JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
ANANTAPUR – 515 002 (A.P) INDIA

ACADEMIC REGULATIONS COURSE STRUCTURE AND DETAILED SYLLABI

COMPUTER SCIENCE AND SYSTEMS ENGINEERING

B.Tech. Regular Four Year Degree Course
(Applicable for the batches admitted from 2009-2010)
&
B.Tech. (LES) (for the batches admitted from 2010–11)
Academic Regulations 2009 for B. Tech (Regular)
(Effective for the students admitted into I year from the Academic Year 2009-2010 onwards)

1. **Award of B.Tech. Degree**
   A student will be declared eligible for the award of the B.Tech. Degree if he fulfils the following academic regulations:
   i. Pursue a course of study for not less than four academic years and in not more than eight academic years.
   ii. Register for 220 credits and secure all 220 credits.

2. Students, who fail to fulfil all the academic requirements for the award of the degree within eight academic years from the year of their admission, shall forfeit their seat in B.Tech course and their admission is cancelled.

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

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Branch</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Aeronautical Engineering.</td>
</tr>
<tr>
<td>2.</td>
<td>Biotechnology.</td>
</tr>
<tr>
<td>3.</td>
<td>Civil Engineering.</td>
</tr>
<tr>
<td>5.</td>
<td>Computer Science and System Engineering.</td>
</tr>
<tr>
<td>6.</td>
<td>Electrical and Electronics Engineering.</td>
</tr>
<tr>
<td>11.</td>
<td>Information Technology.</td>
</tr>
<tr>
<td>12.</td>
<td>Mechanical Engineering.</td>
</tr>
</tbody>
</table>

and any other course as approved by the authorities of the University from time to time.
4. Credits

<table>
<thead>
<tr>
<th></th>
<th>I Year</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Periods / Week</td>
<td>Credits</td>
</tr>
<tr>
<td>Theory</td>
<td>03</td>
<td>06</td>
</tr>
<tr>
<td></td>
<td>02</td>
<td>04</td>
</tr>
<tr>
<td>Practical</td>
<td>03</td>
<td>04</td>
</tr>
<tr>
<td>Drawing</td>
<td>06</td>
<td>06</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seminar</td>
<td>--</td>
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<tr>
<td>Project</td>
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</tbody>
</table>

5. Distribution and Weightage of Marks

i. The performance of a student in each semester / I year shall be evaluated subject-wise with a maximum of 100 marks for theory and 75 marks for practical subject. In addition seminar and project work shall be evaluated for 50 and 200 marks respectively.

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

iii. For theory subjects, during the semester there shall be Two midterm examinations. Each mid term examination consists of objective paper for 10 marks and subjective paper for 20 marks with duration of 1 hour 50 minutes (20 minutes for objective and 90 minutes for subjective paper).

   Objective paper is set for 20 bits for 10 marks. Subjective paper shall contain 5 questions of which student has to answer 3 questions evaluated* for 20 marks. First mid term examination shall be conducted for I-IV units of syllabus and second mid term examination shall be conducted for V-VIII units. The total marks secured by the student in each mid term examination for 30 marks is considered and the better of the two mid term examinations shall be taken as the final sessional marks secured by each candidate in the subject.

However for first year, there shall be Three midterm examinations as in the above pattern and the average marks of the
best two midterm examinations secured in each subject shall be considered as final marks for sessionals.

*Note 1: The subjective paper shall contain 5 questions of equal weightage of 10 marks and the marks obtained for 3 questions shall be condensed to 20 marks, any fraction rounded off to the next higher mark

*Note 2: The mid term examination shall be conducted first by distribution of the Objective paper simultaneously marking the attendance, after 20 minutes the answered objective paper is collected back. The student is not allowed to leave the examination hall. Then the descriptive question paper and the answer booklet are distributed. After 90 minutes the answered booklets are collected back.

iv. For practical subjects there shall be a continuous evaluation during the semester for 25 sessional marks and 50 end examination marks. Day-to-day work in the laboratory shall be evaluated for 25 marks by the concerned laboratory teacher based on the report of experiments/jobs. The end examination shall be conducted by the laboratory teacher and another examiner.

v. For the subject having design and/or drawing, such as Engineering Drawing, Machine Drawing and estimation, the distribution shall be 30 marks for internal evaluation and 70 marks for end examination. The Internal evaluation for sessionals will be 15 marks for day-to-day work in the class that shall be evaluated by the concerned subject teacher based on the reports/submissions prepared in the class. And there shall be two midterm exams in a Semester for a duration of 2 hrs each, evenly distributed over the syllabi for 15 marks and the better of the two shall be considered as internal test marks. The sum of day to day evaluation and the internal test marks will be the final sessionals for the subject. However in the I year class, there shall be three midterm exams and the average of best two will be taken into consideration.

vi. There shall be a seminar presentation in IV year II Semester. For the seminar, the student shall collect the information on a specialized topic and prepare a technical report, showing his understanding over the topic, and submit to the department before presentation. The report and the presentation shall be evaluated
by the Departmental committee consisting of Head of the department, seminar supervisor and a senior faculty member. The seminar shall be evaluated for 50 marks and marks shall be submitted to the University along with internal marks. There shall be no external examination for seminar.

vii. Out of a total of 200 marks for the project work, 60 marks shall be for Internal Evaluation and 140 marks for the End Semester Examination (Viva-voce). The viva-voce shall be conducted by a committee consisting of HOD, Project Supervisor and an External Examiner nominated by the University. The evaluation of project work shall be conducted at the end of the IV year. The Internal Evaluation shall be made by the departmental committee, on the basis of two seminars given by each student on the topic of his project.

viii. Laboratory marks and the sessional marks awarded by the College are not final. They are subject to scrutiny and scaling by the University wherever necessary. In such cases, the sessional and laboratory marks awarded by the College will be referred to a Committee. The Committee will arrive at a scaling factor and the marks will be scaled as per the scaling factor. The recommendations of the Committee are final and binding.

ix. The laboratory records and internal test papers shall be preserved in the respective institutions as per the University norms and shall be produced to the Committees of the University as and when the same are asked for.

6. Attendance Requirements:
   i. A student shall be eligible to appear for University examinations if he acquires a minimum of 75% of attendance in aggregate of all the subjects in a semester/ I year.
   
   ii. **Shortage of Attendance below 65% in aggregate shall in NO case be condoned.**

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

   iv. Students whose shortage of attendance is not condoned in any semester / I year are not eligible to take their end examination of that class and their registration shall stand cancelled.
v. A student will not be promoted to the next semester unless he satisfies the attendance requirements of the present semester / I year, as applicable. They may seek readmission for that semester / I year when offered next.

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

7. **Minimum Academic Requirements:**
The following academic requirements have to be satisfied in addition to the attendance requirements mentioned in item no.6

i. A student shall be deemed to have satisfied the minimum academic requirements and earned the credits allotted to each theory, practical, design, drawing subject or project if he secures not less than 35% of marks in the end examination and a minimum of 40% of marks in the sum total of the internal evaluation and end examination taken together. In the Seminar he should secure 40%.

ii. A student shall be promoted from II to III year only if he fulfils the academic requirement of securing 40 credits from

   a. One regular and one supplementary examinations of I year.
   b. One regular examination of II year I semester irrespective of whether the candidate takes the end examination or not as per the normal course of study.

iii. A student shall be promoted from third year to fourth year only if he fulfils the academic requirements of securing 68 credits from the following examinations,

   a. Two regular and two supplementary examinations of I year.
   b. Two regular and one supplementary examinations of II year I semester.
   c. One regular and one supplementary examinations of II year II semester.
   d. One regular examination of III year I semester.

irrespective of whether the candidate takes the end examination or not as per the normal course of study.

And in case of getting detained for want of credits by sections ii and iii above, the student may make up the credits through supplementary
exams of the above exams before the date of class work commencement of Third or Fourth year I semester respectively.

iv. A student shall register and put up minimum attendance in all 220 credits and earn all the 220 credits. Marks obtained in all 220 credits shall be considered for the calculation of percentage of marks obtained.

v. Students who fail to earn 220 credits as indicated in the course structure within eight academic years from the year of their admission shall forfeit their seat in B.Tech course and their admission shall stand cancelled.

8. Course pattern:
   i. The entire course of study is of four academic years. The first year shall be on yearly pattern and the second, third and fourth years on semester pattern.

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

   iii. When a student is detained due to lack of credits / shortage of attendance he may be re-admitted when the semester is offered after fulfilment of academic regulations, whereas he continues to be in the academic regulations he was first admitted.

9. Transitory Regulations:
   Candidates who have been detained for want of attendance or not fulfilled academic requirements or who have failed after having undergone the course in earlier regulations or have discontinued and wish to continue the course are eligible for admission into the unfinished semester from the date of commencement of class work with the same or equivalent subjects as and when subjects are offered, subject to Section 2 and they continues to be in the academic regulations they were first admitted.

10. With–holding of results:
    If the candidate has any dues not paid to the university or if any case of indiscipline or malpractice is pending against him, the result of the candidate shall be withheld and he will not be allowed / promoted into the next higher semester. The issue of degree is liable to be withheld in such cases.
11. **Award of Class:**

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

<table>
<thead>
<tr>
<th>Class Awarded</th>
<th>% of marks to be secured</th>
<th>From the aggregate marks secured for the best 220 Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Class with Distinction</td>
<td>70% and above</td>
<td></td>
</tr>
<tr>
<td>First Class</td>
<td>Below 70% but not less than 60%</td>
<td></td>
</tr>
<tr>
<td>Second Class</td>
<td>Below 60% but not less than 50%</td>
<td></td>
</tr>
<tr>
<td>Pass Class</td>
<td>Below 50% but not less than 40%</td>
<td></td>
</tr>
</tbody>
</table>

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

12. **Minimum Instruction Days:**

The minimum instruction days including exams for each semester / I year shall be 90/180 days respectively.

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

14. There shall be no place transfer within the Constituent Colleges.

15. **General:**

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

ii. Malpractices rules- nature and punishments is appended

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

iv. In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Vice-Chancellor is final.

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

*_*_*_*
ACADEMIC REGULATIONS FOR B. TECH.  
(LATERAL ENTRY SCHEME)  
(Effective for the students getting admitted into II year through Lateral Entry Scheme from the Academic Year 2010-2011 and onwards)

1. **Award of B.Tech. Degree**  
A student admitted in LES will be declared eligible for the award of the B. Tech Degree if he fulfils the following academic regulations:

i. Pursue a course of study for not less than three academic years and in not more than six academic years.

ii. Register for 168 credits and secure all 168 credits from II to IV year of Regular B.Tech. program

2. Students, who fail to fulfil the requirement for the award of the degree in six consecutive academic years from the year of admission, shall forfeit their seat.

3. The regulations 3 to 6 are to be adopted as that of B. Tech. (Regular).

7. **Minimum Academic Requirements**:

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

i. A student shall be deemed to have satisfied the minimum academic requirements and earned the credits allotted to each theory, practical, design, drawing subject or project if he secures not less than 35% of marks in the end examination and a minimum of 40% of marks in the sum total of the internal evaluation and end examination taken together. For the Seminar he should secure 40% in the internal evaluation.

ii. A student shall be promoted from third year to fourth year only if he fulfils the academic requirements of 42 credits from the following examinations.

   a. Two regular and one supplementary examinations of II year I semester.

   b. One regular and one supplementary examinations of II year II semester.

   c. One regular examination of III year I semester.  

      irrespective of whether the candidate takes the end examination or not as per the normal course of study.

      and in case of getting detained for want of credits the student may make up the credits through supplementary exams of the above
exams before the date of class work commencement of Fourth year I semester.

8. **Course Pattern**
   
i. The entire course of study is three academic years on semester pattern.

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

   iii. When a student is detained due to lack of credits / shortage of attendance he may be re-admitted when the semester is offered after fulfilment of academic regulations, whereas he continues to be in the academic regulations he was first admitted.

9. The regulations 9 to 10 are to be adopted as that of B. Tech. (Regular).

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

<table>
<thead>
<tr>
<th>First Class with Distinction</th>
<th>70% and above</th>
<th>From the aggregate marks secured for 168 Credits. (i.e. II year to IV year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Class</td>
<td>Below 70% but not less than 60%</td>
<td></td>
</tr>
<tr>
<td>Second Class</td>
<td>Below 60% but not less than 50%</td>
<td></td>
</tr>
<tr>
<td>Pass Class</td>
<td>Below 50% but not less than 40%</td>
<td></td>
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</tbody>
</table>

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

12. The regulations 12 to 15 are to be adopted as that of B. Tech. (Regular). All other regulations as applicable for B. Tech. Four-year degree course (Regular) will hold good for B. Tech. (Lateral Entry Scheme)
# RULES FOR DISCIPLINARY ACTION FOR MALPRACTICES / IMPROPER CONDUCT IN EXAMINATIONS

<table>
<thead>
<tr>
<th>Nature of Malpractices/Improper conduct</th>
<th>Punishment</th>
</tr>
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<tbody>
<tr>
<td><strong>If the candidate:</strong></td>
<td></td>
</tr>
<tr>
<td>1. (a) Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, Cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which he is appearing but has not made use of (material shall include any marks on the body of the candidate which can be used as an aid in the subject of the examination)</td>
<td>Expulsion from the examination hall and cancellation of the performance in that subject only.</td>
</tr>
<tr>
<td>1. (b) Gives assistance or guidance or receives it from any other candidate orally or by any other body language methods or communicates through cell phones with any candidate or persons in or outside the exam hall in respect of any matter.</td>
<td>Expulsion from the examination hall and cancellation of the performance in that subject only of all the candidates involved. In case of an outsider, he will be handed over to the police and a case is registered against him.</td>
</tr>
<tr>
<td>2. Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical)</td>
<td>Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including...</td>
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<tr>
<td>practical) in which the candidate is appearing.</td>
<td>practical examinations and project work and shall not be permitted to appear for the remaining examinations of the subjects of that Semester/year. The Hall Ticket of the candidate is to be cancelled and sent to the University.</td>
</tr>
<tr>
<td>3.</td>
<td>Impersonates any other candidate in connection with the examination.</td>
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<tr>
<td>4.</td>
<td>Smuggles in the Answer book or additional sheet or takes out or</td>
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</tr>
<tr>
<td><strong>2009-10</strong></td>
<td>arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination.</td>
</tr>
<tr>
<td>5.</td>
<td>Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks.</td>
</tr>
<tr>
<td>6.</td>
<td>Refuses to obey the orders of the Chief Superintendent/Assistant – Superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in-charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the candidate(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The candidates also are debarred and forfeit their seats. In case of outsiders, they will</td>
</tr>
</tbody>
</table>
signs or by visible representation, assaults the officer-in-charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the College campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination. be handed over to the police and a police case is registered against them.

7. Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall. Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.

8. Possess any lethal weapon or Expulsion from the
<table>
<thead>
<tr>
<th></th>
<th>firearm in the examination hall.</th>
<th>examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>If student of the college, who is not a candidate for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.</td>
<td>Student of the colleges expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat. Person(s) who do not belong to the College will be handed over to police and, a police case will be registered against them.</td>
</tr>
<tr>
<td>10.</td>
<td>Comes in a drunken condition to the examination hall.</td>
<td>Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate</td>
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<tr>
<td>---</td>
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</tr>
<tr>
<td></td>
<td>has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year.</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.</td>
<td>Cancellation of the performance in that subject and all other subjects the candidate has appeared including practical examinations and project work of that semester/year examinations.</td>
</tr>
<tr>
<td>12.</td>
<td>If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the University for further action to award suitable punishment.</td>
<td></td>
</tr>
</tbody>
</table>

Malpractices identified by squad or special invigilators

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

Shifting the examination centre from the college to another college for a specific period of not less than one year.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
ANANTAPUR

Course structure for B.Tech. (Regular) I year (2009-10) for affiliated Engineering Colleges.
COMPUTER SCIENCE AND SYSTEMS ENGINEERING
(C.S.S.E.)
(Common for Branches: E.C.E., E.E.E., E.I.E., C.S.E., I.T.,
C.S.S.E., E.Cont.E., E.C.M.)

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Course code</th>
<th>Subject</th>
<th>Th</th>
<th>Tu/Drg/Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9ABS101</td>
<td>English</td>
<td>2</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>9ABS102</td>
<td>Engineering Physics</td>
<td>2</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>9ABS103</td>
<td>Engineering Chemistry</td>
<td>2</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>9ABS104</td>
<td>Mathematics – I</td>
<td>3</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>9A05101</td>
<td>Programming in C and Data Structures</td>
<td>3</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>6.</td>
<td>9A03101</td>
<td>Engineering Drawing</td>
<td>-</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td>7.</td>
<td>9ABS105</td>
<td>Mathematical Methods</td>
<td>3</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>8.</td>
<td>9A05102</td>
<td>C Programming &amp; Data Structures Lab</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>9.</td>
<td>9A03102</td>
<td>Engineering &amp; I.T. Workshop</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>10.</td>
<td>9ABS106</td>
<td>Engineering Physics and Engineering Chemistry Lab</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>11.</td>
<td>9ABS107</td>
<td>English Language &amp; Communication Skills Lab</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
</tbody>
</table>

contact periods/week 15 3 6 12

Total/week 36
Total Credits (7 Theory + 4 Labs) | 52

Th = Theory; Tu = Tutorial; Drg = Drawing & Lab = Laboratory:
* Engineering Drawing will have University External Exam.
** The Students attend the Physics lab and Chemistry lab in alternate weeks. The end exam shall be conducted separately and average of the two exams will be recorded by the University exam section.
# Students attend Engineering and IT work shop as a single lab every week and the end exam is conducted as a single lab. Sharing the Maximum marks and time for one task each from Engineering workshop and IT workshop. The sum of the marks awarded will be recorded.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
ANANTAPUR

COMPUTER SCIENCE AND SYSTEMS ENGINEERING
(C.S.S.E.)

B.Tech II - I Semester

<table>
<thead>
<tr>
<th>S. No</th>
<th>Course code</th>
<th>Subject</th>
<th>Theory</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9ABS303</td>
<td>Environmental Science</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>9A02306</td>
<td>Basic Electrical Engineering</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>9A05301</td>
<td>Mathematical Foundations of Computer Science</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>9A05302</td>
<td>Advanced Data Structures</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>9A12301</td>
<td>Digital Logic Design and Computer Organization</td>
<td>4</td>
<td>4</td>
<td></td>
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**Total Credits (6 Theory + 2 Labs)** 28
### JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
#### ANANTAPUR

#### III Year  B.Tech. CSSE  I Sem

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**contact periods/week**

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Total Credits (6 Theory + 2 Labs) 28
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Total Credits (6 Theory + 2 Labs) 28
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## JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
### ANANTAPUR

**IV Year B.Tech. CSSE II Sem**

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Total Credits (6 Theory + 2 Labs) 28
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
ANANTAPUR

Detailed Syllabus

B.Tech. I Year (C.S.S.E)  
(9ABS101) ENGLISH

1. INTRODUCTION:

The sweeping changes in the world have elevated English to the status of a tool of global communication and transformed it into e-English. The syllabus has been drafted to improve the competence of students in communication in general and language skills in particular. The books prescribed serve as students’ handbooks.

The teacher should focus on the skills of reading, writing, listening and speaking while using the prescribed text and exercises. The classes should be interactive. The students should be encouraged to participate in the classroom proceedings and also to write short paragraphs and essays. The main aim is to encourage two way communications in place of the one-sided lecture.

The text for non-detailed study is meant for extensive reading by the students. They may be encouraged to read some select topics on their own, which could lead into a classroom discussion. In addition to the exercises from the texts done in the class, the teacher can bring variety by using authentic materials such as newspaper articles, advertisements etc.
2. OBJECTIVES:
   a. To improve the language proficiency of the students in English with an emphasis on LSRW skills.
   b. To equip the students to study academic subjects with greater facility through theoretical and practical components of the syllabus.
   c. To develop study skills as well as communication skills in formal and informal situations.

3. SYLLABUS:
   Listening Skills:
   Objectives
   1. To enable students to develop their listening skills so that they may appreciate its role in the LSRW skills approach to language and improve their pronunciation
   2. To equip students with necessary training in listening so that they can comprehend the speech of people of different backgrounds and dialects.

   Students should be given practice in listening and identifying the sounds of English language and to mark stress, right intonation in connected speech.
   • Listening for general content
   • Listening to fill up information
   • Intensive listening
   • Listening for specific information

   Speaking Skills:
   Objectives
   1. To make students aware of the role of ability to speak fluent English and its contribution to their success.
   2. To enable students to express themselves fluently and appropriately in social and professional contexts.
   • Oral practice
   • Describing objects/situations/people
   • Role play – Individual/Group activities
   • Just A Minute (JAM) Sessions.
   (Using exercises from all units of the prescribed text)

Reading Skills:
Objectives
1. To develop an awareness in the students about the significance of silent reading and comprehension.
2. To develop the ability to guess the meanings of words from context and grasp the overall message of the text, draw inferences etc.
   - Skimming the text
   - Understanding the gist of an argument
   - Identifying the topic sentence
   - Inferring lexical and contextual meaning
   - Understanding discourse features
   - Recognizing coherence/sequencing of sentences

The students shall be trained in reading skills using the prescribed text for detailed study. They shall be examined in reading and answering questions using ‘unseen’ passages which may be taken from the non-detailed text or other authentic texts, such as articles from magazines/newspapers

Writing Skills:
Objectives
1. To develop an awareness in the students the skill to write exact and formal writing
2. To equip them with the components of different forms of writing.
   - Writing sentences
   - Use of appropriate vocabulary
   - Paragraph writing
   - Coherence and cohesiveness
   - Narration / description
   - Note Making
   - Formal and informal letter writing
   - Editing a passage

4. TEXTBOOKS PRESCRIBED:
In order to improve the proficiency of the student in the acquisition of the four skills mentioned above, the following texts and course content are prescribed and divided into Eight Units:
For Detailed study: ENJOYING EVERYDAY ENGLISH, Sangam Books (India) Pvt Ltd, Hyderabad, 2009
For Non-detailed study: INSPIRING LIVES, Maruti Publications, Guntur, 2009

Unit -I
a. Heaven’s Gate from ENJOYING EVERYDAY ENGLISH
b. Mokshagundam Visvesaraya from INSPIRING LIVES

Unit -II
a. Sir C.V.Raman from ENJOYING EVERYDAY ENGLISH
b. Mother Teresa from INSPIRING LIVES

Unit -III
a. The Connoisseur from ENJOYING EVERYDAY ENGLISH
b. Dr. Amartya Kumar Sen from INSPIRING LIVES

Unit -IV
a. The Cuddalore Experience from ENJOYING EVERYDAY ENGLISH
b. Gertrude Elion from INSPIRING LIVES

Unit -V
a. Bubbling Well Road from ENJOYING EVERYDAY ENGLISH
b. Vishwanathan Anand from INSPIRING LIVES

Unit -VI
a. Odds Against Us from ENJOYING EVERYDAY ENGLISH
b. Charlie Chaplin from INSPIRING LIVES

Unit – VII
Exercises on
Reading and Writing Skills
Reading Comprehension
Letter writing
Report writing

Unit – VIII
Exercises on
Remedial Grammar covering Common errors in English, Subject-Verb agreement,
Use of Articles and Prepositions, Active/Passive Voice, Reported speech, Tenses
Vocabulary development covering Synonyms & Antonyms, one-word substitutes, prefixes & suffixes, Idioms & phrases, words often confused.

**Evaluation:** The question paper shall contain two parts, Part A containing questions from Units I- VI and Part B containing questions from units VII & VIII. The student is required to answer five full questions choosing at least one from Part B.

**REFERENCES:**
1. Technical Communication, Principle and Practice, Meenakshi Raman and Sangita Sharma, OUP, 2009


UNIT III - PRINCIPLES OF QUANTUM MECHANICS & ELECTRON THEORY: Waves and Particles - de- Broglie’s hypothesis - Heisenberg’s uncertainty principle - Schroedinger’s one dimensional wave equation (Time Independent) - Particle in a one dimensional potential box - Energy levels - Fermi-Dirac distribution and effect of Temperature (qualitative treatment only) - Scattering - Source of electrical resistance - Kronig-Penney model (qualitative treatment only) - energy bands - metals, semi conductors & insulators.


DIELECTRIC PROPERTIES: Introduction - Dielectric constant - Electronic, Ionic and Orientation polarizations (qualitative treatment only) - Local field - Clausius-Mossotti equation –Frequency dependence of polarisability (qualitative treatment only) – Ferro electricity- BaTio₃.

UNIT VI- SUPERCONDUCTIVITY: General properties - Meissner effect - Penetration depth - Type I and Type II superconductors - Flux quantization – Josephson effects – BCS theory - Applications of superconductors.


TEXT BOOKS:
1. Engineering Physics by P.K.Palanisamy, Scitech Publications
REFERENCES:

1. Physics Volume 2, by Halliday, Resnick and Krane; John Wiley India
2. Solid State Physics by C.Kittel, Wiley India
3. Engineering Physics by Mittal, I.K.International


UNIT IV: Chemistry of nano materials: Nano materials definition, properties and applications; Explosives and Propellants: Explosives, Classification, precautions during storage, blasting fuses, important explosives. Rocket propellants, classification of propellants. Lubricants: Principles and function of lubricants - Classification and properties of lubricants – Viscosity, flash and fire points, cloud and pour points, aniline point, Neutralisation Number and Mechanical Strength.


UNIT VI: Phase rule: Definition, Terms involved in Phase Rule and Phase rule equation. Phase diagrams – one component system (water system), two component system (lead- silver system) Eutectics, heat treatment based on iron-carbon phase diagram, hardening, annealing.


Refractories: Definition, Classification With Examples; Criteria of a Good Refractory Material; Causes for the failure of a Refractory Material

TEXT BOOKS:
1. Engineering Chemistry Prof. K.N.Jayaveera, Dr.G.V.Subba Reddy and Dr.C. Ramachandraiah, McGraw Hill Higher Education Hyd., 2009

REFERENCE:
2. Fuel Cells principles and applications by B.Viswanath, M.Aulice Scibioh-Universities press
4. Physical Chemistry - Glasston & Lewis.
UNIT I– Differential equations of first order and first degree – Exact, linear and Bernoulli equations. Applications: to Newton’s law of cooling, law of natural growth and decay, orthogonal trajectories.

UNIT II– Non-homogeneous linear differential equations of second and higher order with constant coefficients with RHS term of the type $e^{ax}$, $\sin ax$, $\cos ax$, polynomials in $x$, $e^{ax} V(x)$, $xV(x)$, method of variation of parameters.

UNIT III– Rolle’s Theorem – Lagrange’s Mean Value Theorem – (excluding proof). Simple examples of Taylor’s and Maclaurin’s Series - Functions of several variables – Jacobian – Maxima and Minima of functions of two variables, Lagrangian method of Multipliers with three variables only.

UNIT – IV
Radius of Curvature – Curve tracing – Cartesian, polar and parametric curves. Applications of integration to lengths, volume and surface area of solids of revolution in Cartesian and polar coordinates

UNIT V– Multiple integral: – Double and triple integrals – Change of Variables – Change of order of integration.

UNIT VII– Differentiation and integration of Laplace transform – Application of Laplace transforms to ordinary differential equations of first and second order.


TEXT BOOKS:

REFERENCES:

Unit II- Introduction to C Language - C Language Elements, Variable Declarations and Data Types, Executable Statements, General Form of a C Program, Expressions, Precedence and Associativity, Expression Evaluation, Operators and Expressions, Type Conversions, Decision Statements - If and Switch Statements, Loop Control Statements - while, for, do-while Statements, Nested for Loops, Other Related Statements -break, continue, goto.

Unit III- Functions - Library Functions, Top-Down Design and Structure Charts, Functions with and without Arguments, Communications Among Functions, Scope, Storage Classes - Auto, Register, Static, Extern, Scope rules, Type Qualifiers, Recursion - Recursive Functions, Preprocessor Commands.
Arrays - Declaring and Referencing Arrays, Array Subscripts, Using For Loops for Sequential Access, Using Array Elements as Function Arguments, Arrays Arguments, Multidimensional Arrays.

Strings - String Basics, String Library Functions, Longer Strings, String Comparison, Arrays of Pointers, Character operations, String-To-Number and Number-To- String Conversions, Pointers and Strings.
Unit V- Structure and Union – Introduction, Features of Structures, Declaration and Initialization of Structures, Structure within Structure, Array of Structures, Pointer to Structure, Structure and Functions, typedef, Bit Fields, Enumerated Data Type, Union, Union of Structures.

Unit VI- Files - Introduction, Streams and File Types, Steps for File Operations, File I/O Structures, Read and Write, Other File function, Searching Errors in Reading/Writing of Files, Low Level Disk I/O, Command Line Arguments, Application of Command Line Arguments, File Status functions (error handling).


Linked List - Singly Linked List, Linked List with and without header, Insertion, Deletion and Searching Operations.

Unit VIII- Searching and Sorting - Exchange (Bubble) Sort, Selection Sort, Quick Sort, Insertion Sort, Merge Sort. Searching- Linear and Binary Search Methods.

TEXT BOOKS:
1. Programming in C and Data Structures, J.R.Hanly, Ashok N. Kamthane and A. Ananda Rao, Pearson Education

REFERENCES:
3. C and Data Structures, a snapshot oriented treatise with live engineering examples, Dr. N.B.Venkateswarlu, Dr. E.V.Prasad, S. Chand
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<tr>
<td></td>
<td>Principles of Engineering Graphics and their Significance – Drawing Instruments and their Use – Conventions in Drawing – Lettering – BIS Conventions. Curves used in Engineering Practice:</td>
</tr>
<tr>
<td></td>
<td>a) Conic Sections including the Rectangular Hyperbola – General method only.</td>
</tr>
<tr>
<td></td>
<td>b) Cycloid, Epicycloids and Hypocycloid</td>
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<td>c) Involute.</td>
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<td>d) Helices</td>
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<table>
<thead>
<tr>
<th>UNIT  II</th>
<th>PROJECTION OF POINTS AND LINES:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Principles of Orthographic Projection – Conventions – First and Third Angle Projections. Projections of Points, Lines inclined to one or both planes, Problems on projections, Finding True lengths &amp; traces only.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UNIT  III</th>
<th>PROJECTIONS OF PLANES:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Projections of regular Plane surfaces/figures, Projection of lines and planes using auxiliary planes.</td>
</tr>
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<tr>
<th>UNIT  IV</th>
<th>PROJECTIONS OF SOLIDS:</th>
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<tbody>
<tr>
<td></td>
<td>Projections of Regular Solids inclined to one or both planes – Auxiliary Views.</td>
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<tr>
<th>UNIT  V</th>
<th>SECTIONS AND DEVELOPMENTS OF SOLIDS:</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Section Planes and Sectional views of Right Regular Solids – Prism, Cylinder, Pyramid and Cone. True shapes of the sections.</td>
</tr>
<tr>
<td></td>
<td>Development of Surfaces of Right Regular Solids – Prisms, Cylinder, Pyramid, Cone and their Sectional parts.</td>
</tr>
</tbody>
</table>

Conversion of Isometric projections/views to Orthographic Views – Conventions.

UNIT VII– INTERPENETRATION OF RIGHT REGULAR SOLIDS: Projections of curves of Intersection of Cylinder Vs Cylinder, Cylinder Vs Prism, Cylinder Vs Cone, Square Prism Vs Square Prism.


TEXT BOOKS:
1. Engineering Drawing, N.D. Bhat, Charotar Publishers
2. Engineering Drawing, Johle, Tata McGraw-Hill
3. Engineering Drawing, Shah and Rana, 2/e, Pearson Education

REFERENCES:
1. Engineering Drawing and Graphics, Venugopal/ New age
2. Engineering Drawing, B.V.R. Guptha, J.K. Publishers
UNIT – I


UNIT – II
Real matrices – Symmetric, skew – Symmetric, orthogonal matrices

UNIT – III


UNIT – IV

UNIT – V

UNIT – VI

UNIT – VII
Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions – Method of separation of variables – Solutions of one dimensional wave equation, heat equation and two-dimensional Laplace’s equation under initial and boundary conditions.

UNIT – VIII

TEXT BOOKS:
REFERENCES:

3. Introduction to Numerical Analysis – S.S. Sastry Ph - I
Objectives:
- To make the student learn a programming language.
- To teach the student to write programs in C to solve the problems.
- To introduce the student to simple linear data structures such as lists, stacks, queues.

Recommended Systems/Software Requirements:
- Intel based desktop PC with ANSI C Compiler and Supporting Editors

Week 1.
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 generate all the prime numbers between 1 and n, where n is a value supplied by the user.

Week 2.
a) Write a C program to calculate the following Sum:
   \[ \text{Sum} = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \frac{x^8}{8!} - \frac{x^{10}}{10!} \]
b) Write a C program to find the roots of a quadratic equation.

Week 3
a) 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.

**Week 4**

**a)** The total distance travelled by vehicle in ‘t’ seconds is given by distance  \( S = ut + \frac{1}{2}at^2 \) where ‘u’ and ‘a’ are the initial velocity (m/sec.) and acceleration (m/sec\(^2\)) respectively. Write C program to find the distance travelled at regular intervals of time given the values of ‘u’ and ‘a’. The program should provide the flexibility to the user to select his own time intervals and repeat the calculations for different values of ‘u’ and ‘a’.

**b)** Write a C program, which takes two integer operands and one operator from the user, performs the operation and then prints the result. (Consider the operators +, -, *, /, % and use Switch Statement)

**Week 5**

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

**b)** Write a C program that uses functions to perform the following:

i) Addition of Two Matrices

ii) Multiplication of Two Matrices

**Week 6**

**a)** Write a C program that uses functions to perform the following operations:

i) To insert a sub-string into a 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

**Week 7**

**a)** Write a C program that displays the position or index in the string S where the string T begins, or –1 if S doesn’t contain T.

**b)** Write a C program to count the lines, words and characters in a given text.
Week 8
a) Write a C program to generate Pascal’s triangle.
b) Write a C program to construct a pyramid of numbers.

Week 9
Write a C program to read in two numbers, x and n, and then compute the sum of the geometric progression:
\[1 + x + x^2 + x^3 + \ldots + x^n\]
For example: if n is 3 and x is 5, then the program computes
\[1 + 5 + 25 + 125\]
Print x, n, the sum
Perform error checking. For example, the formula does not make sense for negative exponents – if n is less than 0. Have your program print an error message if n<0, then go back and read in the next pair of numbers of without computing the sum. Find if any values of x are also illegal? If so, test for them too.

Week 10
a) 2’s complement of a number is obtained by scanning it from right to left and complementing all the bits after the first appearance of a 1. Thus 2’s complement of 11100 is 00100. Write a C program to find the 2’s complement of a binary number.
b) Write a C program to convert a Roman numeral to its decimal equivalent.

Week 11
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
iv) Multiplication of two complex numbers
(Note: represent complex number using a structure.)

Week 12
a) Write a C program which copies one file to another.
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.)
Week 13
a) Write a C programme to display the contents of a file.
b) Write a C programme to merge two files into a third file (i.e., the contents of the first file followed by those of the second are put in the third file)

Week 14
Write a C program that uses functions to perform the following operations on singly linked list:
   i) Creation  ii) Insertion  iii) Deletion  iv) Traversal

Week 15
Write C programs that implement stack (its operations) using
   i) Arrays  ii) Pointers

Week 16
Write C programs that implement Queue (its operations) using
   i) Arrays  ii) Pointers

Week 17
Write a C program that uses Stack operations to perform the following:
   i) Converting infix expression into postfix expression
   ii) Evaluating the postfix expression

Week 18
Write a C program that implements the following sorting methods to sort a given list of integers in ascending order
   i) Bubble sort  ii) Selection sort

Week 19
Write C programs that use both recursive and non recursive functions to perform the following searching operations for a Key value in a given list of integers:
   i) Linear search  ii) Binary search

Week 20
Write C program that implements the Quick sort method to sort a given list of integers in ascending order.

**Week 21**
Write C program that implement the Merge sort method to sort a given list of integers in ascending order.

**Week 22**
Write C programs to implement the Lagrange interpolation and Newton- Gregory forward interpolation.

**Week 23**
Write C programs to implement the linear regression and polynomial regression algorithms.

**Week 24**
Write C programs to implement Trapezoidal and Simpson methods.

**REFERENCES:**
1. Programming in C and Data Structures, J.R.Hanly, Ashok N. Kamthane and A. Ananda Rao, Pearson Education
ENGINEERING WORKSHOP

Objectives: The budding Engineer may turn out to be a technologist, scientist, entrepreneur, practitioner, consultant etc. There is a need to equip the engineer with the knowledge of common and newer engineering materials as well as shop practices to fabricate, manufacture or work with materials. Essentially he should know the labour involved, machinery or equipment necessary, time required to fabricate and also should be able to estimate the cost of the product or job work. Hence engineering work shop practice is included to introduce some common shop practices and on hand experience to appreciate the use of skill, tools, equipment and general practices to all the engineering students.

1. TRADES FOR EXERCISES:
   a. Carpentry shop— Two joints (exercises) involving tenon and mortising, groove and tongue: Making middle lap T joint, cross lap joint, mortise and tenon T joint, Bridle T joint from out of 300 x 40 x 25 mm soft wood stock
   b. Fitting shop— Two joints (exercises) from: square joint, V joint, half round joint or dove tail joint out of 100 x 50 x 5 mm M.S. stock
   c. Sheet metal shop— Two jobs (exercises) from: Tray, cylinder, hopper or funnel from out of 22 or 20 guage G.I. sheet
   d. House-wiring— Two jobs (exercises) from: wiring for ceiling rose and two lamps (bulbs) with independent switch controls with or without looping, wiring for stair case lamp, wiring for a water pump with single phase starter.
   e. Foundry— Preparation of two moulds (exercises): for a single pattern and a double pattern.
f. Welding – Preparation of two welds (exercises): single V butt joint, lap joint, double V butt joint or T fillet joint

2. TRADES FOR DEMONSTRATION:
   a. Plumbing
   b. Machine Shop
   c. Metal Cutting

Apart from the above the shop rooms should display charts, layouts, figures, circuits, hand tools, hand machines, models of jobs, materials with names such as different woods, wood faults, Plastics, steels, meters, gauges, equipment, CD or DVD displays, First aid, shop safety etc. (though they may not be used for the exercises but they give valuable information to the student). In the class work or in the examination knowledge of all shop practices may be stressed upon rather than skill acquired in making the job.

REFERENCES:

I.T. WORKSHOP

Objectives:
The IT Workshop for engineers is a training lab course. The modules include training on PC Hardware, Internet & World Wide Web and Productivity tools including Word, Excel, Power Point and Publisher.

PC Hardware introduces the students to a personal computer and its basic peripherals, the process of assembling a personal computer, installation of system software like MS Windows, Linux and the required device drivers. In addition hardware and software level troubleshooting process, tips and tricks would be covered. The students should work on a working PC (PIV or higher)to
disassemble and assemble back to working condition and install Windows and Linux on the same PC. Students are suggested to work similar tasks in the Laptop scenario wherever possible.

**Internet & World Wide Web** module introduces the different ways of hooking the PC on to the internet from home and workplace for usage of the internet. Usage of web browsers, email, newsgroups and discussion forums would be covered. In addition, awareness of cyber hygiene, i.e., protecting the personal computer from getting infected with the viruses, worms and other cyber attacks would be introduced.

**Productivity tools** module would enable the students in crafting professional word documents, excel spread sheets, power point presentations and personal web sites using the Microsoft suite of office tools and LaTeX. (It is recommended to use Microsoft office 2007 in place of MS Office 2003)

**PC Hardware**

**Week 1 – Task 1:** Identify the peripherals of a computer, components in a CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral and submit to your instructor.

**Week 2 – Task 2:** Every student should disassemble and assemble the PC back to working condition. Lab instructors should verify the work and follow it up with a Viva. Also students need to go through the video which shows the process of assembling a PC. A video shall be given as part of the course content.

**Week 3 – Task 3:** Every student should individually install MS windows on the personal computer. Lab instructor should verify the installation and follow it up with a Viva.

**Week 4 – Task 4:** Every student should install Linux on the computer. This computer should have windows installed. The system should be configured as dual boot with both windows and Linux. Lab instructors should verify the installation and follow it up with a Viva.
Week 5 – Task 5: Hardware Troubleshooting: Students have to be given a PC which does not boot due to improper assembly or defective peripherals. They should identify the problem and fix it to get the computer back to working condition. The work done should be verified by the instructor and followed up with a Viva.

Week 6 – Task 6: Software Troubleshooting: Students have to be given a malfunctioning CPU due to system software problems. They should identify the problem and fix it to get the computer back to working condition. The work done should be verified by the instructor and followed up with a Viva.

OFFICE TOOLS
LaTeX and Word

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

Task 1: Using LaTeX and Word to create project certificate. Features to be covered: - Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in both LaTeX and Word.

Excel

Week 8 - Excel Orientation: The mentor needs to tell the importance of MS office 2007/ equivalent (FOSS) tool Excel as a Spreadsheet tool, give the details of the four tasks and features that would be covered in each. Using Excel – Accessing, overview of toolbars, saving excel files, Using help and resources.

Task 1: Creating a Scheduler - Features to be covered: - Gridlines, Format Cells, Summation, auto fill, Formatting Text
LaTeX and MS/equivalent (FOSS) tool Power Point

**Week 9 - Task 1:** Students will be working on basic power point utilities and tools which help them create basic power point presentation. Topic covered during this Exercise includes :- PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows in both LaTeX and Powerpoint. Students will be given model power point presentation which needs to be replicated (exactly how it’s asked).

**Week 10 - Task 2:** Second Exercise helps students in making their presentations interactive. Topic covered during this Exercise includes : Hyperlinks, Inserting –Images, Clip Art, Audio, Video, Objects, Tables and Charts

**Internet & World Wide Web 2 Exercises**

**Week 11 - Task 1: Orientation & Connectivity Boot Camp :** Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally students should demonstrate, to the instructor, how to access the websites and email. If there is no internet connectivity preparations need to be made by the instructors to simulate the WWW on the LAN.

**Web Browsers, Surfing the Web:** Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop up blockers.

**Week 12 - Task 2: Search Engines & Netiquette:** Students should know what search engines are and how to use the search engines. A few topics would be given to the students for which they need to search on Google. This should be demonstrated by the student to the satisfaction of instructors.
Cyber Hygiene: Students would be exposed to the various threats on the internet and would be asked to configure their computer to be safe on the internet. They need to first install an anti virus software, configure their personal firewall and windows update on their computer.

REFERENCES:

1. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education.
2. LaTeX Companion – Leslie Lamport, PHI/Pearson.
3. Introduction to Computers, Peter Norton, 6/e Mc Graw Hill
4. Upgrading and Repairing, PC’s 18th e, Scott Muller QUE, Pearson Education
5. Comdex Information Technology course tool kit, Vikas Gupta, WILEY Dreamtech
ENGINEERING PHYSICS LAB

Any TEN of the following experiments are to be performed during the Academic year.

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Name of the Experiment</th>
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</thead>
<tbody>
<tr>
<td>2.</td>
<td>Dispersive power of the prism – Spectrometer.</td>
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<tr>
<td>4.</td>
<td>Determination of particle size by using a laser source.</td>
</tr>
<tr>
<td>5.</td>
<td>Determination of thickness of a thin wire using parallel fringes.</td>
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<tr>
<td>7.</td>
<td>Magnetic field along the axis of a current carrying coil – Stewart and Gee’s method.</td>
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<tr>
<td>8.</td>
<td>Numerical aperture of an optical fiber.</td>
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<tr>
<td>9.</td>
<td>Hall effect.</td>
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<tr>
<td>11.</td>
<td>Energy gap of a material of p-n junction</td>
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<tr>
<td>12.</td>
<td>Determination of rigidity modulus of a wire material – Torsional pendulum</td>
</tr>
<tr>
<td>13.</td>
<td>Determination of dielectric constant.</td>
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<tr>
<td>15.</td>
<td>Melde’s experiment – Transverse &amp; Longitudinal modes.</td>
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</tbody>
</table>
**Equipment required:**

Spectrometer, Grating, Prism, Mercury vapour lamp, Sodium vapour lamp, Travelling Microscope, Wedge arrangement, Newton rings setup, Stewart-Gee’s apparatus, He-Ne laser source, Optical fiber, Hall effect kit, B-H loop kit, Energy gap kit (four probe method), Torsional pendulum, Dielectric constant kit, Sonometer, Melde’s apparatus

**ENGINEERING CHEMISTRY LAB**

2. Preparation of Standard Potassium Dichromate and Estimation of Copper, by Iodometry.
4. Preparation of Standard EDTA and Estimation of Copper
5. Determination of Manganese in Steel and Iron in Cement.
6. Determination of strength of the given Hydrochloric acid against standard sodium hydroxide solution by Conductometric titration
7. Determination of viscosity of the oils through Redwood viscometer
8. Determination of calorific value of fuel using Bomb calorimeter
9. Estimation of dissolved oxygen
10. Determination of Eutectic Temperature of binary system (Urea – Benzoic Acid)

**BOOKS:**

1. Chemistry-lab manual by Dr K.N.Jayaveera and K.B. Chandra Sekhar, S.M. Enterprizes Ltd.
Equipment Required:
1. Glass ware: Pipettes, Burettes, Volumetric Flasks, Beakers, Standard flasks, Measuring jars, Boiling Test tubes, reagent bottles, (Borosil)
2. Analytical balance (keroy) (15 Nos)
3. Calorimeter
4. Bomb Calorimeter
5. Redwood viscometer No.1& No.2
6. Conductometer/ Conductivity bridge
7. Wash bottles, test tube stands, burette stands
8. Gas cylinders with Bunsen burners
9. Chemicals: Hydrochloric acid, sodiumhydroxide, EDTA, EBT indicator, fast sulfon black-f, urea, benzoic acid, methanol, Mohr’s salt, copper sulphate, magnesium sulphate, ammonia, ammonium sulphate, calcium sulphate etc.,
The Language Lab focuses on the production and practice of sounds of language and equips students with the use of English in everyday situations and contexts.

Objectives:
1. To train students to use language effectively in everyday conversations, to participate in group discussions, to help them face interviews, and sharpen public speaking skills
2. To expose the students to a varied blend of self-instructional, learner-friendly modes of language learning
3. To enable them to learn better pronunciation through stress on word accent, intonation, and rhythm
4. To initiate them into greater use of the computer in resume preparation, report-writing, format-making etc.
5. To help the students cultivate the habit of reading passages from the computer monitor, thus providing them with the required ability to face computer-based competitive exams such GRE, TOEFL, GMAT etc.

SYLLABUS:
The following course content is prescribed for the English Language Laboratory sessions:

1. Introduction to the Sounds of English- Vowels, Diphthongs & Consonants.
2. Introduction to Stress and Intonation.
3. Situational Dialogues (giving directions etc.)
4. Speaking on the mobiles and telephone conversation
5. Role Play.
7. ‘Just A Minute’ Sessions (JAM).
8. Describing Objects / Situations / People.
9. Information Transfer
10. Debate

**Minimum Requirement:**
The English Language Lab shall have two parts:
i) **The Computer aided Language Lab** for 60 students with 60 systems, one master console, LAN facility and English language software for self-study by learners.

ii) **The Communication Skills Lab** with movable chairs and audio-visual aids with a P.A System, a T.V., a digital stereo–audio & video system and camcorder etc.

**System Requirement (Hardware component):**
*Computer network with Lan with minimum 60 multimedia systems with the following specifications:*
   i) P – IV Processor  
      a) Speed – 2.8 GHZ  
      b) RAM – 512 MB Minimum  
      c) Hard Disk – 80 GB  
   ii) Headphones of High quality

**PRESCRIBED SOFTWARE: GLOBARENA**

**Suggested Software:**
- Cambridge Advanced Learners’ English Dictionary with CD.
- The Rosetta Stone English Library
- Clarity Pronunciation Power – Part I
- Mastering English in Vocabulary, Grammar, Spellings, Composition
- Dorling Kindersley series of Grammar, Punctuation, Composition etc.
- Language in Use, Foundation Books Pvt Ltd with CD
- Learning to Speak English - 4 CDs
- Microsoft Encarta with CD
- Murphy’s English Grammar, Cambridge with CD
- English in Mind, Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge
Books Suggested for English Language Lab Library (to be located within the lab in addition to the CDs of the text book which are loaded on the systems):

3. **Speaking English Effectively**, Krishna Mohan & NP Singh (Macmillan)
8. **DELTA’s key to the Next Generation TOEFL Test**, 6 audio CDS, New Age International Publishers, 2007
UNIT – I
MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES: – Definition, Scope and Importance – Need for Public Awareness.

UNIT – II
NATURAL RESOURCES: Renewable and non-renewable resources – Natural resources and associated problems – Forest resources – Use and over – exploitation, deforestation, case studies – Timber extraction – Mining, dams and other effects on forest and tribal people – Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems – Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies – Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. – Energy resources:

UNIT – III
ECOSYSTEMS: Concept of an ecosystem. – Structure and function of an ecosystem – Producers, consumers and decomposers – Energy flow in the ecosystem – Ecological sucession – Food chains, food webs and ecological pyramids – Introduction, types, characteristic features, structure and function of the following ecosystem:
a. Forest ecosystem.
b. Grassland ecosystem
c. Desert ecosystem
d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)
UNIT – IV
BIODIVERSITY AND ITS CONSERVATION: Introduction

UNIT – V
ENVIRONMENTAL POLLUTION: Definition, Cause, effects and control measures of:
   a. Air Pollution.
   b. Water pollution
   c. Soil pollution
   d. Marine pollution
   e. Noise pollution
   f. Thermal pollution
   g. Nuclear hazards

SOLID WASTE MANAGEMENT: Causes, effects and control measures of urban and industrial wastes – Role of an individual in prevention of pollution – Pollution case studies – Disaster management: floods, earthquake, cyclone and landslides.

UNIT – VI

UNIT – VII

UNIT – VIII
FIELD WORK: Visit to a local area to document environmental assets River/forest grassland/hill/mountain – Visit to a local polluted site-Urban/Rural/Industrial/Agricultural Study of common plants, insects, birds – river, hill slopes, etc..

TEXT BOOKS:
2. Environmental Studies by R. Rajagopalan, Oxford University Press.

REFERENCES:
2. Comprehensive Environmental studies by J.P. Sharma, Laxmi publications.
4. Introduction to Environmental engineering and science by Gilbert M. Masters and Wendell P. Ela - Printice hall of India Private limited.
UNIT - I
Introduction to Electrical Engineering: ohm’s law, basic circuit components, Kirchhoff’s laws. Simple problems.

UNIT-II

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

UNIT-IV

UNIT-V
D.C Generators: Principle of operation of dc machines, types of D.C generators, e.m.f equation in D.C generator, O.C.C. of a D.C. Shunt generator
UNIT VI
D.C motors: Principle of operation of dc motors, types of D.C motors, torque equation, losses and efficiency calculation in D.C motor- Swinburne’s test

UNIT VII
Three phase induction motors: Principle of operation, slip and rotor frequency, torque (simple problems).

UNIT VIII
Measuring Instruments: Introduction, classification of instruments, operating principles, essential features of measuring instruments, Moving coil permanent magnet (PMMC) and moving Iron instruments (Voltmeters and Ammeters) - Extension of range of the meters.

TEXT BOOKS:
1. Basic Electrical Engineering - By M.S.Naidu and S. Kamakshiah – TMH.
3. Electrical and Electronic Technology-By Hughes – Pearson Education.

REFERENCES:
2. Principles of Electrical Engineering by V.K Mehta, S.Chand Publications,
MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE
(Common to CSE, CSSE, IT)

UNIT-I
Mathematical Logic: Statements and notations, Connectives, Well formed formulas, Truth Tables, tautology, equivalence implication, Normal forms, Quantifiers, universal quantifiers

UNIT-II

UNIT-III

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

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

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

UNIT-VII
Graph Theory: Representation of Graph, DFS, BFS, Spanning Trees, planar Graphs.

UNIT-VIII
Graph Theory and Applications, Basic Concepts Isomorphism and Sub graphs, Multi graphs and Euler circuits, Hamiltonian graphs, Chromatic Numbers

TEXT BOOKS:

REFERENCES:
4. Discrete Mathematics with Applications, Thomas Koshy, Elsevier
5. Logic and Discrete Mathematics, Grass Man & Trembley, Pearson Education.
B.Tech. II-I-Sem. (C.S.S.E)  
4 0 4  
(9A05302) ADVANCED DATA STRUCTURES  
(Common to CSE, CSSE, IT, ECM)  

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

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

Unit III:  
Algorithms, performance analysis- time complexity and space complexity. Review of basic data structures- The list ADT, Stack ADT, Queue ADT, Implementation using template classes in C++.  

Unit IV:  
Dictionaries, linear list representation, skip list representation, operations insertion, deletion and searching, hash table representation, hash functions, collision resolution-separate chaining, open addressing-linear probing, quadratic probing, double hashing, rehashing, extendible hashing, comparison of hashing and skip lists.  

Unit V:  
Priority Queues – Definition, ADT, Realizing a Priority Queue using Heaps, Definition, insertion, Deletion, External Sorting- Model for external sorting, Multiway merge, Polyphase merge.
Unit VI:
Search Trees (Part 1):
Binary Search Trees, Definition, ADT, Implementation, Operations-
Searching, Insertion and Deletion, AVL Trees, Definition, Height of an
AVL Tree, Operations – Insertion, Deletion and Searching

Unit VII:
Search trees (part- II): Introduction to Red –Black and Splay Trees,
B-Trees, B-Tree of order m, height of a B-Tree, insertion, deletion and
searching, Comparison of Search Trees

Unit VIII:
Pattern matching and Tries: Pattern matching algorithms-Brute
force, the Boyer –Moore algorithm, the Knuth-Morris-Pratt algorithm,
Standard Tries, Compressed Tries, Suffix tries.

TEXT BOOKS:
1. Data structures and Algorithms using C++, Ananda Rao
Akepogu and Radhika Raju Palagiri, Pearson Education.
2. Data structures, Algorithms and Applications in C++, S.Sahni,

REFERENCES:
1. Data structures and Algorithms in C++, Michael T.Goodrich,
R.Tamassia and .Mount, Wiley student edition, John Wiley and
Sons.
2. Data structures and Algorithm Analysis in C++, Mark Allen
Drozdek, Thomson
4. Data structures using C and C++, Langsam, Augenstein and
Tanenbaum, PHI.
5. Problem solving with C++, The OOP, Fourth edition,
W.Savitch, Pearson education.
6. Data Structures using C++, D.S. Malik, Cengage Learning,
India Edition.
UNIT I

DATA REPRESENTATION: Binary Numbers, Fixed Point Representation. Floating Point Representation. Number base conversions, Octal and Hexadecimal Numbers, complements, Signed binary numbers, Binary codes.

UNIT II
DIGITAL LOGIC CIRCUITS-I: Basic Logic Functions, Logic gates, universal logic gates, Minimization of Logic expressions. Flip-flops.

UNIT III
DIGITAL LOGIC CIRCUITS-II: Registers, Shift Registers, Binary counters, Decoders, Multiplexers, Programmable Logic Devices.

UNIT IV
COMPUTER ARITHMETIC: Algorithms for fixed point and floating point addition, subtraction, multiplication and division operations. Hardware Implementation of arithmetic and logic operations, High performance arithmetic.

UNIT V
INSTRUCTION SET & ADDRESSING: Memory Locations and Addresses, Machine addresses and sequencing, Various Addressing Modes, Instruction Formats, Basic Machine Instructions. IA-32 Pentium example.

UNIT VI
PROCESSOR ORGANIZATION: Introduction to CPU, Register Transfers, Execution of Instructions, Multiple Bus Organization, Hardwired Control, Microprogrammed Control

UNIT VII
MEMORY ORGANIZATION: Concept of Memory, RAM, ROM memories, memory hierarchy, cache memories, virtual memory, secondary storage, memory management requirements.

UNIT VIII
INPUT / OUTPUT ORGANIZATION: Introduction to I/O, Interrupts- Hardware, Enabling and disabling Interrupts, Device Control, Direct memory access, buses, interface circuits, standard I/O Interfaces.

TEXT BOOKS:

REFERENCES:

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B.Tech. II-I-Sem. (C.S.S.E) T P C 4 0 4

(9A04301) ELECTRONIC DEVICES AND CIRCUITS
(Common to CSE, CSSE, IT, ECE, E Con E, ECM, EIE, EEE)

UNIT- I
PN JUNCTION DIODE:

UNIT- II
RECTIFIERS AND FILTERS: PN Junction as a Rectifier, Half wave rectifier, ripple factor, full wave rectifier, Bridge Rectifier, Harmonic components in a rectifier circuit, Inductor filter, Capacitor filter, L-section filter, Π-section filter, Use of Zener Diode as a Regulator, Problems on rectifier circuits, and voltage regulator.

UNIT- III

UNIT-IV
TRANSISTOR BIASING AND STABILISATION: Operating Point, DC and AC Load Lines, Importance of Biasing, Fixed Bias, Emitter Feedback Bias, Collector to Emitter Feedback Bias, Voltage Divider Bias, Bias Stability, Stabilization against Variations in $V_{BE}$ and $\beta$, Bias Compensation Using Diodes and Transistors, Thermal Runaway,
Condition for Thermal Stability in CE configuration, Problems on biasing circuits.

UNIT- V
FIELD EFFECT TRANSISTOR:

UNIT- VI
FET AMPLIFIERS:
Common Source, and Common Drain Amplifiers using FET, Generalized FET Amplifier, Biasing of FET, FET as Voltage Variable Resistor, Comparison between BJT and FET.

UNIT-VII
SMALL SIGNAL ANALYSIS OF BJT AMPLIFIERS:
BJT Modeling, Hybrid Modeling, Determination of h-Parameters from Transistor Characteristics, Measurement of h-Parameters, Analysis of CE, CB and CC configurations using h-Parameters, Comparision of CB, CE and CC configurations, Simplified Hybrid Model, Millers Theorem, Dual of Millers Theorem.

UNIT-VIII
SPECIAL PURPOSE ELECTRONIC DEVICES:

TEXT BOOKS:

REFERENCES:
3. Introduction to Electronic Devices and Circuits – Rober T. Paynter, PE
Objectives:

- To make the student learn an object oriented way of solving problems.
- To make the student write ADTS for all data structures.

Recommended Systems/Software Requirements:

- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space
- C++ compiler and STL Recommended

Week 1:
Write C++ programs to implement the following using an array.

a) Stack ADT  b) Queue ADT

Week 2:
Write C++ programs to implement the following using a singly linked list.

a) Stack ADT  b) Queue ADT

Week 3:
Write C++ programs to implement the deque (double ended queue) ADT using a doubly linked list and an array.

Week 4:
Write a C++ program to perform the following operations:

a) Insert an element into a binary search tree.

b) Delete an element from a binary search tree.

c) Search for a key element in a binary search tree.

Week 5:
Write C++ programs that use recursive functions to traverse the given binary tree in

a) Preorder  b) inorder and c) postorder.
Week 6:
Write C++ programs that use non-recursive functions to traverse the given binary tree in
   b) Preorder b) inorder and c) postorder.

Week 7:
Write C++ programs for the implementation of bfs and dfs for a given graph.

Week 8:
Write C++ programs for implementing the following sorting methods:
   a) Merge sort       b) Heap sort

Week 9:
Write a C++ program to perform the following operations
   a) Insertion into a B-tree   b) Deletion from a B-tree

Week 10:
Write a C++ program to perform the following operation
   a) Insertion into an AVL-tree

Week 11:
Write a C++ program to implement all the functions of a dictionary (ADT) using hashing.

Week 12:
Write a C++ program for implementing Knuth-Morris-Pratt pattern matching algorithm.

(Note: Use Class Templates in the above Programs)

TEXT BOOKS:
6. The Art, Philosophy, and Science of OOP with C++, Rick Miller, SPD.
7. C++ for Programmers, P.J. Deitel and H.M. Deitel, PHI/Pearson
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ANANTAPUR

B.Tech. II-I-Sem. (C.S.S.E)  T  P  C
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(9A02307) ELECTRICAL AND ELECTRONICS LAB
(Common to CSE, CSSE, IT)
PART – A : ELECTRICAL LAB

1. Verification of Superposition theorem.
2. Verification of Thevenin’s theorem.
3. Open Circuit characteristics of D.C. Shunt generator.
4. Swinburne’s Test on DC shunt machine (Predetermination of efficiency of a given DC Shunt machine working as motor and generator).
6. OC & SC tests on Single-phase transformer (Predetermination of efficiency and regulation at given power factors).

PART – B : ELECTRONICS LAB

1. Identification, Specifications and Testing of R, L, C Components (colour codes), Potentiometers, Switches (SPDT, DPDT and DIP), Coils, Gang Condensers, Relays, Bread Boards, Identification and Specifications of active devices, Diodes, BJTs, Lowpower JFETs, MOSFETs, LEDs, LCDs, SCR, UJT, Linear and Digital ICs.
2. PN Junction Diode Characteristics (Forward bias, Reverse bias).
3. Zener Diode Characteristics and Zener as regulator.
4. Transistor CE Characteristics (Input and Output).
5. Rectifier without Filters (Full wave & Half wave).
6. Rectifier with Filters (Full wave & Half wave).
(9ABS304) PROBABILITY AND STATISTICS
(Common to CE, IT, ME, CSSE)

UNIT – I

UNIT – II

UNIT – III
Binomial and poisson’s distributions Normal distribution – Related properties.

UNIT – IV
Sampling distribution: Populations and samples – Sampling distribution of mean (known and unknown) proportions, sums and differences.

UNIT – V
Estimation: Point estimation – Interval estimation – Bayesian estimation

UNIT – VI
Test of Hypothesis – Means – Hypothesis concerning one and two means – Type I and Type II errors. One tail, two-tail tests.

UNIT – VII
Tests of significance – Student’s t-test, F-test, \( \Psi^2 \) test, Estimation of proportions.
UNIT – VIII
Queuing Theory: Pure Birth and Death process, M/M/1 model and simple problems.

TEXT BOOKS:

REFERENCES:
3. Introduction to Probability, Charles M. Grinstead, J. Laurie Snell, University Press.
UNIT I:
Object oriented thinking :- Need for oop paradigm, A way of viewing world – Agents, responsibility, messages, methods, classes and instances, class hierarchies (Inheritance), method binding, overriding and exceptions, summary of oop concepts, coping with complexity, abstraction mechanisms.

UNIT II:
Java Basics History of Java, Java buzzwords, data types, variables, scope and life time of variables, arrays, operators, expressions, control statements, type conversion and casting, simple java program, classes and objects – concepts of classes, objects, constructors, methods, access control, this keyword, garbage collection, overloading methods and constructors, parameter passing, recursion, string handling.

UNIT III:
Inheritance – Hierarchical abstractions, Base class object, subclass, subtype, substitutability, forms of inheritance- specialization, specification, construction, extension, limitation, combination, benefits of inheritance, costs of inheritance, Member access rules, super uses, using final with inheritance, polymorphism- method overriding, abstract classes.

UNIT IV:
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. Exploring packages – Java.io, java.util.
UNIT V :
Exception handling and multithreading - Concepts of exception handling, benefits of exception handling, Termination or resumptive models, exception hierarchy, usage of try, catch, throw, throws and finally, built in exceptions, creating own exception sub classes. Differences between multi threading and multitasking, thread life cycle, creating threads, synchronizing threads.

UNIT VI :
Event Handling : Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes, inner classes, The AWT class hierarchy, user interface components- labels, button, canvas, scrollbars, text components, check box, check box groups, choices, lists, panels – scrollpane, dialogs, menubar, graphics, layout manager – layout manager types – boarder, grid, flow, card and grid bag.

UNIT VII :
Applets – Concepts of Applets, differences between applets and applications, life cycle of an applet, types of applets, creating applets, passing parameters to applets.

UNIT VIII :
Networking – Basics of network programming, addresses, ports, sockets, simple client server program, multiple clients, Java .net package, Enumerations, autoboxing, annotations, generics.

TEXT BOOKS :
1. Java; the complete reference, 7th editon, Herbert schildt, TMH.
2. Understanding OOP with Java, updated edition, T. Budd, Pearson Education.
REFERENCES:

2. An Introduction to OOP, third edition, T. Budd, pearson education.
3. Introduction to Java programming, 6th edition, Y. Daniel Liang, pearson education.
UNIT I:
Computer System and Operating System Overview: Overview of computer operating systems, operating systems functions, protection and security, distributed systems, special purpose systems, operating systems structures, systems calls, operating systems generation.

UNIT II:
Process Management – Process concept, process scheduling, threads, operations on processes, interprocess communication, scheduling-criteria, algorithms, their evaluation, Thread scheduling, case studies UNIX, Linux, Windows.

UNIT III:
Synchronization: Background, the critical-section problem, Peterson’s Solution, synchronization Hardware, semaphores, classic problems of synchronization, monitors, Synchronization examples, atomic transactions. Case studies UNIX, Linux, Windows.

UNIT IV:
Memory Management: Swapping, contiguous memory allocation, paging, structure of the page table, segmentation, virtual memory management, demand paging, page-Replacement, algorithms, case studies UNIX, Linux, Windows.

UNIT V:
Principles of deadlock – System model, deadlock characterization, deadlock prevention, detection and avoidance, recovery form deadlock, I/O systems, Hardware, application interface, kernel I/O subsystem, Transforming I/O requests to Hardware operation, STREAMS, performance.
UNIT VI:
File system – File concept, Access Methods, Directory and Disk structure, File system mounting, file sharing, protection.

File System implementation- File system structure, file system implementation, directory implementation, allocation methods, free-space management, efficiency and performance, case studies. UNIX, Linux, Windows.

UNIT VII:

UNIT VIII:


TEXT BOOKS:

REFERENCES:
2. Operating System A Design Approach-Crowley, TMH.
UNIT-I

UNIT-II

UNIT-III
The Relational Database Model: A Logical View of Data-Keys-Integrity Rules-Relational Set Operators-The Data Dictionary and the System Catalog-Relationships within the Relational Database-Data Redundancy Revisited-Indexes-Codd’s Relational Database Rules.

UNIT-IV
Structured Query Language (SQL): Introduction to SQL-Data Definition Commands-Data Manipulation Commands-SELECT Queries- Advanced Data Definition Commands-Advanced SELECT Queries-Virtual Tables: Creating a View-Joining Database Tables.
Advanced SQL: Relational Set Operators-SQL Join Operators-Subqueries and Correlated Queries-SQL Functions-Oracle Sequences-Updatable Views-Procedural SQL-Embedded SQL.
UNIT-V

UNIT-VI

UNIT-VII

UNIT-VIII

TEXT BOOKS:
REFERENCES:
3. Introduction to Database Systems, C. J. Date, Pearson Education.
4. Oracle for Professionals, The X Team, S. Shah and V. Shah, SPD.
5. Database Systems Using Oracle: A Simplified guide to SQL and PL/SQL, Shah, PHI.
B.Tech. II-II-Sem. (C.S.S.E)  T  P  C  4  0  4
(9A05403) DESIGN AND ANALYSIS OF ALGORITHMS  (Common to CSE, CSSE, IT)
UNIT I :
Introduction: Algorithm, Psuedocode for expressing algorithms, Performance Analysis-Space complexity, Time complexity, Asymptotic Notation- Big oh notation, Omega notation, Theta notation and Little oh notation, Basics of probability theory , Amortized complexity.

UNIT II :
Disjoint Sets- disjoint set operations, union and find algorithms, spanning trees, connected components and biconnected components.

UNIT III :
Divide and conquer: General method, applications-Binary search, Quick sort, Merge sort, Strassen’s matrix multiplication.

UNIT IV :

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

UNIT VI :
Backtracking: General method, applications-8-queen problem, sum of subsets, graph coloring, Hamiltonian cycles.
UNIT VII:
Branch and Bound: General method, applications - Travelling sales person(*), 0/1 knapsack problem- LC Branch and Bound solution, FIFO Branch and Bound solution.

UNIT VIII:
NP-Hard and NP-Complete problems: Basic concepts, nondeterministic algorithms, The classes-NP-Hard and NPComplete, Cook’s theorem(*).

TEXT BOOKS:
2. Design and Analysis Algorithms - Parag Himanshu Dave, Himanshu Bhalchandra Dave Publisher: Pearson

REFERENCES:
Unit I:
FUNDAMENTALS OF DATA COMMUNICATION: Data Communication Network Architecture, Protocols and standards, standards organizations for Data Communication, Data Communication circuits, Serial and parallel Data Transmission, Data communications Circuit Arrangements, Data communications Networks.

SIGNALS, NOISE, MODULATION, AND DEMODULATION:

Unit II:
ELECTRIC CABLE TRANSMISSION MEDIA:

OPTICAL FIBER TRANSMISSION MEDIA:

Unit III:
DIGITAL TRANSMISSION:
Pulse Modulation, Pulse code Modulation, Dynamic Range, Linear Versus Nonlinear PCM Codes, Companding, PCM Line Speed.
MULTIPLEXING AND T CARRIERS:
Time-Division Multiplexing, T1 Digital Carrier System, Digital Line Encoding, T Carrier systems, Statistical Time – Division Multiplexing, Frame Synchronization, Frequency-Division Multiplexing, Wavelength-Division Multiplexing.

Unit IV:
WIRELESS COMMUNICATIONS SYSTEMS:

Unit V:
TELEPHONE INSTRUMENTS AND SIGNALS:
The Subscriber Loop, Standard Telephone Set, Basic Telephone Call Procedures, Call Progress Tones and Signals, Cordless Telephones, Caller ID, Electronic Telephones, Paging systems.

THE TELEPHONE CIRCUIT:

Unit VI:
CELLULAR TELEPHONE CONCEPTS AND SYSTEMS:

Unit VII:
DATA COMMUNICATIONS CODES, ERROR CONTROL, AND DATA FORMATS:
Data Communications Character Codes, Bar Codes, Error Control, Error Detection, Error Correction, Character Synchronization.

Unit VIII:
DATA COMMUNICATIONS EQUIPMENT:

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

Reference Books
1. Data Communications and Networking, Behrouz A Forouzan, Fourth Edition.TMH.
(9A05404) OBJECT ORIENTED PROGRAMMING LAB
(Common to CSE, CSSE, IT)

Objectives:
- To make the student learn an object oriented way of solving problems.
- To teach the student to write programs in Java to solve the problems

Recommended Systems/Software Requirements:
- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space
- JDK Kit. Recommended

Week 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.
- The Fibonacci sequence is defined by the following rule:
The fist 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.

Week 2:
- Write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.
- Write a Java program to multiply two given matrices.
- Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers (Use StringTokenizer class of java.util)
Week 3:
a) Write a Java program that checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome.
b) Write a Java program for sorting a given list of names in ascending order.
c) Write a Java program to make frequency count of words in a given text.

Week 4:
a) Write a Java program that reads a file name from the user, then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes.
b) Write a Java program that reads a file and displays the file on the screen, with a line number before each line.
c) Write a Java program that displays the number of characters, lines and words in a text file.

Week 5:
a) Write a Java program that:
   i) Implements stack ADT.
   ii) Converts infix expression into Postfix form
   iii) Evaluates the postfix expression

Week 6:
a) Develop an applet that displays a simple message.
b) Develop an applet that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named “Compute” is clicked.

Week 7:
Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -, *, % operations. Add a text field to display the result.

Week 8:
a) Write a Java program for handling mouse events.
Week 9:
   a) Write a Java program that creates three threads. First thread displays “Good Morning” every one second, the second thread displays “Hello” every two seconds and the third thread displays “Welcome” every three seconds.
   b) Write a Java program that correctly implements producer consumer problem using the concept of inter thread communication.

Week 10:
Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the textfields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a NumberFormatException. If Num2 were Zero, the program would throw an ArithmeticException Display the exception in a message dialog box.

Week 11:
Write a Java program that implements a simple client/server application. The client sends data to a server. The server receives the data, uses it to produce a result, and then sends the result back to the client. The client displays the result on the console. For ex: The data sent from the client is the radius of a circle, and the result produced by the server is the area of the circle. (Use java.net)

Week 12:
   a) Write a java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow, or green. When a radio button is selected, the light is turned on, and only one light can be on at a time No light is on when the program starts.
   b) Write a Java program that allows the user to draw lines, rectangles and ovals.
**Week 13:**

**a)** Write a java program to create an abstract class named `Shape` that contains an empty method named `numberOfSides()`. Provide three classes named `Trapezoid`, `Triangle` and `Hexagon` such that each one of the classes extends the class `Shape`. Each one of the classes contains only the method `numberOfSides()` that shows the number of sides in the given geometrical figures.

**b)** Suppose that a table named `Table.txt` is stored in a text file. The first line in the file is the header, and the remaining lines correspond to rows in the table. The elements are eparated by commas. Write a java program to display the table using `JTable` component.

**TEXT BOOKS:**

2. *Introduction to Java programming, Sixth edition*, Y.Daniel Liang, Pearson Education.
Objective: This lab enables the students to practice the concepts learnt in the subject DBMS by developing a database for an example company named “Roadway Travels” whose description is as follows. The student is expected to practice the designing, developing and querying a database in the context of example database “Roadway旅行”. Students are expected to use “Mysql” database.

Roadway Travels
"Roadway Travels" is in business since 1997 with several buses connecting different places in India. Its main office is located in Hyderabad.

The company wants to computerize its operations in the following areas:

- Reservations and Ticketing
- Cancellations

Reservations:
Reservations are directly handled by booking office. Reservations can be made 30 days in advance in either cash or credit. In case the ticket is not available, a wait listed ticket is issued to the customer. This ticket is confirmed against the cancellation.

Cancellation and Modifications:
Cancellations are also directly handed at the booking office. Cancellation charges will be charged. Wait listed tickets that do not get confirmed are fully refunded.

Week1: E-R Model
Analyze the problem carefully and come up with the entities in it. Identify what data has to be persisted in the database. This contains the entities, attributes etc.
Identify the primary keys for all the entities. Identify the other keys like candidate keys, partial keys, if any.

_The student is required to submit a document by writing the Entities and Keys._

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

**PRIMARY KEY ATTRIBUTES:**
1. Ticket ID (Ticket Entity)
2. Passport ID (Passenger Entity)

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

**Week 2: Concept design with E-R Model**
Relate the entities appropriately. Apply cardinalities for each relationship. Identify strong entities and weak entities (if any). Indicate the type of relationships (total / partial). Try to incorporate generalization, aggregation, specialization etc wherever required.

_The student is required to submit a document by drawing the E-R diagram._

**Example: E-R diagram for bus**

![E-R Diagram for Bus](image-url)
Week3: Relational Model
Represent all the entities (Strong, Weak) in tabular fashion. Represent relationships in a tabular fashion. There are different ways of representing relationships as tables based on the cardinality. Represent attributes as columns in tables or as tables based on the requirement. Different types of attributes (Composite, Multivalued, and Derived) have different way of representation.

The student is required to submit a document by Represent relationships in a tabular fashion.

Example: The passenger tables look as below. This is an example. You can add more attributes based on your E-R model.

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

Week4: Normalization
Database normalization is a technique for designing relational database tables to minimize duplication of information and, in so doing, to safeguard the database against certain types of logical or structural problems, namely data anomalies. For example, when multiple instances of a given piece of information occur in a table, the possibility exists that these instances will not be kept consistent when the data within the table is updated, leading to a loss of data integrity. A table that is sufficiently normalized is less vulnerable to problems of this kind, because its structure reflects the basic assumptions for when multiple instances of the same information should be represented by a single instance only.

Week5: Installation of Mysql and practicing DDL commands
Installation of MySql. In this week you will learn Creating databases, How to create tables, altering the database, dropping tables and databases if not required. You will also try truncate, rename commands etc.

Example for creation of a table.

```
CREATE TABLE Passenger (    
    Passport id INTEGER PRIMARY KEY,    
    Name CHAR (50) NULL,    
    Age Integer,    
    Sex Char    
);
```

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

**Week6: Practicing DML commands**

DML commands are used to for managing data within schema objects. Some examples:
- SELECT - retrieve data from the database
- INSERT - insert data into a table
- UPDATE - updates existing data within a table
- DELETE - deletes all records from a table, the space for the records remain

**Inserting values into Bus table:**
Insert into Bus values (1234,’Hyderabad’, ‘Tirupathi’);
Insert into Bus values (2345,’Hyderabad’,’Bangalore’);

**Inserting values into Bus table:**
Insert into Passenger values (1, 45,’ramesh’, 45,’M’,’abc123’);
Insert into Passenger values (2, 78,’geetha’, 36,’F’,’abc124’);

**Few more Examples of DML commands:**
Select * from Bus; (selects all the attributes and display)
UPDATE BUS SET Bus No = 1 WHERE BUS NO=2;

**Week7: Querying**
This week practice on queries (along with sub queries) using ANY, ALL, IN, Exists, NOT EXISTS, UNION, INTERSECT, Constraints etc.

Practice the following Queries:
1. Display unique PNR_no of all passengers.
2. Display all the names of male passengers.
3. Display the ticket numbers and names of all the passengers.
4. Display the source and destination having journey time more than 10 hours.
5. Find the ticket numbers of the passengers whose name start with ‘A’ and ends with ‘H’.
6. Find the names of passengers whose age is between 30 and 45.
7. Display all the passengers names beginning with ‘A’
8. Display the sorted list of passengers names.
9. Display the Bus numbers that travel on Sunday and Wednesday.
10. Display the details of passengers who are traveling either in AC or NON_AC (Using only IN operator).

Week8 and week9: Querying (continued…)

This students practices on queries using Aggregate functions (COUNT, SUM, AVG, and MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.

☐ Write a Query to display the Information present in the Passenger and cancellation tables, **Hint:** Use UNION Operator.
☐ Write a Query to display different travelling options available in British Airways.
☐ Display the number of days in a week on which the 9W01 bus is available.
☐ Find number of tickets booked for each PNR_no using GROUP BY CLAUSE. **Hint:** Use GROUP BY on PNR_No.
☐ Find the distinct PNR numbers that are present.
☐ Find the number of tickets booked in each class where the number of seats is greater than 1. **Hint:** Use GROUP BY, WHERE and HAVING CLAUSES.
Find the total number of cancelled seats.
Write a Query to count the number of tickets for the buses, which travelled after the date '14/3/2009'. **Hint:** Use HAVING CLAUSES.

**Week 10: Triggers**
This week student works on Triggers. Creation of insert trigger, delete trigger, update trigger. Practice triggers using the above database.

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

**Week 11: Procedures**
In this session the student learns Creation of stored procedure, Execution of procedure and modification of procedure. Practice procedures using the above database.

Eg: CREATE PROCEDURE myProc()
    BEGIN
    SELECT COUNT(Tickets) FROM Ticket WHERE age>=40;
    END;

**Week 12: Cursors**
Do the following: Declare a cursor that defines a result set. Open the cursor to establish the result set. Fetch the data into local variables as needed from the cursor, one row at a time. Close the cursor when done

CREATE PROCEDURE myProc(in_customer_id INT)
    BEGIN

DECLARE v_id INT;
DECLARE v_name VARCHAR(30);
DECLARE c1 CURSOR FOR SELECT stdId, stdFirstname
FROM students WHERE stdId=in_customer_id;

OPEN c1;
FETCH c1 into v_id, v_name;
Close c1;
END;

Tables
BUS
Bus No: Varchar: PK (public key)
Source : Varchar
Destination : Varchar

Passenger
PNR_No : Numeric(9) : PK
Ticket_No: Numeric (9)
Name: Varchar(15)
Age : int (4)
Sex:Char(10) : Male / Female
PPNO: Varchar(15)

Reservation
PNR_No: Numeric(9) : FK
Journey_date : datetime(8)
No_of_seats : int (8)
Address : Varchar (50)
Contact_No: Numeric (9) --> Should not be less than 9 and Should not accept any other character other than Integer
Status: Char (2) : Yes / No

Cancellation
PNR_No: Numeric(9) : FK
Journey_date : datetime(8)
No_of_seats : int (8)
Address : Varchar (50)
Contact_No: Numeric (9) --> Should not be less than 9 and Should not accept any other character other than Integer
Status: Char (2) : Yes / No

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

Text Books:
4. Oracle PL/SQL Programming,Steven Feuerstein,SPD.
5. SQL & PL/SQL for Oracle 10g, Black Book, Dr.P.S.Deshpande, Dream Tech.
6. Oracle Database 11g PL/SQL Programming, M.Mc Laughlin, TMH.
7. SQL Fundamentals, J.J.Patrick, Pearson Education.

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(9A12501) AUTOMATA and COMPILER DESIGN
(Common to CSSE, IT)

UNIT I
Formal Language and Regular Expressions: Languages, Definition 
Languages Regular Expressions, Finite Automata – DFA, NFA, 
Conversion of Regular Expression to NFA, NFA to DFA, Applications 
of Finite Automata to Lexical Analysis, Lex Tools.

UNIT II
Context Free Grammars and Parsing: Context Free Grammars, 
Derivation, Parse Trees, Ambiguity LL(K) Grammars and LL(1) 
Parsing.

UNIT III
Bottom Up Parsing Handle Pruning LR Grammar Parsing, LALR 
Parsing, Parsing Ambiguous Grammars, YACC Programming 
Specification.

UNIT IV
Semantics: Syntax Directed Translation, S-attributed and L-attributed 
Grammars, Intermediate Code – Abstract Syntax Tree, Translation of 
Simple Statements and Control Flow Statements.

UNIT V
Context Sensitive Features: Chomsky Hierarchy of Languages and Recognizers, Type Checking, Type Conversions, Equivalence of Type Expressions, Overloading of Functions and Operations.

UNIT VI

UNIT VII

UNIT VIII

TEXT BOOKS:

REFERENCES:
4. Principles of Compiler Design, V.Raghavan, TMH.
5. Engineering a Compiler, K.D.Cooper, L.Torczon, Elsevier.
(9A05605) ARTIFICIAL INTELLIGENCE

UNIT I

UNIT II

UNIT III
UNIT IV

UNIT V

UNIT VI

UNIT VII

UNIT VIII

TEXT BOOKS:

REFERENCES:
2. Introduction to Artificial Intelligence, Eugene Charniak and Drew McDermott, Pearson Education.

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(9A04602) MICROPROCESSORS and MICRO CONTROLLERS
(Common to CSSE, IT, ECM)

UNIT-I
INTRODUCTION
Architecture of 8086 microprocessor, special functions of general purpose registers. 8086 flag register and function of 8086 flags, addressing modes of 8086, instruction set of 8086, assembler directives, simple programs, procedures and macros.

UNIT-II
ASSEMBLY LANGUAGE PROGRAMMING
Assembly language programs involving logical, branch and call instructions, sorting, evaluation of arithmetic expressions, string manipulation.

UNIT-III
ARCHITECTURE OF 8086 & INTERFACING
Pin diagram of 8086-Minimum mode and maximum mode of operation, Timing diagram, memory interfacing to 8086 (static RAM and EPROM). Need for DMA. DMA data transfer method. Interfacing with 8237/8257.

UNIT-IV
PROGRAMMABLE INTERFACING DEVICES

UNIT-V
SERIAL DATA TRANSFER SCHEMES
Asynchronous and synchronous data transfer schemes, 8251 USART architecture and interfacing, TTL to RS232C and RS232C to TTL conversion. Sample program of serial data transfer. Introduction to high-speed serial communications standards, USB.

UNIT-VI
PROGRAMMABLE INTERRUPT CONTROLLERS
PIC 8259, Programming with 8259, Programmable interval timer 8253, Modes of 8253, Programming examples with 8253.

UNIT-VII
8051 MICROCONTROLLER AND ITS PROGRAMMING

UNIT-VIII
ADVANCED MICROCONTROLLERS

TEXT BOOKS:


REFERENCES:
UNIT I

UNIT II
Requirements for Coding in Assembly Language: Assembly Language Features, Conventional Segment Directives, Simplified Segment Directives, Defining Types of Data, Equate Directives, Assembling, Linking and Executing Programs: Preparing a Program for Assembling and Execution, Two-Pass Assembler, Linking an Object Program, Executing a Program, Writing .COM Programs, Symbolic Instructions and Addressing.

UNIT III
Program Logic and Control: The JMP Instruction, The LOOP Instruction, The Flags Register, The CMP Instruction, Conditional
Jump Instructions, Boolean Operations, Shifting Bits, Rotating Bits, Introduction to Video and Keyboard Processing: Screen Features, Setting the Cursor, Clearing the Screen, Components of a Video System, Video Modes, BIOS Keyboard Data Areas, INT 21H for Keyboard Input, INT 16H for Keyboard Input, Extended Function Keys and Scan Codes, BIOS INT 09H and the Keyboard Buffer.

UNIT IV

UNIT V
Disk Storage: Organization, Writing and Reading Files, INT 21H Functions for Supporting Disks and Files, INT 13H Disk Functions.

UNIT VI

UNIT VII
UNIT VIII

TEXT BOOKS:
1. IBM PC Assembly Language and Programming, Peter Abel, Fifth Edition, PHI.

REFERENCES:
1. Operating Systems and Systems Programming, Dhamdhere, PHI.
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(9A05502) SOFTWARE ENGINEERING
(Common to CSE, CSSE, IT)

UNIT I

UNIT II

UNIT III
Requirements Engineering Process: Feasibility Studies, Requirements Elicitation and Analysis, Requirements Validation, Requirements

UNIT IV

UNIT V

UNIT VI

UNIT VII

UNIT VIII

TEXT BOOKS:

REFERENCE BOOKS:
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(9A15502) DIGITAL SYSTEM DESIGN

UNIT I

UNIT II
Sequential Circuit Design: Design of Iterative Circuits, Design of Sequential Circuits Using Roms and Plas, Sequential Circuit Design Using CPLD, Fpgas.

UNIT III

UNIT IV

UNIT V

UNIT VI
Programming Logic Arrays: Design Using PLA’s, PLA Minimization and PLA Folding.

UNIT VII

UNIT VIII
Asynchronous Sequential Machine: Fundamental Mode Model, Flow Table, State Reduction, Minimal Closed Covers, Races, Cycles and Hazards.

TEXTBOOKS:
1. Switching and Finite Automata Theory, Z. Kohavi, TMH.
2. Logic Design Theory, N. N. Biswas, PHI.

REFERENCES:
1. Introduction

The Advanced English Language Skills Lab introduced at the 3rd year B.Tech level is considered essential for the student for focusing on his/her career. At this stage it is imperative for the student to start preparing for the ever growing competition in the job market. In this scenario, in order to be on par with the best, he/she needs to improve his/her Communication and soft skills.

This course focuses on the practical aspects of English incorporating all the four (LRSW) skills relevant to the requirements of the prospective employers in view of globalization. The proposed course will enable the students to perform the following:
Intensive reading to improve comprehension and communication
Attentive listening for better understanding
Write project/research/technical reports
Write Resume’ to attract attention
Discuss ideas / opinions for better solutions
Face interviews confidently
Gather information, organize ideas, and present them effectively before an audience
To help the students cultivate the habit of reading passages from the computer monitor, thus providing them with the required ability to face computer-based competitive exams such GRE, TOEFL,CAT, GMAT etc.

2. Objectives:
Keeping in mind the previous exposure of the student to English, this lab focuses on improving the student’s proficiency in English at all levels. The lab intends to train students to use language effectively, to participate in group discussions, to help them face interviews, and sharpen public speaking skills and enhance the confidence of the student by exposing him/her to various situations and contexts which he/she would face in his/her career.

3. Syllabus
The following course content is prescribed for the Advanced Communication Skills Lab:

Reading Comprehension -- Reading for facts, guessing meanings from context, speed reading, scanning, skimming for building vocabulary(synonyms and antonyms, one word substitutes, prefixes and suffixes, idioms and phrases.)

Listening Comprehension-- Listening for understanding, so as to respond relevantly and appropriately to people of different
backgrounds and dialects in various personal and professional situations.

**Technical Report Writing**—Types of formats and styles, subject matter, organization, clarity, coherence and style, data-collection, tools, analysis

**Resume’ Writing**—Structure, format and style, planning, defining the career objective, projecting one’s strengths, and skills, creative self marketing, cover letter

**Group Discussion**—Communicating views and opinions, discussing, intervening, providing solutions on any given topic across a cross-section of individuals, (keeping an eye on modulation of voice, clarity, body language, relevance, fluency and coherence) in personal and professional lives.

**Interview Skills**—Concept and process, pre-interview planning, mannerisms, body language, organizing, answering strategies, interview through tele and video-conferencing

**Technical Presentations (Oral)**—Collection of data, planning, preparation, type, style and format, use of props, attracting audience, voice modulation, clarity, body language, asking queries.

4. **Minimum Requirements**
The English Language Lab shall have two parts:

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

The Communication Skills Lab with movable chairs and audio-visual aids with a P.A System, a TV, A digital stereo-audio and video system, Camcorder etc

**System Requirement (Hardware Component):**
Computer network with LAN with a minimum of 60 multimedia systems with the following specifications:
P-IV Processor, Speed-2.8 GHz, RAM_512 MB minimum, Hard Disk-80 GB, Headphones

Prescribed Software: GLOBARENA

Books Suggested for English Language Lab Library (to be located within the lab in addition to the CDs of the text book which are loaded on the systems):

9. **From Campus To Corporate** by KK Ramachandran and KK Karthick, Macmillan Publishers India Ltd, 2010
I. Microprocessor 8086:
1. Introduction to MASM/TASM.
2. Arithmetic operation – Multi byte Addition and Subtraction, Multiplication and Division – Signed and unsigned Arithmetic operation, ASCII – arithmetic operation.
3. Logic operations – Shift and rotate – Converting packed BCD to unpacked BCD, BCD to ASCII conversion.
4. By using string operation and Instruction prefix: Move Block, Reverse string, Sorting, Inserting, Deleting, Length of the string, String comparison.
5. DOS/BIOS programming: Reading keyboard (Buffered with and without echo) – Display characters, Strings.

II. Interfacing:
1. 8259 – Interrupt Controller: Generate an interrupt using 8259 timer.
2. 8279 – Keyboard Display: Write a small program to display a string of characters.
3. 8255 – PPI: Write ALP to generate sinusoidal wave using PPI.
4. 8251 – USART: Write a program in ALP to establish Communication between two processors.

III. Microcontroller 8051
1. Reading and Writing on a parallel port.
2. Timer in different modes.
3. Serial communication implementation.

Equipment required for Laboratories:
1. 8086 µP Kits
2. 8051 Micro Controller kits
3. Interfaces/peripheral subsystems
   i) 8259 PIC
   ii) 8279-KB/Display
   iii) 8255 PPI
   iv) 8251 USART
4. ADC Interface
5. DAC Interface
6. Traffic Controller Interface
7. Elevator Interface
UNIT I

UNIT II
The Data Link Layer: Data link Layer Design Issues, Elementary Data Link Protocols, Sliding Window Protocols.
UNIT III

UNIT IV

UNIT V
Internetworking, The Network Layer in the Internet.

UNIT VI

UNIT VII

UNIT VIII

TEXT BOOKS:

REFERENCES:

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(9A15601) MATHEMATICAL MODELING and SIMULATION
UNIT I

UNIT II

UNIT III

UNIT IV
Deterministic Inventory Models: General Inventory Model, Role of Demand in the Development of Inventory, Static EOQ Models, Dynamic EOQ Models, Probabilistic Inventory Models: Continuous Review Models, Single-Period Models, Multi-Period Model.

UNIT V

UNIT VI

UNIT VII

UNIT VIII

TEXT BOOKS:

REFERENCES:
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(9A05601) OBJECT ORIENTED ANALYSIS and DESIGN
(Common to CSE, CSSE, IT)

UNIT I
Introduction to UML: Importance of Modeling, Principles of Modeling,
Object Oriented Modeling, Conceptual Model of the UML,

UNIT II

UNIT III

UNIT IV

UNIT V

UNIT VI
Advanced Behavioral Modeling: Events and Signals, State Machines, Processes and Threads, Time and Space, State Chart Diagrams.

UNIT VII

UNIT VIII
Case Study: The Unified Library Application.

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

REFERENCES:
5. Learning UML 2.0, Russ Miles and Kim Hamilton, O’Reilly, SPD.
7. UML and C++, R.C.Lee and W.M.Tepfenhart, PHI.
10. Mark Priestley: Practical Object-Oriented Design with UML, TMH.

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(9A05704) ADVANCED COMPUTER ARCHITECTURE

UNIT I
and Scheduling, Program Flow Mechanisms, System Interconnect Architectures.

UNIT II

UNIT III

UNIT IV

UNIT V

UNIT VI
Scalable, Multithreaded and Dataflow Architectures: Latency, Hiding Techniques, Principles of Multithreading, Fine-Grain Multicomputers, Scalable and Multithreaded Architectures, Dataflow and Hybrid Architectures.

UNIT VII
Instruction Level Parallelism: Introduction, Basic Design Issues, Problem Definition, Model of a Typical Processor, Operand Forwarding, Reorder Buffer, Register Renaming-Tomasulo’s
Algorithm, Branch Prediction, Limitations in Exploiting Instruction Level Parallelism, Thread Level Parallelism.

UNIT VIII

TEXT BOOKS:

REFERENCES:

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(9A05701) WEB TECHNOLOGIES

UNIT I
Introduction to Web Technologies: Introduction to Web Servers like Apache 1.1, IIS XAMPP(Bundle Server), WAMP(Bundle
UNIT II
Introduction to PHP: The Problem with Other Technologies (Servelets and JSP), Downloading, Installing, Configuring PHP, Programming in a Web Environment and the Anatomy of a PHP Page.

UNIT III
Overview of PHP Data Types and Concepts: Variables and Data Types, Operators, Expressions and Statements, Strings, Arrays and Functions.

UNIT IV
Overview of Classes, Objects and Interfaces: Creating Instances using Constructors, Controlling Access to Class Members, Extending Classes, Abstract Classes and Methods, using Interfaces, Using Class Destructors, File Handling and using Exceptions.

UNIT V

UNIT VII
Creating and Using Forms: Understanding Common Form Issues, GET vs. POST, Validating Form Input, Working with Multiple Forms, and Preventing Multiple Submissions of a Form.

UNIT VII
PHP and Database Access: Basic Database Concepts, Connecting to a MYSQL Database, Retrieving and Displaying Results, Modifying, Updating and Deleting Data, MVC architecture.

UNIT VIII
PHP and Other Web Technologies: PHP and XML, PHP and AJAX
TEXT BOOKS:

REFERENCES:
1. Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHP, J.Lee and B.Ware(Addison Wesley) Pearson Education.
3. PHP5.1, I. Bayross and S.Shah, The X Team, SPD.
5. PHP Programming solutions, V.Vaswani, TMH.

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(9A05603) OPTIMIZING TECHNIQUES
(Common to CSE, CSSE)

UNIT I

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UNIT II
Functions of a Several Variables: Optimality Criteria, Direct-Search Methods, Gradient Based Methods, Comparison of Methods and Numerical Results.

UNIT III

UNIT IV

UNIT V

UNIT VI

UNIT VII

UNIT VIII

TEXT BOOKS:

REFERENCES:

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(9A15602) COMPUTER NETWORKS LAB

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1. Write a Program To Implement Bit Stuffing.
2. Write a Program To Implement Character Count.
3. Write a Program To Implement Character Stuffing.
4. Implement On A Data Set Of Characters The Three CRC Polynomials – CRC 12, CRC 16 And RC CCIP.
5. Write a Program To Implement Transposition One Time Padding.
6. Write a Program To Implement Hamming Code For Single Bit Error Correction.
7. Implement Dijkstra’s Algorithm To Compute The Shortest Path Thru A Graph.
8. Take an Example Subnet Graph With Weights Indicating Delay Between Nodes. Now Obtain Routing Table Art Each Node Using Distance Vector Routing Algorithm.
10. Take a 64 Bit Playing Text And Encrypt The Same Using DES Algorithm.
11. Write a Program To Break The Above DES Coding.
12. Write a Program To Implement Substitution Cipher Cryptography.
13. Using RSA Algorithm Encrypt A Text Data And Decrypt the Same.
14. Write a Program To Implement Transposition Of Cipher Cryptography.
15. Write a Program To Implement Two Way Communications in Client/Server Architecture.

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(9A12602) WEB TECHNOLOGIES LAB
Objective:
To create a fully functional website with mvc architecture. To Develop an online Book store using we can sell books (Ex. amazon.com).

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

Week-1:

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

1) HOME PAGE:
The static home page must contain three frames.

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

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

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

<table>
<thead>
<tr>
<th>Logo</th>
<th>Web Site Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>Login</td>
</tr>
<tr>
<td></td>
<td>Registration</td>
</tr>
<tr>
<td></td>
<td>Catalogue</td>
</tr>
<tr>
<td></td>
<td>Cart</td>
</tr>
</tbody>
</table>
Description of the Web Site

Fig 1.1

2) LOGIN PAGE:

This page looks like below:

<table>
<thead>
<tr>
<th>Logo</th>
<th>Web Site Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>Login</td>
</tr>
<tr>
<td>CSE</td>
<td>Registration</td>
</tr>
<tr>
<td>ECE</td>
<td>Catalogue</td>
</tr>
<tr>
<td>EEE</td>
<td>Cart</td>
</tr>
<tr>
<td>CIVIL</td>
<td></td>
</tr>
</tbody>
</table>

Login : 
Password: 

Submit   Reset

3) CATALOGUE PAGE:
The catalogue page should contain the details of all the books available in the web site in a table. The details should contain the following:
2. Author Name.
3. Publisher.
5. Add to cart button.

<table>
<thead>
<tr>
<th>Logo</th>
<th>Login</th>
<th>Registration</th>
<th>Web Site Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSE</td>
<td>XML Bible</td>
<td>$40.5</td>
<td>Add to cart</td>
</tr>
<tr>
<td>ECE</td>
<td>XML Bible</td>
<td>Author: Winston</td>
<td>Add to cart</td>
</tr>
<tr>
<td>EEE</td>
<td>XML Bible</td>
<td>Publisher: Wiely</td>
<td></td>
</tr>
<tr>
<td>CIVIL</td>
<td>AI</td>
<td>$63</td>
<td>Add to cart</td>
</tr>
<tr>
<td>CIVIL</td>
<td>Java 2</td>
<td>$35.5</td>
<td>Add to cart</td>
</tr>
<tr>
<td>CIVIL</td>
<td>HTML in 24 hours</td>
<td>$50</td>
<td>Add to cart</td>
</tr>
</tbody>
</table>

Note: Week 2 contains the remaining pages and their description.

**Week-2:**

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4) CART PAGE:
The cart page contains the details about the books which are added to the cart.

The cart page should look like this:

<table>
<thead>
<tr>
<th>Logo</th>
<th>Web Site Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>Login</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Book name</th>
<th>Price</th>
<th>Quantity</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSE</td>
<td>Java 2</td>
<td>$35.5</td>
<td>2</td>
<td>$70</td>
</tr>
<tr>
<td>ECE</td>
<td>XML bible</td>
<td>$40.5</td>
<td>1</td>
<td>$40.5</td>
</tr>
<tr>
<td>EEE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIVIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total amount $130.5

5) REGISTRATION PAGE:

Create a “registration form” with the following fields

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

WEEK 3:

VALIDATION:

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

Note : You can also validate the login page with these parameters.

**Week-4:**

Design a web page using **CSS (Cascading Style Sheets)** which includes the following:
1) Use different font, styles:
In the style definition you define how each selector should work (font, color etc.).
Then, in the body of your pages, you refer to these selectors to activate the styles.

For example:

```
<HTML>
<HEAD>
<style type="text/css">
B.headline {color:red, font-size:22px, font-family:arial, text-decoration:underline}
</style>
</HEAD>

<BODY>
<b>This is normal bold</b>
Selector {cursor:value}
</body>
</html>
```
2) Set a background image for both the page and single elements on the page.
You can define the background image for the page like this:

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

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

4) Define styles for links as
A:link
A:visited
A:active
A:hover
Example:
<style type="text/css">
A:link {text-decoration: none}
A:visited {text-decoration: none}
A:active {text-decoration: none}
A:hover {text-decoration: underline, color: red,}
</style>

5) Work with layers:
For example:

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

LAYER 2 ON TOP:
<div style="position:relative, font-size:50px, z-index:3,">LAYER 1</div>
<div style="position:relative, top:-50, left:5, color:red, font-size:80px, z-index:4">LAYER 2</div>

6) Add a customized cursor:
Selector {cursor:value}
For example:

<html>
<head>
<style type="text/css">
.xlink {cursor:crosshair}
.hlink{cursor:help}
</style>
</head>

<body>
<b>
Week-5:

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

1) Title of the book
2) Author Name
3) ISBN number
4) Publisher name
5) Edition
6) Price

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

Display the XML file as follows.

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

Use XML schemas XSL and CSS for the above purpose.

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

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

Week-6:

VISUAL BEANS:

Create a simple visual bean with a area filled with a color.
The shape of the area depends on the property shape. If it is set to true then the shape of the area is Square and it is Circle, if it is false.
The color of the area should be changed dynamically for every mouse click. The color should also be changed if we change the color in the “property window “.
Week-7:

1) Install IIS web server and APACHE. While installation assign port number 4040 to IIS and 8080 to APACHE. Make sure that these ports are available i.e., no other process is using this port.

2) Access the above developed static web pages for books web site, using these servers by putting the web pages developed in week-1 and week-2 in the document root. Access the pages by using the urls:
   http://localhost:4040/rama/books.html (for tomcat)
   http://localhost:8080/books.html (for Apache)

Week-8:

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

1. Create a Cookie and add these four user id’s and passwords to this Cookie.
2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) available in the cookies.
   If he is a valid user (i.e., user-name and password match) you should welcome him by name(user-name) else you should display “You are not an authenticated user”.
   Use init-parameters to do this.

Week-9:
Install a database (Mysql or Oracle).
Create a table which should contain at least the following fields: name, password, email-id, phone number (these should hold the data from the registration form).
Write a PHP program to connect to that database and extract data from the tables and display them. Experiment with various SQL queries.
Insert the details of the users who register with the web site, whenever a new user clicks the submit button in the registration page (week2).

**Week-10:**
Write a PHP which does the following job:
Insert the details of the 3 or 4 users who register with the web site (week9) by using registration form. Authenticate the user when he submits the login form using the user name and password from the database (similar to week8 instead of cookies).

**Week-11:**
Create tables in the database which contain the details of items (books in our case like Book name, Price, Quantity, Amount) of each category. Modify your catalogue page (week 2) in such a way that you should connect to the database and extract data from the tables and display them in the catalogue page using PHP.

**Week-12:**
HTTP is a stateless protocol. Session is required to maintain the state. The user may add some items to cart from the catalog page. He can check the cart page for the selected items. He may visit the catalogue again and select some more items. Here our interest is the selected items should be added to the old cart rather than a new cart. Multiple users can do the same thing at a time (i.e., from different systems in the LAN using the ip-address instead of localhost). This can be achieved through the use of sessions. Every user will have his own session which will be created after his successful login to the website. When the user logs out his session should get invalidated (by using the method session.invalidate() ).
Modify your catalogue and cart PHP pages to achieve the above mentioned functionality using sessions.
UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V
Representing Curves and Surfaces: Polygon Meshes, Parametric Cubic Curves, Parametric Bicubic Surfaces, Quadratic Surfaces.

UNIT VI

UNIT VII

UNIT VIII

TEXT BOOKS:

REFERENCES:
4. Computer Graphics, Steven Harrington, TMH
UNIT I
INTRODUCTION

UNIT II
HARDWARE SOFTWARE Co-DESIGN and PROGRAMME MODELLING

UNIT III
EMBEDDED HARDWARE DESIGN AND DEVELOPMENT

UNIT IV
REAL-TIME OPERATING SYSTEMS (RTOS) BASED EMBEDDED SYSTEM DESIGN
Operating System Basics, Types of Operating Systems, Tasks, Process and Threads, Multiprocessing and Multitasking, Task Scheduling, Threads, Processes and Scheduling: Putting them Altogether, Task Communication, Task Synchronization, Device Drivers, How to Choose an RTOS.

UNIT V
DEVICES AND COMMUNICATION BUSES FOR DEVICES NETWORK

UNIT VI
PROGRAM MODELING CONCEPTS

UNIT VII
REAL TIME OPERATING SYSTEMS

UNIT VIII
DESIGN EXAMPLES AND CASE STUDIES OF PROGRAM MODELING AND PROGRAMMING WITH RTOS-2
Case study of Communication between Orchestra Robots, Embedded Systems in Automobile, Case study of an Embedded System for an
Adaptive Cruise Control (ACC) System in a Car, Case study of an Embedded System for a Smart Card, Case study of a Mobile Phone Software for Key Inputs.

TEXT BOOKS:


REFERENCES:

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(9A15701) PERFORMANCE EVALUATION of COMPUTER SYSTEMS

UNIT I

UNIT II
UNIT III

UNIT IV

UNIT V

UNIT VI

UNIT VII

UNIT VIII

TEXT BOOKS:
1. Probability and Statistics with Reliability, Queuing, and Computer Science Applications, Kishore Trivedi, PHI.
2. Computer Architecture and Parallel Processing, Kai Hwang and Faye A. Briggs, MGH.

REFERENCES:
UNIT I: INTRODUCTION TO MANAGERIAL ECONOMICS
Definition, nature and scope of managerial economics- relation with other disciplines- Demand Analysis: Demand Determinants, Law of Demand and its exceptions

UNIT II: ELASTICITY OF DEMAND
Definition, Types, Measurement and Significance of Elasticity of Demand. Demand forecasting, factors governing demand forecasting, methods of demand forecasting (Survey methods, Statistical methods, Expert opinion method, Test marketing, Controlled experiments, Judgmental approach to Demand Forecasting)

UNIT III: THEORY OF PRODUCTION AND COST ANALYSIS
Production Function – Isoquants and Isocosts, MRTS, least cost combination of inputs, Cobb-Douglas production function, laws of returns, internal and external economies of scale.
Cost Analysis: Cost concepts, opportunity cost, fixed Vs variable costs, explicit costs Vs Implicit costs, out of pocket costs Vs Imputed costs.
Break-Even Analysis (BEA) - Determination of Break Even Point (Simple Problems)- Managerial significance and limitations of BEA.

UNIT IV: INTRODUCTION TO MARKETS AND PRICING POLICIES
Market structures: Types of competition, features of perfect competition, monopoly- monopolistic competition. Price-Output determination under perfect competition and monopoly - Methods of Pricing-cost plus pricing, marginal cost, limit pricing, skimming pricing, bundling pricing, sealed bid pricing and peak load pricing.

UNIT V: BUSINESS ORGANISATIONS AND NEW ECONOMIC ENVIRONMENT
Characteristic features of business, features and evaluation of sole proprietorship, partnership, Joint Stock Company, public enterprises and their types, changing business environment in post-liberalization scenario.

UNIT VI: CAPITAL AND CAPITAL BUDGETING
Capital and its significance, types of capital, estimation of fixed and working capital requirements, methods and sources of raising finance. Nature and scope of capital budgeting, features of capital budgeting proposal, methods of capital budgeting – payback method, accounting rate of return (ARR) and Net present value method (Simple problems).

UNIT VII: INTRODUCTION TO FINANCIAL ACCOUNTING

UNIT VIII: FINANCIAL ANALYSIS THROUGH RATIOS
Computation, Analysis and Interpretation of financial statements through Liquidity Ratios (Current and Quick ratio), Activity ratios (Inventory Turnover Ratio and Debtor Turnover Ratio), Capital Structure Ratios (Debt- Equity Ratio, Interest Coverage Ratio) and Profitability ratios (Gross Profit Ratio, Net Profit Ratio, Operating Ratio, P/E Ratios and EPS), Du Pont Chart.

TEXT BOOKS:

REFERENCES
5. H.L. Ahuja: Managerial Economics, S.Chand, 3/e, 2009
UNIT I

UNIT II

UNIT III

UNIT IV
SNMP Management: SNMPv2, Major Changes in SNMPv2, SNMPv2 System Architecture, SNMPv2 Structure of Management Information, SNMPv2 Management Information Base, SNMPv2 Protocol.

UNIT V

UNIT VI
SNMP Management: RMON, Remote Monitoring, RMON SMI and MIB, RMON1, RMON2, A Case Study on Internet Traffic.

UNIT VII
Some Current Network Management Topics: Web-Based Management, XML-Based Network Management.

UNIT VIII
Additional Topics in Networks Management, Distributed Network Management, Reliable and Fault Tolerant Network Management.

TEXT BOOKS:

REFERENCES:
1. Practical Guide to SNMPv3 and Network Management, David Zeltserman, PHI.
3. Network management, Morris, Pearson Education.
5. Distributed Network Management, Paul, John Wiley.

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(9A05709) INFORMATION SECURITY 
(Common to CSE, CSSE) 
(ELECTIVE-I)

UNIT I

UNIT II

UNIT III
Public-Key Cryptography and RSA, Key Management; Other Public Key Cryptosystems, Message Authentication and Hash Functions: Authentication Requirements, Authentication Functions, Message
Authentication Codes, Hash Functions, Security Hash Functions and MACs

UNIT IV

UNIT V
Authentication Applications: Kerberos, Electronic Mail Security: Pretty Good Privacy, S/MIME.

UNIT VI

UNIT VII

UNIT VIII

TEXT BOOKS:

REFERENCES:
1. Information Security, Markow, Breithaupt, Pearson Education.

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(9A15702) HUMAN COMPUTER INTERACTION
(ELECTIVE - I)

UNIT I

UNIT II
Expert Reviews, Usability Testing and Laboratories, Survey Instruments, Acceptance Tests, Evaluation During Active Use, Controlled Psychologically Oriented Experiments.

UNIT III
Direct Manipulation and Virtual Environments: Introduction, Examples of Direct Manipulation, Discussion of Direct Manipulation, 3D Interfaces, Teleoperation, Virtual and Augmented Reality, Menu Selection, Form Fill-In, and Dialog Boxes: Introduction, Task-Related Menu Organization, Single Menus, Combinations of Multiple Menus, Content Organization, Fast Movement through Menus, Data Entry with Menus: From Fill-In, Dialog Boxes and Alternatives, Audio Menus and Menus for Small Displays.

UNIT IV

UNIT V
Collaboration and Social Media Participation: Introduction, Goals of Collaboration and Participation, Asynchronous Distributed Interfaces: Different Place, Different Time, Synchronous Distributed Interfaces: Different Place, Same Time, Face-to-Face Interfaces: Same Place, Same Time.

UNIT VI

UNIT VII

UNIT VIII
Information Visualization: Introduction, Data Type by Task Taxonomy, Challenges for Information Visualization

TEXTBOOKS:

REFERENCES:
2. Interaction Design. Prece, Rogers, Sharps. Wiley Dreamtech,

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B.Tech. IV-I-Sem. (C.S.S.E) (9A15703) HIGH PERFORMANCE COMPUTING (ELECTIVE-II)

UNIT I
Introduction, History of Parallel Computers, Utilizing Temporal Parallelism, Utilizing Data Parallelism, Comparison, Data Parallel Processing, Specialized Processors, Inter-task Dependency.

UNIT II
Instruction Level Parallel Processing, Pipelining, Delays, Difficulties, Superscalar Processors, VLIW Processors, Commercial Processors, Multithreaded Processors, Future Processor Architecture.
UNIT III

UNIT IV

UNIT V

UNIT VI

UNIT VII

UNIT VIII

TEXT BOOKS:
REFERENCES:

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(9A15704) DISTRIBUTED DATABASES
(ELECTIVE-II)

UNIT I
Introduction, Distributed Data Processing, What is A Distributed Database System, Promises of Ddbss, Complication Factors, Problem Areas, Distributed DBMS Architecture: DBMS Standardization, Architectural Models for Distributed DBMSs, Distributed DBMS Architecture.
UNIT II

UNIT III
Semantic Data Control: View Management, Data Security, Semantic Integrity Control.

UNIT IV

UNIT V
Optimization of Distributed Queries-Query Optimization, Centralized Query Optimization, Join Ordering in Fragment Queries, Distributed Query Optimization Algorithms.

UNIT VI

UNIT VII
UNIT VIII
Current Issues: Data Delivery Alternatives, Data Ware Housing, World Wide Web, Push Based Technologies, Mobile Databases

TEXT BOOKS:

REFERENCES:
1. Distributed Databases, Stefano Ceri, Giuseppe Pelagatti, TMH.

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(9A15705) SOFT COMPUTING  
(ELECTIVE-II)

UNIT I
AI Problems and Search: AI Problems, Techniques, Problem Spaces and Search, Heuristic Search Techniques: Generate and Test, Hill Climbing, Best First Search Problem Reduction.

UNIT II
Constraint Satisfaction and Means End Analysis, Approaches to Knowledge Representation- Using Predicate Logic and Rules.

UNIT III

UNIT IV

UNIT V
Adaptive Resonance Theory Networks, Special Networks, Introduction to Various Networks. Introduction to Classical Sets (crisp Sets) and Fuzzy Sets-operations and Fuzzy Sets, Classical Relations.

UNIT VI
Fuzzy Relations: Cardinality, Operations, Properties and Composition, Tolerance and Equivalence Relations, Membership Functions-Features, Fuzzification, Membership Value Assignments, Defuzzification.

UNIT VII
Fuzzy Arithmetic and Fuzzy Measures, Fuzzy Rule Base and Approximate Reasoning Fuzzy Decision making.

UNIT VIII

TEXT BOOKS:

REFERENCES:
1. Computational Intelligence, Amit Konar, Springer.

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(9A15706) EMBEDDED SYSTEMS LAB

1. Assembly Language Programming Examples based on 8051 Microcontroller (Minimum of Five examples)
2. Write a Program to
   a) Read inputs from switches
   b) To make LEDs blink
3. Write a Program for serial communication
4. Write a program for encryption/decryption
5. Develop necessary interfacing circuit to read data from a sensor and process using the 8051 board. The data has to be displayed on a PC monitor.
6. Sort RTOs (mCOS) on to 89C51 board and Verify.
7. Simulate an elevator movement using RTOs on 89C51 board.


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(9A15707) COMPUTER GRAPHICS LAB

1. Implement different line drawing algorithms
2. Program to implement the midpoint line algorithm to generate a line of given slope and thickness. Implement the Polyline command using this algorithm as a routine that displays a set of straight lines
between ‘n’ input points. For n=1, the routine displays a single point.
3. Implement mid-point circle and ellipse algorithm.
4. Program to draw a circle, arc and a segment.
5. Implement scan-line fill, boundary fill and flood algorithm.
6. Write a program to generate a circle using polynomial method.
7. Program to demonstrate scaling and reflection.
8. Program to demonstrate translation, rotation and shearing.
9. Write a program to draw an ellipse using 2D transformations
10. Implement even odd method for polygon inside test.
11. Implement Cohen-Sutherland and Cyrus-beck line clipping algorithms
12. Implement Sutherland-Hodgeman polygon clipping algorithm
13. Implement 3D transformations
14. Program: 3D Cube Rotation about x, y, z axes
15. Implement Bezier & B-spline curve, drawing algorithm
16. Implement ray-tracing algorithm

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(9AHS701) MANAGEMENT SCIENCE
(Common to CSE, CSSE, IT)

UNIT I
INTRODUCTION TO MANAGEMENT:
Concepts of Management and organization- nature, importance and Functions of Management, Taylor’s Scientific Management Theory,

UNIT II
DESIGNING ORGANIZATIONAL STRUCTURES:
Basic concepts related to Organisation - Departmentation and Decentralisation, Types of mechanistic and organic structures of organisation (Line organization, Line and staff organization, functional organization, Committee organization, matrix organization, Virtual Organisation, Cellular Organisation, team structure, boundaryless organization, inverted pyramid structure, lean and flat organization structure) and their merits, demerits and suitability.

UNIT III
OPERATIONS MANAGEMENT:
Principles and Types of Plant Layout-Methods of production (Job, batch and Mass Production), Work Study -Basic procedure involved in Method Study and Work Measurement- Statistical Quality Control: chart, R chart, c chart, p chart, (simple Problems), Acceptance Sampling, Deming’s contribution to quality.

UNIT IV
MATERIALS MANAGEMENT:
Objectives, Need for Inventory control, EOQ, ABC Analysis, Purchase Procedure, Stores Management and Stores Records.
Marketing: Functions of Marketing, Marketing Mix, Marketing Strategies based on Product Life Cycle, Channels of distribution

UNIT V
HUMAN RESOURCES MANAGEMENT (HRM):

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

UNIT VII
STRATEGIC MANAGEMENT:

UNIT VIII
CONTEMPORARY MANAGEMENT PRACTICES:

TEXT BOOKS:

REFERENCES:
5. Memoria & S.V.Gauker, Personnel Management, Himalaya, 25/e, 2005

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(9A05702) SOFTWARE TESTING

UNIT I
Introduction: Purpose of Testing, Dichotomies, Model for Testing, Consequences of Bugs, Taxonomy of Bugs.
UNIT II

UNIT III

UNIT IV

UNIT V

UNIT VI
Logic Based Testing: Overview, Decision Tables, Path Expressions, KV Charts, Specifications.

UNIT VII

UNIT VIII
Graph Matrices and Application: Motivational Overview, Matrix of Graph, Relations, Power of a Matrix, Node Reduction Algorithm, Building Tools.

TEXT BOOKS:
REFERENCES:
7. Software Testing, M.G.Limaye, TMH.

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(9A05807) WIRELESS SENSOR NETWORKS
(Common to CSE, CSSE, IT)
UNIT I

UNIT II
Motivation for a Specialized MAC (Hidden and Exposed Terminals, Near and Far Terminals), SDMA, FDMA, TDMA, CDMA. MAC Protocols for GSM, Wireless LAN (IEEE802.11), Collision Avoidance (MACA, MACAW) Protocols.

UNIT III
IP and Mobile IP Network Layers, Packet Delivery and Handover Management, Location Management, Registration, Tunneling and Encapsulation, Route Optimization, DHCP.

UNIT IV

UNIT V

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

UNIT VII

UNIT VIII

TEXT BOOKS:

REFERENCES:
(9A15801) HIGH SPEED NETWORKS  
(ELECTIVE – III) 

UNIT I  

UNIT II  
ISDN, FDDI, Frame Relay, Operation and Layers. 

UNIT III  
Introduction to SONET, Multiplexing, SONET/SDH Layers, SONET Frame Structure, Sonet Physical Layer. 

UNIT IV  

UNIT V  

UNIT VI  

UNIT VII  

UNIT VIII

TEXT BOOKS:

REFERENCES:

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UNIT I

UNIT II
Parallel Computing Overview, Parallel Programming Models and Paradigms.

UNIT III

UNIT IV

UNIT V
Merging the Grid Services Architecture with the Web Services Architecture.

UNIT VI
Open Grid Service Architecture: Introduction, Architecture and Goal, Sample Use Cases: Commercial Data Center, National Fusion Collaboratory, Online Media and Entertainment, OGSA Platform Components, Open Grid Services Infrastructure.

UNIT VII
Globus GT3 Toolkit: Architecture, Programming Model.

UNIT VIII
A Sample Implementation, High Level Services, OGSI.NET Middleware Solutions.

TEXT BOOKS:

REFERENCES:
UNIT I

UNIT II
Introduction to Design Patterns: Design Pattern Definition, Design Patterns in Small Talk MVC, Describing Design Patterns, Catalog of Design Patterns, Organizing The Catalog, Solving of Design Problems Using Design Patterns, Selection of A Design Pattern, Use of Design Patterns.

UNIT III

UNIT IV
Design Patterns Catalog: Creational Patterns, Abstract Factory, Builder, Factory Method, Prototype, Singleton, Discussion of Creational Patterns.

UNIT V
Structural Patterns-1: Adapter, Bridge, Composite, Decorator.

UNIT VI
Structural Patterns-2 and Behavioral Patterns-1: Structural Patterns: Facade, Flyweight, Proxy, Discuss of Structural Patterns, Behavioral Patterns: Chain of Responsibility Command, Interpreter.

UNIT VII
UNIT VIII
Behavioral Patterns-3: State, Strategy, Template Method, Visitor, Discussion of Behavioral Patterns, Expectations from Design Patterns.

TEXT BOOKS:
1. Design Patterns: Elements of Reusable Object Oriented Software, Gamma, Belm, Johnson, 1995, Pearson Education.
2. Head First Design Patterns, Eric Freeman, Oreilly-SPD.

REFERENCES:
1. Java Design Patterns, Cooper, Pearson Education.
2. Object Oriented Design and Patterns, Horstmann, Wiley.
4. Applying UML Patterns, Larman, PEA.
UNIT I
Introduction to SOA, Evolution of SOA: Fundamental SOA, Common Characteristics of Contemporary SOA, Benefits of SOA, A SOA Timeline (from XML to Web Services to SOA), The Continuing Evolution of SOA (Standards organizations and Contributing vendors), The Roots of SOA (comparing SOA to Past architectures).

UNIT II

UNIT III
Web Services and SOA: The Web Services Framework, Services (as Web Services), Service Registry, Service Descriptions (with WSDL), Messaging (with SOAP), Transactions, Coordination, Business Activity, Orchestration, Choreography.

UNIT IV

UNIT V

UNIT VI
UNIT VII

UNIT VIII

TEXT BOOKS:

REFERENCES:
(9A05707) SOFTWARE PROJECT MANAGEMENT
(ELECTIVE – IV)

UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V

UNIT VI
Project Organizations and Responsibilities: Line-of-Business Organizations, Project Organizations and Evolution of Organizations,
2009-10


UNIT VII

UNIT VIII

TEXT BOOKS:

REFERENCES:
5. Software Project Management from Concept to Development, Kaeron Conway, Dream Tech.