# Syllabus Committee Members

## CONVENOR

**D. ARULSELVAN,**  
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Salem – 636 005.  
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Mobile No: 94430 29313

## MEMBERS

<table>
<thead>
<tr>
<th></th>
<th>Name</th>
<th>Position</th>
<th>Institution &amp; Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mr. M.V. Shankar</td>
<td>Senior Lecturer</td>
<td>Government Polytechnic College, Nagarcoil</td>
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<tr>
<td>2</td>
<td>Mrs. A. Ghousia Jabeen</td>
<td>Senior Lecturer</td>
<td>Central Polytechnic College, Chennai – 600 113.</td>
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<td>3</td>
<td>Mrs. M. Usha</td>
<td>Senior Lecturer, Dr.</td>
<td>Dr. Dharmambal Polytechnic College for Women, Chennai – 600 113.</td>
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<td>4</td>
<td>Mr. V.G. Ravindhwan</td>
<td>Sr. Lecturer</td>
<td>Seshasayee Institute of Technology, Tirichirapalli</td>
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<td>5</td>
<td>Mr. S. Manisekar</td>
<td>Sr. Lecturer</td>
<td>Valivalam Desikar Polytechnic College, Nagapattinam</td>
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<td>6</td>
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<td>Senior Lecturer</td>
<td>Srinivasa Subbaraya Polytechnic College, Puthur</td>
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<td>7</td>
<td>Mr. K.M.A. Manivannan</td>
<td>Head of Department</td>
<td>V.L.B. Janaki Ammal Polytechnic College, Coimbatore</td>
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<td>8</td>
<td>Mr. B. Krishnakumar</td>
<td>Head of Department (i/c)</td>
<td>Arasan Ganesan Polytechnic College, Sivakasi</td>
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<td>9</td>
<td>Mr. G. Sankarasubramanian</td>
<td>Head of Department</td>
<td>Sankar Institute of Polytechnic College, Sankar Nagar Tirunelveli</td>
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<td>10</td>
<td>Mr. S. Thangaprabakshan</td>
<td>Associate Team Leader</td>
<td>Mida Communications Tech Private Limited, Chennai</td>
</tr>
<tr>
<td>11</td>
<td>Mr. S. Valarivan</td>
<td>Project Leader</td>
<td>Kumaran Systems Pvt Ltd., Chennai</td>
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DIPLOMA COURSES IN ENGINEERING

(FULL TIME)

SEMESTER SYSTEM

(Implemented from 2007- 2008)

K - SCHEME

REGULATIONS

1. DESCRIPTION OF THE COURSE

The Course for the Diploma in Engineering shall extend over a period of three academic years, consisting of 6 semesters and the First Year is common to all Engineering Branches.

Each Semester will have 16 weeks duration of study

The Curriculum for all the 6 Semesters of Diploma Programmes (Engineering & Special Diploma Programmes) have been revised and revised curriculum is to be implemented for the candidates admitted from 2007 – 2008 onwards.

The salient features of this revised curriculum under ‘K’ Scheme are:

- Removal of obsolete portions
- Addition of topics covering of new technology, new industrial practices to cope up with the modern trends in Engineering and Services.
- Inclusion of Professional Ethics
- Creation of consciousness about Environment Management
- Preparing the students to tackle emergency situations due to various disasters
- Adoption of Industrial Safety Practices
- Offering electives to suit the local needs of industries
- Laying more stress on Communication English
- Training in Soft Skills
- Enhancement of Computer Skills
- Enhanced Practical Skills to supplement the theory learnt
- Introduction of Continuous Internal Assessment
- Conduct of Periodical Tests and Assignments and uniformity in assigning sessional marks
- Listing of Equipment, Instruments/ manuals along with the Practical Experiments
- Revised Question Paper pattern to test the in-depth knowledge of students.
2. **ELIGIBILITY FOR THE AWARD OF DIPLOMA**

No candidate shall be eligible for the Diploma unless he/she has undergone the prescribed course of study for a period of not less than 3 academic years in an institution when joined in First Year and two years if joined under Lateral scheme in the second year, affiliated to the State Board of Technical Education and Training, Tamilnadu and has passed the prescribed examination.

3. **SUBJECT OF STUDY AND CURRICULUM OUTLINE**

The subjects of study shall be in accordance with the syllabus prescribed from time to time, both in theory and in practical. The curriculum outline for III, IV, V and VI Semester is given in Annexure-I

4. **EXAMINATIONS**

Board Examinations in all subjects of all the semesters under the scheme of examinations will be conducted at the end of each semester.

The sessional marks in all the subjects will be awarded on the basis of continuous internal assessment earned during the semester concerned. For each subject 25 marks are allotted for sessional marks and 75 marks are allotted for Board Examination.

5. **CONTINUOUS INTERNAL EVALUATION**

**THEORY**

It has been decided to introduce Continuous Internal assessment marks for a total of 25 marks, which are to be distributed as follows:

- **Attendance** 5 Marks

  (Award of marks for attendance will be as per the range given below)

<table>
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<tr>
<th>Percentage</th>
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<td>80% - 83%</td>
<td>1 Mark</td>
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<tr>
<td>84% - 87%</td>
<td>2 Marks</td>
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<td>88% - 91%</td>
<td>3 Marks</td>
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<td>92% - 95%</td>
<td>4 Marks</td>
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<tr>
<td>96% - 100%</td>
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- **Test** 10 Marks

  3 Tests each of 2 hours duration for a total of 30 marks is to be conducted out of which the best two will be taken and the marks to be reduced to 10.
<table>
<thead>
<tr>
<th>TEST</th>
<th>UNITS</th>
<th>WHEN TO CONDUCT</th>
<th>MARKS</th>
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</thead>
<tbody>
<tr>
<td>Test – I</td>
<td>Unit – I</td>
<td>End of 4&lt;sup&gt;th&lt;/sup&gt; week</td>
<td>30</td>
</tr>
<tr>
<td>Test – II</td>
<td>Unit – II &amp; III</td>
<td>End of 10&lt;sup&gt;th&lt;/sup&gt; week</td>
<td>30</td>
</tr>
<tr>
<td>Test – III</td>
<td>Unit – IV</td>
<td>End of 14&lt;sup&gt;th&lt;/sup&gt; week</td>
<td>30</td>
</tr>
</tbody>
</table>

**Question Paper Pattern for Periodical Test:**

- 5 Questions X 1 mark … … 05 marks
- 5 Questions X 2 marks … … 10 marks
- 3 Questions X 5 marks … … 15 marks
- … … … … … 30 marks

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- Model Examination covering all 5 units for 75 marks and 3 hrs. duration.

**Assignment**

10 Marks

For each subject three Assignments are to be given each for 20 marks and the average marks scored should be reduced for 10 marks

All Test Papers and assignment note books after getting the signature from the students must be kept in the safe custody in the Department for verification and audit. It should be preserved for a Semester for Academic Audit.

**PRACTICAL**

The internal assessment mark calculation for Practical subjects is given as follows:

a) Attendance : 5 Marks (evaluation pattern same as Theory)

b) Procedure/ observation and tabulation/ other related Practical Work : 10 Marks

c) Result : 5 Marks

d) Record writing : 5 Marks

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TOTAL : 25 Marks

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The Record for every completed exercise should be submitted in the subsequent Practical classes and marks should be awarded for 20 for each exercise as per the above allocation.
At the end of the Semester, the average marks of all the exercises should be calculated for 20 marks and the marks awarded for attendance is added to arrive at the internal mark for Practical.

All the mark entries for assignment, Test and attendance should be entered in the Personal Log Book of the staff handling the subject. This is applicable to both Theory and Practical subjects.

6. COMMUNICATION SKILL PRACTICALS

The Communication Skill Practical with more emphasis is being introduced in IV Semester for Circuit Branches and in V Semester for other branches of Engineering.

Much Stress is given on:
- Reading Skill
- Listening Skill
- Writing Skill
- Pronunciation
- Interview Techniques
- Writing Resumes

Internal Assessment Mark 25 Marks

Board Examination Mark Allocation

Communication Practicals ..... 45 Marks

Written Test in Professional Ethics for 1 Hour

Professional Ethics 15 X 2 ..... 30 Marks

Selection of 15 Questions (15 X 2 marks) should be only from the Question Bank given by the External Examiner without any choice.

7. PROJECT WORK

The students of all the Diploma Programmes (except Diploma in Modern Office Practice) have to do a Project Work as part of the Curriculum and in partial fulfillment for the award of Diploma by the State Board of Technical Education and Training, Tamilnadu. In order to encourage students to do worthwhile and innovative projects, every year prizes are awarded for the best three projects i.e. institution wise, region wise and state wise. The selection of Project work should be taken up in V Sem. of study. The First Project review should be done in 14th week of study in V Semester. The Second Project Review should be done in the 8th week of study in the VI Semester.
a) **Internal Assessment mark for Project Work & Viva Voce:**

<table>
<thead>
<tr>
<th></th>
<th>(V Sem.)</th>
<th>(VI Sem.)</th>
<th>(VI Sem.)</th>
<th>(VI Sem.)</th>
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<tr>
<td>Project Review I</td>
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<td></td>
<td></td>
<td>10 marks</td>
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<tr>
<td>Project Review II</td>
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<td></td>
<td>05 marks</td>
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<tr>
<td>Project Review III</td>
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<td></td>
<td></td>
<td>05 marks</td>
</tr>
<tr>
<td>Attendance</td>
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<td></td>
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<td>05 marks</td>
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<td><strong>25 marks</strong></td>
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</table>

b) **Project Work & Viva Voce Board Examination**

**The allocation of Mark:**

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<tr>
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</thead>
<tbody>
<tr>
<td>Viva Voce</td>
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<td></td>
<td>15 marks</td>
</tr>
<tr>
<td>Project Report</td>
<td></td>
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<tr>
<td>Demonstration</td>
<td></td>
<td></td>
<td>15 marks</td>
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<tr>
<td>Applicability of the Project</td>
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<td></td>
<td>05 marks</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>45 marks</strong></td>
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</table>

**Written Test in 3 topics for 1 hour:**

- **a) Entrepreneurship**  
  5 questions X 2 marks = 10 marks
- **b) Environment Management**  
  5 questions X 2 marks = 10 marks
- **c) Disaster Management**  
  5 questions X 2 marks = 10 marks

**Selection of Questions from Question Bank by the External Examiner, no choice need be given to the candidates.**

8. **SCHEME OF EXAMINATIONS**

The Scheme of examinations for subjects in the III, IV, V and VI Semester are given in Annexure-II

9. **CRITERIA FOR PASS**

1. No candidate shall be eligible for the award of Diploma unless he/she has undergone the prescribed course of study successfully in an institution approved by AICTE and affiliated to the State Board of Technical Education & Training, Tamil Nadu and pass all the subjects prescribed in the syllabus.
2. A candidate shall be declared to have passed the examination in a subject if he/she secures not less than 40% in theory, drawing subjects and 50% in practical subject out of the total prescribed maximum marks including both the sessional and the Board Examination marks put together, subject to the condition that he/she has to secure at least a minimum of 30 marks out of 75 marks in the Board’s Theory/Drawing and a minimum of 35 marks out of 75 marks in the Practical Examinations.

10. CLASSIFICATION OF SUCCESSFUL CANDIDATES

Classification of candidates who pass out the final examination from April 2010 onwards (joined in first year in 2007-2008) will be done as specified below:

FIRST CLASS WITH HONOURS

A candidate will be declared to have passed in First Class with Honors if he/she secures not less than 75% of the aggregate marks in all semesters put together, except I and II Semester and passes all the above Semesters in the first appearance itself and completes all papers including that of I & II Semester within the stipulated period of study 3/ 3½/ 4 years (Full Time/Sandwich/Part Time) without any break in study.

FIRST CLASS

A candidate will be declared to have passed in First Class if he/she secures not less than 60% of the aggregate marks in all semesters put together except I & II Semesters and completes all papers including that of the I & II Semester within the stipulated period of study 3/ 3½ / 4 years (Full Time/Sandwich/Part Time) without any break in study.

SECOND CLASS

All other successful candidates will be declared to have passed in Second Class. The above mentioned classification is applicable for the Sandwich / Part-Time students who pass out Final Examination from October 2010 /April 2011 onwards (both joined in First Year in 2007-2008)

11. DURATION OF A PERIOD IN THE CLASS TIME TABLE

The duration of each period of teaching in a day is 1 hour and the total period of Instruction hours excluding interval and Lunch break in a day should be uniformly maintained as 7 hours corresponding to 7 periods of instruction (Theory & Practical)
# ANNEXURE - I

**DIPLOMA IN COMPUTER ENGINEERING**

**CURRICULUM OUTLINE**

## III SEMESTER

<table>
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<tr>
<th>S.No</th>
<th>SUBJECT</th>
<th>HOURS PER WEEK</th>
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<tr>
<td></td>
<td></td>
<td>Theory</td>
</tr>
<tr>
<td>CEK310</td>
<td>Basics of Electrical and Electronics Engineering</td>
<td>6</td>
</tr>
<tr>
<td>CEK320</td>
<td>C and Data Structures</td>
<td>6</td>
</tr>
<tr>
<td>CEK330</td>
<td>Operating Systems</td>
<td>6</td>
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<tr>
<td>CEK340</td>
<td>Electrical and Electronics Laboratory</td>
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<td>CEK350</td>
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## IV SEMESTER

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<td>Computer Architecture and Assembly language programming</td>
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<td>CEK420</td>
<td>Internet concepts and Web Designing</td>
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<td>CEK430</td>
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Elective-I Theory : i) CEK531 - .Net Programming  
ii) CEK532 - Embedded Systems  
Elective-I Laboratory : i) CEK561 - .Net Programming Laboratory  
ii) CEK562 - Embedded Systems Laboratory

### VI Semester

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<td>16</td>
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Elective-II Theory : i) CEK631 - Software Engineering  
(ii) CEK632 - Multimedia Systems  
Elective-II Laboratory : i) CEK651 - E-Publishing Laboratory  
(ii) CEK652 - Multimedia System Laboratory
### ANNEXURE-II

#### SCHEME OF EXAMINATION

### III SEMESTER

<table>
<thead>
<tr>
<th>S.No</th>
<th>SUBJECT</th>
<th>Examination Marks</th>
<th>Minimum for pass</th>
<th>Duration of Exam in Hours</th>
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<td>Board Exam Marks</td>
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### IV SEMESTER

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<td>Total Marks</td>
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<tr>
<td>CEK410</td>
<td>Computer Architecture and Assembly language programming</td>
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<td>CEK420</td>
<td>Internet concepts and Web Designing</td>
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## V SEMESTER

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Elective-I Theory : i) CEK531 - .Net Programming     ii) CEK532 - Embedded Systems
Elective-I Laboratory : i) CEK561 - .Net Programming Laboratory   ii) CEK562 - Embedded Systems

## VI SEMESTER

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Elective-II Theory : i) CEK631 - Software Engineering     (ii) CEK632 - Multimedia Systems
Elective-II Laboratory : i) CEK651 - E-Publishing Laboratory (ii) CEK652 - Multimedia System Laboratory
AIM:

This subject gives the knowledge of fundamental concepts of basic electrical and electronics engineering and aims at providing the students with basic understanding of D.C and A.C fundamentals, A.C circuits, batteries, analog devices and digital electronics for effective functioning in the field of electronic service industry.

OBJECTIVES:

On completion of the following units of syllabus contents, the students must be able to

- Understand the basic essential terms in electricity.
- Define Ohm’s Law and state the applications of Ohm’s law.
- Know the concept of series and parallel resistors.
- Understand DC and AC fundamentals.
- Know the basic ideas about batteries.
- Understand the operation of D.C. generator and D.C machines.
- Understand the working principles of transformer circuits.
- Classify AC motors.
- Familiarize with semi conductor devices, rectifier circuits and its applications.
- Describe the basic applications of transistor.
- Know about OP amp and its applications.
- Use binary, octal and hexadecimal numbers.
- Describe the parity bit and its uses in error detection and correction.
- Define logic gates.
- Describe the significance of Boolean algebra in digital circuits.
- Understand the working principles of logical circuits
- Define flip-flops and describe behavior of various flip-flops.
- Differentiate asynchronous counters from synchronous counters.
- Draw and explain the circuit diagram of various types of shift registers.

SCHEME OF INSTRUCTION AND EXAMINATION

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DETAILED SYLLABUS

UNIT- I  DC AND AC FUNDAMENTALS  18 Hours


1.2 AC Fundamentals: Concepts of alternating voltage and current - difference between AC and DC - definition of cycle, frequency, time period, amplitude, instantaneous value, average value, rms value, maximum value, form factor and peak factor

1.3 Batteries: Basic idea about primary and secondary cells - types of batteries - charging method used for lead acid battery - care and maintenance of lead acid battery - series and parallel connections of batteries – Maintenance free batteries.


UNIT - II ELECTRICAL MACHINES  18 Hours


UNIT - III ANALOG DEVICES  
16 Hours

3.1 Semiconductor theory: - Intrinsic and extrinsic materials - N type and P type materials - majority and minority carriers - Semi conductor diode - PN junction - V I characteristics of PN Junction diode


3.3 Working principle and V I characteristics of Zener diode - Applications of Zener diode - regulator (series and shunt) - LED - LCD – Opto coupler

3.4 Transistor working principle - Transistor as a switch - Transistor working as an amplifier - common base - common collector - common emitter configuration - input and output characteristics.

3.5 Introduction to OP Amp – ideal characteristics of OP amp - OP amp applications - Adder- Subtractor - Integrator - differentiator – Multiplier - Divider

UNIT - IV BOOLEAN ALGEBRA AND LOGIC GATES  
16 Hours

4.1 Number representation: Decimal, Binary, Octal and Hexa decimal number systems - Conversion of number from one number system to another without decimal points - BCD Codes and limitations – Conversion of BCD to decimal and vice versa – ASCII Codes - Error detection and Correction codes – Parity bit

4.2 Logic gates: Positive and Negative logic – Symbolic representation - Definition, truth tables, symbols and logical equations of logic gates: AND – OR - NOT- NAND - NOR- EXOR - EXNOR (Only 2-inputs) – Universal gates.

4.3 Logic Simplification : Rules and laws of Boolean algebra – Demorgan’s Theorem and proof - Simplification of logic functions using Boolean laws - Karnaugh’s map Simplification (restricted to three variables) – Duality theorem

4.4 Arithmetic circuits: Half Adder and full adder- Truth table, Circuit diagram – Parallel binary adder – circuit diagram

Half subtractor and Full subtractor - Truth table, Circuit diagram - Parity Generator and Parity checker circuit

4.5 Combinational logic circuits: Multiplexer - De multiplexer - Encoder- Decoder (Basic Circuits)
UNIT - V SEQUENTIAL LOGIC SYSTEM


5.2 Counters: Asynchronous counter- 4 bit Asynchronous Counter – Mod n counter (3, 5, 7)- decade counter - Synchronous counter – 4 bit Synchronous binary counter


REFERENCE BOOKS:

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<th>TITLE</th>
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<th>PUBLISHER</th>
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<tr>
<td>1</td>
<td>Electrical Technology</td>
<td>B.L. Theraja</td>
<td>S.Chand and Co, New Delhi</td>
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<td>2</td>
<td>Principles of Electrical Engineering</td>
<td>B.R. Gupta</td>
<td>S.Chand and Co, New Delhi</td>
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<td>3</td>
<td>Electronic Devices and Circuits – An introduction</td>
<td>Allen Mottershed</td>
<td>Prentice-Hall of India</td>
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<td>4</td>
<td>Digital Principles &amp; Applications</td>
<td>Albert P. Malvino &amp; Donald P. Leach</td>
<td>McGraw-Hill</td>
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<td>Principles of Electronics</td>
<td>V.K. Metha</td>
<td>S.Chand &amp; Co.</td>
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<td>Digital Electronics Principles and Applications</td>
<td>Tokheim</td>
<td>Tata McGraw-Hill</td>
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<td>7</td>
<td>Digital Electronics</td>
<td>R.P. Jain</td>
<td>TMH, New Delhi</td>
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AIM:

The main aim of this subject is to develop the logic, ability to solve the problems efficiently using C Programming. Knowledge in a programming language is prerequisite to the study of most of computer science courses.

Data structures are the techniques of designing the basic algorithms for real-life projects. Understanding of data structures is essential and this facilitates the understanding of the language. The practice and assimilation of data structure techniques is essential for programming.

OBJECTIVES:

On completion of the following units of syllabus contents, the students must be able to

- Understand the background of C Programming.
- Understand the concept of keywords, constants, variables and data types.
- Classify different types of Operators and Expressions.
- Understand the various types of Control structures.
- Describe the usage of arrays, structures and unions.
- Discuss about the different types of functions.
- Define a string and discuss the various operations on strings.
- Understand the concept of pointers and pointer arithmetic.
- Discuss the relationship of pointers with arrays, functions and structures.
- Define Linear and non-linear data structures.
- List and discuss the different types of linear data structures.
- Define a tree and the different terms related with trees.
- Describe the different ways of traversing a binary tree.
- Discuss the various operations on Binary Search tree.
- Define graph terminologies and describe the different ways of traversing a graph.
- Write the algorithm for different types of sorting and searching.

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DETAILED SYLLABUS

UNIT - I  OVERVIEW OF C PROGRAMMING  18 Hours

1.1 Keywords, Constants, Variables and Data types: Background of C – Features of C – Structure of a C Program - Character set – Keywords – identifiers – Constants – Types - Data types – Data type modifiers – Variables – Declaration of a variable- Initialization of a variables – Scope of variables – auto, extern, static, reg - Comments – Header files.


UNIT - II  STRINGS, FUNCTIONS, STRUCTURES AND UNIONS  16 HOURS

2.1 Strings: Introduction – Declaring ad Initializing string variables - Reading strings - Writing strings – String handling functions – strlen() , strcpy() , strcmp() , strcat() and strrev() functions – Simple programs using string functions.

2.2 Functions: Declaration and definition of function – function call – passing arguments – returning values – return statement - recursion.

2.3 Pre- defined functions : Character functions (ctype.h) – islower(), is upper(), isalpha(), to lower(), toupper() , is digit() - Math functions (math.h) – sin(), cos() , sqrt(), pow(), tan() , exp() 

UNIT - III  POINTERS

3.1 Introduction – Advantages of pointers – Accessing the address of a variable – Declaring and Initializing pointers – Accessing a variable through its pointer

3.2 Pointer Expressions : Pointer assignments – Pointer arithmetic – Pointer Comparison – Dynamic memory allocation

3.3 Pointers and Arrays – Array of pointers – Limitation of array of pointers to strings – pointers to pointers.

3.4 Pointers and functions: Functions returning pointers – Pointers and structures.

UNIT - IV  LINEAR DATA STRUCTURES

4.1 Elementary data organization – primitive data types – data structure operations.

4.2 Linked Lists: Representation – Array implementation – pointer implementation – Traversing and searching of a linked list – insertion and deletion operations – Two-way lists – Operations on two-way lists - Circular linked list (Definition only) – Applications: Polynomial addition and subtraction

4.3 Stacks: Definition - Operation on stacks – Applications of stack: Recursion - Polish notation and their evaluation.

4.4 Queues: Definition - Representation of Queue - Circular Queue – Priority Queue – array representation

UNIT - V  NON LINEAR DATA STRUCTURES


5.2 Graphs: Graph terminologies – Edge, nodes, indegree, out degree, directed graph, indirected graph - Representation of graph – Traversing a graph - adjacency matrix – path matrix.

5.3 Searching : Linear searching and Binary searching – Algorithms - examples

5.4 Sorting : Bubble sort – Selection sort – Merge Sort – Quick Sort - Algorithms - Examples
## REFERENCE BOOKS

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<td>1.</td>
<td>Programming in ANSI C</td>
<td>E. Balagurusamy</td>
<td>TMGH, New Delhi</td>
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<td>2.</td>
<td>Programming with C</td>
<td>Byron Gottfried.</td>
<td>Schaum Series -TMGH</td>
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<td>Data Structures</td>
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<td>Introduction to Data structures</td>
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<td>Trembley and Sorenson</td>
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CEK330 OPERATING SYSTEMS

AIM:

The operating system has aim consistent innovations and developments like other fields of computer science. The main of this course is to provide core knowledge of Operating system features, functions and techniques. Each and every operating function is discussed in detail.

OBJECTIVES:

On completion of the following units of syllabus contents, the students must be able to

- Understand the purpose, goals, functions and evolution of Operating Systems.
- Understand the concept of process, various states in the process and their scheduling.
- Classify different types of schedulers and scheduling algorithms.
- Identify the significance of interprocess communication and synchronization.
- Describe the two ways of interprocess communication namely shared memory and message passing.
- Discuss the usage of semaphore, locks and monitors in interprocess communication.
- Understand the conditions for a deadlock.
- Describe the ways to recover from the deadlock.
- Memory protection against unauthorized access and sharing.
- Compare and contrast paging and segmentation techniques.
- Define virtual memory and its underlying concepts.
- Describe the page replacement policies like Optimal, FIFO and LRU.
- Discuss the disk scheduling techniques.
- List the history, features and draw backs of Linux system.
- Use some simple and important Linux Commands.
- Know the concepts of pipes, filters and redirection.
- Write simple shell scripts.
- Know the Linux system administration.

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DETAILED SYLLABUS

UNIT- I  OVERVIEW OF OPERATING SYSTEMS AND PROCESSES  18 Hours

1.1 Definition – History of OS – Types – Main frame, Desktop, Multiprocessor, Distributed, Clustered, Real Time, Multi Programming, Multi processing, Time Sharing, Embedded Operating System – Functions of Operating Systems - Desirable Qualities of OS – Examples for OS.


UNIT- II  INTERPROCESS COMMUNICATION AND SYNCHRONIZATION 16 Hours

2.1 Interprocess Communication – Basic concepts - Shared Memory System, Message Passing – Direct versus Indirect Communication - Critical Sections – Race conditions, Mutual Exclusion.

2.2 Semaphores – Definition – WAIT(S) and SIGNAL(S) instructions – Algorithm for WAIT and SIGNAL operations– Dining Philosophers problem - Locks – Monitors and Condition variables.

2.3 Deadlocks – Definition – Characteristics – A resource Allocation graph – Deadlock prevention – deadlock avoidance – Banker’s Algorithm - Deadlock Detection and Recovery
UNIT - III  MEMORY MANAGEMENT  16 Hours

3.1 Introduction – Overlays and Swapping – Logical and Physical address space – Contiguous allocation methods – Single partition and multiple partition Systems

3.2 Paging – Principle of operation – Page allocation – Hardware support for paging – Paging address translation by direct mapping and associate mapping – Protection and sharing.

3.3 Segmentation - Principle of operation – Address translation


UNIT IV  I/O AND FILE MANAGEMENT  18 Hours

4.1 I/O Management – I/O buffering – Single and Double Buffer schemes - Disk Organization


UNIT V  LINUX PROGRAMMING AND ADMINISTRATION  16 Hours

5.1 Introduction : History of Linux – Features of Linux - Drawbacks of Linux – Linux releases – Open linux

5.2 Linux Commands and Utilities : cat, tail, cmp, diff, wc, sort , mkdir, cd, rmdir, pwd, cp, more , passwd, who, whoami, mv, chmod, kill, write, wall, merge , mail, news – pipes, filters and redirection utilities


5.4 System Administration: Installing linux – Booting the system – maintaining user accounts – file system and special files – Backups and restoration.
## REFERENCE BOOKS

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<td>Operating System Concepts</td>
<td>Abraham Silberschatz, and James L.</td>
<td>Addision Wesley Pub Company</td>
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<td>3.</td>
<td>Introduction to Operating Systems</td>
<td>Harvey M. Deital</td>
<td>Addision Wesley Publishing Company</td>
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<td>Operating Systems , Concepts and Design</td>
<td>Milan Milenkovie</td>
<td>TMGH, 2000, New Delhi</td>
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AIM:

The main aim of this subject is to enable students to know the basic concepts of analog and digital electronics and gain familiarity with the available IC chips. This will form a broad base for studying digital system design, computer troubleshooting, microprocessors and further studies.

OBJECTIVES:

On completion of the following exercises, the students must be able to

- Gain experience in handling of electronic equipments.
- Verify ohm’s law and kirchoff’s law.
- Test and draw the characteristics of PN junction diode.
- Study the reverse bias characterizes of zener diode.
- Realize the importance of common emitter configuration.
- Use Op-Amp for various applications.
- Construct and realize various logic gates using ICs.
- Prove NAND and NOR gates are Universal gates.
- Prove De-Morgans' theorem.
- Construct and verify the truth table of Arithmetic circuits.
- Design, implement and test the various flip-flops.
- Construct multiplexer, demultiplexer, decoder and encoder circuits.
- Design ripple Counters
- Design Asynchronous mod N counter.
- Design shift register circuits.

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LAB EXERCISES

1. Test the value of the resistance by using
   (i) Analog and Digital multimeter
   (ii) Color coding with and without tolerance value.

2. a) Measure current, voltage and resistance using
   Various test meters – Ammeter, Voltmeter and multi meter.
   b) Generate AC and DC signals using signal generator and power supply.


4. Draw the forward bias characteristics of a PN Junction diode and determine the forward resistance of the diode.

5. Draw the reverse bias characteristics of a Zener diode.

6. Draw the characteristics of Common Emitter Configuration and determine its input impedance, output impedance and current gain.

7. Construct the following circuits using Op-Amp IC 741
   (i) Inverting Amplifier
   (ii) Non – inverting Amplifier
   (iii) Adder
   (iv) Subtractor.

8. Construct and test half - wave and full - wave rectifier circuits.

9. Verify truth tables of logic gates using IC 7404, 7408, 7432, 7402, 7400 and 7486.

10. Realize the logic gates using Universal gates.

11. Realize the circuit to simplify the logic equation by using karnaugh map.

12. Verify De-Morgan’s Theorems.

13. Construct Half adder and full adder circuits using ICs and verify their truth table.

14. Construct Half subtractor and full subtractor circuits using ICs and verify their truth table.

15. Verify the operation of a multiplexer and de-multiplexer using IC’s
16. Verify the operation of a decoder and encoder circuits.
17. Implement and Test RS, JK, T and D flip-flops.
18. Construct and test 4-bit ripple counter and observe the output waveform.
19. Construct and test asynchronous decade counter and observe the output waveform.
20. Construct and test 4-bit shift registers.

**EQUIPMENTS / COMPONENTS REQUIRED**

**EQUIPMENTS:**

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<td>Ammeter (0-50) mA</td>
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<td>Voltmeter (0-20) V, (0-1v)</td>
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<td>CRO Dual Trace 30 MHz</td>
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**COMPONENTS**

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<td>IC74194 (Shift Register)</td>
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AIM:
The main aim of this laboratory is to provide the hands on experience on C programming and improve the practical set. The learner will be able to develop the logic for the given problem, recognize and understand the syntax and construction of C code, gain experience of C, know the steps involved in compiling, linking and debugging C code, feel more confident about writing the C functions, write some complex programs for implementing data structures.

The knowledge of ‘C’ language and data structures will be reinforced by practical exercises during the course of study. The course will help students to develop the capability of selecting a particular data structure.

OBJECTIVES:
On completion of the following exercises, the students must be able to

- Compile C Programs.
- Write C programs using operators and expressions.
- Write C programs using control structures and loops.
- Understand the use of arrays
- Use of arrays and pointers.
- Implement functions.
- Know the difference between Structures and Unions.
- Implement linear data structure algorithms using C language.
- Implement non-linear data structure algorithms using C language.
- Write programs for traversing a binary tree.
- Write programs for searching and sorting.

SCHEME OF INSTRUCTION AND EXAMINATION

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</table>
LAB EXERCISES

OPERATORS AND EXPRESSIONS

1. a). Write a program to convert the given temperature in degree centigrade to Fahrenheit and vice versa.

   b) Write a program to find the simple and compound interest for the amount (P) at the rate of interest (R) for the year N.

   c) Write a program to enter two numbers from the user and prints the sum, product, difference, and quotient of the two numbers.

DECISION MAKING STATEMENTS – I

2. a). Write a program to identify whether a number input from the keyboard is even or odd. If it is even, the program should display the message “Number is even”, else it should display “Number is odd”. (Using if-else)

   b) Write a program to display the student’s grade based on the following norms: (else – if ladder)

<table>
<thead>
<tr>
<th>Marks</th>
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<tr>
<td>&gt;=75</td>
<td>A</td>
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<tr>
<td>&gt; 50 and &lt;75</td>
<td>B</td>
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<tr>
<td>&gt; 25 and &lt;50</td>
<td>C</td>
</tr>
<tr>
<td>&lt; 25</td>
<td>F</td>
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DECISION MAKING STATEMENTS – II

3. a). Write a program to find out whether a given number is a perfect number. The program should terminate if a negative integer is given as the input. A perfect number is a number whose factors other than itself add up to itself. Example: 6 = 1 + 2 + 3, 28 = 1 + 2 + 4 + 7 + 14

   b) Develop a simple calculator to accept two floating point numbers from the keyboard. Then display a menu to the user and let him/her select a mathematical operation to be performed on those two numbers. Then display the answer. A sample run of you program should be similar to the following: (Using switch statement)

   Enter number 1: 20
   Enter number 2: 12
   Mathematical Operation
   -----------------------------------
   1 - Add
   2 - Subtract
   3 - Multiply
   4 - Divide
   -----------------------------------
   Enter your preference: 2
   Answer : 8.00
LOOPING STATEMENTS
4. a). Write a program to compute the sum of all integers between any given two numbers.
   b) Write a program to find and print the first 10 terms of the Fibonacci sequence. Assume the first two terms are 0 and 1.
   c) Write a program to count the number of positive numbers, number of negative numbers and number of zeros in the given N elements.

ARRAYS
5. a). Write a program to calculate and display the total and the average of 10 integer numbers.
   b) Read 3 subject marks of 4 students. Write a program to calculate and display the total marks of each student. Use a 2D (two-dimensional) array to store the marks

FUNCTIONS
6. a). Devise a function called min (x, y) that returns the smaller of two double values. Test the function with a simple data.
   b) Write a recursive function to find the factorial of a given number.

STRINGS
7 a). Write a C program to find the number of vowels present in the string. [Assume your string contains both uppercase and lowercase characters]
   b) Write a program to find whether a given string is palindrome or not.
   c) Read a string, which consists of both lowercase characters and uppercase characters. Convert the lowercase character into upper case and vice versa. Display the new string.

STRUCTURES AND UNIONS
8. a). Write a program for nested structure, the two structures are declared within a single structure. The two inner structures are: “dob” (fields : dd, mm, yy) and “address” (st, cty) and the outer structure “Student” (fields : rollno, name).
   Write a main program to get and display the details of N students.
   b) Write a Program to print the student name, roll no, marks using unions.

POINTERS- I
9. a). Write a program to swap two integer numbers using pointers.
   b) Read a string. Print the above string such that each line contains a single character. (Use pointers)
   c) Read an integer array consists of N elements. Print the elements in reverse order using pointers.
**POINTERS-II**

10. a). Write a C program to read through an array of any type using pointers. Write a C program to scan through this array to find a particular value

b) Using pointers, find the length of the string.

c) Write a “C” program to concatenate two strings using pointers.

**DATA STRUCTURES USING C**

11. a). Write a C program to create a linked list to contain the vowels ‘a’, ‘e’, ‘i’, ‘o’, ‘u’ in the data field of its nodes. Make necessary assumptions.

b) Write a C program to delete the first node that contains an integer data item of a single linked list.

12. Write a “C” program to perform operations in stack using array.

13. Write a “C” program to convert an infix expression into post fix expression.

14. Write a “C” program to evaluate a postfix expression.

15. Write a “C” program to perform operations in queue using array.

16. Write a “C” program to create a binary tree.

17. Write a “C” program for pre-order traversal of a binary tree using recursion.

18. Write a “C” Program for linear searching and binary searching.

19. Write a “C” program to read 10 elements and sort the above numbers using insertion sort.

20. Write a “C” program to read 10 elements and sort the above numbers using quick sort.

**Note:** Each exercise should contain Flowchart, Algorithm and Program.

**REQUIREMENTS:**

**Software:**

- C Compiler with editor

**Hardware:**

- Computer with Pentium IV / Dual core Processors. – 36 Nos
- Printer – 6 Nos.

***************
AIM:

The main aim of this subject is to provide hands-on experience on Linux operating systems and good working knowledge to work in Linux environments. Theoretical aspects of operating system, were covered in theory course will be implemented through C language.

OBJECTIVES:

On completion of the following exercises, the students must be able to

- Install and configure Linux operating system.
- Install and configure peripherals in Linux Operating System.
- Use File management commands in Linux
- Understand the commands used for manipulating directories.
- Know the way of giving permission to different users.
- Create and delete users.
- Change the passwords of different users.
- Write shell scripts for simple applications.
- Write C program for deadlock avoidance.
- Implement multithreading concept in C language.
- Implement FCFS Scheduling policy.

SCHEME OF INSTRUCTION AND EXAMINATION

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LAB EXERCISES

1. a) Install Linux operating system.
   b) Installing and Configuring Add-In Hardware
   c) Installing and Configuring Hard Drives

2. Execute the following commands and write down the results and use of each command: (i) man (ii) cd (iii) cd. (iv) cd.. (v) ls, ls – a (vi) pwd
3. a) Make your own subdirectories called uni and linu in your home directory. Then delete the sub directory called uni.
   
b) Explore the file system, write what is there in /bin, /usr/bin, /sbin/tmp and /boot. Find and list the devices that are available in your system.

4. a) Create a file called intro.text that contains the word “hello I am the student of computer branch”. Now copy this file and paste to other directory.
   
b) Change the permission of the above file to rwxrwxr-x. You can try different possibilities to change its permissions. Find out what are the different commands available that can be used to change the permissions of a file/files.
   
c) Display the name of all files in the home directory using `find`. Can you display the name of all files in the home directory that are bigger than 500 KB.

5. a) Use `finger` or `who` to get a list of users on the machine
   
b) Add different users, set their passwords and define permissions. Check whether you are able to change the passwords of all users or not.
   
c) Delete the user, which just now you have created.

6. a) Try to access your account available at a remote machine. Download some file from that machine to your machine.
   
b) Create a `cron` job that sends you a message after every 5 minutes.
   
c) Write a message to inform all users that “they should shut down their machine after completing the lab exercise.

7. Write and execute the following programs in Linux using Shell script:
   
   I. Factorial of a given number
   II. Sum of odd / even numbers from M to N

8. Write and execute the following programs in Linux using Shell script:
   
   I. Find whether a given number is prime number or not.
   II. Find out the maximum and minimum number of the given series

9. Write and execute the following programs in Linux using Shell script:
   
   I. Convert the lowercase characters into uppercase and uppercase characters into lowercase character of a given string.
   II. Find the number of vowels in a given string.

10. Develop a Calculator application using shell script

11. Implement producer – consumer problem using semaphores using C language
12. Implement deadlock Avoidance Algorithm using C language.

13. Implement multithreading concepts using C language.

14. Given the list of processes, their CPU burst times and arrival times, display/print the Gant chart for FCFS. Compute and print the average waiting time and average turnaround time. Write a C program for the above task

**REQUIREMENTS:**

**Software:**

1. Linux operating system
2. C Compiler with editor

**Hardware:**

1. Computer with Pentium IV / Dual core Processors. – 36 Nos
2. Printer – 3 Nos.

***************
AIM:

This subject aims to develop knowledge and skills in the area of organization of components of a computer. The course will enable the students to be familiar with computer hardware, standards, instruction set and assembly language programming. It deals with the architecture of major components of a computer and functioning of these different components.

OBJECTIVES:

On completion of the following units of syllabus contents, the students must be able to

- Understand the purpose of register transfer language.
- Describe the various micro-operations
- Classify instruction formats.
- Understand the functions of the major components of the CPU.
- Discuss the importance of pipelining and vector processing.
- Identify the need for I/O interface.
- Explain the input/output techniques. i.e., programmed I/O, interrupt – driven I/O and direct memory access.
- Explain I/O processor.
- Discuss about CPU - IOP communication.
- Define memory hierarchy.
- Describe the importance of cache memory, Associate memory and virtual memory.
- List the various components of the 8086 microprocessor.
- Define the various directives used in assembly language programs.
- Identify the instruction set of the 8086 microprocessor.
- List the arithmetic instructions.
- Differentiate packed numbers and unpacked numbers.
- Use string operations and loops.
- Use comparison for implementing various comparison functions.
- Define interrupts.
- List the functions of interrupts 21H and 10H.
- Write assembly language programs with simple arithmetic, logical and shift operations.
SCHEME OF INSTRUCTION AND EXAMINATION

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TOPICS AND ALLOCATION

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<td>I</td>
<td>REGISTER TRANSFER LOGIC AND CPU</td>
<td>16</td>
</tr>
<tr>
<td>II</td>
<td>INPUT-OUTPUT SYSTEM</td>
<td>16</td>
</tr>
<tr>
<td>III</td>
<td>MEMORY ORGANISATION</td>
<td>16</td>
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<td>IV</td>
<td>PC ARCHITECTURE AND ARITHMATIC INSTRUCTIONS</td>
<td>18</td>
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<tr>
<td>V</td>
<td>SUBROUTINES, STRING AND BIT INSTRUCTIONS AND INTERRUPTS</td>
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DETAILED SYLLABUS

UNIT I  REGISTER TRANSFER LOGIC AND CPU  16 Hours

1.1 Register Transfer Logic: Register transfer language – register transfer – bus and memory transfer – Arithmetic micro operations – Logic micro operations – Shift micro operations – One stage of arithmetic and logic unit.

1.2 Central processing unit: Major components of CPU - general register organization –bus system, control word, ALU, examples of micro operations; Instruction format - Three address - Two Address - One - Zero Address instructions ; CISC characteristics, RISC characteristics

1.3 Parallel Processing: Throughput – multiple functional units - pipelining – introduction, arithmetic pipeline, instruction pipeline (concepts only) – Vector processing.

1.4 Control Unit: Structure of Control unit – Fetch , Indirect Execute, Interrupt and the Instruction cycle – Hardwired control – Micro-programmed Control.

UNIT II  INPUT- OUTPUT SYSTEM  16 Hours

2.1 I/ O interface – Need for I/O interface – Major functions of the I/O interface – I/O versus memory bus – isolated versus memory mapped I/O – Asynchronous data transfer – Strobe control, handshaking – Asynchronous serial transfer
2.2 Modes of transfer: Three possible modes; example for programmed I/O, interrupt initiated I/O; priority interrupt - daisy chain priority, parallel priority interrupt, priority encoder, Interrupt cycle, software routines, Initial and final operations; DMA - DMA controller, DMA transfer.

2.3 I/O Processor – I/O Programming – CPU - IOP communications.

UNIT III MEMORY ORGANISATION 16 Hours

3.1 Memory organisation: Memory hierarchy; Main memory, Auxiliary memory.

3.2 Associative memory: Hardware organisation, Match logic, Read operation, Write operation.

3.3 Cache memory: Need for cache memory, organisation of cache memory, operational principle of cache memory, different mapping techniques, cache initialization.

3.4 Virtual memory: Address space and memory space, address mapping, associative memory page table, page replacement.

UNIT IV PC ARCHITECTURE AND ARITHMETIC INSTRUCTIONS 18 Hours

4.1 PC Architecture: Block diagram of 8086 - Registers - Segment registers; Address-Effective address, Segment address, Physical address; Flag registers

4.2 Assembly language Statements: Types - Instructions, directives, macros, Statement format - Label, mnemonic, operand and comment fields - Pseudo operations.

4.3 Instructions: Data Transfer Instructions - Mov, XCHG – Arithmetic Instructions - ADD SUB, INC, DEC and NEG Instructions - MUL, IMUL, DIV, IDIV Instructions, CLC, STC and CMC Instructions. - Decimal Arithmetic: BCD representation-Packed and unpacked representation, Packed BCD to ASCII and ASCII to packed BCD conversion; DAA, DAS; Unpacked representation - ASCII and Unpacked pseudo-ops, AAA, AAS, AAM, AAD Instructions and their uses.


UNIT V SUBROUTINES, STRING AND BIT INSTRUCTIONS AND INTERRUPTS 18 Hours

5.1 Subroutines and Procedures: Stack and its initialization, CALL and RET instructions, PUSH and POP instructions - String operations: MOV, CMPS, SCAS, STOS and LODS Instructions, Byte and Word options, the direction flag - CLD and STD Instructions - Repeat prefixes - REP, REPE (REPZ), REPNE (REPNZ), - XLAT instructions, Translation table - Bit operations: AND, OR, XOR and NOT Instructions, TEST Instruction, SHR, SHL, SAR and SAL Instructions

5.2 Interrupts: Introduction – Hardware & Software Interrupt (Definition) – Processing of an Interrupt - Dos Interrupts: 21h – Function Numbers – Examples - BIOS Interrupts: 10h – Screen Processing Functions - Examples;
5.3 Writing Programs for the following: Find the average of two values – Larger of two values – Print the alphabets from A to Z – Find the largest and smallest values - Character translation (upper to lower and vice versa).

REFERENCE BOOKS

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<th>AUTHOR</th>
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<td>3.</td>
<td>Assembly language and Programming</td>
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<td>Prentice Hall of India</td>
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AIM:

The main aim of the subject is to introduce the whole range of web technologies starting from HTML, Java Script, JSP, XML and CSS. It also gives a brief description on Internet. Through the various examples the course will describe how to design specific page, dynamic web page, forms and frames.

OBJECTIVES:

On completion of the following units of syllabus contents, the students must be able to

- Understand two types of networking models.
- Understand the concept of packet switching.
- Understand how to access to the internet.
- List the services available on Internet.
- Classify internet application protocols.
- Understand the basic concepts of HTML.
- Describe how to control text attributes.
- Discuss how to work with images in HTML
- Describe links using ANCHOR tag.
- Define various types of lists.
- Describe the tags used for constructing tables, frames and forms.
- Define the use of some special tags.
- Use operators, loop constructs and functions of JavaScript.
- Define objects in JavaScript.
- Understand how to construct input and output boxes using Java Script.
- Discuss about events and Event Handlers in JavaScript.
- Differentiate server side scripting and client side scripting.
- List the advantages and disadvantages of JSP.
- Discuss about JSP elements and implicit objects.
- Write simple JSP scripts.
- Discuss the features of XML.
- Define XML components.
- Understand the usage of CSS.
SCHEME OF INSTRUCTION AND EXAMINATION

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<td>INTERNET CONCEPTS AND WEB DESIGN</td>
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TOPICS AND ALLOCATION

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<td>16</td>
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<td>II</td>
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<td>V</td>
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DETAILED SYLLABUS

UNIT- I THE INTERNET CONCEPTS 16 Hours


1.2 Internet Protocols: Internet Protocol (IP) – IP addresses – Types of Internet addressing - Transmission Control Protocol (TCP) - How does the Internet work - Intranet & Extranet - Internet Infrastructure


UNIT- II HTML 18 Hours

2.1 Introduction to HTML: What is HTML - Basic Tags of HTML - HTML Tag - TITLE Tag - BODY Tag ; Formatting of Text : Headers - Formatting Tags: BOLD, ITALICS, UNDERLINE, PARAGRAPH, TT, STRIKETHROUGH, EM, BR and HR tags - PRE Tag - FONT Tag - Special Characters - Working with Images -META Tag .

2.2 Advanced HTML: Links - Anchor tag – Lists - Unordered Lists - Ordered Lists - Definition Lists; Tables - TABLE, TR and TD Tags - Cell Spacing and Cell Padding - Colspan and Rowspan; Frames: Frameset - FRAME Tag – Frame inside other frames - NOFRAMES Tag ; Forms : FORM and INPUT Tag - Text Box - Radio Button – Checkbox - SELECT Tag and Pull Down Lists : Hidden - Submit and Reset ; Some Special Tags:
UNIT- III  CLIENT SIDE SCRIPTING (JAVASCRIPT)  18 Hours

3.1  JavaScript Basics : Need of scripting languages – Variables and Data Types : Declaring Variables – Life span of variables - Data Types - Operators : Assignment, comparison, computational and logical operators - Control Structures : Conditional Statements - Loop Statements : for, while, for in, break and continue statements

3.2  Object-Based Programming and Message boxes: Functions - Executing Deferred Scripts – objects : Document object, Predefined objects, Array object, History object, location object - Dialog Boxes - Alert Boxes - Confirm Boxes - Prompt Boxes

3.3  Javascript with HTML : Events - Event Handlers : onLoad and onUnload – onFocus and onBlur – onError - Forms : Forms Array – Form element properties – Example program.


UNIT- IV  SERVER SIDE SCRIPTING (JSP)  16 Hours


4.3  Implicit objects: Request, response, pagecontext, application, out, config, page, session, exception – Scope: Application – Session – Request

4.4  Writing Simple JSP programs - Convert entered text into uppercase – Find the maximum of three numbers – Add two numbers.

UNIT- V  XML and CSS  16 Hours


## REFERENCE BOOKS

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<td>1.</td>
<td>Internet and Web Design</td>
<td>Ramesh Bangia</td>
<td>Firewall Media</td>
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<td>Web Design</td>
<td>Jenkins</td>
<td>Wiley India</td>
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<td>Using HTML 4, XML and Java 1.2</td>
<td>Eric Ladd and Jin O’ Donwell</td>
<td>Prentice Hall of India, New Delhi</td>
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<td>5.</td>
<td>Web Technology and Design</td>
<td>C. Xavier</td>
<td>New Age International Publishers, New Delhi</td>
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<td>Java Server Pages</td>
<td>Ivan Bayross</td>
<td>Shroff publishers &amp; Distributors Pvt Ltd, Delhi</td>
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<td>7.</td>
<td>Teach yourself web Technologies</td>
<td>Ivan Bayross</td>
<td>BPB publications – 2002</td>
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<td>8.</td>
<td>Web programming</td>
<td>Chris Bates</td>
<td>Wiley – Dreamtech India Pvt Ltd</td>
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***************
AIM:

Today almost every branch of computer science is feeling presence of object - orientation. Object oriented technology is successfully incorporated in various fields of computer science. Since its arrival on the scene in 1995, the Java has been accepted as one of the primary programming language.

This subject is designed to give you exposure to basic concepts of object - oriented technology. This subject will help in learning to write programs in Java using object - oriented paradigm. Approach in this subject is to take Java as a language that is used as a primary tool in many different areas of programming work.

OBJECTIVES:

On completion of the following units of syllabus contents, the students must be able to

- Know the paradigms of programming languages.
- Understand the concepts of Object Oriented Programming.
- State the benefits and applications of Object Oriented Programming.
- Know the history of development of Java.
- Comprehend the features and tokens of Java.
- Explain about the control structures used in Java.
- Use of Arrays and Vectors in Java Program.
- Demonstrate the use of string and String Buffers.
- Define Class with the attributes and methods.
- Understand the need for interfaces.
- Implement Interfaces in classes.
- Create packages.
- Write simple Applets.
- List the types of AWT Components and types of exceptions.
- Handle the errors using exceptions.
- Understand the concepts of multithreading.
- Develop multithreaded programs in Java.
- Define stream and list the types of streams.
- Know how Java supports networking.
- Know how database is connected with java using JDBC-ODBC connection.
SCHEME OF INSTRUCTION AND EXAMINATION

<table>
<thead>
<tr>
<th>Subject</th>
<th>Instruction</th>
<th>Examination</th>
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TOPIC AND ALLOCATION

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<th>TIME (HRS.)</th>
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<tr>
<td>I</td>
<td>INTRODUCTION TO OOPS AND JAVA</td>
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<tr>
<td>II</td>
<td>CONTROL STRUCTURES, ARRAYS, VECTORS AND STRINGS</td>
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<tr>
<td>III</td>
<td>CLASSES, INTERFACES AND PACKAGES</td>
<td>18</td>
</tr>
<tr>
<td>IV</td>
<td>APPLETS, AWT CONTROLS AND EXCEPTION HANDLING</td>
<td>16</td>
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<tr>
<td>V</td>
<td>MULTITHREADS, STREAMS, NETWORKING AND DATABASE CONCEPTS</td>
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DETAILED SYLLABUS

UNIT- I  INTRODUCTION TO OOPS AND JAVA  18 Hours

1.1 Introduction to Oop – Paradigms of Programming Languages - Basic concepts of Object Oriented Programming – Objects and Classes – Data abstraction and Encapsulation, Inheritance, Polymorphism, Dynamic binding, Message communication – Benefits of OOP – Application of OOPs.

1.2 Java History – Java features – Java Environment – JDK – API.

1.3 Introduction to Java – Types of java program – Creating and Executing a Java program – Java Tokens: Keywords, Character set, Identifiers, Literals, Separator – Java Virtual Machine (JVM) – Command Line Arguments – Comments in Java program.


UNIT - II  CONTROL STRUCTURES, ARRAYS, VECTORS AND STRINGS  16 Hours

2.2 Arrays: One Dimensional Array – Creating an array – Array processing – Multidimensional Array – Vectors – Wrapper classes

2.3 Strings: String Array – String Methods – String Buffer Class.

UNIT - III  CLASSES, INTERFACES AND PACKAGES  18 Hours

3.1 Class and objects: Defining a class – Methods – Creating objects – Accessing class members – Constructors – Method overloading – Static members – Nesting of Methods – this keyword – command line input


3.3 Packages: Java API Packages – System Packages – Naming Conventions – Creating & Accessing a Packages – Adding Class to a Packages – Hiding Classes

UNIT - IV  APPLETS, AWT CONTROLS AND EXCEPTION HANDLING  16 Hours


UNIT- V MULTITHREADS, STREAMS, NETWORKING & DATABASE CONCEPTS  16 Hours


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


REFERENCE BOOKS:

<table>
<thead>
<tr>
<th>SNo</th>
<th>TITLE</th>
<th>AUTHOR</th>
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<td>2.</td>
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<td>3.</td>
<td>Java Programming Language</td>
<td>Ken Arnold, James Gosling</td>
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********************
The course on English Communication Practical will enable the learners develop their Communication skills in English, especially at a time when the Info-Tech Explosion on one side and the search for Communicational Exploration on the other have been taking the contemporary world by leaps and bounds.

Keeping in view the career requirements of the students at Diploma level, the course on English Communication Practical has been designed in such a way that it will enable the learners acquire the much needed proficiency in the art of Communication and this will go a long way in shaping and fine tuning the future career of the students.

OBJECTIVES:

1. To equip the learners with effective speaking and listening skills in English
2. To make them realize the communication potential of English language
3. To infuse in their minds the much-needed and all the more important ‘CONFIDENCE’
4. To facilitate them to acquire a fairly acceptable skill in pronunciation
5. To train them to use language effectively to face interviews, group discussions and public speaking
6. To enable them to prepare their resume, curriculum vitae etc.,
7. To promote ethical values and inculcate organizational behaviour…

For achieving the objectives identified above, the following skills are to be developed to enhance the communicative potential of the students.

The Skills are:

(i) Listening   (ii) Reading and Pronunciation
(iii) Speaking and Presentation
(iv) Writing

SCHEME OF INSTRUCTION AND EXAMINATION

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TOPICS AND ALLOCATION

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<tr>
<td>V</td>
<td>PROFESSIONAL ETHICS &amp; ORGANIZATIONAL BEHAVIOUR</td>
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<tr>
<td>VI</td>
<td>PROJECT REPORT WRITING (OUTLINE)</td>
<td>2</td>
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<td>TOTAL</td>
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DETAILED SYLLABUS

UNIT I LISTENING

Listening to pre-recorded short episodes, conversations, passages, stories, (hard copy of the material and cassettes) news bulletin, speeches by famous personalities – Listening for general and specific information etc.,

NOTE: The exercises given to the students must be recorded in the Record Notebook.

UNIT II READING

Reading aloud – by students individually - reading rhymes – proverbs – passages on various topics of interest – Newspaper reading – Reading humorous passages – Anecdotes – Stories – tricky sounds (conditioners) – Reading manuals – Reading individual sentences with articulation, pronunciation, Tones, Punctuation, pauses etc…- Reading the titles of popular books, movies and poems.

NOTE: All the exercises given in Reading skills should be written in the Record Notebook.

UNIT III SPEAKING

i. Self-introduction – introducing one self, one’s family – one’s friends and relatives, one’s language – one’s country etc…

ii. Welcome Address, Vote of thanks

iii. Extempore speeches.

iv. Short speech on simple topics on simpler themes for about one minute.


NOTE: Items taught in the Speaking skill should be written in the Record Notebook.
UNIT IV WRITING

i. Writing Resume, preparing Curriculum Vitae.
ii. Converting newspaper headlines into sentences.
iii. Formation of Sentences – Using the table of Sentence-making and producing multiple sentences.
iv. Framing Questions for the responses given
v. Tips for better performance in interviews.
vi. Describing Objects
vii. Describing Situations.

NOTE: All the above topics must be taught to the students providing sufficient models and exercises and everything must be recorded in the Record Notebook.

UNIT V PROFESSIONAL ETHICS & ORGANIZATIONAL BEHAVIOUR:

UNIT VI PROJECT REPORT WRITING (Outline):

REFERENCES

UNIT I LISTENING:

Cassette with books:

2) Activity Sheets to be prepared.
3) BBC – Lingophone with Hard copy.

UNIT II READING:

1) Short story Books (Indian Writing – Panchathanthra)
2) Reading Illustrated Books (Gokulam – Wisdom – Chandamama – Amarchitrakatha) must be subscribed.

UNIT III SPEAKING:
Books / materials related to speaking skill.
UNIT IV WRITING:

1) Internet Browsing and collecting information for C.V.
2) Book materials / Cassettes for writing skill.

PROFESSIONAL ETHICS

REFERENCE BOOKS

ENGLISH COMMUNICATION LABORATORY

(Common to all branches)

LABORATORY REQUIREMENT

1. An echo-free room.
2. Public Address System
3. A pair of collar microphones with amplifiers and speakers
4. Headphone units – 30 Nos. with one control unit with a facility to play and record in cassettes.
5. Colour Television (minimum size – 61”)
6. DVD/VCD Player with Home Theatre speakers
7. Clip Chart, white board.
8. Necessary furniture’s and comfortable chairs

GUIDELINES

UNIT I LISTENING

a. The students must have been trained on a minimum of 10 Passages / stories / speeches / episodes / news bulletin (about 200-250 words each) and all other topics given in the syllabus during their course of study.

In the examination a passage shall be played back for about 5 minutes from a pre-recorded cassette followed by 5 questions. Students may be allowed to take notes while listening and they shall answer the questions in writing and assessment shall be made depending upon their performance.

b. The students must have been trained on a minimum of 10 dialogues during their course of study.

In the examination a dialogue (face-to-face conversation) running for about 5 minutes shall be played back from a pre-recorded cassette (either Video or Audio) followed by 5 questions. The students may be allowed to take notes while listening and they shall answer the questions in writing. Assessment shall be made depending upon the performance of the students.

UNIT II READING

The Students should have been trained to read out / articulate at least 200 different types of sentences. They should also be trained to pronounce 200 words (monosyllabic, by-syllabic, tri-syllabic and polysyllabic words) and all other topics given in the syllabus. The words and sentences are to be chosen in such a way that the tongue is articulating
the sounds in the manner peculiar to the English Language. The students should also be trained to read aloud newspaper headings, proverbs, rhymes, poems, (use of) minimal pairs and other items identified in the syllabus.

The students should also be exposed to 44 sounds in English language and their symbols with examples. However questions need not be asked in this in the end examinations.

UNIT III SPEAKING

The students should have been trained on a minimum of 10 topics / role play / group discussion / debate / seminar and other topics given in the syllabus. The students must also be trained to introduce themselves and others. Each student must speak at least 10 sentences. The students must be given guidelines for making their presentation / speech effective.

UNIT IV WRITING

The students should be thoroughly trained in all the items identified in the syllabus under writing.

UNIT V PROFESSIONAL ETHICS & ORGANIZATIONAL BEHAVIOUR

Around 50 questions dealing with PROFESSIONAL ETHICS & ORGANIZATIONAL BEHAVIOUR are given in the syllabus. In the examination the students will be given 15 questions (selected out of 50 questions) and they have to write short answers to any 10 questions. This carries 20 marks.

Teachers are requested to refer the reference books given in the syllabus and help the students to find out the answers for all the 50 questions.

UNIT VI PROJECT REPORT WRITING (Outline)

Elaborate guidelines must be given to the students as to how to write a Project Report. They must be exposed to the salient features in writing the Project Report. The students will be expected to submit outline of a Project Report relevant to their branches of study in a separate folder and this will be assessed at the time of End Examination and marks will be awarded accordingly.
ENGLISH COMMUNICATION PRACTICAL

(Common to all branches)

SCHEME OF EXAMINATION

END EXAMINATION (75 Marks)

1) End examination will be conducted for duration of 3 Hrs. covering all the six units identified in the syllabus.
2) The examination should be conducted in such a manner that there must be enough evidence regarding the performance of the students and the distribution of marks for the academic audit.

INTERNAL ASSESSMENT (25 Marks)

1) Students will maintain a 150-page Record Notebook for all the activities done in the English Communication Lab., for which 20 marks will be allotted.
2) 5 marks will be awarded for attendance.

Annexure: A statement of allocation of marks.

Time and Marks Allocation for each unit

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<th>GROUP</th>
<th>UNIT</th>
<th>TIME</th>
<th>MARKS ALLOTTED</th>
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<td>PROFESSIONAL ETHICS &amp; ORGANIZATIONAL BEHAVIOUR (UNIT V)</td>
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<td>SPEAKING (UNIT III)</td>
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<tr>
<td>GROUP C (Report Submission)</td>
<td>PROJECT REPORT WRITING (UNIT VI)</td>
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GROUP A

1. PROFESSIONAL ETHICS & ORGANIZATIONAL BEHAVIOUR (20 Marks)

The students will be asked to write brief answers, for any 10 questions out of 15 questions. The examiners will select the questions from the question bank given in the syllabus. Each question carries 2 marks. It will be a written practical.

Annexure: A question bank of 50 questions.
2. **WRITING ( 5 + 5 = 10 Marks )**

Out of 7 items identified in the syllabus under **Writing skills**, the students are required to answer for any two items out of four (i.e. 2 out of 4 questions). Each item carries 5 marks. There must be different questions for different batches.

3. **LISTENING ( 5 + 5 = 10 Marks )**

The students will be assessed on --

a) **Auditory Comprehension ( 5 marks )**

A pre-recorded cassette on short episodes / passages / stories / news bulletin / speeches by famous personalities (not exceeding 5 min.) will be played back only once. The Students are required to listen to this play-back with utmost attention.

After that, a sheet of paper containing 5 questions on the topic (that was played back to the students) with adequate space under each question (for the students to write the answers) will be supplied. The students are expected to write the answers in the space provided for each question.

Time for this exercise for the response of the students will be approximately 10 minutes.

b) **Audio Visual Comprehension ( 5 marks )**

A face - to - face conversation (not exceeding 5 minutes) will be played through a video or audio system (only once). The students are required to listen to this conversation with full attention.

After that, a sheet of paper containing 5 questions on this exercise shall be given with adequate space under each question for the students to write the answer. Fill in the blanks type of questions may also be given to assess the **Listening skills** of the students. Time to be taken by the students for this exercise will be approximately 10 minutes.

The selection of topics such as short episodes/passages/stories/news bulletins /speeches / dialogues etc… is left to the discretion of the internal and external examiners.

**GROUP B**

1. **READING ( 5 + 5 = 10 Marks )**

a) Each student will have to read aloud a passage of about 200 words. ( 5 Marks )

b) The Students will also be required to read individual sentences, rhymes, poems, newspaper headings, proverbs (use of) minimal pairs etc… ( 5 Marks )
NOTE: While reading, the students will be assessed based on their performance in pronunciation, articulation, intonation, punctuation, pauses etc…

The examiner needs to have as many passages / exercises as required, proportionate to the number of batches. The passage / exercises will be the same one to all the students of a particular batch. But it should not be repeated for other batches, there should be different passages / exercises for different batches.

2. SPEAKING (15 Marks)

a) Introducing one self / Introducing others and all the other topics given in the syllabus 5 Marks.

b) Short speech on simple topics on simpler themes for about 2 minutes – 5 Marks.

c) Assessing the performance of the students on any of the topics given in the syllabus in sub division V under Speaking skills. – 5 Marks.

NOTE: The topics identified in the syllabus for Presentation (Speaking skills) need to be written individually one by one by the examiners in separate papers or in separate cards.

The students will be allowed to choose a topic through lot system. They are expected to speak on the topic chosen by them for at least 2 minutes.

The selection of the topics is left to the discretion of the examiner.

NOTE: Reading and Speaking:

For assessing the performance of the students in Reading and Speaking skills in the End Examination, each batch of students may be divided into two groups (if there are 30 students in a batch, they may be divided into 15 + 15) and both groups may be assessed simultaneously, one group by the external examiner (for Reading skills) and another by the internal examiner (for Speaking skills) and then vice versa.

This process will enable the examiners to complete the practical on time i.e., in 3 Hrs. duration.

GROUP C

PROJECT REPORT WRITING (10 Marks)

The students will be expected to submit an outline of a Project Report relevant to their branches of study in a separate folder and this will be assessed at the time of End Examination and marks will be awarded accordingly.
Annexure

PROFESSIONAL ETHICS & ORGANIZATIONAL BEHAVIOUR

QUESTION BANK

1) What do we understand by ethics?
2) What are the universally accepted ethical principles?
3) What is meant by engineering ethics?
4) What is the need for engineering ethics?
5) Define work ethics.
6) What is integrity?
7) ‘Commitment’ – what does it mean?
8) What do you mean by empathy?
9) What is professional ethics?
10) What is the similarity between ethics and morals?
11) What are the responsibilities of engineers?
12) What are the rights of the engineers?
13) What are codes of conduct?
14) Explain briefly the importance of ethics in engineering profession.
15) How can an engineer orient himself towards his ethical responsibilities?
16) What are the priorities of an engineer in a situation wherein which conflicting values are involved?
17) How can an engineer implement ethics of his profession in a multi-cultural/multi-national environment?
18) What are the professional obligations of an engineer?
19) What should be the ethics that an engineer should adhere to in both pre and post employment scenarios?
20) What is the ethical way of handling retrenchment?
21) What are the various aspects of empathy?
22) What are the salient features of commitment?
23) What is team-work?
24) What do you mean by profession and professionalism?
25) What is meant by accountability?
26) What is environmental ethics?
27) What is computer ethics?
28) Define the term ‘morals’.
29) What do you mean by ‘values’?
30) What are the main qualities of work ethics?
31) What is altruism?
32) What is sharing?
33) What is caring?
34) What is honesty?
35) What is courage?
36) What is meant by valuing time?
37) What is co-operation?
38) What are the objectives of co-operation?
39) What is meant by commitment?
40) In what way the effective communication skills shape the careers of an engineer?
41) What is self-confidence?
42) What is morality and etiquette?
43) What are the different models of engineering ethics?
44) What are the most fundamental moral principles?
45) What are the moral responsibilities of an employee towards his employer?
46) What are the moral responsibilities of an employer towards his employees?
47) What are the moral responsibilities of an organization towards community?
48) What are the advantages of team-work?
49) What is loyalty?
50) What do you mean by professional rights?

**Example Questions for Writing Skill**

Staff Member may prepare similar type of questions for Class works & Examinations

**WRITING**

1. Your friend has asked for your advice for buying a birthday present. Write a letter to him/her suggesting which points he/she one should keep in mind like interest, age, need etc. while buying a birthday present. You are Shanty/Shanta of 1048 D, Gulabi Bagh, Delhi.

2. Children like to spend their pocket money on their favourite food items like chips, kurkures, hot dog, pizza and cold drinks. But they don't know that these things cause harm to their health.

   Write a paragraph describing the harmful effects of fast and junk food. Mention the health and other related problems caused by it in about 50 words.

3. You have to take part in a debate on the theme ‘Examinations affect Teaching and Learning in schools’ Write down your arguments in favour or against the motion in about 125 to 150 words.

4. Recently you attended a fair of Eco clubs at Bal Bhawan where the students from different schools displayed eco friendly materials and ways to protect our earth through different models and charts. Write a report in about the fair in about 50-60 words.
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<tr>
<td>5.</td>
<td>Your cousin is a brilliant student but he is not keeping good health because he avoids homemade food and is very fond of eating outside. Write a letter telling him/her about the harmful effects of junk food and advising him/her how to maintain good health in not more than 100 words. You are Arpil/Arpita of C-8 Lawrence Road, Delhi.</td>
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<tr>
<td>6.</td>
<td>Write a letter to the Principal of your school requesting him/her to introduce inter house activities like quiz programmes, debates, recitation, essay-writing, painting and sports explaining how it may be beneficial for all-round development of their personality. You are Vineet/Vineeta, the head boy/girl of New Modern School, Amritsar.</td>
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<tr>
<td>7.</td>
<td>You don’t approve of the ways of people as they waste a lot of water in different activities. Even the taps in schools are not closed properly, thereby, wasting the valuable water due to negligence and carelessness. You wish to spread awareness among students about it. Write down your views appealing students of your school to conserve water and to save it for future in an article for school magazine in about 50-60 words.</td>
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<tr>
<td>8.</td>
<td>You recently visited the ‘World Book Fair’ organized at “Near your Locality ” and found it quite an enriching experience. Write a report in about 50-60 words so as to encourage other students to visit it.</td>
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</table>
CEK 440 - ENGLISH COMMUNICATION PRACTICAL

MODEL QUESTION PAPER

TIME : 3 Hrs Max.Marks : 100

GROUP A

Answer any ten of the following:-

(10 x 2 = 20)

I  1) What is team work?
    2) ‘Commitment’ – What does it mean?
    3) What is code of conduct?
    4) How can an engineer orient himself towards his ethical responsibilities?
    5) What are the professional obligations of an engineer?
    6) What is the ethical way of handling retrenchment?
    7) What are the rights of the engineers?
    8) What is environmental ethics?
    9) What is sharing?
   10) What are the objectives of co-operation?
   11) What is morality and etiquette?
   12) What is loyalty?
   13) What are the moral responsibilities of an employee towards his employer?
   14) What do you mean by professional rights?
   15) What is altruism?

II

(2 x 5 = 10)

1) Imagine you are applying for a job. Write a resume for the same.
2) Religious extremism, matter of concern: PM

III

(2 x 5 = 10)

1) A short story to be played back (audio cassette).
2) A face to face communication to be played back (visual/audio)

GROUP B

I

(2 x 5 = 10)

1) Read the following passage aloud -
   A passage with tricky sounds to be given.

2) Read the following aloud -
   A conversational passage to be given.

II

(3 x 5 = 15)

1) Introduce yourself
2) Short speech - A religious fair
3) Any one of the topics given in the syllabus in sub-division v under Speaking skills

GROUP C

Project Report – writing

The students will be expected to submit an outline of a Project Report relevant to their branches of study in a separate folder and this will be assessed at the time of End Examination.
## ENGLISH COMMUNICATION PRACTICAL

**Allocation & Statement of Marks**

Duration : 3 Hrs.        Max. Marks  :  100

### Communication Lab.

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<tr>
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<th>GROUP B</th>
<th>GROUP C</th>
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### Internal Assessment

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AIM:

The main aim of this practical subject is to design web pages using wide range of web technologies starting from HTML, Java Script, JSP, XML and CSS. Through the various examples this laboratory course will describe how to design specific page, dynamic web page, forms and frames.

OBJECTIVES:

On completion of the following exercises, the students must be able to

- Create web pages using simple HTML tags
- Create web pages using advanced HTML tags.
- Create simple Java script codes.
- Design web pages using JSP and HTML codes.
- Create chat applications using JSP.
- Use of XML and CSS.

SCHEME OF INSTRUCTION AND EXAMINATION

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LAB EXERCISES

1. Design a HTML page describing your profile in one paragraph. Design in such a way that it has a heading, a horizontal rule, three links and your photo. Also, write three HTML documents for the links. Include facilities for forward, backward and HOME.

2. Design a HTML page about your friends. List your friends. Each friend’s name is a link. Prepare separate HTML documents for each friend and call them in the appropriate link.

3. Design a single page website for your polytechnic containing a description of the courses offered. It should also contain some general information about the university such as its history, the campus, its unique features and so on. The site should be colored and each section should have a different color.

4. a.) Create a web page that provides links to five different websites.
    b.) Design a web page that has 5 equal columns. The table should look the same in all screen resolutions.
5. Make out a brief bio-data of yours and code it as an HTML page. You can consider using tables to show your academic history.

6. a.) Write a Java script code that converts the entered text to uppercase
b.) Write a Javascript code to validate the username and password. The username and password are stored in variables.

7. Write a Java Script code using frames and Events (When a cursor moves over an object it should display the specification of the object in another frame)

8. a.) Write Javascript function that finds the maximum of three given numbers.
b.) Write HTML document with Javascript to count the number of vowels in a text typed in a TextArea.

9. Create a site containing banner ads at the top of the page. The ads are changed every 10 or 15 seconds.

10. Collect the definitions of 10 items in chemistry. These definitions are stored in two string arrays name[] and defn[]. Write a JSP which has these two arrays and supplies the definition on request. Write a HTML document which gets the user input of the name of the item and sends the request to the JSP.

11. Write a JSP code to manipulate cookies.

12. Write a JSP code to upload data from client side.

13. Create a JSP application using image map to give information about the institution.

14. Write a program to create the chatting application using Application and Session object.

15. Write a program to check how many users have visited a website. Use Application object.

16. Write a Code in Java Script to count number of times you move over a link or record.

17. Write a program to check whether a person will be permitted to open a particular page or not. Use permission checker component.

18. Write a program for incorporating entities in to XML document using an internal DTD.

19. Write a program using CSS to create a time table for the class.

20. Write a program using CSS to set the background colors, fonts and paragraphs.
REQUIREMENTS:

Software:
- Notepad or any one Editor
- Web Browser (Internet Explorer or any one web browser)
- Apache Tomcat 4.0.x or JRun 3.x

Hardware:
- Computer with Pentium IV / Dual core Processors – 36 Nos
- Printers - 6 Nos

***************
AIM:

This laboratory course is an attempt to upgrade and enhance your theoretical skills and provide the hands on experience on object-oriented programming. By the end of these practical sessions of this course, the students will be able to write programs using object oriented techniques.

OBJECTIVES:

On completion of the following exercises, the students must be able to

- Compile and Interpret Java Programs
- Write programs using different operators and expressions.
- Write Java programs using sequential, conditional and Iterative statements.
- Handle arrays of fixed and variable size.
- Create vectors.
- Create classes and objects using Java.
- Implement constructors and constructor overloading.
- Solve problems using inheritance and Polymorphism.
- Create own package and interface.
- Create Applet programs.
- Handle exception arising in programs.
- Use GUI components in the programs.
- Use multithreading in programs.
- Use java in networking.
- Work with files.
- Connect databases with the program.

SCHEME OF INSTRUCTION AND EXAMINATION

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LAB EXERCISES

OPERATORS AND EXPRESSIONS

1. a) Write a Program to find the area of a rectangle.
   b) Write a program to find the result of following expressions (Assume a = 10, b = 5)
      i) (a << 2) + (b >>2)  ii) (a) || (b>0)  iii)  (a + b * 100) /10  iv) a & b
   c) Write a program to print the individual digits of a 3-digit number.

DECISION MAKING STATEMENTS

2. a) Write a program that asks the user to enter two integers, obtains the numbers from the user, and then prints the larger number followed by the words "is larger." If the numbers are equal, print the message “These numbers are equal.”
   b) Write a program that reads an integer and determines and prints whether it is odd or even.
   c) Write a program to find the biggest number between the given three integer numbers.

LOOPING STATEMENTS

3. a) Write a program to find the sum of the digits of a given number.
   b) Write a program to find the first 15 terms of the Fibonacci sequence.
   c) Write a program to find the three digit Armstrong numbers.

ARRAYS

4. a) Write a program to read N numbers and find the largest and smallest numbers.
   b) Write a program for the multiplication of two matrices.

VECTORS

5. Write a program that accepts a shopping list of four items from the command line and stores them in a vector. Write a Menu based Program to perform the following operations using vector
   1. To add an item at a specific location in the list.
   2. To delete an item in the list.
   3. To print the contents of the vector.
   4. To delete all elements
   5. To add an item at the end of the vector.

STRINGS AND STRINGBUFFER

6. a) Write a program in Java to create a String object. Initialize this object with your name. Find the length of your name using the appropriate String method. Find whether the character ‘a’ is in your name or not; if yes find the number of times ‘a’ appears in your name. Print locations of occurrences of ‘a’.
b) i. Create a `StringBuffer` object and illustrate how to append characters. Display the capacity and length of the string buffer.

ii. Create a `StringBuffer` object and illustrate how to insert characters at the beginning.

iii. Create a `StringBuffer` object and illustrate the operations of the `append()` and `reverse()` methods.

**CLASSES AND OBJECTS**

7. a). Write a program to display total marks of 5 students using student class. Given the following attributes: `Regno(int)`, `Name(string)`, `Marks in subjects(Integer Array)`, `Total (int)`.

b) Write a program in Java with class `Rectangle` with the data fields `width`, `length`, `area` and `colour`. The length, width and area are of double type and `colour` is of string type. The methods are `get_length()`, `get_width()`, `get_colour()` and `find_area()`.

Create two objects of Rectangle and compare their area and colour. If the area and colour both are the same for the objects then display “Matching Rectangles”, otherwise display “Non-matching Rectangle”.

**PASSING OBJECTS AS ARGUMENTS**

8. Create a class to represent complex numbers. A complex number has the form real part + i * imaginary part. Provide constructor to enable an object of this class to be initialized when it is declared. Provide a no-argument constructor with default value in case no initializes are provided. Provide public methods for the following:

i) Addition of two complex numbers

ii) Subtraction of two complex numbers

iii) Printing complex numbers in the form (a,b) where a is the real part and b is the imaginary part.

(Pass objects as arguments)

**INHERITANCE**

9. Write a program to create a player class. Inherit the classes `Cricket_player`, `Football_player` and `Hockey_player` form player class.

**INTERFACES**

10. a). Write a program to show how a class implements two interfaces.

b) Show through a program that fields in an interface are implicitly static and final and methods are automatically public.

**PACKAGES**

11. Write a program to create a package for Book details giving Book Name, Author Name, Price, year of publishing.
APPLETS AND AWT

12. A color can be created by specifying the red, green, blue values as integer parameters to the constructor of class Color. The values range from 0 to 255. Provide three horizontal scroll bars and ask the user to select the values of the colors by dragging the thumb in the scroll bar. Using the color selected, draw a rectangle.

13. Create an applet for simple calculator to perform Addition, Subtraction, Multiplication and Division using Button, label and TextField classes.

14. Draw a bar chart for the following details using Applets.

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EXCEPTION HANDLING

15. a) Write a Java program to catch more than two exceptions.

b) Write a Java program to create your own exception subclass that throws exception if the sum of two integers is greater than 99.

MULTITHREADING

16. Write a Java program for generating two threads, one for printing even numbers and other for printing odd numbers.

17. Write a Java program for producer and consumer problem using Thread.

NETWORKING

18. Write a program to transfer the file between client and server using TCP/IP

FILES

19. a) Write a program to create a text file using Byte stream classes

b) Write a program to copy a file to another file.

CONNECTING DATABASE

20. Write a Java Program to connect to a database created in MS-ACCESS using JDBC Concept. Perform basic operations of Selection, Insertion and deletion on the database.

REQUIREMENTS:

Software:
- JDK1.3 OR JDK1.4
- MS-ACCESS

Hardware:
- Computer with Pentium IV / Dual core Processors. – 36 Nos
- Printer – 3 Nos

************
AIM:

The main aim of the subject is to deal with fundamental issues of computer network. The course is designed around the TCP/IP Model. Some of the important topics discussed in the course are: Data Encoding Techniques, MAC Protocols, Routing Techniques, Transport Services, Mechanism and Network Security.

OBJECTIVES:

On completion of the following units of syllabus contents, the students must be able to

- Understand the concept of data communication
- Discuss the advantages and disadvantages of different network topologies.
- Know different network classification based on different category.
- Define modulation and its types.
- Study about different network devices and their practical usages
- Understand the different layers of OSI and their functions
- Know the different physical layer architecture in detail and comparison of their characteristics.
- Compare different LAN protocols.
- Study about different data link layer architecture.
- Identify the error control and flow control mechanism used in Data Link Layer
- Study about ISDN concepts and its applications.
- Identify the protocols used in TCP/IP and compare with OSI model.
- Know the IP addressing and TCP/IP protocols briefly.
- Understand about basic concepts of network security.
- Identify the attacks and threats.
- Study how to protect network through security methods.

SCHEME OF INSTRUCTION AND EXAMINATION

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DETAILED SYLLABUS

UNIT I. DATA COMMUNICATIONS 18 Hours

1.1 Data Communication – Components of a data communication – Data flow: simplex – half duplex – full duplex; Networks – Network criteria – Types of Connections: Point to point – multipoint; Topologies: Star, Bus, Ring, Mesh, Hybrid – Advantages and Disadvantages of each topology.

1.2 Types of Networks (Geographical Based) LAN – MAN – WAN


1.5 Network devices: Features and concepts of Hubs – Bridges – Switches - Routers – Gateways

UNIT II OSI MODEL AND DATA LINK LAYER 16 Hours


2.2 Error detection & correction: Types of errors – detection versus correction – CRC – Hardware implementation - parity check and checksum – Hamming code.

UNIT III  LAN PROTOCOLS  


3.2 Concepts and PDU format of CSMA/CD (802.3) – Token bus (802.4) – Token ring (802.5) – Ethernet – type of Ethernet (Fast Ethernet, gigabit Ethernet) – Comparison between 802.3, 802.4 and 802.5

3.3 FDDI –frame format – Advantages and disadvantages of FDDI.

3.4 Switching – Circuit– Packet– Message.

3.5 ISDN – Concepts – Services – Layers – Broad Band ISDN.

UNIT IV TCP/IP SUIT  


4.3 IP Addressing – Subnetting & Supernetting – Dotted Decimal Notation – IPv6 (concepts only)


UNIT V INTRODUCTION TO NETWORK SECURITY  

5.1 Introduction to network security– definition & basic concepts – Basic concepts of RAID levels ( 0,1 and 5).

5.2 Types of attacks – access attacks –modification attacks – denial of service attacks.

5.3 Hacker Techniques– Historical Hacking techniques & open sharing – bad passwords – advanced techniques sniffing switches networks–Malicious code identification—viruses—Trojan horses—worms - SPAM.

5.4 Threats – Definition – Targets- Agents – Events

5.5 Firewall – types –Developing firewalls

**REFERENCE BOOKS:**

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<td>Data Communication and networking</td>
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<td>Tata McGraw-Hill, New Delhi</td>
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<td>Computer Networks</td>
<td>Andrew S. Tanenbaum</td>
<td>Prentice-Hall of India, New Delhi</td>
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***************
Database systems are required as the backbone of any information system, enterprise resource planning, research activities and other activity that require permanence of data storage. This subject provides the basic introduction to database system technologies.

This subject provides the basic conceptual background necessary to design and develop simple database systems. The major focus in this course is the Relational database model; however, it also discusses about the ER model. This course enables you to write good queries using a standard query language called SQL. This subject also includes concepts relating to various advanced database models, and concepts like database mining and warehousing.

OBJECTIVES:

On completion of the following units of syllabus contents, the students must be able to

- Understand the evolution of Database systems
- Define the different terminologies related with database.
- Know the components of a database system.
- Explain different data models.
- Get familiar with the different approaches of database system.
- Understand client/server technology.
- Discuss about relational data structure.
- State the use of E-R diagrams.
- Know the importance of normalization
- Understand data base administration.
- Get familiar with DBA tools.
- Know the concept of DDL and DML
- Know the basics of SQL
- Get familiar with the statements and functions of SQL
- Know the use of transaction control statements.
- Understand the importance of PL/SQL
- Know the PL/SQL objects.
- Know the importance of Database maintenance
- Get familiar with the Data warehousing
- Differentiate Data warehousing and Data Mart.
- Understand the concept of OLAP, MOLAP, ROLAP
- Explain data mining
- Explain commercial tools of data mining.
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DETAILED SYLLABUS

UNIT – I BASIC CONCEPTS OF DBMS 16 Hours

1.1 Introduction: Definition of Data, Database and DBMS – Need for database – Advantages of database Systems - File based database systems – disadvantages – Record based database systems - Data base characteristics

1.2 Database terms – concurrency, consistency, data availability, reliability, transparency, data integrity


1.4 Data abstraction - Schema – Data independence- Architecture of a database system

1.5 DBMS system architecture types – personal computer system – centralized system – client / server system – Distributed system.

1.6 Data models: Relational – Hierarchical – Network.

UNIT – II CLIENT/SERVER TECHNOLOGY & RELATIONAL DATABASE APPROACH 16 Hours

2.1 Client/server technology – client – server – distributed and co-operative processing – peer- to-peer processing – application components - transaction management

2.3 Table: Columns, Rows, Primary Key, Secondary Key, Foreign key

2.4 E-R model: Entities and attributes – Relationships – One to one –One to many - Many to one – Many to Many relationships – Normalizing the model.


UNIT - III STRUCTURED QUERY LANGUAGE 18 Hours

3.1 Data Definition Language – statements - Data Manipulation Language – statements - Retrieval operations

3.2 SQL Commands : Selecting Columns from a table, Selecting Rows from a table - Built-in functions – Update Operations

3.3 Queries – simple query – where clause – group by – order by clauses -sub queries – correlated sub-queries. Set Operations – Union, minus

3.4 Constraints – Alter table – table-level constraints.

3.5 Base Table - Indexes – types – simple – compound ; Join – types – simple – Equi-join, Non-equi join, self join, outer join

3.6 Creating and using Views: creating a view, querying a view of more than one table.

3.7 Working with Numbers : Displaying Numbers, Arithmetic Expressions

3.8 Functions and Operators: Number Functions - sin(), cos(), tan(), sqrt(), Aggregate functions –count(), avg() Conversion functions – to_char(), to_date(), NVL(), Date Functions – sysdate(), months_between(), add_months(), Arithmetic, Logical and set Operators

3.9 Transaction control statements – commit, rollback, savepoint

3.10 Triggers – Trigger definition – Trigger Events - Built-in Trigger – User defined Trigger – database triggers

UNIT IV PL/SQL 18 Hours

4.1 Introduction – variables – literals – data types – advantages of PL/SQL

4.2 Control statements – if ; iterative control – loop, while, for , goto ; exit when

4.3 Cursors – types – implicit, explicit – parameterized cursors – cursor attributes

4.4 Exceptions – types – internal , user-defined , handling exceptions – raise statement

4.5 PL/SQL tables and records - declaring PL/SQL tables - referring PL/SQL tables, inserting and fetching rows using PL/SQL table, deleting rows; records - declaration of records - deleting records
4.6 Sub programs – functions - procedures - in, out, inout parameters; purity functions - packages - package specification - advantages of packages - private and public items - cursors in packages.

UNIT – V ENHANCED DATABASE MODELS 16 Hours

5.1 Data warehousing : Definition - DSS and EIS Definition) - Characteristics and functioning and architecture of Data Warehousing - Data marts - Data warehousing Life Cycle - data modeling (Multidimensional Database) for data warehousing - Building of data warehouse - OLAP, MOLAP, ROLAP - Data warehouse and views - Future open issue for data warehouse

5.2 Data Mining : What is data mining Technology - Relationship to Data warehousing - Association rules - Classification - Clustering - Approaches to data mining problems - Applications of Data mining problem - Commercial tools of data mining - Knowledge Discovery

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***************
AIM:

.NET Framework is changing the way developers write applications. .NET Framework provides a number of components to create many types of applications including those for consoles, Windows, mobile units and the web. Using .NET framework the data can be made available anytime, anywhere and on any device.

This subject introduces the basics of .NET Framework. Writing applications on VB.Net is covered in this course. Concepts of developing web applications using ASP.NET are discussed. This course helps to use ADO.NET to write the applications to connect with the back end database. The subject also enables the users to know the concepts of XML and the XML web services.

OBJECTIVES:

On completion of the following units of syllabus contents, the students must be able to

- Introduce .NET framework.
- Gain knowledge in the concepts of the .NET framework as a whole and the technologies that constitute the framework.
- Get familiarize with CLR and .Net class library.
- Know the tokens of VB.NET.
- Understand windows programming.
- Create menus using windows programming.
- List the features of ADO.NET
- Explain the architecture of ADO.NET.
- Define Dataset.
- Understand the basics of Database programming using ADO.NET
- List down the features of ASP.NET.
- Understand the advantages of an ASP.NET application.
- Create web controls using ASP.NET.
- Learn about server controls and events in ASP.NET.
- Create a simple Web Service in ASP.NET.
- Create web forms.
- Define XML
- Know the importance of XML in web services.
- Use SOAP with the .NET framework.
- Create and Call a Web Service by Using Visual Studio .NET.
SCHEME OF INSTRUCTION AND EXAMINATION

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DETAILED SYLLABUS

UNIT – I INTRODUCTION TO .NET FRAMEWORK

1.1 Introduction to .NET framework - Managed Code and the CLR - Intermediate Language, Metadata and JIT Compilation - Automatic Memory Management.

1.2 Language Concepts and the CLR - Visual Studio .NET - Using the .NET Framework.

1.3 The Framework Class Library - .NET objects - ASP .NET - .NET web services – Windows Forms

UNIT –II INTRODUCTION TO VISUALBASIC.NET

2.1 Variables and constants – data types – declaration. Operators – types – precedence. Expressions. Program flow – Decision statements – if .. then, if..then..else, select..case– Loop statements – while..end while, do..loop, for..next, for..each..next.

2.2 Types: Value data types – Structures, Enumerations. Reference data types- Single-dimensional – Multi-dimensional arrays – jagged arrays – dynamic arrays

2.3 Windows programming – creating windows Forms – windows controls – Button, Check box, Combo box, Label, List box, Radio Button, Text box. Events – Click, close, Deactivate, Load, Mousemove, Mousedown, MouseUp.

UNIT - III APPLICATION DEVELOPMENT USING ADO .NET 16 Hours


3.2 Accessing Data with ADO.NET- Connecting to Data Source, Accessing Data with Data set and Data Reader - Create an ADO.NET application - Using Stored Procedures.

UNIT - IV INTRODUCING ASP.NET 16 Hours


4.2 Creating Web Controls - Web Controls - HTML Controls, Using Intrinsic Controls, Using Input Validation Controls, Selecting Controls for Applications - Adding web controls to a Page.

4.3 Creating Web Forms – Server Controls - Types of Server Controls - Adding ASP.NET Code to a Page.

UNIT - V XML WEB SERVICES 18 Hours

5.1 Overview of XML-XML Serialization in the .NET Framework -SOAP Fundamentals-Using SOAP with the .NET Framework.

5.2 Introduction to web services - Web Services protocol and standards – WSDL Documents - Overview of UDDI - Calling a Web Service from a Browser - Calling a Web Service by Using a Proxy - Creating a simple web service - Creating and Calling a Web Service by Using Visual Studio .NET.

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<td>3.</td>
<td>Introduction to Microsoft® ASP.NET Work Book</td>
<td>Microsoft</td>
<td>Microsoft Press</td>
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<td>Developing XML Web Services Using Microsoft® ASP.NET</td>
<td>Microsoft</td>
<td>Microsoft Press</td>
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<td>5.</td>
<td>Designing Microsoft ASP.NET Applications</td>
<td>Douglas J. Reilly</td>
<td>Microsoft Press</td>
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<td>6.</td>
<td>ASP.NET</td>
<td>Danny Ryan and Tommy Ryan</td>
<td>Hungry Minds Maran Graphics</td>
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CEK 532  
EMBEDDED SYSTEMS

AIM:
Each day our lives become more dependent on “Embedded systems”, digital information technology that is embedded in our environment. This includes not only safety-critical applications such as automotive devices and controls, railways, aircraft, aerospace and medical devices, but also communications, “mobile-worlds” and : e-worlds”, the “smart” home, clothes, factories etc., All of these have wide – ranging impacts on society, including security, privacy and modes of working and living. More than 98% of processors applied today are in embedded systems, and or no longer visible to the customers as “computers” in the ordinary sense.

New processors and methods of processing, sensors, actuators, communications and infrastructures are ‘enablers’ for this very pervasive computing. They are in a sense ubiquitous that is, almost invisible to the user and almost omnipresent. As, such they form the basis for a significant push.

This subject provides the basic conceptual background necessary to design and develop simple embedded systems.

OBJECTIVES:
On completion of the following units of syllabus contents, the students must be able to

- Understand the recent trends in embedded systems.
- Explain about advanced RISC architecture (ARM) and 32-bit microcontroller.
- Explain about memory formats and instruction set of ARM processor.
- Explain about fundamentals of ARM7TDMI core.
- Explain Debug and ICE-RT logics.
- Explain the architecture overview about LPC2148 CPU.
- Draw the block diagram of system control block.
- Explain about the handling of on chip Analog to Digital conversion.
- Explain about the handling of on chip Digital to Analog conversion.
- Give detailed information about general purpose input and output (GPIO) logic levels of and Handling of GPIOs
- Explain information about serial communication UART, I2C, SPI and USB.
- Learn about and need of an OS in embedded systems.
- State advantages of RTOS.
- Learn about different operating systems available for Embedded Systems.
- Explain information about Kernal and multitasking.
- Explain Scheduling and Clock Ticks in RTOS
- Give brief idea about µc / OS – II.
- Explain about support devices for µc / OS – II.
- Explain task management and Time management.
- Explain detailed information about Handling of OS in RTOS.
SCHEME OF INSTRUCTION AND EXAMINATION

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TOPICS AND ALLOCATION

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DETAILED SYLLABUS

UNIT – I ARM INTRODUCTION

16 Hours

UNIT – II LPC2148 ARM CPU

18 Hours

UNIT – III LPC2148 – PERIPHERALS

16 Hours

UNIT IV OPERATING SYSTEMS OVERVIEW

18 Hours

REFERENCE BOOKS

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<tr>
<th>S.No</th>
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<tr>
<td>1.</td>
<td>Embedded System Architecture</td>
<td>Tammy Noergaard</td>
</tr>
<tr>
<td>2.</td>
<td>ARM System Developer’s Guide</td>
<td>Andrew N. Sloss</td>
</tr>
<tr>
<td>3.</td>
<td>ARM Architecture Reference Manual</td>
<td>David Seal</td>
</tr>
<tr>
<td>4.</td>
<td>ARM System-on-chip Architecture</td>
<td>Steve Furbe (Second Edition)</td>
</tr>
<tr>
<td>5.</td>
<td>MicroC / OS – II The Real Time Kernel</td>
<td>Jean J. Labrosse</td>
</tr>
<tr>
<td>6.</td>
<td>Real Time Concepts for Embedded Systems</td>
<td>Qing Li and Caroline Yao</td>
</tr>
<tr>
<td>8.</td>
<td>LPC2148 User Manual</td>
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</table>
AIM:

The main aim of the subject is to deal with fundamentals issues of computer network. The course is designed around TCP/IP modal. Some of the important topics discussed in the course are: LAN Protocols, TCP/IP Suit and Network Security.

OBJECTIVES:

On completion of the following exercises, the students must be able to

- Enable to perform different cabling in a network.
- Enable and to Establish different network connection.
- Configure router for any topology.
- Establish security in a network.
- Use FTP and TELNET protocol.
- Enable to install and configure different protocol in client-server model

SCHEME OF INSTRUCTION AND EXAMINATION

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</table>

LAB EXERCISES

1. Do the following Cabling works in a network
   a) Cable Crimping  b) Standard Cabling  and  c) Cross Cabling
2. Establish a LAN connection using three systems using bus topology.
3. Establish Peer to Peer network connection using two systems in a LAN
4. Interface PCs using connectivity devices – Hub, router and switch.
5. a) Configure IP Address in a system in LAN (TCP/IP Configuration)  
   b) Configure DNS to establish interconnection between systems
6. a) Transfer files between systems in LAN using FTP Configuration  
   b) Login a system remotely using telnet protocol.
7. a) Install and configure Network interface card in LAN system
   b) Share a file and printer (remotely) between two system in a LAN

8. Establish security in a system using firewall configuration

9. Create and share the user rights by accessing server for a specific user groups

10. Install and configure the following
    a) A DHCP server in windows with IP Address ranging from 192.168.1.1 to 192.168.1.100
    b) Configure a DHCP Client

11. Transfer Files between wireless Communication.

12. Configure Mail server

The Following programs to be written in ‘C’

13. Write a program that takes a Binary file as input and finds error check using different mechanism.

14. Write a Client program to download a file from HTTP server.

15. Write a program to Simulate Sliding Window Protocol
Computer Networks and Security Lab

I Tools requirement

1. Crimping Tool – 06 Nos
2. Network Cables

II Equipment Requirement

1. Modem - 01 No
2. Laser Printer - 01 No
3. Hub - 01 No
4. Router - 01 No
5. Switch - 01 No

III System requirement

Pentium IV, 3.4GHz
256MB DDR RAM
80GB Hard disk
DVD Writer
Optical Mouse
Keyboard
On Board Ethernet Card (NIC)

III System requirement

36 Nos

IV Software Requirements

2. OS Windows Xp With service Pack
3. Turbo “C”
4. Drivers Software
AIM:
This laboratory will provide students the knowledge of Relational Database Management (RDBMS) using ORACLE. After completion students will be able to create database according to their requirements along with the capabilities of modifying database, providing securing with the help of access permissions etc.

OBJECTIVES:

On completion of the following exercises, the students must be able to

- Know all SQL editor commands.
- Create and manipulate tables.
- Work with pre-defined functions.
- Use Transaction control operations.
- Use cursor to manipulate the results of query.
- Practice Exception handling techniques.
- Join tables to get the desired results.
- Use Visual Basic application to access and manipulate oracle tables.
- Write PL/SQL codes to implement simple applications.
- Use PL/SQL functions & procedures to build applications.

SCHEME OF INSTRUCTION AND EXAMINATION

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<td>RELATIONAL DATABASE MANAGEMENT SYSTEM LABORATORY</td>
<td>6 Hours/Week</td>
<td>96 Hours/Semester</td>
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</table>

LAB EXERCISES

1. Execute and test all the SQL Editor commands.
2. Work with the following conditions: Column formatting, alias and Column ordering.
3. Use indexing on a table – simple and compound indexes.
4. Work with the different categories of functions such as Math, Date, Aggregate and Conversion functions.
5. a) Create a table to show the salary details of the employees.
   b) Grant select and update privileges on above table to other users.
   c) Grant all the privileges to some other users.
   d) Revoke all the above granted permissions.

6. a) Create a table student_master with the following field's name, Regno, dept and year with suitable data types. Use Select command to do the following.
   b) Select the student's name column
   c) Display the unique rows
   d) Sort the table in alphabetical order
   e) Select all the students of a particular department.

7. a) Create a table sales_order with s_order_no and product_no as primary key. Set other fields to store client number, delivery address, delivery date, order status.
   b) Add a new column for storing salesman number using ALTER command.
   c) Set the s_order_no as foreign key as column constraint
   d) Set the s_order_no as foreign key as table constraint

8. Develop a Visual Basic Application with suitable Labels & TextBoxes for the columns of a Table. Add Command Buttons to perform the following: Display Records, Previous, Next, First and Last. Use the ODBC driver to connect the Application with the oracle

9. Develop a Visual Basic Form with suitable Labels & TextBoxes for the columns of a Table. Add Command Buttons to perform the following: Insert record, Delete record, Update record, Locate Record

10. a) Create a table student with their elective paper as one field.
    b) create another table staff with the subject names they have handled and number of times handled.
    c) Construct a English sentence to display the rows in the staff table.
    d) Use sub-queries to display the information about student's name and staff names where both have same subject names.
    e) Display the subject name, staff names where same subject is handled by more than one staff.
    f) Display the student, subject name where the subject is not at all handled any staff in the staff table.

11. a) Create a sales_order table and client_master table with suitable fields.
    b) Find the total number of quantity ordered for a particular product.
    c) Display the rows of the table in the sales order date wise,
d) Join the two tables and display the product number, product name, where the order_no in the sales_order table and order_no in client_master are equal.

e) Join the sales_order table to itself and display the order number, client number and salesman number where client has been serviced by more than one salesman.

12. a) Create table sales_order_details with the s_order_no as primary key and with the following fields: product_no, description, qty_ordered, qty_dispatched, product_rate, profit_percent, sell_price, supplier_name

b) Select each row and compute sell_price*.50 and sell_price *1.50 for each row selected.

c) Select product_no, profit_percent, sell_price where profit_percent is not between 10 and 20 both inclusive.

d) Select product_no, description, profit_percent, sell_price where profit_percent is not between 20 and 30.

e) Select the supplier_name and product_no where suppliername has ‘r’ or ‘h’ as second character.

13. a) Create a table client_master with the following fields client_no, name, address1, address2, city, state, pincode, remarks, bal_due with suitable data types. Create another table supplier_table from client_master. Select all the fields and rename client_no with supplier_no and name with supplier_name.

b) Insert data into client_master.

c) Insert data into supplier_master from client_master.

d) Delete the selected row in the client_master.

14. Write a PL/SQL code to display the employee details for an employee.

15. Write a PL/SQL code to calculate EB bill for the given units using if statement.

16. Write a PL/SQL block to handle built-in exception like No_DATA_FOUND, TOO_MANY_ROWS.

17. Write a PL/SQL block to create and handle user defined exception.

18. Write a PL/SQL block to use procedure and function and get the result.

19. Write a PL/SQL trigger to update the records while deleting the one record in another table.

20. Create a table to store the salary details of the employees in a company. Declare the cursor id to contain employee number, employee name and net salary. Use cursor to update the employee salaries.
HARDWARE REQUIRED
1. A Server with Oracle 8i or higher (Oracle 10g is preferred)
2. 36 computers networked and configured with TCP/IP.

SOFTWARE REQUIRED
1. SQL *PLUS
2. Microsoft Visual Basic 6.0

***************
AIM:

This laboratory course is an attempt to upgrade and enhance your theoretical skills and provide the hands on experience on .net programming. By the end of these practical sessions of this course, the students will be able to write programs using VB.NET and ASP.Net technologies.

OBJECTIVES

On completion of the following exercises, the students must be able to

- Develop and execute simple programs using VB.NET
- Understand the concepts of event handlers.
- Know the usage of various VB.Net controls
- Create VB.NET applications using menus.
- Access SQL database by using ADO.NET
- Use web controls.
- Create web pages using ASP.NET
- Create web services
- Develop XML database handling methodologies

SCHEME OF INSTRUCTION AND EXAMINATION

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<td>ASP.NET PROGRAMMING LABORATORY</td>
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LAB EXERCISES

1. Accept a character from console and check the case of the character.
2. Write a program to accept any character from keyboard and display whether it is vowel or not.
3. Write a VB.Net program to accept a string and convert the case of the characters.
4. Develop a menu based VB.Net application to implement a text editor with cut, copy, paste, save and close operations.
5. Write a program to implement a calculator with memory and recall operations.
6. Develop a Form in VB.NET to pick a date from Calendar control and display the day, month, year details in separate text boxes.

7. Develop a VB.Net application to perform timer based quiz of 10 questions.

8. Develop a VB.Net application using the File, Directory and Directory controls to implement a common dialog box.

9. Develop a database application to store the details of students using ADO.NET

10. Develop a database application using ADO.NET to insert, modify, update and delete operations.

11. Develop a VB.Net application using Datagrid to display records.

12. Develop a VB.Net application using Datagrid to add, edit and modify records.

**ASP.NET**

13. Create a simple ASP.NET page to Output Text with a form, two HTML text boxes, an HTML button, and an HTML `<span>` element. Create an event procedure for the button.

14. Create a web controls to a page with three different controls to the ASP.NET page for reserving rooms in hotel. The three controls are a button control, a label control, and a drop-down list control.

15. Create a application for Accessing a SQL Database by Using ADO.NET by connecting to the SQL Server database and call a stored procedure. You then display the data in a Repeater control.

16. Create a web services application for calling a Web service for a hotel named full. And you will call another Web service for a hotel named Empty, and then retrieve information regarding room availability. The Web service for the Full hotel is named Hotel_Full.dll. The Web service for the Empty hotel is named Hotel_Empty.dll. There are five methods in each service.

   1. Reserve takes room types and start and end dates and returns a Boolean value that indicates whether a room is available.
      
      ```
      <WebMethod()> public Function Reserve (strRoomType1 As String, strRoomType2 As String,
       dtmStartDate As Date, dtmEndDate As Date) As Boolean
      ```

   2. Price returns a double value that is the cost of the rent for one day
      
      ```
      <WebMethod()> public Function Price( strRoomType1 As String) As Double
      ```

   3. Description returns a string that describes the hotel.
      
      ```
      <WebMethod()> public Function Description() As String
      ```

   4. Room returns a string that describes the rooms of the hotel.
      
      ```
      <WebMethod()> public Function Room() As String
      ```

   5. Food returns a string that describes the food available at the hotel.
      
      ```
      <WebMethod()> public Function Food() As String.
      ```
Software Required:

- Net Frame Work
- VB.Net
- ASP.Net

Hardware Required:

- Computer with Pentium IV / Dual core Processors. – 36 Nos

***************
AIM:

This laboratory will provide students the knowledge of writing assembly language programs using ARM and will also have a hands on exercises based on RTOS. After completion, students will be able to write assembly language programs for interfacing with stepper motor and temperature sensor.

OBJECTIVES:

On completion of the following exercises, the students must be able to

- Write simple assembly language programs.
- Write programs for character based LCD interface.
- Interfacing with temperature sensor and stepper motor.
- Implement problems based on RTOS.

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LAB EXERCISES

1. Write a Simple Assembly Programs for  
   a) Addition  
   b) Subtraction  
   c) Multiplication  
   d) Division

2. Write Programs for  
   a) Bit digital Output – LED interface  
   b) 8 bit Digital inputs (Switch interface)

3. Write programs for  
   a) 4 x 4 Matrix keyboard Interface  
   b) Buzzer interface  
   c) Relay interface

4. Write a program for character based LCD interface.

5. Write a program for Analog to Digital Conversion (Onchip ADC)

6. Write Programs for I²C Device interface :  
   a) Serial EEPROM  
   b) Seven Segment LED Display Interface  
   c) Real Time Clock.

7. Interface with Temperature Sensor

8. Stepper Motor Interface.
HANDS ON EXERCISES BASED ON RTOS

9. Write a simple program with two separate LED Blinking tasks.

10. Implement Priority Scheduling and OS Time Delay Functions by writing 3 different UART Transmitting Tasks.

11. Implement OS Real Time Multitasking by writing a multitasking program with the tasks 
a) Interface RTC and Display on LCD First Line Continuously.
b) Interface ADC and Display on LCD Second Line Continuously.

12. Implement OS Real Time multitasking by implementing three tasks.
   a) Read the Key input and display on Seven Segment LED.
   b) Read the ADC Analog Input and Plot the Corresponding signal on a graphical LCD.
   c) Generate a PWM signal with X on Time and Y off Time.

13. Interface a Stepper motor and Control the speed of rotation by implementing RTOS delay functions.

***************
AIM:
A computer engineer should be able to install and maintain keyboard, printer, mouse, monitor etc along with the computer system. The course provides the necessary knowledge and skills regarding working, construction and interfacing aspects of peripherals. The students will get to know how various peripherals communicate with central processing unit of the computer system and pattern their respective operations. This subject provide the required background of computer installation, maintenance and testing of peripheral with micro computers

OBJECTIVES:
On completion of the following units of syllabus contents, the students must be able to

- Know the evolution of Personal Computer from PC through Pentium, and Laptop.
- Know and explain the major components that make up the system unit.
- Know the data process and store them in meaningful information.
- Explain about the principle of operations of Keyboard, mouse and Displays.
- Understand the components of media system.
- Know the Basics, working principle, specification, and modern technology of different types of drives.
- Know specification of I/O Ports of all I/O devices like serial, parallel, USB – Game port, Blue tooth and IP Connectors
- Know technology of high quality multiple color graphic output devices like Dot matrix, Inkjet, Laser and computer system.
- Acquire information about the modern devices like digital camera, scanners, web camera, and Biometric devices like Thump Scanner, Iris Scanner, and speech synthesizer.
- Understand the operation of internetworking devices like Modem, router and firewall.
- Know the aspects related to room preparation, air conditioning, flooring and ceiling and clean Power and Supply.
- Understand the common problems in the computer system and the peripherals
- Trouble shoots the problems in Personal computers.
- Troubles shoot the problems in Computer peripherals.
- Use of different troubleshooting tools.
- Explain diagnostic Software.
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<td>INSIDE THE PC</td>
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<td>II</td>
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<td>III</td>
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<td>IV</td>
<td>I/O DEVICES AND POWER SUPPLY</td>
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DETAILED SYLLABUS

UNIT – I   INSIDE THE PC   16 Hours

1.1 Introduction: Evolution of Computer – Block diagram of Pentium - Inside the Pentium – Parts - Mother board, chipset, expansion slots, memory, Power supply, drives and connectors


1.3 Mother Board: Evolution – Different forms of mother boards - Riser Architectures. Intel, AMD and VIA motherboards.

1.4 Chipsets: Introduction – 945 chipset.


UNIT II MEMORY AND DAUGHTER BOARDS 18 HOURS


2.5 Display adapter: Introduction - VGA and SVGA cards, flickering, Demagnetizing and precautions.


UNIT III DISK DRIVES 16 Hours


3.3 Special type of drives: Zip drive, Memory stick, USB-flash drive, IPod Dock version and installation.

3.4 I/O Ports: Serial – Parallel – USB – Game Port – Blue tooth interface, IR connector, Signal specification problems with interfaces.

UNIT IV I/O DEVICES AND POWER SUPPLY 18 Hours


4.5 Web Camera, Biometric devices: Thump scanner, Iris scanner, speech synthesizer - operation and installation - Trouble shooting.


UNIT V TROUBLE SHOOTING PC


5.2 Installation practice: Routine checks - Preventive maintenance - problem causes, peripheral and general precautions.

5.3 Trouble shooting tools: Multimeter, logic probe, logic analyzer – operation

5.4 Faults elimination process: Dead system spurious problem - security failures - heartbeats and multiple faults - Systematic trouble shooting - Symptoms observation – analysis - Fault diagnosis and fault rectification.

5.5 POST: Definition – IPL hardware – POST Test sequence – beep codes and error messages.

5.6 Diagnostic Software and Viruses: Computer Viruses – Precautions – Anti-virus Software – identify the signature of viruses – Firewalls and latest diagnostic softwares.

REFERENCE BOOKS

<table>
<thead>
<tr>
<th>S No</th>
<th>TITLE</th>
<th>AUTHOR</th>
<th>PUBLISHER</th>
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<tbody>
<tr>
<td>1.</td>
<td>IBM PC and CLONES</td>
<td>B.Govindrajalu</td>
<td>Tata McGrawhill Publishers</td>
</tr>
<tr>
<td>4.</td>
<td>The complete PC upgrade and Maintenance</td>
<td>Mark Minasi</td>
<td>BPB Publication</td>
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<tr>
<td>5.</td>
<td>Inside the PC</td>
<td>Peter Norton</td>
<td>Tech Media</td>
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AIM:

The main aim of the subject is to deal with fundamental issues of mobile computing. Some of the important topics discussed in the course are: wireless communication fundamentals, wireless LAN, Bluetooth technology and Wireless Application protocols.

OBJECTIVES:

- Know the basics of wireless communications
- Discuss different types multiplexing.
- Explain four basic multiple access versions of Medium access control.
- Describe services and architecture of GSM in Telecommunication systems.
- Know the concept of Wireless LAN
- Describe IEEE 802.11 architecture.
- Explain HIPERLAN and its architecture.
- Define Bluetooth.
- Explain Bluetooth protocol architecture.
- Explain the importance of Bluetooth security.
- Study Mobile Network Layer and its configuration.
- Explain Dynamic Host Configuration Protocol.
- Differentiate different routing techniques.
- Describe Mobile Transport layer and its configuration.
- Narrate the architecture of Wireless Application Protocol.
- List down the advantages of WAP.
- Explain Wireless Markup Language.
- Describe about WMLScript.

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DETAILED SYLLABUS

UNIT I  WIRELESS COMMUNICATION FUNDAMENTALS  18 Hours


1.5 Cellular Wireless Networks : Overview of cellular system – operation of cellular system – Adjacent Channel Interference – Methods of reducing ACI – Frequency reuse concept – Diversity technique – Improving coverage and capacity in cellular systems.

UNIT II  WIRELESS LOCAL AREA NETWORK  16 Hours


UNIT III  BLUETOOTH TECHNOLOGY  16 Hours


UNIT IV MOBILE NETWORK LAYER 18 Hours


4.2 Dynamic Host Configuration protocol: History – Applications of DHCP – DHCP Protocol : Significance and importance of DHCP


4.4 Transport Layer : Traditional TCP - Congestion control – Slow start – Fast retransmit/fast recovery – Classical TCP improvements: Indirect TCP – Snooping TCP – Mobile TCP

UNIT V WIRELESS APPLICATION PROTOCOL 16 Hours

5.1 WAP : Introduction – Main Objectives – Integration of WAP components – Stack arrangement with WAP – WAP network – Protocol stack of WAP - WAP client architecture - WAP network architecture

5.2 WAP (2.0): Advantages – Main architectural components of WAP 2.0 – WAP Programming model – Uses of WAP 2.0 additional services.

REFERENCE BOOKS

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<tr>
<td>2.</td>
<td>Wireless Communication of Networks</td>
<td>William Stallings</td>
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2. Explain about HIPERLAN protocol architecture.  [5]

(OR)

B. 1. Discuss in detail about MAC frames.  [10]


2. Compare wireless LAN and Bluetooth technology.  [5]
B. 1. Briefly explain about security manager in Bluetooth. [10]

IV A. 1. Explain about Tunneling and encapsulation in Mobile Network Layer. [5]
   2. Explain the term “Congestion control” in transport layer. [5]

   (OR)

B. 1. Briefly explain about the different types of routing. [10]

V A. 1. List the main objectives and advantages of WAP. [5]
   2. Explain about the main architectural components of WAP 2.0. [5]

   (OR)

B. 1. Explain about the protocol stack of WAP with a neat diagram. [10]
CEK 631 SOFTWARE ENGINEERING

AIM:
The aim of the subject is to make the learner efficiently work as software engineer. S/he should be well acquainted with all the phases of Software Development Life Cycle and software testing. The learner should be able to apply the concepts learned for developing software applications.

OBJECTIVES:
On completion of the following units of syllabus contents, the students must be able to

- Define Software Engineering
- Understand the evolution and characteristics of Software Engineering
- Explain different software development models.
- Learn about the phases of software development cycle.
- Understand the significance of requirement analysis
- Know various tools and techniques used for requirement analysis.
- Understand architectural and modular design
- Understand the different types of project metrics
- Understand different software estimation techniques
- Describe CASE.
- Explain about software maintenance
- Need for software maintenance
- Identify and manage risks
- Know the different scheduling methods.
- Define the basic terms used in testing terminology.
- Describe black box and white box testing
- Describe some testing tools.
- Understand the concepts of Software quality and quality assurance
- Know the concepts of software reliability and software quality standards
- Define software re-engineering.
- Differentiate forward engineering from re-engineering

SCHEME OF INSTRUCTION AND EXAMINATION

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DETAILED SYLLABUS

UNIT- I INTRODUCTION TO SOFTWARE ENGINEERING 18 Hours


UNIT- II SOFTWARE DESIGN AND PLANNING 16 Hours

2.1 Software Design : Definition of software design – Objectives of software design – Process of software design – Architectural design – Modular design – Structure chart – Coupling and Cohesion – different types – Interface design – Design of human computer interface


UNIT- III SOFTWARE MAINTENANCE AND RISK MANAGEMENT 16 Hours

3.1 Software Maintenance: Software as an evolution entity – Software configuration management activities – Change control process – Software version control – Software configuration management – Need for maintenance – Categories of maintenance – Maintenance cost – factors affecting the effort – Modelling maintenance effort


3.3 Project scheduling: Introduction – Factors affecting the task set for the project – scheduling methods – Work breakdown structure – Flow graph – Gant chart - PERT

UNIT - IV SOFTWARE TESTING 18 Hours


4.2 Levels of testing: Unit testing - Integration testing – System testing – types.


4.4 Testing Tools: Different categories of tools – Examples for commercial software testing tool.

UNIT V SOFTWARE RELIABILITY AND QUALITY ASSURANCE 16 Hours


5.2 Software Reliability: Definition – Reliability terminologies – Classification of failures – Reliability metrics – Reliability growth modeling - Reliability measurement process

**REFERENCE BOOKS:**

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<td>Software Engineering</td>
<td>Ian Sommerville</td>
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<td>Software Engineering</td>
<td>Sajan Mathew</td>
<td>S. Chand &amp; Company Ltd</td>
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<td>5</td>
<td>Software Engineering fundamentals</td>
<td>Ali Behforooz and Fredick J Hudson</td>
<td>Oxford University press, 2005</td>
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<td>Software Testing techniques</td>
<td>Bories Beizer</td>
<td>Dream Tech Press, 2004</td>
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***************
AIM:
Multimedia is a new concept emerged in the recent times. Now this technology is being widely used in web pages, motion pictures and interactive presentations, animation etc. Multimedia has made a significant impact in training/education, business presentations, public information access etc. This course intends to introduce and expose multimedia technology and various factors and features of authoring software. It will also help in making the internet application richer in content and presentation

OBJECTIVES:
On completion of the following units of syllabus contents, the students must be able to

- Know the overall idea of Multimedia
- Define color combination
- Create drawing and animate the drawing
- Know the idea of systems
- Identify the Components of multimedia
- Edit Text, Database, Spreadsheets
- List the basic software tools.
- Use of multimedia authoring tools.
- Know about Fonts, Character sets, HTML document, Symbols and icons
- Explain about the tools for web
- Know about sound, file formats
- Edit sound, Audio Recording and Tracking of sounds
- Differentiate Analog versus Digital Video
- Design of web pages
- Explain the responsibility of multimedia development team.
- Understand multimedia development process.

SCHEME OF INSTRUCTION AND EXAMINATION

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DETAILED SYLLABUS

UNIT I  INTRODUCTION TO MULTIMEDIA  15 Hours

1.1 Introduction: Definitions - Brief history of Multimedia; its market; content and copyright – public Domain, establishment of Copyright, fair use, multimedia copyright issues; resources for multimedia developers – Uses of multimedia - Making multimedia: Stages of a project


1.3 Product and Evolution: Types of products - briefing, reference, database, education and training, Kiosk, entertainment and games; evaluation - the user's perspective, the developer's perspective, strategies for new developers

UNIT II  MULTIMEDIA HARDWARE AND SOFTWARE  18 Hours


2.2 Basic Software Tools: Text Editing - Word Processing - OCR Software - Painting and Drawing Tools - 3D Modeling and Animation Tools - Image Editing - Sound Editing – Animation – Video - Digital Movie tools - Movie Editors - Compressing Movie Files


2.4 Multimedia authoring tools: Types of authoring tools – card and page based authoring tools – Icon based authoring tools – Time based authoring tools.

UNIT III  MULTIMEDIA BUILDING BLOCKS  18 Hours


UNIT IV MULTIMEDIA AND THE INTERNET 17 Hours


UNIT V DESIGNING OF PROJECTS 16 Hours

5.1 Multimedia File Handling: Compression & De compression - Data & file formats standards - Digital voice, Audio, video – Video image and Animation - Full motion video - storage and retrieval Technologies

5.2 Multimedia Development Team: Team approach - sponsor - client- Customer - Project manager - Project designer - other key personnel - subject matter expert - programmer - Editor - copywriter - Graphic artist - support team - marketing and sales support - assembling a Multimedia production team - sizing a Multimedia team - small or one person project - average team project - big project

5.3 The Multimedia development process: Multimedia development issues - multimedia project - structured Multimedia development - Multimedia project timing - sample project - costing a Multimedia project - cost modeling- other costing issues
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<tr>
<td>1.</td>
<td>Multimedia making it work</td>
<td>Tay Vaughan</td>
<td>Tata McGrawHill, Delhi</td>
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<td>2.</td>
<td>Multimedia – Technology and applications</td>
<td>David Hillman</td>
<td>Galgotia Publications, Delhi</td>
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***************
AIM:

The course aims at making the students familiar with various parts of computers and how to assemble them, and different types of peripherals desired. In addition, the course will provide the students with necessary knowledge and skills in computer software installation and maintenance to make him diagnose software faults.

This subject also gives the knowledge and competency to diagnose the problems in computer hardware and peripherals and also gives the knowledge for trouble shooting for systematic repair and maintenance of computers and computer peripherals.

OBJECTIVES:

On completion of the following exercises, the students must be able to

- Know the various indicators, switches and connectors used in Pentium.
- Familiarize the layout of SMPS, motherboard and various Disk Drives.
- Configure Bios set up options.
- Install various secondary storage Devices with memory partition and Formatting.
- Know the various types of printer installation and to handle the troubleshooting ability.
- Acquire the practical knowledge about the installation of various communication and entertainment devices.
- Handle the audio/video devices, interfacing with PC.
- Setup Video-conference System..
- Assemble PC system and checking the working condition.
- Identify the problems in Pentium systems, software installation and rectification also.

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LAB EXERCISES

1. Identification of System Layout:
   a.) Front panel indicators and switches
   b.) Front side and rear side connectors

2. Familiarize the computer system Layout : Making positions of SMPS, Motherboard, FDD, HDD, CD, DVD and add on cards.

3. BIOS set up: Configuring bios setup program and practicing the trouble shooting of typical problems using BIOS utility.
   a.) Install Hard Disk.
   b.) Configure CMOS-Setup
   c.) Partition HDD using FDISK
   d.) Format Hard Disk.
   e.) Master /Slave / IDE Devices.

4. a.) Install Hard Disk.
   b.) Configure CMOS-Setup
   c.) Partition HDD using FDISK
   d.) Format Hard Disk.
   e.) Master /Slave / IDE Devices.

5. a.) Install and Configure a CD-Writer and a DVD writer.
   b.) Recording a Blank CD and DVD.

6. Printer Installation and Servicing:
   a.) Head Cleaning
   b.) Install and configure Dot matrix printer and Laser printer
   c.) Troubleshoot the above printers.
   d.) Check and connect the data cable connectivity

7. Modem and TV Tuner card Installation:
   a.) Install and configure Internal and External Modem
   b.) Install and Configure TV tuner card.

8. a.) NIC, Router Installation
   b.) Installing NIC, router and Modem for XP / Linux environment.
   c.) Configuring using device drivers
   d.) Diagnosis and trouble shooting.

9. a.) Install audio/video devices – microphone, speaker and head set and Digital camera.
   b.) Trouble shoot the audio-video devices.
10. a.) Install and configure Scanner. Trouble shoot the problems.
    b.) Install and configure Web cam.

11. a.) Identify the problems in Pentium System with add on Cards.
    b.) Identify problems with software installation using drivers available in the motherboard CD.

12. Practice with scan disk, disk cleanup, disk De-fragmenter, Virus Detecting and Rectifying Software

13. Practice with back up and restoring data in a network server using external storage Device

14. Assemble a Pentium (II/III/IV) system with add on cards and check the working condition of the system.

15. Windows XP- Operating system Installation.


17. Install and Set up Dish connection to system.

18. Identify the connectors using wireless devices.

19. Interfacing the cell phone with system.

20. Blue tooth setup.
PC HARDWARE AND SERVICING LABORATORY

HARDWARE REQUIREMENTS

- Computer with Pentium processors with add on cards – 30 Nos
- Hard disk drive – 6 Nos
- CD Drive -- 6 Nos
- DVD Writer -- 6 Nos
- Blank CD’s (CDROM & R/W CD) - 50 Nos
- Blank DVD - 50 Nos
- Head cleaning CD
- Dot matrix Printer - 6 Nos
- Laser Printer - 6 Nos
- External Modem (56 kbps and latest model) - 2 Nos
- TV Tuner card (Internal or External) - 2 Nos
- NIC and Router - 2 Nos
- Stereo Speaker with Microphone (headset) - 6 Nos
- Digital Camera - 2 Nos
- Web Camera - 2 Nos
- Scanner - 2 Nos
- Blue tooth device and cell phone - 2 Nos
- Dish - 1 No
- CPU Trainer Module - 2 Nos
- Tool kit and socket, cable (cat 6)

SOFTWARE REQUIREMENTS

- Windows XP operating system
- Linux operating system
- Disk Manager (for the purpose of partition and format)
- Norton or E-Trust Antivirus software
- Scandisk
- DVD Writer S/W
- CD Burning S/W (Ahead Nero or latest S/W)
AIM:
This course will enable the students to familiarize with the features and use of application packages such as Corel Draw, Photoshop, Adobe indesigner and Adobe illustrator. This subject will develop skills in handling the above packages to develop software for e-publishing.

OBJECTIVES:
On completion of the following exercises, the students must be able to

- Learn all tools and options in CorelDraw.
- Create designs like Bit Notice, Notebook Wrapper, Invitation and Calendar in CorelDraw.
- Learn all tools and options in PhotoShop.
- Create designs using layers, tools, text effects and filters in PhotoShop.
- Learn to use character styles, paragraph styles, text effects and text frame in Adobe Indesign.
- Create master page, multipage document and monthly calender in Adobe Indesign.
- Create designs and paint them with gradient, patterns and brushes in Adobe Illustrator.
- Learn to use multiple layers in Adobe Illustrator.

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LAB EXERCISES

CORELDRAW

1. Create a Bit Notice with specified height and width with various text styles.
2. Create a design using all basic tools and make changes using shape tool.
3. Create a notebook wrapper design using fountain filling and pattern filling tools.
4. Create an invitation using arrange menu commands like transformations, align and distribute, and order.
5. Create a calendar with the help of Grid Tool, Power clip and Import commands.

PHOTO SHOP

6. Create a design by using the various Selection Tools, cutting and pasting the images.
7. Using multiple layers, create a design with the use of masking various images.
8. Create a design by the use of text tools and apply text effects.
9. Change the color of an image by the use of selective coloring method.
10. Create a design by applying the various filtering effects.

ADOBE INDESIGN

11. Create a simple layout and master page by using master page palette and character styles.
12. Create a multipage document by using character, paragraph, autoflow and text wrap commands.
13. Create a stylish monthly calender sheet by using table and its formatting commands.
14. Create a open page using character styles, paragraph styles, text effects, text frame and page numbering.

ADOBE ILLUSTRATOR

15. Create a design by using basic shapes, combining and painting objects.
16. Create a design and paint it with gradient, patterns and brushes.
17. Create a design using pen and brush tools effectively and create a symbol from an object or combined objects.
18. Create a design using multiple layers. Use the commands in layer palette like create layers, rearrange, lock, group, move, copy and paste layers from one file to another file and merge layers.

HARDWARE REQUIREMENTS

- Pentium IV/Dual Core Computers with High Configuration ..... 36 Nos
- Laser printers ..... 2 Nos
- Scanner ..... 2 Nos
SOFTWARE REQUIREMENTS

- CORELDRAW
- PHOTO SHOP
- ADOBE INDESIGN
- ADOBE ILLUSTRATOR

***************
CEK 652  MULTIMEDIA SYSTEMS LABORATORY

AIM:
This subject will help the students to acquire the practical foundation of Multimedia Systems. It includes concepts relating to editing of audio and video. This course also describes major details about the software tools used for multimedia applications. Thus, this subject will develop the knowledge and skill to develop web pages.

OBJECTIVES:
On completion of the following exercises, the students must be able to

- Know over all view of 3D studio max
- Know the application and limitation of 3D studio max
- Know about the flash
- Know the application of Flash
- List the various animating logos
- Know about the page maker
- Know the application and limitation of page maker
- Know the various tools available for drawing
- Know about the photo shop
- Know the application and limitation of photo shop
- Know the special effect tools
- Know over all view of ad premier
- Know the editing of Analog &Digital formats
- Know about the Cell phone software
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LAB EXERCISES

1. Publish Picture on paper using color printer
2. Record the Audio and apply different effects to it
3. Merge the voice and music
4. Record the video from the outside source and compressing it. Use various recording format
5. Mixing the audio and video.
6 a. Develop advertisement in flash for 15 secs.
    b. Design a company logo with animations for 10 secs.
7. Design a cartoon for 15 secs
8. Design a movie clip for 15 secs
9 a. Design a 3D animation picture.
    b. Edit a movie.
11. Convert a text in . Doc format to P D F format.
12. Video and Audio format conversion.
13. Create photo album using Scanner
14. Create photo album using Cell phone
15. Create Video album using Cell phone

SOFTWARE REQUIREMENTS

3D Max , Flash, Animating software, U-lead suite, Adobe Audio Video software CD writing software, Page maker, cell phone software.

HARDWARE REQUIREMENTS

1. Computer system with multimedia & Hard ware configuration Recommended for installing and running the above software
2. Handy cam for video recording with D V D recording facilities
3. Digital camera
4. Camera cell phone
5. Photo quality color printer and Color Scanner
6. Video capturing card

***************
AIM:

Project Work aims at developing innovative skills in the students whereby they apply the knowledge and skills gained through the course by undertaking a project. The individual students have different aptitudes and strengths. Project work, therefore, should match the strengths of students.

The primary emphasis of the project work is to understand and gain the knowledge of the principles of software engineering practices, so as to participate and manage a large software engineering projects in future.

OBJECTIVES:

- Implement the theoretical and practical knowledge gained through the curriculum into an application suitable for a real practical working environment preferably in an industrial environment.
- Develop software packages or applications to implement the actual needs of the community.
- Get exposure on industrial environment and its work ethics.
- Understand what is entrepreneurship and how to become an entrepreneur.
- Learn and understand the gap between the technological knowledge acquired through curriculum and the actual industrial need and to compensate it by acquiring additional knowledge as required.
- Carry out cooperative learning through synchronous guided discussions within the class in key dates, asynchronous document sharing and discussions, as well as to prepare collaborative edition of the final project report.
- Expose students to the field of computing and to gain experience in software design.
- Understand the facts and importance of environmental management.
- Understand and gain knowledge about disaster management.

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119
Minimum Marks for Pass is 50 out of which minimum 35 marks should be obtained out of 75 marks in the board Examination alone.

INTERNAL ASSESSMENT:

The internal assessment should be calculated based on the review of the progress of the work done by the student periodically as follows.

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EVALUATION FOR BOARD EXAMINATION:

<table>
<thead>
<tr>
<th>Details of Mark allocation</th>
<th>Max Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marks for Report Preparation, Demo, Viva-voce</td>
<td>45</td>
</tr>
<tr>
<td>Marks for answers of 15 questions which is to be set by the external examiner from the given question bank consisting of questions in the following three topics Entrepreneurship, Disaster Management and Environmental Management. Out of fifteen questions five questions to appear from each of the above topics i.e. 5 questions x 3 topics = 15 questions 15 questions x 2 marks = 30 Marks</td>
<td>30</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>75</strong></td>
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</tbody>
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SUGGESTIVE AREAS OF PROJECT WORK:

- Database Management Systems
- Computer Networks
- Software Engineering and Software Development
- Web page Designing
- Digital Image Processing
- Computer Graphics and Animation
- Multimedia Systems
- Artificial Intelligence
- Internet and e-commerce
- Computer Security and Cryptography
- Computer hardware and embedded systems
- Computer aided engineering and design
- Improving existing systems / equipments.
- Any other related area found worth.
DETAILED SYLLABUS

ENTREPRENEURSHIP, ENVIRONMENTAL & DISASTER MANAGEMENT

1. ENTREPRENEURSHIP


1.2 Types of Industries - Importance of SSI – Assistance offered – Governmental and Non-Governmental organizations – Identifying prospects of various Small scale industries in your area with resources and other infrastructural facilities available.


1.4 Industrial Zones – industrial Estates - Pollution Control – industries with pollution problem - Marketing assistance

1.5 Acquiring common services – repairing – testing facilities – training institutions – suppliers of applied technology.

2. ENVIRONMENTAL MANAGEMENT

2.1 Introduction – Environmental Ethics – Assessment of Socio Economic Impact – Environmental Audit – Mitigation of adverse impact on Environment – Importance of Pollution Control – Types of Industries and Industrial Pollution.

2.2 Solid waste management – Characteristics of Industrial wastes – Methods of Collection, transfer and disposal of solid wastes – Converting waste to energy – Hazardous waste management Treatment technologies.

2.3 Waste water management – Characteristics of Industrial effluents – Treatment and disposal methods – Pollution of water sources and effects on human health.

2.4 Air pollution management – Sources and effects – Dispersion of air pollutants – Air pollution control methods – Air quality management.

2.5 Noise pollution management – Effects of noise on people – Noise control methods.

3. DISASTER MANAGEMENT

3.1 Introduction – Disasters due to natural calamities such as Earthquake, Rain, Flood, Hurricane, Cyclones etc – Man made Disasters – Crisis due to fires, accidents, strikes etc – Loss of property and life..


LIST OF QUESTIONS

1. ENTREPRENEURSHIP

1 What is entrepreneurship? Explain.
2 Who is a successful entrepreneur? Why?
3 List the various stages of decisions an entrepreneur has to make before reaching the goal of his project.
4 List the types of industries.
5 Define - Small scale industry.
6 What are the qualities of an entrepreneur?
7 What are the expectations of entrepreneurship?
8 What are the various SSI that can flourish in your district?
9 Identify the infrastructural needs for an industry.
10 Identify the natural resources available in your area for starting a SSI.
11 What are the various agencies involved in the establishment and development of various SSI?
12 What are the roles of District Industries Centre?
13 Name some of the agencies funding SSI.
14 What are the various concessions and incentives available for a SSI?
15 List the points to be considered with relation to building, water and electricity before a SSI is started.
16 List the points to be considered with relation to human resource before a SSI is started.
17 Name some consumer products with wide demand that can be manufactured by a SSI?
18 Identify the non-qualified industries that may not be given financial assistance and concessions.
19 What is feasibility study?
20 What is the importance of SSI?
21 List some industries identified as pollution-free industries.
22 List some industries identified as industries with pollution problem.
23 What is an industrial zone?
24 What is an industrial estate?
25 What are the facilities available in an industrial estate?
26 Identify the various training agencies associated with SSI.
27 What is applied technology?
28 From whom you shall get applied technology for starting a SSI?
29 From where you shall get repairing and testing facilities?
30 What are the various training agencies available for acquiring SSI training?
31 List the governmental agencies from whom you shall get financial assistance for a SSI.
32 What are the steps involved in preparing a feasibility report.
33 What are the factors to be considered regarding raw materials for a SSI?
34 Name some SSI that may not need raw materials.
35 Differentiate various classifications of industries.
36 What is a LSI?
37 What are the features of a SSI?
38 Name some products that may not need electricity for production.
39 What are the factors to be considered for starting a SSI?
40 What are the advantages of becoming an entrepreneur?
41 If you opt to be an entrepreneur what are the steps you would take to become a successful entrepreneur.
42 What are the facilities available for a new SSI in an industrial estate?
43 List the various government departments that would be associated with a SSI.
44 Why do entrepreneurs fail?
45 What are the types of entrepreneurs?

2. ENVIRONMENTAL MANAGEMENT
1. What is the responsibility of an Engineer-in-charge of an Industry with respect to Public Health?
2. Define Environmental Ethic.
3. How Industries play their role in polluting the environment?
4. What is the necessity of pollution control? What are all the different organizations you know, which deal with pollution control?
5. List out the different types of pollutions caused by a Chemical / Textile / Leather / Automobile / Cement factory.
6. What is meant by Hazardous waste?
7. Define Industrial waste management.
8. Differentiate between garbage, rubbish, refuse and trash based on their composition and source.
9. Explain briefly how the quantity of solid waste generated in an industry could be reduced.
10. What are the objectives of treatments of solid wastes before disposal?
11. What are the different methods of disposal of solid wastes?
12. Explain how the principle of recycling could be applied in the process of waste minimization.
13. Define the term ‘Environmental Waste Audit’.
14. List and discuss the factors pertinent to the selection of landfill site.
15. Explain the purpose of daily cover in a sanitary landfill and state the minimum desirable depth of daily cover.
17. What actions, a local body such as a municipality could take when the agency appointed for collecting and disposing the solid wastes fails to do the work continuously for number of days?
18. Write a note on Characteristics of hazardous waste.
19. What is the difference between municipal and industrial effluent?
20. List few of the undesirable parameters / pollutants anticipated in the effluents from oil refinery industry / thermal power plants / textile industries / woolen mills / dye industries / electroplating industries / cement plants / leather industries (any two may be asked)
21. Explain briefly the process of Equalization and Neutralization of waste water of varying characteristics discharged from an Industry.
22. Explain briefly the Physical treatments “Sedimentation” and “Floatation” processes in the waste water treatment.
23. Explain briefly when and how chemical / biological treatments are given to the waste water.
24. List the four common advanced waste water treatment processes and the pollutants they remove.
25. Describe refractory organics and the method used to remove them from the effluent.
26. Explain biological nitrification and de-nitrification.
27. Describe the basic approaches to land treatment of Industrial Effluent.
28. Describe the locations for the ultimate disposal of sludge and the treatment steps needed prior to ultimate disposal.
29. List any five Industries, which act as the major sources for Hazardous Air Pollutants.
30. List out the names of any three hazardous air pollutants and their effects on human health.

31. Explain the influence of moisture, temperature and sunlight on the severity of air pollution effects on materials.

32. Differentiate between acute and chronic health effects from Air pollution.

33. Define the term Acid rain and explain how it occurs.

34. Discuss briefly the causes for global warming and its consequences.

35. Suggest suitable Air pollution control devices for a few pollutants and sources.

36. Explain how evaporative emissions and exhaust emissions are commonly controlled.

37. What are the harmful elements present in the automobile smokes? How their presence could be controlled?

38. What is the Advantage of Ozone layer in the atmosphere? State few reasons for its destruction.

39. Explain the mechanism by which hearing damage occurs.

40. List any five effects of noise other than hearing damage.

41. Explain why impulsive noise is more dangerous than steady state noise.

42. Explain briefly the Source – Path – Receiver concept of Noise control.

43. Where silencers or mufflers are used? Explain how they reduce the noise.

44. Describe two techniques to protect the receiver from hearing loss when design / redress for noise control fail.

45. What are the problems faced by the people residing along the side of a railway track and near to an Airport? What provisions could be made in their houses to reduce the problem?
3. DISASTER MANAGEMENT

1. What is meant by Disaster Management? What are the different stages of Disaster management?

2. Differentiate Natural Disasters and Man made Disasters with examples.

3. Describe the necessity of Risk identification and Assessment Surveys while planning a project.

4. What is Disasters recovery and what does it mean to an Industry?

5. What are the factors to be considered while planning the rebuilding works after a major disaster due to flood / cyclone / earthquake? (Any one may be asked)

6. List out the public emergency services available in the state, which could be approached for help during a natural disaster.

7. Specify the role played by an Engineer in the process of Disaster management.

8. What is the cause for Earthquakes? How they are measured? Which parts of India are more vulnerable for frequent earthquakes?

9. What was the cause for the Tsunami 2004 which inflicted heavy loss to life and property along the coast of Tamilnadu? Specify its epicenter and magnitude.

10. Specify the Earthquake Hazard Zones in which the following towns of Tamilnadu lie: (a) Chennai (b) Nagapattinam (c) Coimbatore (d) Madurai (e) Salem.

11. Which parts of India are experiencing frequent natural calamities such as (a) heavy rain fall (b) huge losses due to floods (c) severe cyclones

12. Define basic wind speed. What will be the peak wind speed in (a) Very high damage risk zone – A, (b) High damage risk zone, (c) Low damage risk zone.

13. Specify the minimum distance from the Sea shore and minimum height above the mean sea level, desirable for the location of buildings.

14. Explain how the topography of the site plays a role in the disasters caused by floods and cyclones.

15. Explain how the shape and orientation of buildings could reduce the damages due to cyclones.

16. What is a cyclone shelter? When and where it is provided? What are its requirements?

17. What Precautionary measures have to be taken by the authorities before opening a dam for discharging the excess water into a canal/river?

18. What are the causes for fire accidents? Specify the remedial measures to be taken in buildings to avoid fire accidents.

19. What is a fire escape in multistoried buildings? What are its requirements?

20. How the imamates of a multistory building are to be evacuated in the event of a fire/Chemical spill/Toxic Air Situation/ Terrorist attack, (any one may be asked).

21. Describe different fire fighting arrangements to be provided in an Industry.
22. Explain the necessity of disaster warning systems in Industries.

23. Explain how rescue operations have to be carried out in the case of collapse of buildings due to earthquake / blast / Cyclone / flood.

24. What are the necessary steps to be taken to avoid dangerous epidemics after a flood disaster?

25. What relief works that have to be carried out to save the lives of workers when the factory area is suddenly affected by a dangerous gas leak / sudden flooding?

26. What are the difficulties faced by an Industry when there is a sudden power failure? How such a situation could be managed?

27. What are the difficulties faced by the Management when there is a group clash between the workers? How such a situation could be managed?

28. What will be the problems faced by the management of an Industry when a worker dies because of the failure of a mechanical device due to poor maintenance? How to manage such a situation?

29. What precautionary measures have to be taken to avoid accidents to labourers in the Industry in a workshop / during handling of dangerous Chemicals / during construction of buildings / during the building maintenance works.

30. Explain the necessity of medical care facilities in an Industry / Project site.

31. Explain the necessity of proper training to the employees of Industries dealing with hazardous products, to act during disasters.

32. What type of disaster is expected in coal mines, cotton mills, Oil refineries, ship yards and gas plants?

33. What is meant by Emergency Plan Rehearsal? What are the advantages of such Rehearsals?

34. What action you will take when your employees could not reach the factory site because of continuous strike by Public Transport workers?

35. What immediate actions you will initiate when the quarters of your factory workers are suddenly flooded due to the breach in a nearly lake / dam, during heavy rain?

36. What steps you will take to avoid a break down when the workers union of your Industry have given a strike notice?

37. List out few possible crisis in an organization caused by its workers? What could be the part of the middle level officials in managing such crisis?

38. What types of warning systems are available to alert the people in the case of predicted disasters, such as floods, cyclone etc.

39. Explain the necessity of Team work in the crisis management in an Industry / Local body.

40. What factors are to be considered while fixing compensation to the workers in the case of severe accidents causing disability / death to them?
41. Explain the legal / financial problems the management has to face if safely measures taken by them are found to be in adequate.

42. Describe the importance of insurance to men and machinery of an Industry dealing with dangerous jobs.

43. What precautions have to be taken while storing explosives in a match/ fire crackers factory?

44. What are the arrangements required for emergency rescue works in the case of Atomic Power Plants?

45. Why residential quarters are not constructed nearer to Atomic Power Plants?