapping, impractical Restriction mapping algorithm, practical Restriction mapping algorithm, Regulatory motifs in DNA sequences, profiles, The motif finding problem, search trees, finding motifs, finding a median string.

UNIT- III
Greedy algorithms: Genome rearrangement, Sorting by reversals, Approximation algorithm, breakpoints, greedy approach for motif finding.

UNIT- IV
Dynamic programming algorithm: Edit distance and assignments, longest common subsequence, global sequence alignment, scoring alignment, local sequence alignment, Alignment with gap penalties, Multiple alignment, gene prediction, statistical approach to gene prediction, Similarity based approach to gene prediction.

UNIT- V
Clustering and trees: Gene expression analysis, Hierarchical clustering, k-mean clustering, clustering and corrupted cliques, evolutionary tree, distance based tree construction, reconstructing tree for additive matrices, evolutionary tree and hierarchical clustering, character based tree clustering.

Text Books:

References:
UNIT-I

UNIT-II

UNIT-III

UNIT-IV

UNIT-V

Text Book

Reference Books:
UNIT- – I


UNIT- – II


UNIT- – III


UNIT- – IV


UNIT- – V


Text Book:

Reference Books:
2. “Soft Computing and intelligent systems design theory, tools and applications” by Fakhreddinekarray and Clarence de silva, Addison wesley publishing August 2004
UNIT- I
Crimes of this millennium – checks and balances against arbitrary arrests – concept of cyber crime and the IT Act- Hacking – Teenage Web Vandals – Cyber Fraud and Cyber Cheating – Virus on the Internet– other IT Act offences – Network service providers- Criminal justice in India and Implications

UNIT- II

UNIT- III
Concept of Domain Name and Reply to Cyber squatters – meta-tagging – copyright ownership and assignment – licence of copyright – copyright term and respect for foreign works – copyright infringement remedies and offences – copyright protection of content on the Internet – computer software piracy

UNIT- IV
Concept of permanent Establishment – PE in cross border E-Commerce - the UNIT-ed nations model Tax treaty – law of double taxation avoidance agreements – Tax Agents of non-residents under the Income tax act and the relevance to E commerce – impact of the internet on customs duties – taxation policies in India.

UNIT- V

Text book:

References:
UNIT – I
Introduction: Importance of user interface – definition, importance of good design. Benefits of good design. A brief history of screen design. The graphical user interface – popularity of graphics, the concept of direct manipulation, graphical system, Characteristics, Web user – Interface popularity, characteristics-Principles of user interface.

UNIT – II

UNIT – III

UNIT – IV

UNIT – V

TEXT BOOKS:
1. The essential guide to user interface design, Wilbert O Galitz, Wiley DreamaTech.
2. Designing the user interface. 3rd Edition Ben Shneidermann, Pearson Education Asia.

REFERENCES:
1. Human – Computer Interaction. ALAN DIX, JANET FINCAY, GRE GORYD, ABOWD, RUSSELL BEALG, PEARSON.
2. Interaction Design PRECE, ROGERS, SHARPS. Wiley Dreamtech,
UNIT - 1: Introduction: Issues in real-time system, task classes, architecture issues, operating system issues, performance measure for real time systems, estimating program run times, classical uniprocessor scheduling algorithm, uniprocessor scheduling of IRIS tasks, task assignment, mode changes, fault tolerance scheduling.

UNIT - 2: Programming Languages and Tools: Introduction, desirable languages characteristics, data types, control structures, facilitating hierarchical decomposition packages, exception handling, overloading and generics, multitasking, low-level programming, task scheduling, timing specification, programming environments, run-time support.

UNIT - 3: Real-Time Database & Communication: Basic definitions, real time vs. general purpose databases, main memory databases, transaction priorities, transaction aborts, concurrency control issues, disk scheduling algorithms, two-phase approach to improve predictability, maintaining serialization consistency, databases for real-time systems, communication network topologies, communication protocols.

UNIT - 4: Fault-Tolerance Techniques: Introduction, failure causes, fault types, fault detection, fault and error containment, redundancy, data diversity, reversal checks, malicious or Byzantine failures, integrated failure handling.

UNIT - 5: Reliability & Clock Synchronization: Introduction, obtaining parameter values, reliability models for hardware redundancy, software error models, taking time into account, clock synchronization, nonfault-tolerant synchronization algorithms, impact of faults, fault tolerant synchronization in hardware.

TEXT BOOK:

REFERENCE BOOK:

2. Real Time systems ,Theory and Practics Rajib Mall.Person Education.
B.Tech. (IT) Eight Semester

EURIT- 811 Project Phase – II

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<tr>
<th>Code</th>
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