



SYLLABUS

DIPLOMA IN COMPUTER ENGINEERING

Course Code: 1052

2011-2012

L - SCHEME



**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

DIPLOMA COURSES IN ENGINEERING/TECHNOLOGY

(SEMESTER SYSTEM)

(Implemented from 2011- 2012)

L – SCHEME

REGULATIONS*

* *Applicable to the Diploma Courses other than Diploma in Hotel Management & Catering Technology and the Diploma Courses offered through MGR Film Institute, Chennai.*

1. Description of the Course:

a. Full Time (3 years)

The Course for the Full Time 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.

b. Sandwich (3½ years)

The Course for the Sandwich Diploma in Engineering shall extend over a period of three and half academic years, consisting of 7 semesters* and the First Year is common to all Engineering Branches. The subjects of three years full time diploma course being regrouped for academic convenience.

During 4th and/or during 7th semester the students undergo industrial training for six months/ one year. Industrial training examination will be conducted after completion of every 6 months of industrial training

c. Part Time (4 years)

The course for the Part Time Diploma in Engineering shall extend over a period of 4 academic years containing of 8 semesters*, the subjects of 3 year full time diploma courses being regrouped for academic convenience.

* Each Semester will have 16 weeks duration of study with 35 hrs. /Week for Regular Diploma Course and 18 hrs. / Week for Part-Time Diploma Course.

The Curriculum for all the 6 Semesters of Diploma courses (Engineering & Special Diploma Courses viz. Textile Technology, Leather Technology, Printing Technology, Chemical Technology etc.) have been revised and revised curriculum is applicable for the candidates admitted from 2011 – 2012 academic year onwards.

2. Condition for Admission:

Condition for admission to the Diploma courses shall be required to have passed in

The S.S.L.C Examination of the Board of Secondary Education, Tamilnadu.

(Or)

The Anglo Indian High School Examination with eligibility for Higher Secondary Course in Tamilnadu

(Or)

The Matriculation Examination of Tamil Nadu.

(Or)

Any other Examinations recognized as equivalent to the above by the Board of Secondary Education, Tamilnadu.

Note: In addition, at the time of admission the candidate will have to satisfy certain minimum requirements, which may be prescribed from time to time.

3. Admission to Second year (Lateral Entry):

A pass in HSC (Academic) # or (Vocational) courses mentioned in the Higher Secondary Schools in Tamilnadu affiliated to the Tamilnadu Higher Secondary Board with eligibility for university Courses of study or equivalent examination, & Should have studied the following subjects

| Sl.No | Courses | H.Sc Academic | | H.Sc Vocational | |
|-------|--|--|--|--|--|
| | | Subjects Studied | Subjects Studied | | |
| | | | Related subjects | Vocational subjects | |
| 1. | All the Regular and Sandwich Diploma Courses | Maths, Physics & Chemistry | Maths / Physics / Chemistry | Related Vocational Subjects Theory & Practical | |
| 2. | Diploma Course in Modern Office Practice | English & Accountancy English & Elements of Economics English & Elements of Commerce | English & Accountancy, English & Elements of Economics, English & Management Principles & Techniques, English & Typewriting | Accountancy & Auditing, Banking, Business Management, Co-operative Management, International Trade, Marketing & Salesmanship, Insurance & Material Management, Office Secretary ship. | |

Subject to the approval of the AICTE

- For the Diploma Courses related with Engineering/Technology, the related / equivalent subjects prescribed along with Practicals may also be taken for arriving the eligibility.
- Branch will be allotted according to merit through counseling by the respective Principal as per communal reservation.
- For admission to the Textile Technology, Leather Technology, Printing Technology, Chemical Technology and Modern Office Practice Diploma courses the candidates studied the related subjects will be given first preference.
- *Candidates who have studied Commerce Subjects are not eligible for Engineering Diploma Courses.*

4. Age Limit:No Age limit.

5. 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 any institution affiliated to the State Board of Technical Education and Training, Tamilnadu, when joined in First Year and two years if joined under Lateral Entry scheme in the second year and passed the prescribed examination.

The minimum and maximum period for completion of Diploma Courses are as given below:

| Diploma Course | Minimum Period | Maximum Period |
|--------------------------|----------------|----------------|
| Full Time | 3 Years | 6 Years |
| Full Time(Lateral Entry) | 2 Years | 5 Years |
| Sandwich | 3½ Years | 6½ Years |
| Part Time | 4 Years | 7 Years |

6. Subjects 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 practical subjects. The curriculum outline is given in Annexure - I

7. 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 internal assessment marks for 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 internal assessment and 75 marks are allotted for Board Examination.

8. Continuous Internal Assessment:

A. For Theory Subjects:

The Internal Assessment marks for a total of 25 marks, which are to be distributed as follows:

i) Subject Attendance

5 Marks

(Award of marks for subject attendance to each subject Theory/Practical will be as per the range given below)

| | |
|------------|---------|
| 80% - 83% | 1 Mark |
| 84% - 87% | 2 Marks |
| 88% - 91% | 3 Marks |
| 92% - 95% | 4 Marks |
| 96% - 100% | 5 Marks |

ii) Test #

10 Marks

2 Tests each of 2 hours duration for a total of 50 marks are to be conducted. Out of which the best one will be taken and the marks to be reduced to:

05 marks

The Test – III is to be the Model test covering all the five units and the marks so obtained will be reduced to :

05 marks

Total 10 marks

| TEST | UNITS | WHEN TO CONDUCT | MARKS | DURATION |
|----------|--|------------------------------|-------|----------|
| Test I | Unit – I & II | End of 6 th week | 50 | 2 Hrs |
| Test II | Unit – III & IV | End of 12 th week | 50 | 2 Hrs |
| Test III | Model Examination - Compulsory Covering all the 5 Units. (Board Examinations-question paper-pattern). | End of 16 th week | 75 | 3 Hrs |

- From the Academic year 2011-2012 onwards.

Question Paper Pattern for the Periodical Test :(Test - I & Test- II)

| | | |
|-----------------------------|--------|----------|
| 14 Questions X 1 mark | | 14 marks |
| 6 Questions X 6 marks | | 36 marks |
| (OR) 3 Questions X 12 marks | | ----- |
| Total | | 50 marks |
| | | ----- |

iii) 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 notebooks after getting the signature with date from the students must be kept in the safe custody in the Department for verification and audit. It should be preserved for 2 Semesters and produced to the flying squad and the inspection team at the time of inspection/verification.

B. For Practical Subjects:

The Internal Assessment mark for a total of 25 marks which are to be distributed as follows:-

| | | | | |
|----|--|---|-----------------|--|
| a) | Attendance | : | 5 Marks | (Award of marks same as theory subjects) |
| b) | Procedure/ observation and tabulation/ Other Practical related Work | : | 10 Marks | |
| c) | Record writing | : | 10 Marks | |
| | TOTAL | : | 25 Marks | |

- All the Experiments/Exercises indicated in the syllabus should be completed and the same to be given for final Board examinations.
- 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 to be added to arrive at the internal assessment mark for Practical. (20+5=25 marks)
- The students have to submit the duly signed bonafide record note book/file during the Practical Board Examinations.
- All the marks awarded for assignments, Tests and attendance should be entered in the Personal Log Book of the staff, who is handling the subject. This is applicable to both Theory and Practical subjects.

9. Communication and Life Skills Practical:

The Communication and Life Skills 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:

- ❖ Monodic Communication
 - ❖ Dyadic Communication
 - ❖ Professional Communication
 - ❖ Pronunciation
 - ❖ Writing Resumes
 - ❖ Interview Techniques
- Sessional Mark

..... **25 Marks**

10. Project Work:

The students of all the Diploma Courses (**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 Project work must be reviewed twice in the same semester.**

a) Internal assessment mark for Project Work & Viva Voce:

| | | |
|-------------------|-----|--|
| Project Review I | ... | 10 marks |
| Project Review II | ... | 10 marks |
| Attendance | ... | 05 marks (Award of marks same as theory Subject pattern) |
| ----- | | |
| Total | ... | 25 marks |
| ----- | | |

Proper record to be maintained for the two Project Reviews, and It should be preserved for 2 Semesters and produced to the flying squad and the inspection team at the time of inspection/verification.

b) Allocation of Marks for Project Work & Viva Voce in Board Examinations:

| | | |
|----------------------------|-----|-----------------|
| Viva Voce | ... | 25 marks |
| Demonstration/Presentation | ... | 20 marks |
| ----- | | |
| Total | ... | 45 marks |
| ----- | | |

c) Written Test Mark (from 3 topics for 1 hour duration): \$

| | | | |
|----------------------------|-----------------------|---|-----------------|
| i) Entrepreneurship | 5 questions X 2 marks | = | 10 marks |
| ii) Environment Management | 5 questions X 2 marks | = | 10 marks |
| iii) Disaster Management | 5 questions X 2 marks | = | 10 marks |
| ----- | | | |
| 30 marks | | | |
| ----- | | | |

\$ - Selection of Questions should be from Question Bank, by the External Examiner.
No choice need be given to the candidates.

| | | |
|---|----|-----------------|
| Project Work & Viva Voce in Board Examination | -- | 45 Marks |
| Written Test Mark (from 3 topics for 1 hour duration) | -- | 30 Marks |
| TOTAL | -- | 75 Marks |

A neatly prepared PROJECT REPORT as per the format has to be submitted by individual student during the Project Work & Viva Voce Board examination.

11. Scheme of Examinations:

The Scheme of examinations for subjects is given in **Annexure - II**.

12. 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 curriculum.
2. A candidate shall be declared to have passed the examination in a subject if he/she secures not less than *40% in theory subjects* and *50% in practical subjects* out of the total prescribed maximum marks including both the Internal Assessment and the Board Examinations marks put together, subject to the condition that he/she secures at least a minimum of *30 marks out of 75 marks in the Board Theory Examinations and a minimum of 35 marks out of 75 marks in the Board Practical Examinations*.

13. Classification of successful candidates:

Classification of candidates who passed out the final examinations from April 2014 onwards (Joined in first year in 2011-2012) will be done as specified below.

First Class with Distinction:

A candidate will be declared to have passed in **First Class with Distinction** if he/she secures not less than 75% of the aggregate marks in all semesters put together except I and II semesters and passes all the above semesters in the first appearance itself and completes all subjects including that of I & II semesters 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 subjects including that of the I & II semesters 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 classifications are also applicable for the Sandwich / Part-Time students who passed out Final Examination from October 2014 /April 2015 onwards (both joined in First Year in 2011-2012)

14. Duration of a period in the Class Time Table:

The duration of each period of instruction 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).

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DIPLOMA IN COMPUTER ENGINEERING
(L- SCHEME)
SALIENT FEATURES IN PROPOSED CURRICULUM

- Modern topics relevant to the needs of the industry and global scenario that suits Diploma education are incorporated in the curriculum.
- The number of teaching hours allotted to a particular topic/chapter has been rationalized keeping in view the past experience.
- With increased emphasis in acquiring practical skills, the course content of all the subject is thoroughly reviewed. While the course content in certain subjects is reduced, in others, the content has been enriched to suit the advancements in the fields.
- An effort has been made to improve the life skills and personality of the students by restructuring the English Communication Practical through incorporating skills practices. This trains the students to become globally employable.
- Information Technology has great influence on all aspects of life. Almost all work places and living environment remain computerized. In order to prepare diploma holders to work in these environments, they are exposed to various aspects of information technology such as Computer operations, use of various tools of MS office and internet browsing. This exposure will enable the students to enter their profession with confidence, live in a harmonious way and contribute to productivity. Hence, the subject “Computer Applications Practical “ is introduced in the third Semester.
- C is a general-purpose structural language that is powerful, efficient and compact, which combines features of both high-level language and low-level language. It is closer to both Man and Machine. Due to this inherent flexibility and tolerance, it is suitable for different development environments. Due to these powerful features, C has not lost its importance and popularity in recently developed and advanced software industry. C can also be used for system level programming and it is still considered as first priority programming language.
- 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. And also Data Structure course will help students to develop the capability of selecting a particular data structure. So both C language and data structure are important for computer students. Hence the subject C and Data structure was divided into two subjects (i) C Programming and (ii) Data structures using C.
- The course “Concepts of Advanced Computing “ is introduced to enable the students to work on current technology scenario as well as prepare them to keep pace with the changing facet of technology and the requirements of the ever growing IT industry.

- The mobile computing subject content is restructured by adding emerging technologies such as Bluetooth, SMS Protocol , GSM and CDMA cellular systems , 2G , 3G and 4G cellular System.
- Multimedia is being widely used in web pages, motion pictures and interactive presentations, animations etc., Multimedia has made a significant impact in training/education, business presentations, public information access etc. The syllabus of multimedia system and multimedia systems practical has been modified to introduce and expose multimedia technology and also various factors and features of authoring software. It will also help in making the internet application richer in content and presentation.
- Large companies and organizations rely more and more on IT resources. This has created a large demand for a new job in the market – System Administrator. Hence, a new subject “ System Administration Practical “ is introduced in Sixth Semester. This Course provides a fairly general practical knowledge in System Administration and covers both Linux and Windows 2003/2008 O.S.
- Appropriate measures have been taken to include promotion of Open Source Software such as Linux, PHP, MySQL in both theory and practical courses. Hence more hands-on experience and good working knowledge to work in Linux environments have been introduced.
- The subject PC Hardware and Servicing was restructured by deleting obsolete portions and also by adding areas with Laptop Maintenance and Servicing.
- The curriculum is designed to make a visit to any organisation / industry and make a detailed study about the networks used and include the report of the above study in the record. This is mainly aimed in improving the practical skills of the students and makes them ready to cater to the needs of Industry with hands on experience and with a very good practical vision.
- More stress has been given to the topics , Computer Security and Software Testing.
- Every effort has been made while restructuring the curriculum to make the students readily employable.
- This is done through grouping and aligning allied subjects and also eliminating discrete and obsolete topics, paving way for more inputs from technical visits and shop floor experience.

DIPLOMA IN COMPUTER ENGINEERING – L SCHEME

COMPARISON BETWEEN “K” SCHEME AND “L” SCHEME

| K SCHEME | L SCHEME |
|--|--|
| THIRD SEMESTER | |
| BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING | <ul style="list-style-type: none"> DC Motor and AC Motors - Deleted Concept of Stepper Motor , Servo Motor and UPS – Introduced |
| C AND DATA STRUCTURES | <ul style="list-style-type: none"> Subject was split into two subjects - (i) C Programming and (ii) Data Structures Using C (Fourth Semester) |
| OPERATING SYSTEM | <ul style="list-style-type: none"> The last unit “LINUX Commands” have been removed – A detailed case study on LINUX operating system replaces the above topic |
| ELECTRICAL AND ELECTRONICS PRACTICAL | <ul style="list-style-type: none"> Exercises on single phase transformer have been added. |
| C AND DATA STRUCTURES PRACTICAL | <ul style="list-style-type: none"> Divided into two Practical (i) C Programming Practical and (ii) Data structures using C Practical |
| OPERATING SYSTEM PRACTICAL | <ul style="list-style-type: none"> The title for the Practical has been renamed as LINUX PRACTICAL. More emphasis is given to the use of Linux commands and Shell Programming. |
| NEW SUBJECT INTRODUCED | |
| COMPUTER APPLICATIONS PRACTICAL | |

| FOURTH SEMESTER | |
|---|---|
| COMPUTER ARCHITECTURE AND ASSEMBLY LANGUAGE PROGRAMMING | <ul style="list-style-type: none"> Assembly Language Programming is deleted from the syllabus and the title The title has been modified as “COMPUTER ARCHITECTURE”. The concept of Advanced Processors was introduced in the place of Assembly language. |
| INTERNET AND WEB DESIGN | <ul style="list-style-type: none"> This subject has been shifted to Fifth Semester. |
| OBJECT ORIENTED PROGRAMMING WITH JAVA | <ul style="list-style-type: none"> JDBC Concepts and Networking with JAVA – Deleted |
| WEB DESIGNING PRACTICAL | <ul style="list-style-type: none"> This subject has been shifted to Fifth Semester. |
| JAVA PROGRAMMING PRACTICAL | <ul style="list-style-type: none"> Retained |
| ENGLISH COMMUNICATION PRACTICAL | <ul style="list-style-type: none"> Title of the subject is renamed as “ Communication and Life skills practical” |

| NEW SUBJECTS INTRODUCED | |
|--------------------------------|--|
| COMPUTER NETWORKS AND SECURITY | <ul style="list-style-type: none"> This subject has been brought from Fifth Semester. More emphasis is given to Computer Security topics. |
| DATA STRUCTURES USING C | <ul style="list-style-type: none"> A New Practical is introduced |

| FIFTH SEMESTER | |
|--|---|
| COMPUTER NETWORKS AND SECURITY | <ul style="list-style-type: none"> This subject is shifted to fourth semester. More emphasis have been given to Computer Security topics. |
| RELATIONAL DATABASE MANAGEMENT SYSTEMS | <ul style="list-style-type: none"> More topics are added in SQL and PL/SQL part. |
| .NET PROGRAMMING – ELECTIVE PAPER | <ul style="list-style-type: none"> This subject is made as Core paper. |
| EMBEDDED SYSTEMS | <ul style="list-style-type: none"> Deleted |
| COMPUTER NETWORKS AND SECURITY PRACTICAL | <ul style="list-style-type: none"> Combined with Computer Servicing Practical in Sixth Semester. |
| RELATIONAL DATABASE MANAGEMENT SYSTEMS PRACTICAL | <ul style="list-style-type: none"> More exercises are given in SQL, PL/SQL part. |
| NEW SUBJECTS INTRODUCED | |
| WEB PROGRAMMING | <ul style="list-style-type: none"> This subject is shifted from fourth semester. AJAX Programming is Introduced. |
| CONCEPTS OF ADVANCED COMPUTING - ELECTIVE PAPER) | <ul style="list-style-type: none"> Concepts of Cloud Computing and Pervasive Computing have been introduced |
| SOFTWARE ENGINEERING - ELECTIVE PAPER) | <ul style="list-style-type: none"> Shifted from Sixth Semester. More emphasis is given to Software Testing . |
| WEB PROGRAMMING PRACTICAL | <ul style="list-style-type: none"> Exercises based on AJAX are included. A small Project work containing ten web pages is made compulsory |

| SIXTH SEMESTER | |
|--------------------------|---|
| PC HARDWRE AND SERVICING | <ul style="list-style-type: none"> Subject is renamed as “ COMPUTER HARDWARE AND SERVICING” Obsolete topics are deleted and topics related laptop computers and the maintenance and troubleshooting of laptops have been introduced . |
| MOBILE COMPUTING | <ul style="list-style-type: none"> Most of the portions , which are irrelevant to the present scenario are deleted. Short Message Services Protocol, Emerging technologies (3G and 4G) , mobile Operating Systems (upto Android) have been introduced. |

| | |
|--|--|
| MULTIMEDIA SYSTEMS – ELECTIVE PAPER | <ul style="list-style-type: none"> Retained – Topics relating to obsolete technologies are removed. |
| SOFTWARE ENGINEERING - ELECTIVE PAPER | <ul style="list-style-type: none"> Shifted to Fifth Semester as Elective paper. More emphasis was given to software Testing topics |
| MULTIMEDIA SYSTEM PRACTICAL - ELECTIVE PAPER | <ul style="list-style-type: none"> Syllabus was completely modified to suit the latest technologies and software. |
| E- PUBLISHING PRACTICAL - ELECTIVE PAPER | <ul style="list-style-type: none"> Deleted - Removed – Some of the essential Exercised have been shifted to MULTIMEDIA SYSTEMS PRACTICAL . |
| PC HARDWARE AND SERVICING PRACTICAL | <ul style="list-style-type: none"> Renamed as “ COMPUTER SERVICING AND NETWORKING “ Practical “PC Hardware and Servicing” and “Computer Networks and Security Practical” – Combined and named as “COMPUTER SERVICING AND NETWORKING “Practical. Irrelevant and obsolete exercises are removed from both practical. Making a visit to any organization to get an exposure on networking available in the premises is made a compulsory part of the practical. |
| NEW SUBJECTS INTRODUCED | |
| OPEN SOURCES SOFTWARE – ELECTIVE | <ul style="list-style-type: none"> Much more focus is given to Open Source Operating Systems (LINUX) and Open Source Software (PHP, MySQL and PYTHON) |
| SYSTEM ADMINISTRATION PRACTICAL | <ul style="list-style-type: none"> This subject is newly introduced , since companies and organizations rely more and more on IT resources and there is a large demand for a new job in a market place – System Administrator. This Course Provides a fairly general practical knowledge in System Administration . This covers both Linux and Windows 2003/2008 O.S. |
| SOFTWARE ENGINEERING (ELECTIVE PAPER) | <ul style="list-style-type: none"> Shifted from Sixth Semester Elective paper. More emphasis is given to Software Testing. |
| OPEN SOURCE SOFTWARES PRACTICAL | <ul style="list-style-type: none"> Exercises have been given in PHP, PYTHON and MySql. Installing of web servers can also be taught in this course. |

EMPLOYMENT OPPORTUNITIES FOR DIPLOMA HOLDERS IN COMPUTER ENGINEERING

Diploma holders in computer engineering can find employment in the following areas:

- Service Division (IT enabled services, maintenance service and installation of computers)
- Assembly and Quality Control Division (Computer Manufacturing Units)
- Marketing Division (Corporate Handling, SME, Institutional Segment, Government Tender Business)
- Telecommunication Sector
- Teaching Organizations (Engineering Colleges, Polytechnics, Vocational Institutions , Industrial Training Institutes etc)
- Networking(LAN, WAN etc)
- Defense services
- Call Centers, BPO etc.
- Multimedia development Divisions
- Computer Software Development divisions
- Web site development division

While in employment, the following areas of activity in different organizations (industry and service sector) are visualized for diploma holders in Computer Engineering:

- Assembly and Installation of computer systems, peripherals and software
- Programming customer based applications including web page designing
- Creating multimedia applications
- Testing and Maintenance of computer systems
- Marketing of software and hardware.
- Establishing Computer Networks
- Administration of Computer Network
- Teaching and training, Lab Maintenance at Educational institutions
- Self employment – call centers, BPO, EPO etc.
- Network installation and maintenance
- Cyber Cafés

Various Designations for Diploma Holders in Computer Engineering Wage Employment

- Service engineer/customer support engineer/maintenance engineer in installation, maintenance and service of computer systems and networking
- Assembly supervisor in manufacturing and production activity
- Data entry operator, computer operator, DTP operator, technician
- Technical Assistant/junior engineer in quality control and testing activities of computer systems manufacturing
- Junior marketing executive/junior sales executive/sales engineer in marketing activities
- Junior/senior technical assistant in R&D laboratories

- System administrator / Lab Assistant / Instructor in educational institutions to help in maintaining computers and networks
- Test engineers in process industry
- Programmer / Multimedia Developer/ Web designer
- Network Administrator.

Self Employment

- Small scale unit doing third party service and maintenance of computer systems and networks
- Small scale vendor of computer cards, computer peripherals and electronic components and devices
- Setting up of computer assembly unit (small scale)
- Setting up of training institute for computer assembly, maintenance and networking and also training in Software packages.

COMPETENCY PROFILE OF DIPLOMA HOLDERS IN COMPUTER ENGINEERING

Based on the job opportunities, activity profile and domains of learning of diploma holders in Computer Engineering in view, the course is aimed at developing following competency profile in terms of knowledge and skills in the students:

1. Understand the basic concepts of Electrical and Electronics Engineering
2. Understand the working of computers and peripherals
3. Ability in installing computer system including software loading
4. Understand of the functioning and administration of various operating systems
5. Knowledge about computer system architecture and organization
6. Ability in writing computer programs in high level languages
7. Understand software maintenance and methods of testing the software.
8. Knowledge of data structure and programming techniques
9. Understand databases and knowledge of database management system
10. Competency in operating computer systems and ability in using various application software
11. Knowledge of principles of digital data transmission, communication methodologies, protocols and networking equipment used in data transmission and concept of network security
12. Ability in assembling and disassembling of computers
13. Troubleshooting of Desktop computers, Laptop computers and Peripherals.
14. Ability in developing multimedia applications using animation tools
15. Proficiency in developing a software using systematic steps
16. Competency in using diagnostic test programmes to test hardware and modifying hardware
17. Understand the basic concept of network technology local area network (LAN) and wide area network (WAN)
18. Establish local area networks
19. Understand of system software and ability in designing and using applications software

20. Awareness on technological advancements and emerging areas of development
21. Knowledge in current trends in Information Technology and web technology.
22. Understand multimedia and its applications
23. Understanding and using open source software
24. Understanding System Administration
25. Knowledge in principles of management and entrepreneurship to manage resource optimally, various techniques of economy and quality and Awareness of opportunity available for setting up one's own enterprise and its benefit
26. Development of generic skills of thinking, problem solving, communication and interpersonal skills for effective functioning in the working environment

CURRICULUM AREAS DERIVED FROM COMPETENCY PROFILE

| S.No | Competency Profile | Curriculum Areas/Subjects |
|------|---|---|
| 1 | Understand the basic concepts of Electrical and Electronics Engineering | <ul style="list-style-type: none"> • Basic Electrical and Electronics Engineering |
| 2 | Understand the working of computers and peripherals | <ul style="list-style-type: none"> • Basic Electronics Engineering • Computer Hardware and Servicing |
| 3 | Ability in installing computer system including software loading | <ul style="list-style-type: none"> • Computer Hardware and Servicing • System Administration Practical |
| 4 | Understand of the functioning and administration of various operating systems | <ul style="list-style-type: none"> • Operating Systems |
| 5. | Knowledge about computer system architecture and organization | <ul style="list-style-type: none"> • Computer Architecture |
| 6 | Ability in writing computer programs in high level languages | <ul style="list-style-type: none"> • C Programming • .NET Programming |
| 7 | Understand software maintenance and methods of testing the software. | <ul style="list-style-type: none"> • Software Engineering |
| 8 | Knowledge of data structure and programming techniques | <ul style="list-style-type: none"> • Data structure using C • Object oriented Programming with Java Programming |

| | | |
|----|---|--|
| 9 | Understand databases and knowledge of database management system | <ul style="list-style-type: none"> • Relational Database Management Systems |
| 10 | Competency in operating computer systems and ability in using various application software | <ul style="list-style-type: none"> • Operating Systems • Multimedia Systems |
| 11 | Knowledge of principles of digital data transmission, communication methodologies, protocols and networking equipment used in data transmission and concept of network security | <ul style="list-style-type: none"> • Computer Networks and security |
| 12 | Ability in assembling and disassembling of computers | <ul style="list-style-type: none"> • Computer Hardware and Servicing |
| 13 | Troubleshooting of Desktop computers, Laptop computers and Peripherals | <ul style="list-style-type: none"> • Computer Hardware and Servicing |
| 14 | Ability in developing multimedia applications using animation tools | <ul style="list-style-type: none"> • Multimedia Systems |
| 15 | Proficiency in developing a software using systematic steps | <ul style="list-style-type: none"> • Software Engineering • C Programming |
| 16 | Competency in using diagnostic test programmes to test hardware and modifying hardware | <ul style="list-style-type: none"> • Electrical and Electronics Engineering • Computer Hardware and Servicing |
| 17 | Understand the basic concept of network technology local area network (LAN) and wide area network (WAN) | <ul style="list-style-type: none"> • Computer Networks and Security |
| 18 | Establish local area networks | <ul style="list-style-type: none"> • Computer Networks |
| 19 | Understand of system software and ability in designing and using applications software | <ul style="list-style-type: none"> • Software engineering |
| 20 | Awareness on technological advancements and emerging areas of development | <ul style="list-style-type: none"> • Advanced Computing • Mobile Computing • Computer Servicing and Maintenance |
| 21 | Knowledge of current trends in Information Technology and web technology. | <ul style="list-style-type: none"> • Web Programming |
| 22 | Understand multimedia and its applications | <ul style="list-style-type: none"> • Multimedia Systems |
| 23 | Understanding and using open source software | <ul style="list-style-type: none"> • Open Source Software |

| | | |
|----|---|--|
| 24 | Understanding System Administration | <ul style="list-style-type: none"> • System Administration |
| 25 | Knowledge of principles of management and entrepreneurship to manage resource optimally, various techniques of economy and quality and Awareness of opportunity available for setting up one's own enterprise and its benefit | <ul style="list-style-type: none"> • Project work and Entrepreneurship |
| 26 | Development of generic skills of thinking, problem solving, communication and interpersonal skills for effective functioning in the working environment | <ul style="list-style-type: none"> • Project work • Communication and Life skill |

ANNEXURE - I

CURRICULUM OUTLINE

THIRD SEMESTER

| Subject Code | SUBJECT | HOURS PER WEEK | | | |
|--------------|--|----------------|--------------------|-----------------|-------------|
| | | Theory Hours | Tutorial / Drawing | Practical hours | Total Hours |
| 25231 | Basics of Electrical & Electronics Engineering | 5 | - | - | 5 |
| 25232 | Operating Systems | 5 | - | - | 5 |
| 25233 | C Programming | 5 | - | - | 5 |
| 25234 | Electrical & Electronics Practical | - | - | 6 | 6 |
| 25235 | Linux Practical | - | - | 4 | 4 |
| 25236 | C Programming Practical | - | - | 6 | 6 |
| 20001 | Computer Applications Practical** | - | - | 4 | 4 |
| TOTAL | | 15 | - | 20 | 35 |

FOURTH SEMESTER

| Subject Code | SUBJECT | HOURS PER WEEK | | | |
|--------------|---|----------------|--------------------|-----------------|-------------|
| | | Theory Hours | Tutorial / Drawing | Practical hours | Total Hours |
| 25241 | Computer Architecture | 5 | - | - | 5 |
| 25242 | Computer Networks and Security | 4 | - | - | 4 |
| 25243 | Object Oriented Programming with Java | 5 | - | - | 5 |
| 25244 | Data Structures using C | 5 | - | - | 5 |
| 25245 | Java Programming Practical | - | - | 6 | 6 |
| 25246 | Data Structures using C Practical | - | - | 6 | 6 |
| 20002 | Communication and Life Skills Practical** | - | - | 4 | 4 |
| TOTAL | | 19 | - | 16 | 35 |

** Common with all Branches of Diploma in Engineering/Technology

CURRICULUM OUTLINE

FIFTH SEMESTER

| Subject Code | SUBJECT | HOURS PER WEEK | | | |
|--------------|--|----------------|--------------------|-----------------|-------------|
| | | Theory Hours | Tutorial / Drawing | Practical hours | Total Hours |
| 25251 | Web Programming | 5 | - | - | 5 |
| 25252 | Relational Database and Management Systems | 5 | - | - | 5 |
| 25253 | .NET Programming | 4 | - | - | 4 |
| | ELECTIVE - I - THEORY | 5 | - | - | 5 |
| 25271 | a. Concepts of Advanced Computing | - | - | - | - |
| 25272 | b. Software Engineering | - | - | - | - |
| 25255 | Web Programming Practical | - | - | 4 | 4 |
| 25256 | Relational Database and Management Systems Practical | - | - | 6 | 6 |
| 25257 | .NET Programming Practical | - | - | 6 | 6 |
| TOTAL | | 19 | - | 16 | 35 |

SIXTH SEMESTER

| Subject Code | SUBJECT | HOURS PER WEEK | | | |
|--------------|--|----------------|--------------------|-----------------|-------------|
| | | Theory Hours | Tutorial / Drawing | Practical hours | Total Hours |
| 25261 | Computer Hardware and Servicing | 6 | - | - | 5 |
| 25262 | Mobile Computing | 6 | - | - | 6 |
| | ELECTIVE –II THEORY | 5 | - | - | 6 |
| 25281 | a. Multimedia Systems | - | - | | |
| 25282 | b. Open Source Software | - | - | | |
| 25264 | Computer Servicing and Network Practical | - | - | 4 | 4 |
| 25265 | System Administration Practical | - | - | 4 | 4 |
| | ELECTIVE – II -PRACTICAL | - | - | 4 | 4 |
| 25283 | a. Multimedia Systems Practical | | - | - | - |
| 25284 | b. Open Source Software Practical | - | - | - | - |
| 25267 | Project work and Entrepreneurship | - | - | 6 | 6 |
| TOTAL | | 17 | - | 18 | 35 |

ANNEXURE - II
SCHEME OF THE EXAMINATION

THIRD SEMESTER

| Subject Code | SUBJECT | Examination Marks | | | Minimum for pass | Duration of Exam Hours |
|--------------|--|---------------------------|-------------------|------------|------------------|------------------------|
| | | Internal Assessment Marks | Board Exam. Marks | Total Mark | | |
| 25231 | Basics of Electrical & Electronics Engineering | 25 | 75 | 100 | 40 | 3 |
| 25232 | Operating Systems | 25 | 75 | 100 | 40 | 3 |
| 25233 | C Programming | 25 | 75 | 100 | 40 | 3 |
| 25234 | Electrical & Electronics Practical | 25 | 75 | 100 | 50 | 3 |
| 25235 | Linux Practical | 25 | 75 | 100 | 50 | 3 |
| 25236 | C Programming Practical | 25 | 75 | 100 | 50 | 3 |
| 20001 | Computer Applications Practical | 25 | 75 | 100 | 50 | 3 |
| | | 175 | 525 | 700 | | |

FOURTH SEMESTER

| Subject Code | SUBJECT | Examination Marks | | | Minimum for pass | Duration of Exam Hours |
|--------------|--|---------------------------|------------------|------------|------------------|------------------------|
| | | Internal Assessment Marks | Board Exam Marks | Total Mark | | |
| 25241 | Computer Architecture | 25 | 75 | 100 | 40 | 3 |
| 25242 | Computer Networks and Security | 25 | 75 | 100 | 40 | 3 |
| 25243 | Object Oriented Programming with Java | 25 | 75 | 100 | 40 | 3 |
| 25244 | Data Structures using C | 25 | 75 | 100 | 40 | 3 |
| 25245 | Java Programming Practical | 25 | 75 | 100 | 50 | 3 |
| 25246 | Data Structures using C Practical | 25 | 75 | 100 | 50 | 3 |
| 20002 | Communication and Life Skill Practical | 25 | 75 | 100 | 50 | 3 |
| TOTAL | | 175 | 525 | 700 | | |

SCHEME OF THE EXAMINATION

FIFTH SEMESTER

| Subject Code | SUBJECT | Examination Marks | | | Minimum for pass | Duration of Exam Hours |
|--------------|--|---------------------------|-------------------|------------|------------------|------------------------|
| | | Internal Assessment Marks | Board Exam. Marks | Total Mark | | |
| 25251 | Web Programming | 25 | 75 | 100 | 40 | 3 |
| 25252 | Relational Database and Management Systems | 25 | 75 | 100 | 40 | 3 |
| 25253 | .NET Programming | 25 | 75 | 100 | 40 | 3 |
| 2527X | ELECTIVE - I - THEORY | 25 | 75 | 100 | 40 | 3 |
| 25255 | Web Programming Practical | 25 | 75 | 100 | 50 | 3 |
| 25256 | Relational Database and Management Systems Practical | 25 | 75 | 100 | 50 | 3 |
| 25257 | .NET Programming Practical | 25 | 75 | 100 | 50 | 3 |
| TOTAL | | 175 | 525 | 700 | | |

SIXTH SEMESTER

| Subject Code | SUBJECT | Examination Marks | | | Minimum for pass | Duration of Exam Hours |
|--------------|--|---------------------------|------------------|------------|------------------|------------------------|
| | | Internal Assessment Marks | Board Exam Marks | Total Mark | | |
| 25261 | Computer Hardware and Servicing | 25 | 75 | 100 | 40 | 3 |
| 25262 | Mobile Computing | 25 | 75 | 100 | 40 | 3 |
| 2528X | ELECTIVE –II THEORY | 25 | 75 | 100 | 40 | 3 |
| 25264 | Computer Servicing and Network Practical | 25 | 75 | 100 | 50 | 3 |
| 25265 | System Administration Practical | 25 | 75 | 100 | 50 | 3 |
| 2528X | ELECTIVE – II -PRACTICAL | 25 | 75 | 100 | 50 | 3 |
| 25267 | Project work and Entrepreneurship | 25 | 75 | 100 | 50 | 3 |
| TOTAL | | 175 | 525 | 700 | | |

III SEMESTER



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

**25231 - BASICS OF ELECTRICAL AND
ELECTRONICS ENGINEERING**

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25231
Semester : III Semester
Subject Title : **BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|--|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING | 5 | 80 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|-------------------|---|-------------|
| I | FUNDAMENTALS OF DC and AC | 13 |
| II | TRANSFORMER , SPECIAL MOTORS, UPS AND ELECTRICAL SAFETY | 15 |
| III | ANALOG DEVICES | 15 |
| IV | BOOLEAN ALGEBRA AND LOGIC GATES | 13 |
| V | SEQUENTIAL LOGIC SYSTEM | 14 |
| TEST AND REVISION | | 10 |
| TOTAL | | 80 |

RATIONALE

Diploma Engineers from all branches of Engineering are expected to have some basic knowledge of Electrical and Electronics Engineering. Also the technicians working in different engineering fields have to deal with various types of electrical equipments. Various types of electronics circuits are used in different electrical equipments. Hence it is necessary to study electric circuits, different types of electrical machines and electronic devices, their principles and working characteristics. The basic concepts studied in this subject will be very useful for understanding of higher level subjects in further study.

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 Kirchoff's Laws.
- Know the concept of series and parallel circuits.
- Understand DC and AC fundamentals.
- Understand the working principles of transformer circuits.
- Know about Stepper motors and Servo Motors.
- To explore the electrical safety.
- Familiarize with semi conductor devices, rectifier circuits, transistors and its applications.
- Use Binary, Octal and Hexadecimal numbers.
- Define logic gates.
- Describe the significance of Boolean algebra in digital circuits.
- Understand the working principles of sequential and combinational logical circuits.
- Define flip-flops and describe behaviour of various flip-flops.
- Differentiate asynchronous counters from synchronous counters.
- Draw and explain the circuit diagram of shift registers.

DETAILED SYLLABUS

| UNIT-I FUNDAMENTALS OF DC and AC | | 13 Hours |
|---|--|-----------------------|
| 1.1 | DC Circuits: Definition and Units of Voltage, Current, Potential Difference, Power, Energy, Resistance, Conductance, Resistivity - Concepts of open and short circuit - Ohm's Law – Limitations of Ohms law - Kirchoff's Current and Voltage law (Definition only) - Series circuits - Parallel circuits – Series Parallel Circuits – Simple problems on Ohm's law. | 5 Hrs |
| 1.2. | AC Fundamentals: Difference between AC and DC - Advantages of AC over DC – Waveform of sinusoidal A.C. Cycle – Generation of single phase A.C. by elementary alternator - Definition of cycle, frequency, time period, amplitude, peak value, average value and rms value – Define peak factor and form factor - Concept of phase , phase difference and phase angle – Single phase and 3 phase (Definition) - Meaning of lagging and leading sine wave - Advantages of three phase over single phase | 6 Hrs |
| 1.3. | Batteries: Classification of cells - Construction of Lead acid cell – Methods of charging – Care and Maintenance of Lead acid battery – Indications of a fully charge battery – Maintenance free batteries. | 2 Hrs |

| UNIT-II TRANSFORMER, SPECIAL MOTORS, UPS AND ELECTRICAL SAFETY | | 15 Hours |
|---|--|-----------------------|
| 2.1 | Single Phase transformer: Working Principle and Construction of transformer – Brief description of each part – Function and materials used - emf equation of transformer (No derivation) – Voltage and current ratio of a transformer – Efficiency - Losses in a transformer - Auto transformer - Comparison with two winding transformer – Applications – Step up and Step down transformer (Definition only) | 5 Hrs |
| 2.2. | Special Motors: Stepper Motor: Definition - Working principle - Types and applications – Servo motors: Definition - Working principle - Types and applications – Factors to be considered for selecting a motor for a particular application. | 4 Hrs |
| 2.3. | UPS : Need for UPS - Online and Offline UPS – Definition – Block Diagram – Explanation of each block – Merits and demerits of on line and off line UPS – Need of heat sink- Specification and ratings – Maintenance of UPS including batteries | 3 Hrs |
| 2.4. | Electrical Safety: Electric shock – Prevention – Precautions against electric shock– Earthing - Need for earthing - Types of earthing – Plate and Pipe earthing – Fuses : Need – Types of fuses | 3 Hrs |

| UNIT-III ANALOG DEVICES | | 15 Hours |
|--------------------------------|--|-----------------------|
| 3.1 | Semiconductor Diodes: PN Junction diode - Review of P type and N type semiconductors - PN Junction – Barrier Voltage, Depletion Region – Forward biased and Reverse biased Junction – Working principle - forward /Reverse characteristics of P-N Junction diode - Applications of diode - Zener Diode: Construction – Symbol – | 6 Hrs |

| | | |
|------|---|-------|
| | Characteristics (Forward and Reverse) – Avalanche and Zener break down - Applications of Zener diode | |
| 3.2. | Rectifiers: Definition – Need of Rectification – Circuit diagram, Operation, i/p and o/p Waveforms of Half wave - Full wave- Bridge rectifiers (without filters) - Uses of filters in rectifier circuit – Ripple factor, Efficiency and PIV (No derivation) - Comparison | 3 Hrs |
| 3.3. | Bipolar Junction Transistor: Definition - Principle of NPN and PNP transistor - Symbol - Transistor terminals - Operating principle (NPN transistor only) - Configurations of transistor – Comparison between CB, CE and CC - Input and Output characteristics of CE configuration – Transistor application as switch. | 6 Hrs |

| UNIT-IV BOOLEAN ALGEBRA AND LOGIC GATES | | 13 Hours |
|--|---|-----------------------|
| 4.1 | Number representation: Decimal, Binary, Octal and Hexa decimal number systems- Conversion of number from one number system to another (without decimal point) - BCD CODE – ASCII Codes - Parity bit – Use of a parity bit – Odd parity and Even parity | 3 Hrs |
| 4.2. | Logic gates: Positive and Negative logic System - Definition, Truth table, Symbol and Logical equations of AND – OR - NOT – EXOR - EXNOR (Only 2-inputs) gates – Universal gates - NAND - NOR – Symbol and truth table . | 3 Hrs |
| 4.3. | Boolean Algebra : Basic laws of Boolean algebra – Demorgan’s Theorem and proofs – Duality theorem - Simplification of logical equations using Boolean laws - De-Morgan’s theorem – Two variable Karnaugh map | 3 Hrs |
| 4.4. | Arithmetic Circuits: Half Adder and full adder- Truth table, Circuit diagram – Half subtractor and Full subtractor - Truth table, Circuit diagram | 2 Hrs |
| 4.5 | Combinational logic circuits: Multiplexer - De multiplexer – Encoder - Decoder (Definition and Basic Circuits only) – Comparator Circuit for two three bit words. | 2 Hrs |

| UNIT-V SEQUENTIAL LOGIC SYSTEM | | 14 Hours |
|---------------------------------------|--|-----------------------|
| 5.1 | Flip flops: Basic principle of operation - S-R, D flip-flop – Operation and truth table - Race Condition – JK flip flop – T flip flop – Toggling - Edge Triggered Flip-flop – Level Triggered flip flop - Need for a Master-slave flip flop - J-K Master Slave flip flop. | 5 Hrs |
| 5.2. | Counters: Asynchronous counter - 4 bit Asynchronous Counter – Mod N Counter - Decade counter - Synchronous counter – Distinguish between Asynchronous and Synchronous counter - 4 bit Synchronous binary counter – UP/DOWN Counter - Applications of Counters | 6 Hrs |
| 5.3. | Registers: Shift register - Block diagram representation and waveforms of Serial - in Serial - out, Serial – in Parallel – out, Parallel-in Serial – out, Parallel - in Parallel – out – Applications of Shift Registers. | 3 Hrs |

TEXT BOOKS

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|------------------------------------|-------------|---------------------------------|--|
| 1. | Electrical Technology Vol I and II | B.L.Theraja | S.Chand & Co , New Delhi | Mutiple Colour Revised First Edition, 2012 |
| 2. | Modern Digital Electronics | R.P. Jain | Tata Mc-Graw Hill, New Delhi | Third Reprint 2010 |
| 3. | Principles of Digital electronics | K.Meena | PHI learning private Ltd | 2009 |

REFERENCES

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|--|-------------------------------------|---------------------------------|------------------------------|
| 1. | Digital Electronics and Logic Design | Jaydeep Chakravarthy | University Press , Hyderabad | First Edition 2012 |
| 2. | Basic Electrical Engineering | V.N. Mittle | Tata Mc-Graw Hill, New Delhi | First Edition |
| 3. | Basic Electrical and Electronics Engineering | R,Muthusubramanian R.Salivajanan | Tata Mc-Graw Hill, New Delhi | Seventh Reprint 2011 |
| 4.. | Principles of Electronics | V.K. Mehta | S.Chand & Co , New Delhi | Second Edition |
| 5. | Digital Electronics | G.K. Kharate | Oxford University Press | 2010 |

25231 – BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING

MODEL QUESTION PAPER - I

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. State the units of Voltage and Current.
2. What is open Circuit?
3. Define the term: Peak factor.
4. Write down the use of battery.
5. Write down the emf equation of transformer.
6. Mention any one application of stepper motor.
7. Define the term off-line UPS.
- 8.. What is the need for earthing?
9. What do you mean by Zener break down?
10. Mention any one use of a rectifier.
11. Define the term: Ripple factor.
12. Draw the Output Characteristic of Common Emitter Configuration.
13. Convert binary number 101011 to octal number
14. Write down the truth table of EX-OR gate.
15. State the De-Morgan's first theorem.
16. State the use of full adder.
17. Write down the truth table of T flip flop.
18. Define the term " RACING"
19. State any one application of counters.
20. What is the use of shift register?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Define the following terms: (i) Voltage (ii) Current (iii) Power (iv) Resistance [6]
- ii. What are maintenance free batteries? Briefly explain about them. [6]

[OR]

- B i. Three resistors ($R_1=5$ Ohms, $R_2=3$ Ohms, $R_3= 2$ Ohms) are connected in series with 10V supply. Find the voltage drop across each resistor. [6]
- ii. Define and Explain Kirchhoff's laws. [6]

- 22 A. i. Explain the construction and working principle of a transformer [6]
ii. Explain about the working of ON LINE UPS with a neat diagram. [6]

[OR]

- B i. Explain the construction and working principle of stepper motor. [6]
ii. Explain the working principle of auto transformer with a neat diagram. [6]

- 23 A. i. Draw the circuit and Explain the operation of bridge rectifier. [6]
ii. Explain the V-I Characteristic of Zener diode. [6]

[OR]

- B i. Explain with a neat diagram the input and output characteristics of CE configuration. [6]
ii. Compare CB, CE, CC configuration of transistors. [6]

- 24 A. i. Draw Circuits and truth tables for Half adder and full adder. [6]
ii. Explain Comparator circuit for comparing two three bit numbers. [6]

[OR]

- B i. State and prove DeMorgan's theorems. [6]
ii. Explain the basic circuit of Encoder. [6]

- 25 A. i. Draw the circuit diagram of 4 bit shift register and explain. [6]
ii. With a neat diagram explain the operation of a 4 bit ripple counter. [6]

[OR]

- B i. With a neat diagram explain the operation of J-K flip flop [6]
ii. Explain the operation of a Decade counter [6]

25231 – BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING

MODEL QUESTION PAPER - II

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. Define Ohms law.
2. Mention any one method of charging.
3. Define the term "Cycle"
4. State the equivalent resistance of two resistor r_1 and r_2 which are connected in series.
5. What is a auto transformer?
6. What is the use of UPS?
7. State any one application of servo motor.
- 8.. Mention two types of Earthing.
9. Draw the symbol of NPN transistor.
10. Define rectification.
11. State any one application of Zener diode.
12. Draw the characteristic of PN Junction diode.
13. Draw the circuit of half adder.
14. Define positive logic system.
15. Define the term: Even parity.
16. Simplify the Boolean Expression $A+AB+B$
17. What is a flip flop?
18. What is a shift register?
19. Define synchronous counter.
20. What is encoder?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Define following terms: Cycle, Frequency, Amplitude, Average value [6]
ii. Briefly explain about the " Care and maintenance of lead acid battery [6]

[OR]

- B i. Explain the meaning of lagging and leading sine wave. [6]
ii. Explain the following terms: Phase, Phase angle and Phase difference [6]

- 22 A. i. What are the different types of losses in a transformer? Explain. [6]
ii. Explain the working principle of Servo motor [6]

[OR]

- B i. What are the precautions to be taken against electric shock? [6]
ii. With a neat diagram, explain the principle of working of OFF LINE UPS. [6]

- 23 A. i. With a neat diagram, explain the characteristic of PN junction diode. [6]
ii. Explain how a transistor acts as switch. [6]

[OR]

- B i. Draw and explain the operation of a full wave rectifier. [6]
ii. Explain the working principle of transistor. [6]

- 24 A. i. Write down the truth table, symbol and Logical equation of the following 2 [6]
inputs gate- 1. AND gate 2. OR gate 3. X-NOR gate 4. NOR gate
ii. With a neat diagram. explain the operation of 4 x1 multiplexer [6]

[OR]

- B i. Draw the circuit and truth table of Half subtractor and full subtractor [6]
ii. With help of NAND gate, construct AND ,OR and NOT gate [6]

- 25 A. i. Draw the circuit diagram of 4 bit synchronous binary counter and explain. [6]
ii. With a neat diagram explain the operation of SR flip flop. [6]

[OR]

- B i. Explain the operation of a J-K master – Slave flip flop. How the racing is [6]
avoided in J-K master slave flip –flop?
ii. Explain Serial in Parallel out shift register with a neat diagram [6]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25232 – OPERATING SYSTEMS

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25232
Semester : III Semester
Subject Title : **OPERATING SYSTEMS**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|-------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| OPERATING SYSTEMS | 5 | 80 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|-------------------|---|-------------|
| I | INTRODUCTION TO OPEARTING SYSTEMS | 14 |
| II | PROCESS MANAGEMENT | 16 |
| III | MEMORY MANAGEMENT | 15 |
| IV | I/O AND FILE MANAGEMENT , SECURITY AND PROTECTION | 14 |
| V | LINUX – A CASE STUDY | 11 |
| TEST AND REVISION | | 10 |
| TOTAL | | 80 |

RATIONALE

The heart of a computer is based around its Operating System. The processor deals with request coming from all directions asynchronously. The operating system has to deal with the problems of Contention, resource management and both program and user data management, and provide a Useful no-wait user interface. The concept of Operating System is discussed through case studies of LINUX. The course provides clear vision, understanding and working of Operating Systems.

OBJECTIVES

- 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 inter-process communication and synchronization.
- Discuss the usage of semaphore in inter-process communication.
- Understand the conditions for a deadlock.
- Describe the ways to recover from the deadlock.
- Know about 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.
- Identify the security threats and goals.
- Mention the role of security policies.
- Discuss about significance of authentication.
- Describe the features and brief history of Linux.
- Compare UNIX and LINUX.
- Explain LINUX architecture.
- Describe the process management, memory management handled by LINUX.
- Describe file management, device drivers handled by LINUX.

DETAILED SYLLABUS

| UNIT I INTRODUCTION TO OPEARTING SYSTEMS | | 14 HOURS |
|---|---|-----------------------|
| 1.1 | Basics of Operating Systems: Definition – Generations of Operating systems – Types of Operating Systems: Mainframe, Desktop, Multiprocessor, Distributed, Clustered, Multiprogramming, Real time, Embedded and Time sharing. | 5 Hrs |
| 1.2. | Operating System Components: Process Management component - Memory Management component - I/O Management component – File Management component - Protection System – Networking management component – Command interpreter. | 3 Hrs |
| 1.3 | Operating System Services: Process Execution – I/O operations – File manipulations – Communications – Error detection and recovery – Resource allocation – Accounting – System Protection - System Calls – System call Execution | 4 Hrs |
| 1.4. | Operating System Structures: Simple structure, Layered, Monolithic, Microkernel Operating Systems – Concept of Virtual Machine – Booting | 2 Hrs |

| UNIT – II PROCESS MANAGEMENT | | 16 HOURS |
|-------------------------------------|---|-----------------------|
| 2.1. | Processes: Definition – Process Relationship - Process states – Process State transitions - Process Control Block – Context switching – Threads – Concept of multithreads - Benefits of threads – Types of threads | 4 Hrs |
| 2.2. | Process Scheduling: Definition – Scheduling objectives – Types of Schedulers – Scheduling criteria – CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time (Definition only) – Scheduling algorithms – Pre emptive and Non - pre emptive - FCFS – SJF – RR - Multiprocessor scheduling – Types - Performance evaluation of the scheduling. | 6 Hrs |
| 2.3. | Interprocess Communication and Synchronization: Definition – Shared Memory System – Message passing – Critical section – Mutual Exclusion - Semaphores. | 3 Hrs |
| 2.4. | Deadlocks: Definition – Deadlock characteristics – Deadlock Prevention – Deadlock Avoidance – Deadlock detection and Recovery. | 3 Hrs |

| UNIT – III MEMORY MANAGEMENT | | 15 HOURS |
|-------------------------------------|---|-----------------------|
| 3.1. | Basic Memory Management : Definition – Logical and Physical address map – Memory allocation – Contiguous Memory allocation – Fixed and variable partition – Internal and External fragmentation and Compaction – Paging – Principle of operation – Page allocation – Hardware support for paging – Protection and sharing – Disadvantages of paging. | 9 Hrs |

| | | |
|------|---|-------|
| 3.2. | Virtual Memory : Basics of Virtual Memory – Hardware and control structures – Locality of reference, Page fault , Working Set , Dirty page/Dirty bit – Demand paging (Concepts only) – Page Replacement policies – Optimal (OPT) , First in First Out (FIFO), Second Chance (SC), Not recently used (NRU) and Least Recently used (LRU) | 6 Hrs |
|------|---|-------|

| UNIT – IV I/O AND FILE MANAGEMENT , SECURITY AND PROTECTION 14 HOURS | | |
|---|---|-------|
| 4.1. | Disk Management: Disk Structure, Disk Scheduling and its algorithms, RAID TECHNOLOGY. | 4 Hrs |
| 4.2. | File Management: File concept – File attributes – Name, Identifier, Type, Location, Size, Time, Date, user identification – File Operations - Directory Structure – Single level, Two level, Tree Structure – Disk space allocation methods– Contiguous, Linked, Indexed. - Access Methods – Sequential, Random access – File system structure – Byte sequence, Record sequence and Tree-based – Disk formatting | 8 Hrs |
| 4.3. | Security and Protection: Security threats – Security Policies and Mechanisms – Authentications | 2 Hrs |

| UNIT – V LINUX – A CASE STUDY 11 HOURS | | |
|---|--|-------|
| 5.1. | Introduction – History of Linux – Features of Linux- Differences between UNIX and Linux – Linux Architecture - Popular Flavors of Linux - FSF/GNU - Linux Desktop: GNOME-KDE. | 4 Hrs |
| 5.2. | Process Management – Process creation – Process states – Running, Wait, Stopped , Zombie - Process scheduling Information - Memory Management – Access control – Caches – Buffer cache – Page cache – Swap cache – Hardware caches – Page allocation and De-allocation | 4 Hrs |
| 5.3. | File System – ext2 – Virtual File System - Different types of files - File Management – File Security – 3 levels – Mounting file system - Unmounting | 3 Hrs |

TEXT BOOKS

| Sl.No | TITLE | AUTHOR | PUBLISHER | Year of Publishing/Edition |
|-------|-------------------|----------------------------------|-------------------|----------------------------|
| 1. | Operating Systems | Achyut S Godbole and Atul Kahate | TMGH, New Delhi | Second Edition, 2005 |
| 2. | Operating System | Sibsankar Haldas Alex A.anand | Pearson Education | 2009 |

REFERENCES

| Sl.No | TITLE | AUTHOR | PUBLISHER | Year of Publishing/Edition |
|-------|---------------------------------------|-------------------------|--------------------------------|----------------------------|
| 1. | Operating system, Principals & Design | Pal Chaudhury | PHI Learning | First Edition |
| 2. | Operating System | William stalling | Pearson Education, New Delhi . | 2003 |
| 3. | Operating Systems | Deitel and Deitel | Pearson Education, New Delhi . | Third Edition , 2007 |
| 4. | Operating System Concepts | P.S. Gill | Firewall Media | First Edition, 2007 |
| 5. | Operating System | Rohit Khurana ITLESE | Vikas Publishing Ltd | First Edition 2011 |

SEMESTER – III
25232 – OPERATING SYSTEMS
MODEL QUESTION PAPER - I

Time: 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. What is meant by time sharing?
2. What is the main function of scheduler?
3. What is a system call?
4. What are the different types of operating systems?
5. Define context switching.
6. What are the benefits of threads?
7. Define throughput.
8. Define turnaround time.
9. Define paging.
10. Give any two disadvantages of paging.
11. What are the page replacement policies used in memory management?
12. Define dirty page.
13. What are the file attributes used in file concept?
14. What are the file operations performed in file management?
15. Give the types of file system structure.
16. Define disk formatting.
17. Give any two features of Linux.
18. What is the process states used in process management?
19. Define page cache.
20. Give any two differences between Unix and Linux.

PART – B (5 x 12 = 60 Marks)

Answer all questions either A or B from each question. Each question carries 12 Marks

- 21 A. i. Explain Main frame operating system in detail. [6]
ii. Briefly explain about system calls. [6]

[OR]

- B i. Give a brief description of layered systems. [6]
ii. Explain about the error detection and recovery of operating system in detail. [6]

- 22 A. i. Explain deadlock prevention. [6]
ii. Explain deadlock avoidance. [6]

[OR]

- B i. With an example explain shared memory. [6]
ii. Explain message passing techniques. [6]

- 23 A. i. Explain about protection in detail. [6]
ii. Explain about sharing in detail. [6]

[OR]

- B i. Explain locality of reference. [6]
ii. Explain any one page replacement policies with an example. [6]

- 24 A. i. Explain about the file operations used in file management. [6]
ii. Explain about the types of disk formatting in detail. [6]

[OR]

- B i. Explain any one disk scheduling algorithm in detail. [6]
ii. Explain about any two methods of user authentication. [6]

- 25 A. i. Explain about the process states in detail. [6]
ii. Explain about page allocation in detail. [6]

[OR]

- B i. Give a brief account on Linux architecture. [6]
ii. List down the drawbacks of Linux. [6]

25232 – OPERATING SYSTEMS

MODEL QUESTION PAPER - II

Time: 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. List any two components of Operating system.
2. Define Operating system.
3. What is a kernel call?
4. What is a command interpreter?
5. Define context switching.
6. Define scheduling.
7. Define deadlock.
- 8.. Define mutual exclusion.
9. Define demand paging.
10. Define compaction.
11. Define working set.
12. What is page fault?
13. Mention the types of disk scheduling algorithms.
14. Define cylinder.
15. Define tracks.
16. Give the storage formula for calculating the capacity of the hard disk.
17. Define process.
18. What are the types of file system used in Linux?
19. Define buffer cache.
20. What is virtual file system?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Explain about process management. [6]
ii. Explain about the functions of operating system. [6]

[OR]

- B i. Explain about any two types of operating system in detail. [6]
ii. Give a brief account on IO operations used in operating system. [6]

- 22 A. i. Explain any one process scheduling algorithm. [6]
ii. Explain about mutual exclusion. [6]

[OR]

- B i. Explain about critical section in detail. [6]
ii. Explain about semaphores in detail. [6]

- 23 A. i. Explain about the hardware support for paging. [6]
ii. Explain about contiguous memory allocation. [6]

[OR]

- B i. Explain about the hardware and control structures of virtual memory. [6]
ii. Give a brief account on the concepts of demand paging. [6]

- 24 A. i. Explain about the access methods of file management. [6]
ii. Explain about the file system structure in detail. [6]

[OR]

- B i. Explain about any two disk space allocation methods. [6]
ii. Write short notes on security policies and mechanisms used in file management. [6]

- 25 A. i. Explain about the features of Linux in detail. [6]
ii. Give the differences between Unix and Linux. [6]

[OR]

- B i. Explain about page allocation in detail. [6]
ii. Give an account on mounting file system. [6]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25233 - C PROGRAMMING

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25233
Semester : III Semester
Subject Title : **C PROGRAMMING**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|---------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| C PROGRAMMING | 5 | 80 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|-------------------|---|-------------|
| I | PROGRAM DEVELOPMENT AND INTRODUCTION TO C | 16 |
| II | DECISION MAKING, ARRAYS & STRINGS | 13 |
| III | FUNCTIONS, STRUCTURES AND UNIONS | 14 |
| IV | POINTERS | 14 |
| V | FILE MANAGEMENT & PREPROCESSORS | 13 |
| TEST AND REVISION | | 10 |
| TOTAL | | 80 |

RATIONALE

'C' is the most widely used computer language, which is being taught as a core course. C is general-purpose structural language that is powerful, efficient and compact, which combines features of high-level language and low-level language. It is closer to both Man and Machine. Due to this inherent flexibility and tolerance it is suitable for different development environments. Due to these powerful features, C has not lost its importance and popularity in recently developed and advanced software industry. C can also be used for system level programming and it is still considered as first priority programming language. This course covers the basic concepts of C. This course will act as "Programming concept developer" for students. It will also act as "Backbone" for subjects like OOPS, Visual Basic, Windows Programming, JAVA etc.

OBJECTIVES

At the end of the Course, the students will be able to

- Define Program , Algorithm and flow chart
- List down and Explain various program development steps
- Write down algorithm and flow chart for simple problems.
- Describe the concepts of Constants, Variables, Data types and operators.
- Develop programs using input and output operations.
- Understand the structure and usage of different looping and branching statements.
- Define arrays and string handling functions.
- Explain user-defined functions, structures and union.
- Define pointers and using the concept of Pointers.
- Use of command line arguments.
- Define file and explain file handling functions.
- Explain compiler controlled directives.

DETAILED SYLLABUS

| UNIT – I PROGRAM DEVELOPMENT & INTRODUCTION TO C | | 16 HOURS |
|---|---|-----------------------|
| 1.1 | Program: Program Definition - Program development cycle - Programming Languages – Low Level language – High Level Language – Features of a good programming language | 3 Hrs |
| 1.2. | Algorithm and Flow chart: Algorithm – Definition – Properties of an Algorithm – Classification of Algorithms – Algorithm logic - Flow Chart – Importance of Flowchart, Flow chart symbols, Advantages of flow chart – Limitation of flow charts, Algorithm and flow chart for the following problems: Area & circumference of circle, To find the product of first n natural numbers , Largest of 3 numbers, Number odd or even, Factorial of a given number | 3 Hrs |
| 1.3. | Introduction to C : History of C - Features of C Language - Structure of a C program – Execution of C Program : Compiling, Link and Run a program - Diagrammatic representation of program execution process. | 2 Hrs |
| 1.4 | Variables and Constants: C character set – Tokens – Constants - Keywords – identifiers and Variables - Data types and storage – Data type Qualifiers - Declaration of variables – Assigning values to variables – Escape sequences - Defining symbolic constants | 2 Hrs |
| 1.5 | C operators : Arithmetic, Logical, Assignment, Relational, Increment and Decrement, Conditional, Bit wise, Special - Operator Precedence and Associativity - C Expressions – Arithmetic expressions – Evaluation of expressions – Type conversions in expressions – Type cast operator | 4 Hrs |
| 1.6 | I/O statements : Formatted input, formatted output, Unformatted I/O statements | 2 Hrs |
| UNIT – II DECISION MAKING, ARRAYS AND STRINGS | | 13 HOURS |
| 2.1 | Branching: Introduction – Simple if statement - if-else - else-if ladder, nested if-else - Switch statement - go to statement - Simple programs. | 4 Hrs |
| 2.2. | Looping Statements: while, do-while statements, for loop, break & continue statement – Simple programs. | 3 Hrs |
| 2.3. | Arrays: Declaration and initialization of One dimensional, Two dimensional and Character arrays - Accessing array elements – Programs using arrays. | 3 Hrs |
| 2.4 | Strings: Declaration and initialization of string variables, Reading string, Writing strings - String handling functions (strlen(), strcpy(), strcat(), strcmp()) - String manipulation programs. | 3 Hrs |

| UNIT – III FUNCTIONS , STRUCTURES AND UNIONS | | 14 HOURS |
|---|--|-----------------------|
| 3.1 | Built-in functions: Math functions - Console I/O functions - Standard I/O functions - Character Oriented functions - Graphical functions – Simple programs | 3 Hrs |
| 3.2. | User defined Functions: Need of user defined functions, Scope and Life time of variables, Defining functions, Function call (call by value, call by reference), Return values, storage classes. Category of function (No argument No return value, No argument with return value, Argument with return value , Argument with no return value) – Recursion – Simple programs | 7 Hrs |
| 3.3. | Structures and Unions: Structure - Definition, Initialization, Arrays of Structures, Arrays within structures, Structures within structures, Structures and functions – Unions – Structure of Union - Difference between Union and structure – Simple programs | 4 Hrs |

| UNIT – IV POINTERS | | 14 HOURS |
|---------------------------|---|-----------------------|
| 4.1. | Pointers: Introduction – Advantages of Pointers - Accessing the address of a variable - Declaring and initializing pointers - Accessing a variable through its pointer - Pointers expressions, Increments and scale factor - Array of pointers - Relation between Pointers and Arrays - String manipulation using pointers – Limitation of array of pointers to strings - Pointers and functions, Pointers and structures – Function returning pointer and passing addresses to functions - Pointers to pointers – Programs using pointer. | 10 Hrs |
| 4.2. | Dynamic memory Management : Introduction - functions - Memory allocation process – Allocating a block of memory : MALLOC – Allocation of multiple blocks of memory : CALLOC – Releasing the used space : FREE – Altering the size of the block : REALLOC - Simple programs | 4 Hrs |

| UNIT – V FILE MANAGEMENT & PREPROCESSORS | | 13 HOURS |
|---|--|-----------------------|
| 5.1 | File Management : Introduction – Defining and Opening a file - Closing a file - Input/output operations on files – Error handling during I/O Operations - Random access to files – Programs using files | 8 Hrs |
| 5.2. | Command line arguments : Introduction – argv and argc arguments - Programs using Command Line Arguments - Programs | 2 Hrs |
| 5.3 | The Preprocessor: Introduction - Macro substitution, File inclusion, Compiler control directives | 3 Hrs |

TEXT BOOKS

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|-----------------------|----------------|------------------------------|-------------------------------|
| 1. | Programming in ANSI C | E.Balagurusamy | Tata Mc-Graw Hill, New Delhi | 2006, 3 rd Edition |

REFERENCES

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|---|-------------------------------|--|------------------------------------|
| 1. | Programming and Problem solving using C | ISR D Group , Lucknow | Tata Mc-Graw Hill, New Delhi | Sixth Reprint 2010 |
| 2. | Let us C | Yeswanth Kanetkar | BPB Publications | Fourth Revised Edition |
| 3. | A Text Book on C | E.Karthikeyan | PHI Private Limited, New Delhi | 2008 |
| 4. | Programming in C | D.Ravichandran | New Age International Publishers, Chennai | First Edition 1996 Reprint 2011 |
| 5. | Computer Concepts and Programming in C | Dr.S.S.Khandare | S.Chand & Company Ltd. New Delhi | First Edition 2010 |
| 6. | Complete Knowledge in C | Sukhendu Dey, Debobrata Dutta | Narosa Publishing House, New Delhi | Reprint 2010 |
| 7. | Programming in C | Reema Theraja | Oxford University Press | First Edition 2011 |
| 8. | Practical C Programming | Steve Oualline | O' Reilly , Shroff Publishers and Distributors | Eleventh Indian Reprint Oct 2010 |

SEMESTER - III
25233 – C PROGRAMMING
MODEL QUESTION PAPER - I

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. Define Algorithm.
2. What is an identifier?
3. What is an operator?
4. Write down the syntax of scanf() function.
5. What is the use of goto statement?
6. When the statement continue is used ?
7. Write down the syntax of if else statement.
8. Define two dimensional array.
9. What are predefined functions?
10. What do you mean by call by reference?
11. What is union?
12. What is the use of struct keyword?
13. Define pointer.
14. When is a null pointer used?
15. What are the functions to allocate memory at runtime in C?
16. Define static memory allocation.
17. What is meant by preprocessor?
18. What role is played by the #undef directive?
19. Define a file.
20. What is the use of argv()?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Explain in detail about the structure of a C program with an example. [6]
- ii. Explain the various operators in C with one example for each operator. [6]

[OR]

- B i. Discuss the Program development cycle in detail. [6]
- ii. Explain about the formatted and unformatted I/O statements in C. [6]

- 22 A. i. Explain for statement with syntax and an example. [6]
ii. How does switch statement differ from if statement. Give examples [6]

[OR]

- B i. Discuss the different types of if statements with an example. [6]
ii. Write a program to read a list of n elements and find the minimum number using array. [6]

- 23 A. i. Explain structure with syntax and example. [4]
ii. Explain call by reference with an example. [8]

[OR]

- B i. Explain about array within structure with example. [6]
ii. How does the function work? Explain how arguments are passed and results are returned. [6]

- 24 A. i. What are the advantages of using pointers? How are pointers declared & initialized. [6]
ii. Write a program to demonstrate malloc() and free() functions. [6]

[OR]

- B i. How the value of variable is accessed using pointers? Give examples. [6]
ii. Differentiate the static and dynamic memory allocation. [6]

- 25 A. i. Explain the 3 major categories of the C preprocessor directive. [4]
ii. A file VOCUBULARY contains 1000 words. Write a program to write in another file WORDS the words beginning with the character S or s from the 1000 words. [8]

[OR]

- B i. Explain about error handling in files. [6]
ii. Define macro and explain its various types with example. [6]

SEMESTER - III

25233 – C PROGRAMMING
MODEL QUESTION PAPER - II

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. What is a flow chart?
2. What are keywords?
3. Differentiate constant and variables.
4. What do you mean by High level language?
5. What is the use of switch statement?
6. Differentiate while & do .. while statement.
7. Define the term "Array".
8. What is NULL character? Why is it important?
9. List any two library functions.
10. Is it possible to call library functions recursively?
11. What is the feature of Structure?
12. How is data stored in Union?
13. How would you free memory in C?
14. Define Dynamic memory allocation.
15. State any one advantage of Pointers.
16. What are the operators associated with Pointers?
17. What is conditional compilation?
18. What are the different modes of files?
19. What is command line argument?
20. Write a feature of preprocessor.

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Draw a flowchart to find the product of first N natural numbers. [6]
- ii. Briefly explain about the various data types in C language. [6]

[OR]

- B i. Write in detail about Constants and its classification. [6]
- ii. Write a C program to find the biggest number between given three numbers using a single statement by using conditional operator. [6]

- 22 A. i. Write a program to print the Fibonacci series upto 100. [6]
ii. Write in detail about the difference between break and continue statements with example. [6]

[OR]

- B i. What are String handling functions? State the use of each function with examples. [6]
ii. Write a C program to find whether the given word is palindrome or not. [6]
- 23 A. i. Explain about user defined function with an example. [6]
ii. Write a program to print your date of birth using a structure. [6]

[OR]

- B i. Explain about parameter passing methods with example. [6]
ii. Define a structure tag "Population" with fields Men and Women. Create structure within structure using state and population structure. Read and display data. [6]
- 24 A. i. Differentiate between array of Pointers and Pointers to array with example. [6]
ii. Explain the various Dynamic memory allocation functions with simple example. [6]

[OR]

- B i. Using pointers, reverse the given integer array of N elements. [6]
ii. Write a program to demonstrate realloc() function. [6]
- 25 A. i. Explain about Command line argument with an example. [6]
ii. How to open and close a file? Explain different modes of files. [6]

[OR]

- B i. Write a short note on C Preprocessors [6]
ii. Given a text file, write a program to create another text file deleting the words "a", "an", "the" and replacing each one of them with a blank space. [6]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25234 – ELECTRICAL AND ELECTRONICS PRACTICAL

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25234
Semester : III Semester
Subject Title : **ELECTRICAL AND ELECTRONICS ENGINEERING PRACTICAL**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|---|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| ELECTRICAL AND ELECTRONICS ENGINEERING PRACTICAL | 6 | 96 | 25 | 75 | 100 | 3 Hrs |

OBJECTIVES

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

- Gain experience in handling of electronic equipments.
- Verify Power supply of SMPS.
- Verify Ohm's Law.
- Verify Kirchoff's Law
- Find the efficiency and Voltage regulations of single phase transformer
- Test and draw the characteristics of PN junction diode.
- Study the reverse bias characterizes of Zener diode.
- Realize the importance of Common emitter configuration.
- Construct and realize various logic gates using ICs.
- Prove De-Morgan's theorem.
- Construct and verify the truth table of Arithmetic circuits.
- Design, implement and test the various flip-flops.
- Design ripple Counters
- Design Asynchronous mod N counter.
- Design shift register circuits.

LAB EXERCISES

| | | |
|----|----|---|
| 1 | a. | Measure current, voltage and resistance using various test meters Ammeter, Voltmeter and multi meter. |
| | b. | Checking of Power Supply- SMPS. |
| 2 | | Verify Ohm's Law and Kirchoff's Laws |
| 3 | | To observe waveforms of A.C. Voltage and current on CRO. Determine amplitude and phase and understand the concepts of lagging and leading |
| 4 | | To determine efficiency and voltage regulation of single phase transformer by direct loading method. |
| 5 | | Draw the forward bias and reverse bias characteristics of a PN Junction diode and determine the forward resistance of the diode |
| 6 | | Draw the forward and reverse bias characteristics of a Zener |
| 7 | | Draw the characteristics of Common Emitter Configuration and determine its input impedance, output impedance and current gain. |
| 8 | | Construct and test full- wave rectifier and bridge rectifier circuit. |
| 9 | | Verify truth tables of logic gates using IC 7404, 7408, 7432, 7402, 7400,7486 |
| 10 | | Verify De-Morgan's Theorems. |
| 11 | | Construct Half adder and full adder circuits using ICs and verify their truth table |
| 12 | | Construct Half subtractor and full sub tractor using ICs and verify their truth table |
| 13 | | Verify the operation of a multiplexer and de-multiplexer using IC's |
| 14 | | Implement and Test RS, JK, T and D flip-flops. |
| 15 | | Construct and test 4-bit ripple counter and observe the output waveform |
| 16 | | Construct and test synchronous counter and observe the output waveform. |
| 17 | | Construct and test 4-bit shift registers |

SCHEME OF VALUATION

| | | |
|--------------|--|-----------|
| 1 | Write up any One Experiment (Circuit Diagram, Tabular column, Truth table/ Equation /Formula) | 30 |
| 2 | Construction | 30 |
| 3 | Result | 10 |
| 4 | Viva-Voce | 05 |
| Total | | 75 |

EQUIPMENTS / COMPONENTS REQUIRED

EQUIPMENTS:

| S.No | Name of the Equipments | Range | Required Nos |
|------|--------------------------|---------------------|--------------|
| 1. | Digital Multimeter | | 6 |
| 2. | Ammeter | (0-50) mA | 6 |
| 3. | Voltmeter | (0-20) V, (0-1v) | 6 6 |
| 4. | Power supply | 0-30V | 6 |
| 5. | Digital Trainer Kit | | 6 |
| 6. | Bread Board | | 6 |
| 7. | Fixed dual power Supply | 0-15 V | 2 |
| 8. | Signal generator | 1 MHz | 2 |
| 9. | CRO Dual Trace | 30 MHz | 6 |
| 10. | Single Phase Transformer | | |

COMPONENTS

| S.No | Name of the components | |
|------|--|----------------------------------|
| 1. | Resistors | 150Ω, 1KΩ, 2.2KΩ, 10KΩ, 2 20Ω |
| 2. | Capacitor | 10μF, 4.7μF |
| 3. | PN Diode | IN4007 |
| 4. | Zener Diode | Z11.1 |
| 5. | Transistor | SL100, CL100 |
| 6. | IC7400, IC7402, IC7404, IC7408, IC7432, IC7486 | |
| 7. | IC74161(Counter) | |
| 8. | IC74153(MUX) | |
| 9. | IC74139(DMUX) | |
| 10. | IC7476 (Flip-Flop) | |
| 11. | IC74194 (Shift Register) | |





DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25235 – LINUX PRACTICAL

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering
Subject Code : 25235
Semester : III Semester
Subject Title : **LINUX PRACTICAL**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| LINUX PRACTICAL | 4 | 64 | 25 | 75 | 100 | 3 Hrs |

OBJECTIVES:

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

- Login and log off Procedures
- Use of General purpose commands
- Explain the use of simple filters and advanced filters.
- Know the details of process status
- Use Various communication Commands
- Search patterns
- Use of shell scripts
- Define the elements of the shell script
- Write shell script for various problems.

GUIDELINES :

1 Hour Theory Per week and 3 Hours Practical Per week

Computer Student Ratio 1:1

THEORY CONTENTS

Introduction to users groups & super user - logging in & logging out - Internal & external commands in Linux - Internal commands in Linux echo, type - External commands in Linux, ls, mv, rm, cat, useradd - Command line commands – who, log name, banner, cal, date, bc, man, info etc.

Working with files & directories. - Know the categories of files - Files & directory commands – cat, less, more, ls, comm, diff, tar - Pipes & redirection - use of !, &, >, touch, absolute & relative paths.

Directory related commands – pwd, cd, mkdir, rmdir - Manipulating file commands - cp, mv, rm - File permissions & file utilities.- File link commands chmod, umask, file, type, wc, split, cmp, diff.

Learn to use vi editor - Simple Filters – head, tail, cut, paste, sort, uniq, tr, pr - Advanced filters - Expressions & search patterns .(dot operator), *, ^, +, ?, grep, egrep, fgrep - Process Management commands. - Process creation, status, Identifying process, ps -f & its options - Running process in background, Job control, Process termination. - Changing process priority, Scheduling process (Usage of sleep and wait commands)

Communication utilities - write, msg, talk, mail and wall.

Creating shell script, Shell identifiers, Shell variables, Destroying a variable, Positional parameters & command line arguments - evaluating expressions, Text formatting with echo & tput script termination - Shell control structures - if, case, for, while, relational and logical operators - Advanced filter – sed and awk.

LAB EXERCISES

| PART – A LINUX COMMANDS | |
|-------------------------|--|
| | Write down the syntax and usage of the following exercise with all options. Check the commands with the system |
| 1 | (a) Logon to UNIX and logoff. (b) Usage of directory management commands: ls, cd, pwd, mkdir, rmdir (c) Usage of File Management commands: cat, chmod, cp, mv, rm, more, file commands |
| 2. | Use the general purpose commnds: wc, od, lp, cal, date, who, tty, ln |
| 3. | Using the simple filters: pr, head, tail, cut, paste, nl, sort |
| 4. | Advanced filters : Search for a pattern using grep, egrep & fgrep |
| 5. | To know the details of process status- ps command , Process management commands: &, nohup, kill, nice |
| 6. | Communication Commands: news, write, mail, wall, calendar |

| | |
|-------------------------------|--|
| 7. | <p>Device pattern using meta character to match each of the following situation:-</p> <ol style="list-style-type: none"> All two character filenames. All filenames consisting of two lowercase letters. All filenames ending with c. All filenames beginning with a c and ending with a digit. All filenames beginning with p and having at somewhere. |
| PART – B SHELL SCRIPTS | |
| 1. | Write a shell-script that accepts a numerical value N. Then display the decrementing value of N till it reaches 0. |
| 2. | Write a shell-script that takes three command line arguments. The first argument is the name of the destination file and the other two arguments are names of files to be placed in the destination file. |
| 3. | Write a Shell script to print contents of file from given line number to next given number of lines |
| 4. | <ol style="list-style-type: none"> Shell script to say Good morning/Afternoon/Evening as you log in to system Write a shell-script that print out date information in this order: time, day of the week, day number, year – that is like this. 13:55:00 IST Sun 9 Jun 1996 |
| 5. | Write a shell-script that tells you its name and PID |
| 6. | Develop a Basic math Calculator using case statement |
| 7. | Write a shell-script that takes a login name as a command line argument and reports to you when that person logs in. Have it sent a greeting to that person. |
| 8. | Write a shell-script that takes a command line argument and reports on whether it is a directory, a file or something else. |

| SCHEME OF VALUATION | |
|--|-----------------|
| Writing syntax and usage of any one Question from PART - A | 10 Marks |
| Writing any one program from PART – B | 15 Marks |
| Executing Commands (PART – A) | 15 Marks |
| Executing program (PART – B) | 20 Marks |
| Result with printout (PART – A) | 5 Marks |
| Result with printout (PART – B) | 5 Marks |
| VIVA – VOCE | 5 Marks |
| TOTAL | 75 Marks |

HARDWARE REQUIREMENT

- Desktop Computers – 36 Nos (1 Linux Server)
- Laser Printer – 4 Nos

SOFTWARE REQUIREMNT

- Linux Operating System



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25236 – C PROGRAMMING PRACTICAL

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
L – SCHEME
(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering
 Subject Code : 25236
 Semester : III Semester
 Subject Title : **C Programming Practical**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|-------------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| C PROGRAMMING PRACTICAL | 6 | 96 | 25 | 75 | 100 | 3 Hrs |

OBJECTIVES

At the end of the Course, the students will be able to

- Analyze the given problem.
- Think the logic to solve the given problem.
- Describe the concepts of constants, variables, data types and operators.
- Develop programs using input and output operations.
- Write programs using different looping and branching statements.
- Write programs based on arrays.
- Write Programs using string handling functions.
- Write programs using user-defined functions, Structures and Union.
- Write programs using the concept of Pointers.
- Write programs using command line arguments.
- Create a file.
- Write programs using file handling functions.
- Write programs using compiler control directives.

LAB EXERCISES

PART - A

1. Write a C Program to calculate Simple and Compound interest
2. Write a C Program to swap two variables using (i) third variable and (ii) without using a third variable.
3. Write a C Program to find the largest number between given three numbers.
4. Program to check whether the given string is palindrome or not.
5. Read a string, which consists of both lower case characters and upper case characters. Convert the lowercase character into upper case and vice versa. Display the new string.
6. Program to prepare the total marks for N students by reading the Regno,, Name, Mark1 to Mark6 by using array of structures. .
7. Write a function to calculate the sum and average of given three numbers. Write a main function to call the above function
8. Using pointers, find the length of the given string.
9. Write a program to print the address of a variable and increase the content by 5 and print the new value.
10. Write a Macro in C to swap two data values.

PART – B

1. Read an integer number. Find the number of digits and sum of all individual digits and also print the above number in reverse order.
2. Using Switch... Case Statement, print the given number into equivalent Word. (For example if the input is 3, then the output should be THREE)
3. Write a program to find the factorial of a given number (i) Without recursion (ii) With recursion
4. Write a program to arrange the given N names in alphabetical order.
5. Write a program to read a string S1 from the terminal. Again read a string S2 from the terminal and check the given string S2 in the string S1. If it does, remove string S2 from the string S1 and print the updated string S1. (For example S1 = Concatenate and S2 = cat , then the final result should be "Conenate"
6. Program to read ten values to an array variable. Use pointers to locate and display each value.
7. Reverse the following using pointers (i) String (ii) N integer numbers stored in any array.

8. Write a C program to print the abbreviation of an Organization Name. (For example if the input is “BHARAT HEAVY ELECTRONICS LIMITED” , then the output should be “BHEL”.)
9. Program to copy contents of one file to another file. Also find the number of characters, lines and words in the above file.
10. Read a sentence through command line argument. Write a program to write out the string arguments to main in reverse order.

| SCHEME OF VALUATION | |
|---------------------------------------|-----------------|
| Writing any one program from PART – A | 10 Marks |
| Writing any one program from PART – B | 15 Marks |
| Executing program (PART – A) | 15 Marks |
| Executing program (PART – B) | 20 Marks |
| Result with printout (PART – A) | 5 Marks |
| Result with printout (PART – B) | 5 Marks |
| VIVA – VOCE | 5 Marks |
| TOTAL | 75 Marks |

Note : Student : Computer ratio in lab should be strictly 1:1

HARDWARE REQUIREMENT

- Desktop Computers – 36 Nos
- Laser Printer – 4 Nos

SOFTWARE REQUIREMENT

- C – Compiler with Editor



DIPLOMA IN ENGINEERING/TECHNOLOGY

L - SCHEME

2011 - 2012

**20001 – COMPUTER APPLICATIONS
PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L-SCHEME

(Implemented from the Academic year 2011-2012 onwards)

Course Name : COMMON TO ALL BRANCHES
Subject Code : 20001
Semester : III Semester
Subject Title : COMPUTER APPLICATIONS PRACTICAL

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|---------------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| COMPUTER APPLICATIONS PRACTICAL | 4 | 64 | 25 | 75 | 100 | 3 Hrs |

RATIONALE:

The application of Computer knowledge is essential to the students of all disciplines of Engineering in addition to their respective branch of study. The Computer Application Practical course facilitates the necessary knowledge and skills regarding creating, working and maintaining the documents, analyzing the data with charts manipulation of databases and presentation of documents with audio visual effects in a computer.

The learning of internet provides students with unprecedented opportunities to obtain information engage in discussion and liaise with individuals, organizations and groups world-wide. It provides the latest tools and technologies in helping the students to fetch better employment.

OBJECTIVES:

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

- Understand the Windows operating systems
- Familiarize and customize the desktop
- Use the different facilities available in the word processor
- Analyze the data sheet
- Create and manipulate the database
- Prepare PowerPoint presentation
- Understand Internet concepts and usage of e-mail

GUIDELINES:

- All the eighteen experiments given in the list of experiments should be completed and all the experiments should included for the end semester practical examination.
- The end semester practical examination question paper contains two questions-the first question from section-I and the second question from section-II. Each question carries 35 marks and viva voce carries 5 marks.
- The computer systems should be 1:2 ratio for practical classes

ALLOCATION OF MARKS**1. Internal Assessment – 25 Marks**

| DESCRIPTION | MARKS ALLOTTED |
|----------------------|-----------------------|
| Record with Printout | 10 |
| Assignment | 5 |
| Attendance | 5 |
| Model Examination | 5 |
| Total | 25 MARKS |

2. Board Examinations – 75 Marks

| Content | Max. Marks | |
|-----------------------|-------------------|-------------------|
| | Section I | Section II |
| Writing steps | 15 | 15 |
| Execution of exercise | 15 | 15 |
| Result with Printout | 5 | 5 |
| Viva voce | 5 | |
| Total | 75 Marks | |

LAB EXERCISES

SECTION – I

WINDOWS

Introduction- History of Windows- screen saver and monitor resolution – Wallpaper setting- Folder manipulation – properties of a folder – Recycle bin – Short cuts – Sorting Folder – Switching between Application – Copying in CD/DVD settings – Recording Audio files.

Exercises

1.
 - a. Installing screen saver and change the monitor resolution by 1280X960
 - b. Setting wall papers
 - c. Creating, moving, deleting and renaming a folder
 - d. Copy, paste and cut a folder/file
 - e. Displaying the properties for a file or folder
2.
 - a. Restoring files and folders from Recycle bin
 - b. Creating short cuts for folder/file
 - c. Finding a file or folder by name
 - d. Selecting and moving two or more files/folders using mouse
 - e. Sorting folders/files.
3.
 - a. Copying files into CD/DVD
 - b. Switching between applications
 - c. Making the taskbar wider and hiding the taskbar
 - d. Recording and saving an audio file
 - e. Set/Change the date and time.

WORD PROCESSING

Introduction – Menus – Tool bar – Create – Edit – Save – Alignment – Font Size – Formatting – Tables – Fill Colors – Mail Merge – Page Setup - Preview – Water marking – Header – Footer – Clip art.

Exercises

4. Create the following table and perform the operations given below

ABC PVT. LTD.

Chennai

Production Summary of various Units in every Quarter

| Unit | Product - ID | Jan-Mar | Apr-june | July-Sept. | Oct-Dec. |
|------------|--------------|---------|----------|------------|----------|
| Unit - I | 56 | 234. | 50 | 74 | 125 |
| Unit - II | 142 | 236 | 126 | 175 | 251 |
| Unit - III | 213 | 541 | 216 | 60 | 43 |
| Unit - IV | 125 | 243 | 127 | 250 | 136 |
| Unit - V | 143 | 152 | 138 | 80 | 45 |

- Arrange Unit name as left align and other columns as right align.
- Use doubled Border to the Summary Title and fill with 15% gray colour.
- Implement merging and splitting two or more cells
- Give alternative fore colour for columns.
- Print the above table.

5. Create a standard covering letter and use mail merge to generate the customized letters for applying to a job in various organizations. Also, create a database and generate labels for the applying organizations.
6. Create a news letter of three pages with two columns text. The first page contains some formatting bullets and numbers. Set the document background colour and add 'confidential' as the watermark. Give the document a title which should be displayed in the header. The header/ footer of the first page should be different from other two pages. Also, add author name and date/ time in the header. The footer should have the page number.

SPREADSHEET

Introduction – Menus – Tool bar – Create – Edit – Save – Formatting cells – Chart wizard – Fill Colors – Creating and using formulas – Sorting – Filtering.

Exercises

7. Create a result sheet containing Candidate's Register No., Name, Marks for six subjects. Calculate the total and result. The result must be calculated as below and failed candidates should be turned to red.

Result is Distinction if Total ≥ 70 %

First Class if Total ≥ 60 % and < 70 %

Second Class if Total ≥ 50 % and < 60 %

Pass if Total ≥ 35 % and < 50 %

Fail otherwise

Create a separate table based on class by using auto filter feature.

8. Create a table of records with columns as Name and Donation Amount. Donation amount should be formatted with two decimal places. There should be at least twenty records in the table. Create a conditional format to highlight the highest donation with blue colour and lowest donation with red colour. The table should have a heading.
9. Prepare line, bar and pie chart to illustrate the subject wise performance of the class for any one semester.

SECTION – II

DATABASE

Introduction – Menus – Tool bar – Create – Edit – Save – Data types – Insert – Delete – Update – View – Sorting and filtering – Queries – Report – Page setup – Print.

Exercises

10. Create Database to maintain at least 10 addresses of your class mates with the following constraints
 - Roll no. should be the primary key.
 - Name should be not null
11. Prepare a payroll for employee database of an organization with the following details:
Employee Id, Employee name, Date of Birth, Department and Designation, Date of appointment, Basic pay, Dearness Allowance, House Rent Allowance and other deductions if any.

Perform simple queries for different categories.

12. Design a pay slip for a particular employee from the above database.

PRESENTATION

Introduction – Menus – Tool bar – Create – Edit – Save – Slide transition – Insert image – Hyper link – Slide numbers – View slide show with sound – Photo album – Clip art.

Exercises

13. Make a marketing presentation of any consumer product with at least 10 slides. Use different customized animation effects on pictures and clip art on any four of the ten slides.
14. Create a Presentation on “Communication Skills” with three different slide transitions with sound effect.
15. Create a photo album in PowerPoint.

INTERNET

Introduction – Browsers – Open a website – Email: Send, receive and delete – Email with Attachments
Google docs – Search Engines – Searching topics

Exercises

16. Create an e-mail id and perform the following

- Write an e-mail inviting your friends to your Birthday Party.
- Make your own signature and add it to the e-mail message.
- Add a word attachment of the venue route
- Send the e-mail to at least 5 of your friends.

17. Create a presentation on Google docs. Ask your friend to review it and comment on it. Use "Discussion" option for your discussions on the presentation.

18. Find out the direction and distance about road travel from Delhi to Agra using the Internet search. Also make a report of the Map and other details like place to stay and visit at Agra.

MODEL QUESTION PAPER

| | | |
|--------------------------|---|---------------------|
| Year / Sem: II / III | Subject: COMPUTER APPLICATIONS PRACTICAL | Code: 20001 |
| Answer all the questions | | Max.Marks:75 |
| 1 | <u>Section - I</u> Prepare line, bar and pie chart to illustrate the subject wise performance of the class for any one semester. | |
| 2 | <u>Section - II</u> Create an e-mail id and perform the following <ul style="list-style-type: none">• Write an e-mail inviting your friends to your Birthday Party.• Make your own signature and add it to the e-mail message.• Add a word attachment of the venue route• Send the e-mail to at least 5 of your friends. | |

LIST OF EQUIPMENTS AND THE QUANTITY REQUIRED FOR A BATCH OF 30 STUDENTS

SOFTWARE REQUIREMENTS

| | |
|------------------|---|
| Operating System | Windows XP or Windows Vista or Windows 7 / Linux |
| Office Package | Microsoft office 2000 or Office 2003 or Office 2007/Open Office |

HARDWARE REQUIREMENTS

| | |
|---|--------|
| Desktop Computer System with latest configuration | 30 Nos |
| Power Backup (UPS) | 10 KVA |
| Laser Printer | 3 Nos |

SAFETY PRECAUTIONS TO BE FOLLOWED BY STUDENTS

- Do not touch, connect or disconnect any plug or cable without teacher's permission
- Don't attempt to touch any live wires
- Systems should be shutdown properly after completion of work

REFERENCES

| TITLE | AUTHOR | PUBLISHER | Year of Publication |
|--|-------------------------------------|---|----------------------------|
| Computer Applications Practical Manual | Dr.V.Karthikeyan Mr.D.Arulselvan | Learning Resource Centre, Thiagarajar Polytechnic College, Salem- 636 005 | 2012 |
| Windows 7 in easy steps | Harshad kotecha | Tata McGrawHill ,New Delhi | 2011 |
| A First Course in Computer 2003 | Sanjay Sasena | Vikas Publications, New Delhi | 2009 |
| MS Office – 2003 | Ramesh Bangia | Kanna Book Publication, New Delhi | 2005 |
| Introduction to Computers with MS-Office 2000 | Alexis Leon & Mathews Leon | Tata McGraw-Hill, New Delhi | 2002 |
| Mastering Microsoft Office 2000 | Gini Courter & Annette Marquis | BPB Publications, New Delhi | 1999 |

IV SEMESTER



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25241 – COMPUTER ARCHITECTURE

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25241
Semester : IV Semester
Subject Title : **COMPUTER ARCHITECTURE**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|-----------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| COMPUTER ARCHITECTURE | 5 | 80 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|-------------------|---|-------------|
| I | REGISTER TRANSFER LOGIC AND CPU | 16 |
| II | COMPUTER ARITHMETIC | 14 |
| III | INPUT – OUTPUT SYSTEM | 14 |
| IV | MEMORY ORGANISATION | 13 |
| V | INTRODUCTION TO MICROPROCESSORS AND ADVANCED PROCESSOR ARCHITECTURE | 13 |
| TEST AND REVISION | | 10 |
| TOTAL | | 80 |

RATIONALE

Diploma in Computer Engineering have to be conversant with computer, its terminology and functioning. Computer architecture is concerned with the structure and behavior of the various functional modules of the computer and their interaction, the course provides the necessary understanding of the hardware operation of digital computers.

OBJECTIVES

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

- Study about the register Transfer Language
- Explain the function of CPU and its registers
- Study about the computer arithmetic
- Need for I/O interface
- Explain different types of asynchronous data transfer.
- Explain different modes of data transfer
- Use of I/O Processor
- To study about the different memory types and their operations
- Study about the advanced processors architecture

DETAILED SYLLABUS

| UNIT I REGISTER TRANSFER LOGIC AND CPU | | 16 HOURS |
|---|--|-----------------------|
| 1.1 | Register Transfer Language: Register Transfer Language – Register transfer - Control function – Bus transfer - Memory transfer | 4 Hrs |
| 1.2 | Micro operations and ALU : Arithmetic micro operations – Binary adder-subtractor, incrementer, 4 bit arithmetic circuit; Logic micro operations – One stage of logic circuit - applications - Shift micro operations - 4 bit Combinational Circuit Shifter - One stage of ALU | 4 Hrs |
| 1.3 | Central Processing Unit: Major components of CPU – General register organization - Bus system – Register set with common ALU – Memory stack- Stack limits - Reverse polish notation – Evaluation of arithmetic expression – Instruction format – Three, Two, One , zero address instructions. | 4 Hrs |
| 1.4 | Control Unit : Structure of control unit - Fetch, Indirect, Execute, and Interrupt cycles- instruction cycle – Hardwired control-micro programmed control | 4 Hrs |

| UNIT II COMPUTER ARITHMETIC | | 14 HOURS |
|------------------------------------|---|-----------------------|
| 2.1. | Data Representation : Decimal representation – Alphanumeric representation – Fixed point representation – Floating point representation | 4 Hrs |
| 2.2. | Fixed point Arithmetic : Hardware implementation and hardware algorithm for fixed point Addition – subtraction, Multiplication and division with signed magnitude data | 5 Hrs |
| 2.3. | Floating point arithmetic: Hardware implementation and hardware algorithm for floating point addition – subtraction, multiplication and division with signed magnitude data | 5 Hrs |

| UNIT III INPUT – OUTPUT SYSTEM | | 14 HOURS |
|---------------------------------------|---|-----------------------|
| 3.1 | I/O Interface: Need for I/O interface - Major functions of I/O interface – I/O verses memory bus - Isolated verses Memory mapped I/O | 3 Hrs |
| 3.2 | Asynchronous data transfer: Strobe control, Handshaking, Asynchronous Serial transfer – Synchronous Communication Interface – FIFO Buffer | 3 Hrs |
| 3.3 | Modes of Transfer: Three possible modes; 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. | 4 Hrs |
| 3.4 | I/O Processor : I/O Programming, CPU-IOP communication - Serial Communication: Character-Oriented Protocol, Data Transparency - Bit-Oriented Protocol | 4 Hrs |

| UNIT IV MEMORY ORGANISATION | | 13 HOURS |
|------------------------------------|---|-----------------------|
| 4.1 | Memory Organization: Memory Hierarchy – Main memory –Auxiliary memory | 3 Hrs |
| 4.2 | Associative Memory: Hardware organization, Match Logic, Read operation-Write operation | 2 Hrs |
| 4.3 | Cache Memory: Need for cache memory – Organization – Operational principle - Mapping Techniques – Cache initialization | 4 Hrs |
| 4.4 | Virtual Memory: Address space, Memory Space, Address mapping, Associative memory page table, Page Replacement | 4 Hrs |

| UNIT – V INTRODUCTION TO MICROPROCESSORS AND ADVANCED PROCESSOR ARCHITECTURE | | 13 HOURS |
|---|--|-----------------------|
| 5.1. | Microprocessors: Evolution of Microprocessors –Bus – Different types buses - Block diagram of 8086 - Registers - Segment registers; Address-Effective address, Segment address, Physical address; Flag registers – Applications of Microprocessors | 6 Hrs |
| 5.2. | Advanced Processor Architectures Instruction Pipelining, Arithmetic Pipelining, Super Scalar Processors, Parallel Processing, Flynn’s Classification of Parallel Processing, Vector Computers, Array Processors, Distributed Shared Memory Parallel Computers. Cluster of Workstations. | 7 Hrs |

TEXT BOOKS

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|--|-------------------|------------------------|--------------------------------------|
| 1. | Computer System Architecture | Morris Mano M | Prentice Hall of India | 31 st Indian reprint 2002 |
| 2. | Computer Organization and Architecture | William Stallings | Prentice Hall of India | Fifth Edition |

REFERENCES

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|--|--|-----------------------------|---|
| 1. | Computer Organization | ISRD group | TMH, New Delhi | Eight Reprint 2011 |
| 2. | Computer Organisation & Architecture | T.K. Ghosh | TMH, New Delhi | First Edition |
| 3. | Computer Organisation and Architecture | Dr.Madhulika Jain Vineeta Pillai, Sathish Jain | BPB Publications, New Delhi | First Indian Edition 2002, Reprinted 2011 |
| 4. | Computer System Organisation | Naresh Jotwani | TMH, New Delhi | First Reprint 2010 |
| 5., | Computer Architecture and Organisation | Miles J.Murdocca, Vincent P.Heuring | Wiley India | Reprint 2011 |

SEMESTER - IV

**25241 – COMPUTER ARCHITECTURE
MODEL QUESTION PAPER - I**

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. Define micro operation.
2. What is a control function?
3. Give an example for logic micro operation.
4. What is hardwired control unit?
5. Define throughput.
6. What is alphanumeric code?
7. What is a parallel adder?
8. What is alignment of mantissa in floating point operations?
9. What is an I/O interface?
10. What is a strobe?
11. Define DMA.
12. What is an I/O processor?
13. Give an example for auxiliary memory.
14. What is content addressable memory?
15. Define locality of reference.
16. Define virtual address.
17. What is addressing mode?
18. What is TLB?
19. What is pipelining?
20. Give an example for two core processor.

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Draw one stage of ALU and explain. [12]
- [OR]**
- B. i. Draw general register organization of CPU. [6]
- ii. Explain how an arithmetic expression is evaluated by using stack. [6]
- 22 A. i. Explain different types of data representation with example [12]

[OR]

- B i. Explain the algorithm for addition –subtraction operation using fixed point signed magnitude data. [12]
- 23 A. i. Differentiate isolated I/O and memory mapped I/O. [6]
ii. Explain data transfer using strobe control. [6]

[OR]

- B i. Explain in detail about CPU – IOP communication. [12]
- 24 A. i. Explain the read and write operation of associative memory by showing match logic for one word. [12]

[OR]

- B i. Explain address mapping using pages in virtual memory. [12]
- 25 A. i. Explain Instruction and Arithmetic pipelining with example. [12]

[OR]

- B i. Draw the block diagram of multi core processor and explain [12]

SEMESTER - IV

**25241 – COMPUTER ARCHITECTURE
MODEL QUESTION PAPER - II**

Time: 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. What is register transfer language?
2. Give an example for arithmetic micro operation.
3. What are the components of CPU?
4. Define instruction cycle.
5. Define vector processor.
6. How a floating point number is represented?
7. What is under flow?
8. What is handshaking?
9. What is normalization?
10. What is asynchronous transfer?
11. What is called priority interrupt?
12. What is the need for I/O processor?
13. What do you mean by memory hierarchy?
14. Define read and write operation.
15. What is the need for cache memory?
16. Why virtual memory is used?
17. What is an array processor?
18. What is vector processing?
19. What is throughput?
20. What is a dual core processor?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Explain bus system for four registers with neat diagram. [12]

[OR]

- B i. Explain the applications of logic micro operations. [12]

- 22 A. i. Explain about Hardware implementation and hardware algorithm for floating [12]

point addition – subtraction,

[OR]

B i. Explain fixed point multiplication and division algorithm with signed magnitude data. [12]

23 A. i. Explain the types of handshaking data transfer. [12]

[OR]

B i. Explain about daisy chain priority interrupt [12]

24 A. i. Explain any one mapping method of cache memory [12]

[OR]

B i. Explain about virtual memory. [12]

25 A. i. Explain Flynn's Classification of Parallel Processing, [12]

[OR]

B i. Briefly explain about Array Processors [12]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25242 – COMPUTER NETWORKS AND SECURITY

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2012 - 2013 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25242
Semester : IV Semester
Subject Title : **COMPUTER NETWORKS AND SECURITY**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|--------------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| COMPUTER NETWORKS AND SECURITY | 4 | 64 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|-------------------|----------------------------------|-------------|
| I | DATA COMMUNICATIONS | 11 |
| II | OSI MODEL AND LAN PROTOCOLS | 11 |
| III | TCP/IP SUIT | 11 |
| IV | NETWORK SECURITY | 11 |
| V | APPLICATIONS OF NETWORK SECURITY | 10 |
| TEST AND REVISION | | 10 |
| TOTAL | | 64 |

RATIONALE

The exponential growth of Engineering and Technology particularly information and communications engineering has benefited the day-to-day life of entire mankind in all respects. The research and developments are continually happening in this field to fine tune and improve the field particularly also in Computer Networks and Security which directly or indirectly has impact on every man's daily life. As such the introduction of current and future trends and technology of computer networks and security would strengthen the knowledge and skills of engineering community in taking one-step further the prosperity of man kind.

OBJECTIVES

- Understand the concept of data communication.
- Discuss the advantages and disadvantages of different network topologies.
- Know different network classification based on different category.
- Study about different networking devices and their practical usages.
- Understand the different layers of OSI and their functions.
- Compare different LAN protocols.
- 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 the basic concepts of network security.
- Identify the attacks and threats.
- Understand the basic concepts of RAID and digital Signatures.
- Study about Cryptography and different Cryptography Algorithms.
- Know the applications of Network Security.
- Discuss about VPN and Firewalls.
- Identify the Wireless Security Issues.

DETAILED SYLLABUS

| UNIT I DATA COMMUNICATIONS | | 11 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. | 3 Hrs |
| 1.2. | Types of Networks: Need for computer Networks - LAN – MAN – WAN – CAN – HAN – Internet – Intranet – Extranet , Client-Server, Peer to Peer Networks. | 2 Hrs |
| 1.3 | Transmission Media : Characteristics of Transmission Media - Classification of transmission media - Guided – Twisted pair – Coaxial – Fiber optics – Unguided – Radio waves – Infrared – Low Orbit satellite (LOS) – VSAT – Cabling and Standards | 3 Hrs |
| 1.4. | Network devices: Features and Concepts of Switches – Routers (Wired and Wireless) – Gateways. | 3 Hrs |

| UNIT II OSI MODEL AND LAN PROTOCOLS | | 11 HOURS |
|--|---|-----------------------|
| 2.1. | Network Models: Protocol definition - Standards - OSI Model – Layered architecture – Functions of all layers. | 2 Hrs |
| 2.2. | 802.X Protocols : Concepts and PDU format of CSMA/CD (802.3) – Token bus (802.4) – Token ring (802.5) – Ethernet – Types of Ethernet (Fast Ethernet, gigabit Ethernet) – Comparison between 802.3, 802.4 and 802.5 | 3 Hrs |
| 2.3. | FDDI: Frame format – Advantages and disadvantages of FDDI. | 2 Hrs |
| 2.4 | Switching: Definition – Circuit switching – Packet switching – Message switching. | 2 Hrs |
| 2.5 | ISDN : Concepts – Services – Layers – Broad Band ISDN | 2 Hrs |

| UNIT III TCP/IP SUIT | | 11 HOURS |
|-----------------------------|---|-----------------------|
| 3.1. | Overview of TCP / IP: OSI & TCP/IP – Transport Layer Protocol – Connection Oriented and Connectionless Services – Sockets - TCP & UDP. | 3 Hrs |
| 3.2. | Network Layers Protocol: IP – Interior Gateway Protocols (IGMP, ICMP, ARP, RARP Concept only). | 3 Hrs |
| 3.3. | IP Addressing : Dotted Decimal Notation –Subnetting & Supernetting – VLSM Technique- IPv6 (concepts only) | 3 Hrs |
| 3.4 | Application Layer Protocols: FTP– Telnet – SMTP– HTTP – DNS – POP. | 2 Hrs |

| UNIT IV NETWORK SECURITY | | 11 HOURS |
|---------------------------------|--|-----------------------|
| 4.1. | Introduction to Network security: Definition – Need for security – Principles of Security - – Attacks – Types of Attacks – Criminal attacks – Legal Attacks – Passive and Active attacks – Security Services – Security Mechanisms | 2 Hrs |
| 4.2. | Cryptography: Definition – Symmetric Encryption principles – Symmetric Block Encryption Algorithms – DES, AES – Stream ciphers – RC4 – Cipher block modes of operation - Approaches to message Authentication – Hash function –Secure Hash function – Digest function – Public key cryptography Principles – RSA - Diffe-Hellman algorithm – Digital Signature (Definition only) | 6 Hrs |
| 4.3. | Internet Security: Email security – S.MIME - IP security – Overview – IP Security Architecture – Authentication header - Web security - SSL, TLS ,SET (Concepts only) | 3 Hrs |

| UNIT – V APPLICATIONS OF NETWORK SECURITY | | 10 HOURS |
|--|---|-----------------------|
| 5.1. | System Security : Viruses-worms-Trojan horses-SPAM | 2 Hrs |
| 5.4 | Security Mechanism : Introduction – Types of Firewalls – Packet filters – Application gateways – Limitations of firewalls | 3 Hrs |
| 5.4 | Intrusion : Intruders– Intruder detection – Classification of Intruder Detection systems – Honey pots | 3 Hrs |
| 5.5 | Wireless Security Issues: Definition and Types -Transmission Security, Authentication , WLAN Detection, Eaves Dropping, Active Attacks, WEP Definition and Features | 2 Hrs |

TEXT BOOKS

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|---|--------------------|---------------------------------|---------------------------------|
| 1. | Data Communication and networking | Behrouz A.Forouzan | Tata Mc-Graw Hill, New Delhi | Fourth Edition |
| 2. | Data and Computer Communications | William Stallings | Prentice-Hall of India | Eighth Edition |
| 3. | Cryptography & Network Security | Atul Kahath | Tata Mc-Graw Hill, New Delhi | Sixth Edition |
| 4. | Network Security Essentials – Applications and Standards | William Stallings | Pearson Education | Third Edition |
| 5. | Network Security A beginner’s Guide | Eric Maiwald | Tata Mc Graw- Hill | Second Edition |

REFERENCES

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|--|---|------------------------------|------------------------------------|
| 1. | Computer Communication Networks | Achyut S. Godbole | Tata Mc-Graw Hill, New Delhi | 2004 |
| 2. | Data Communication and Computer Networks | Dr.M. Jain Sathish Jain | BPB Publications, New Delhi | Updated Edition, 2010 |
| 3. | Practical Cryptography | Bruce, Schneier | John Wiley & sons , NewYork | 2 nd edition Toha 2004, |
| 4. | Cryptography and Network Security | Behrouz A.Forouzan, Debdeep Mukhopadhyay | Tata Mc Graw-Hill, New Delhi | Second Edition, Fourt Reprint 2011 |
| 5. | Computer Network | S.S.Shinde | New Age International | Reprint 2011 |

25242 – COMPUTER NETWORKS AND SECURITY
MODEL QUESTION PAPER - I

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. State any two differences between LAN and WAN.
2. What are the basic components of Data communication?
3. Define topology.
4. What is a Gateway?
5. Mention the functions of application layer.
6. Expand the term CSMA/CD.
7. Define Switching.
8. Give any two disadvantages of FDDI.
9. Give an example for connection oriented Protocol.
10. Define Telnet.
11. What is Subnetting in network?
12. Expand the term DNS.
13. Define RAID.
14. Give any two algorithms used for encryption.
15. Define Worm and Virus.
16. Define Cryptography.
17. What is a digital signature?
18. Write any two issues of VPN.
19. Expand the term WEP.
20. Give two features of wireless security.

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Explain Network topologies with neat diagram. [6]
- ii. Briefly explain about different Types of Networks. [6]

[OR]

- B i. Describe unguided transmission medium with suitable diagram [6]
- ii. Discuss Networking devices in detail [6]
- 22 A. i. Explain in detail about OSI Reference model. [6]

- ii. Discuss about 802-X protocols. [6]
- [OR]**
- B i. Describe about FDDI and its Frame Formats. [6]
- ii. Explain ISDN Concepts, its services and Layers. [6]
- 23 A. i. Discuss in brief about UDP and TCP. [6]
- ii. Describe IGMP and ICMP in detail. [6]
- [OR]**
- B i. Explain VLSM Technique with an example. [6]
- ii. Discuss in detail about (i) FTP (ii)HTTP (iii) POP [6]
- 24 A. i. Discuss about various RAID levels . [6]
- ii. Describe DES algorithm in detail. [6]
- [OR]**
- B i. Discuss in brief about message authentication. [6]
- ii. Explain Digital Signatures in detail. [6]
- 25 A. i. Explain in detail email, IP and web securities. [6]
- ii. Discuss in detail about system security. [6]
- [OR]**
- B i. Explain server authentication and protocols of VPN. [6]
- ii. Describe about intrusion detection and types. [6]

SEMESTER - IV
25242 – COMPUTER NETWORKS AND SECURITY
MODEL QUESTION PAPER - II

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. What are Radio waves?
2. Define simplex.
3. Name any two networking devices.
4. List any two advantages of Mesh Topology.
5. Give suitable file formats for FDDI.
6. In communication networks which system uses the token passing technology?
7. Mention the types of Switching
- 8.. List any two services of ISDN.
9. What is a socket?
10. Define IP. Give an example.
11. Expand the term ICMP.
12. Define MIB.
13. What is a threat?
14. Define Public Key.
15. Define hash function.
16. What is a digital signature?
17. Define Trojan horse.
18. List the types of firewall.
19. Write down any two benefits of VPN.
20. State any two features of WEP?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Explain data flow of data communication with a neat diagram. [6]
- ii. Describe Client – Server and peer to peer network. [6]

[OR]

- B i. Discuss about twisted pair and coaxial cable in detail. [6]
- ii. Explain in detail about router and switch concepts. [6]

- 22 A. i. Describe the concepts and PDU format of CSMA/CD. [6]
ii. Discuss in brief about Ethernet with Types. [6]

[OR]

- B i. Describe Packet and Circuit Switching. [6]
ii. Explain Broadband ISDN. [6]

- 23 A. i. Differentiate Connection oriented from Connectionless services. [6]
ii. Discuss in detail about ARP and RARP. [6]

[OR]

- B i. Explain any three Application Layer protocols. [6]
ii. Explain Subnetting and Supernetting in detail. [6]

- 24 A. i. What are Attacks? List the types of attacks. Explain them in detail. [6]
ii. Describe the basic concepts of RAID level. [6]

[OR]

- B i. Discuss about Diffe-Hellman algorithm. [6]
ii. Explain in detail about Hash and digest function. [6]

- 25 A. i. Explain in detail SSL, TLS & SET. [6]
ii. Discuss in detail about VPN. [6]

[OR]

- B i. What is Firewall? Discuss the types of firewall. [6]
ii. Explain in detail wireless security issues. [6]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

**25243 – OBJECT ORIENTED PROGRAMMING
WITH JAVA**

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25243
Semester : IV Semester
Subject Title : **OBJECT ORIENTED PROGRAMMING WITH JAVA**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|---------------------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| OBJECT ORIENTED PROGRAMMING WITH JAVA | 5 | 80 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|-------------------|--|-------------|
| I | INTRODUCTION TO OOPS AND JAVA | 14 |
| II | CONTROL STRUCTURES, ARRAYS, AND VECTORS | 14 |
| III | STRINGS, CLASSES AND INTERFACES | 14 |
| IV | PACKAGES, APPLETS AND AWT CONTROLS | 14 |
| V | EXCEPTION HANDLING, MULTITHREADS AND I/O STREAMS | 14 |
| TEST AND REVISION | | 10 |
| TOTAL | | 80 |

RATIONALE

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.

DETAILED SYLLABUS

| UNIT I INTRODUCTION TO OOPS AND JAVA | | 14 HOURS |
|---|---|-----------------------|
| 1.1 | Introduction to OOPS: Paradigms of Programming Languages - Basic concepts of Object Oriented Programming – Differences between Procedure Oriented Programming and Object Oriented Programming - Objects and Classes – Data abstraction and Encapsulation, Inheritance, Polymorphism, Dynamic binding, Message communication – Benefits of OOP – Application of OOPs. | 6 Hrs |
| 1.2. | Java : History – Java features – Java Environment – JDK – API. | 3 Hrs |
| 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. | 5 Hrs |

| UNIT II CONTROL STRUCTURES, ARRAYS, AND VECTORS | | 14 HOURS |
|--|---|-----------------------|
| 2.1. | Elements: Constants – Variables – Data types - Scope of variables – Type casting – Operators: Arithmetic - Logical – Bit wise operator – Increment and Decrement – Relational – Assignment – Conditional – Special operator – Expressions – Evaluation of Expressions | 4 Hrs |
| 2.2. | Decision making and Branching: Simple if statement – if – else statement – Nesting if – else – else if Ladder – switch statement – Decision making and Looping: While loop – do – While loop - for loop – break – labelled loop – continue Statement.- – Simple programs | 6 Hrs |
| 2.3. | Arrays: One Dimensional Array – Creating an array – Array processing – Multidimensional Array – Vectors – Wrapper classes – Simple programs | 4 Hrs |

| UNIT III STRINGS, CLASSES AND INTERFACES | | 14 HOURS |
|---|--|-----------------------|
| 3.1. | Strings: String Array – String Methods – String Buffer Class – Simple programs | 3 Hrs |
| 3.2. | 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 – Simple programs | 4 Hrs |
| 3.3. | Inheritance: Defining a subclass – Deriving a sub class – Single Inheritance – Multilevel Inheritance – Hierarchical Inheritance – Overriding methods – Final variables and methods – Final classes – Finalizer methods - Abstract methods and classes – Visibility Control: Public access, Private access, friend, protected. Interfaces: Multiple Inheritance - Defining interface – Extending interface - Implementing Interface - Accessing interface variables – Simple programs | 7 Hrs |

| UNIT IV PACKAGES, APPLETS AND AWT CONTROLS | | 14 HOURS |
|---|--|-----------------------|
| 4.1. | Packages: Java API Packages – System Packages – Naming Conventions – Creating & Accessing a Package – Adding Class to a Package – Hiding Classes – Programs | 4 Hrs |
| 4.2. | Applets: Introduction – Applet Life cycle – Creating & Executing an Applet – Applet tags in HTML – Parameter tag – Aligning the display - Graphics Class: Drawing and filling lines – Rectangles – Polygon – Circles – Arcs – Line Graphs – Drawing Bar charts – Programs | 6 Hrs |
| 4.3. | AWT Components and Even Handlers: Abstract window tool kit – Event Handlers – Event Listeners – AWT Controls and Event Handling: Labels – TextComponent – ActionEvent – Buttons – CheckBoxes – ItemEvent - Choice – Scrollbars – Layout Managers- Input Events – Menus – Programs | 4 Hrs |

| UNIT – V EXCEPTION HANDLING, MULTITHREADS AND I/O STREAMS | | 14 HOURS |
|--|---|-----------------------|
| 5.1. | Exception Handling: Limitations of Error handling – Advantages of Exception Handling - Types of Errors – Basics of Exception Handling – try blocks – throwing an exception – catching an exception – finally statement | 4 Hrs |
| 5.2. | Multithreading: Creating Threads – Life of a Thread – Defining & Running Thread – Thread Methods – Thread Priority – Synchronization – Implementing runnable interface – Thread Scheduling. | 6 Hrs |
| 5.3. | I/O Streams: File – Streams – Advantages - The stream classes – Byte streams – Character streams. | 4 Hrs |

TEXT BOOKS

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|-------------------------------------|-----------------|------------------------------|------------------------------|
| 1. | Programming with Java | E. Balagurusamy | Tata Mc-Graw Hill, New Delhi | First Edition |
| 2. | Object oriented Programming in Java | Dr.G.Thampi | DreamTech, New Delhi | Reprint 2012 |

REFERENCES

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|-----------------------------------|--------------------|------------------------------|------------------------------|
| 1. | Let us Java | Yashavant Kanetkar | BPB Publications, New Delhi | First Edition 2012 |
| 2. | An Introduction to Oops with Java | C Thomas WU | Tata Mc-Graw Hill, New Delhi | 4 th Edition |

| | | | | |
|----|--|--------------------------------------|------------------------------------|--|
| 3. | Object oriented Programming through Java | ISRD Group | Tata Mc-Graw Hill, New Delhi | Eight Reprint 2011 |
| 4. | Java for students | Ajay dharwani | Shroff Distributors and publishers | Second Edition March 2011 |
| 5. | Java for Beginners | Shirish Chavan | Shroff Distributors and publishers | Fourth Print October 2009 |
| 6. | Internet and Java Programming | Harish kumar Taluja | Firewall Media, Chennai | First Edition : 2008 Reprint : 2010 |
| 7. | Object Oriented Programming through Java | P.Radhakrishna | University Press | First Edition 2007 |
| 8. | Programming in Java | Sachin Malhotra and Saurabh Chaudhay | Oxford University Press | 2010 |
| 9. | Core Java for Beginners | Rashmi Kanta Day | Vikas Publishing Ltd | 2011 |

SEMESTER - IV

25242 – OBJECT ORIENTED PROGRAMMING WITH JAVA
MODEL QUESTION PAPER - I

Time: 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. What is data abstraction?
2. Write any two benefits of oops.
3. What is an object?
4. Write any two java tokens.
5. Define array.
6. What is the difference between while and do while?
7. What are separators?
- 8.. What is the use of continue statement?
9. What are static members?
10. What is a string?
11. What is inheritance?
12. Write down the syntax to declare abstract method.
13. State any one use of package.
14. Which method is used to draw a line?
15. Give any two types of controls present in awt.
16. What is an applet?
17. Define exception handling.
18. What is thread?
19. What are streams?
20. What is multithreading?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Explain any six basic concepts of Object Oriented Programming. [6]
ii. What is JVM? Explain [6]

[OR]

- B i. Explain command line arguments. [6]
ii. What are the differences between Procedure Oriented Programming and Object Oriented Programming? [6]

- 22 A. i. With a control flow diagram, explain if and if-else statement with an example. [6]
 ii. Explain any five vector methods. [6]
[OR]
- B i. What are the different types of operators available in Java? Explain with examples [6]
 ii. Write a java program to create an Vector and perform the following operations [6]
 i. To add an element
 ii. To insert an element at 2nd position
 iii. To find element
- 23 A. i. What is a static member? Explain with an example. [6]
 ii. List and explain any Six string functions with an example program. [6]
[OR]
- B i. Explain creating and accessing class members using object with an example. [6]
 ii. What is inheritance? Explain any one type of inheritance with an example program. [6]
- 24 A. i. What is a package? How you will create and access a package. [6]
 ii. Briefly explain about AWT Controls [6]
[OR]
- B i. With a neat sketch, explain applet life cycle. [6]
 ii. List and explain any three graphics methods with an example program. [6]
- 25 A. i. Write a java program to implement the following exception class [12]
 i. Arithmetic Exception
 ii. Number Format Exception
 iii. Array Index Out of Bounds Exception.
[OR]
- B i. Write a program to print odd and even numbers using thread priority class. [6]
 ii. Explain Byte streams and character streams. [6]

SEMESTER - IV

25242 – OBJECT ORIENTED PROGRAMMING WITH JAVA
MODEL QUESTION PAPER - II

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. Define class.
2. Define dynamic binding.
3. Write any four java features.
4. Name the command used to compile a java program.
5. What is constant?
6. What is the use of break statement?
7. Define array processing.
- 8.. What are wrapper classes?
9. Write the difference between string and string buffer.
10. What do mean by constructor?
11. What is the use of this keyword?
12. Define interface
13. Name any two system package.
14. Which method is used to draw a circle?
15. What is event listener?
16. Write the syntax to draw an arc.
17. What are the types of errors?
18. What is the use of yield() method?
19. Define stream.
20. Define thread.

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Explain (i) Inheritance (ii)Polymorphism (iii) Dynamic binding [6]
ii. Explain any six java features. [6]
- [OR]**
- B i. How will you create and execute a java program? [6]
ii. Explain Java Environment [6]

- 22 A. i. Differentiate while and do-while loop with example [6]
ii. Explain any three vector methods. [6]

[OR]

- B i. Write a program to find the sum of array of "N" numbers. [6]
ii. Explain the terms: (i) Wrapper Class (ii) Special operators. [6]
- 23 A. i. Explain method overloading with an example program. [6]
ii. What is a constructor? Explain with an example. [6]

[OR]

- B i. How will you create a package? [6]
ii. Write down the differences between overloading & overriding. Explain. [6]
- 24 A. i. How to create and import a package? Explain with an example. [6]
ii. Explain Applet tags in HTML [6]

[OR]

- B i. Write a Java program to create a menu based application [6]
ii. Explain event handlers and Event Listeners. [6]
- 25 A. i. What are the limitations of error handling? What are the advantages of exception handling? [6]
ii. Explain character stream class. [6]

[OR]

- B i. Explain (i) throwing an exception (ii) Catching an exception [6]
ii. Briefly explain about implementation of runnable interface with an example [6]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25244 – DATA STRUCTURES USING C

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
L – SCHEME

(Implemented from the academic year 2012 - 2013 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25244
Semester : IV Semester
Subject Title : **DATA STRUCTURES USING C**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|-------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| DATA STRUCTURES USING C | 5 | 80 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|-------------------|---------------------------------|-------------|
| I | INTRODUCTION AND ARRAYS | 13 |
| II | STACKS AND QUEUES | 15 |
| III | LINKED LISTS | 14 |
| IV | TREES AND GRAPHS | 15 |
| V | SEARCHING , SORTING AND HASHING | 13 |
| TEST AND REVISION | | 10 |
| TOTAL | | 80 |

RATIONALE

Data structures are the techniques of designing the basic algorithms for real-life projects. In the present era, it is very essential to develop programs and organize data in such a way that it solves a complex problem efficiently. Understanding of data structures is essential and this facilitates to acquire sound knowledge of the insight of hardware requirement to any problem base. The practice and assimilation of data structure techniques is essential for programming.

OBJECTIVES

- Define Linear and non-linear data structures.
- List and discuss the different types of linear data structures.
- Differentiate Stack and Queue
- Understand the Operations of Stack
- Explain the applications of stack
- Explain Linked lists and its implementation
- 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.
- Write the algorithm for different types of searching.
- Describe hash table and hash function.
- Discuss the various operations on Heap.

DETAILED SYLLABUS

| UNIT I INTRODUCTION AND ARRAYS | | 13 HOURS |
|---------------------------------------|--|-----------------------|
| 1.1 | Elementary data organization: Data, Entity and Information, Data Structure - Definition, Classification, Applications. | 3 Hrs |
| 1.2. | Arrays : Memory allocation for one dimensional arrays, Lower and Upper bounds, Algorithms for the operations on one dimensional array – traversing, sorting, searching, insertion, deletion, merging; Program in 'C' to insert and delete a particular element, Program in 'C' to merge two sorted arrays; Two dimensional array – Row major and column major implementations, finding the address of an element. | 7 Hrs |
| 1.3 | Strings: Strings and their representations using array – String operations – Pattern matching algorithm. | 3 Hrs |

| UNIT – II STACKS AND QUEUES | | 15 HOURS |
|------------------------------------|---|-----------------------|
| 2.1. | Stack: Definition and examples; Primitive operations – push and pop - Representation of Stack- Declaring stack as a structure containing two objects – an array to hold the elements of the stack and an integer to indicate the position of current stack top; Empty and Full stack conditions; implementing the pop and push operations; complete 'C' program to - create a stack, implement PUSH and POP operations and to check FULL and EMPTY conditions. | 5 Hrs |
| 2.2. | Applications of Stack: Infix, postfix and prefix expressions - Basic definition and examples; Algorithms – to evaluate a postfix expression , to convert an expression from infix to postfix, to match the parenthesis; Recursion – Simulation of recursive algorithm for factorial. | 5 Hrs |
| 2.3. | Queues: Definition – Representation of Queue using arrays – Circular Queue, Dequeue, Priority Queue, Array implementation of a priority queue. | 5 Hrs |

| UNIT – III LINKED LISTS | | 14 HOURS |
|--------------------------------|--|-----------------------|
| 3.1. | General Concepts: Introduction, Implementation of linked list – Array Implementation, Pointer Implementation, Advantages and Disadvantages of linked organization. | 3 Hrs |
| 3.2. | Singly linked list(SLL): Types of Linked List, Creation of SLL, algorithms for list operations – Insert and Delete header, last or a specified node; searching for a particular element; Allocating and Freeing a node; Complete program in 'C' to create a list and to print the values; Circular linked list; dangling pointer, garbage collection; | 6 Hrs |
| 3.3. | Doubly linked list (DLL): Declaration, Creation of list, Implementation in 'C'; Algorithm for the operations on DLL – Insert and Delete header, last or a specified node – Differences between SLL and DLL. | 5 Hrs |

| UNIT – IV TREES AND GRAPHS | | 15 HOURS |
|-----------------------------------|---|-----------------------|
| 4.1. | Trees: Basic terminologies of trees – Node, Root, Parent, Child, Link, Sibling, Level, Height, Depth, Leaf, Degree; Binary tree – Full Binary tree, Complete Binary tree; Representation of binary tree – Linear representation, linked representation, Advantages and Disadvantages of both representations; Binary tree traversal – Inorder, Preorder, Postorder traversals; Operations on Binary tree - creation, insertion of left and right child; Tree representation of an arithmetic expression, inorder, Preorder and Postorder expressions from expression tree. | 6 Hrs |
| 4.2. | Binary Search Tree – Definition, Creation of Binary search tree for a given set of values; Searching for an item – Minimum, Maximum or any given value; Applications of Binary tree. | 4 Hrs |
| 4.3. | Graphs: Definition – Graph terminologies – Directed and Undirected graph, Weighted graph, Adjacent Vertices, Self loop, Parallel edges, Path, Cycle, indegree, out degree; complete graph, Connected graph; Representation of graph – Set representation – Adjacency matrix representation – Linked representation – Comparison of representations. | 5 Hrs |

| UNIT – V SEARCHING , SORTING AND HASHING | | 13 HOURS |
|---|--|-----------------------|
| 5.1. | Searching: Definition – Algorithm, Example and C program for sequential search and binary search. | 3 Hrs |
| 5.2. | Sorting: Definition – Algorithm, Example and C program for selection sort, bubble sort, insertion sort, quick sort and radix sort. | 7 Hrs |
| 5.3. | Hashing: Introduction, Hash table, Hash function, Collision, Collision resolution – separate chaining, open addressing; Rehashing – Extendible hashing. | 3 Hrs |

TEXT BOOKS

| Sl.No | TITLE | AUTHOR | PUBLISHER | Year of Publishing/Edition |
|-------|---|--|--|---|
| 1. | Data Structures | SeyMour Lipschutz | Schaum;s outlines, TMH Private Limited,New Delhi | Indian Adapted Edition 2006. 20 th Reprint 2011 |
| 2. | Data Structures with C | SeyMour Lipschutz | Schaum;s outlines, TMH Private Limited,New Delhi | First Reprint 2011 |
| 3. | Data Structures A Programming approach with C | Dharmender Singh Kushwaha and Arun Kumar Misra | Prentice Hall of India, New Delhi | 2012 |

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| Sl.No | TITLE | AUTHOR | PUBLISHER | Year of Publishing/Edition |
|-------|--|--|---|------------------------------|
| 1. | Data Structures and Algorithms | G.A.Vijayalakshmi Pai | TMGH, New Delhi | 6 th Reprint 2011 |
| 2. | Data Structures Using C -1000 Problems and Solutions | Sudipta Mukherjee | TMGH, New Delhi | Second Reprint 2010 |
| 3. | Introduction to Data structures Using C | Venkatesh N.Baitipuli | University Science Press, Chennai | First Edition, 2009 |
| 4. | Classic Data Structures | Debasis Samanta | Prentice Hall of India, New Delhi | 2009 / Second Edition |
| 5. | Principles of Data structures using C and C++ | Vinu V.Das | New Age International Publishers, New Delhi | Reprint 2008 |
| 6. | Data structures Using C | ISRD Group | TMGH, New Delhi | Ninth Reprint 2011 |
| 7. | Data structures | Richard F Gilberg and Behrouz A.Forouzan | Cengage Learning | Second Edition |
| 8. | Fundamentals of Data structures in C | Horowitz , sahani Anderson- freed | University Press, Hyderabad | Second Edition |
| 9. | Data and file structures | Rohit Khurana | Vikas Publishing Ltd | First Edition 2010 |

SEMESTER - IV

25244 – DATA STRUCTURES USING C
MODEL QUESTION PAPER - I

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. Define Data structure.
2. What is an array?
3. List at least two operations that can be performed using arrays.
4. Name the different methods used to implement two dimensional array.
5. What is a stack?
6. List types of expressions.
7. Which status have to be checked during PUSH and POP operations?.
8. Define queue.
9. List the different methods to represent singly linked list.
10. Write the necessary statements in 'C' to delete a node anywhere in the middle of a singly linked list.
11. Linked list is a data structure.
12. What is the advantage of a linked list over an array.
13. Define level of a tree.
14. What is a full binary tree?
15. Define binary search tree.
16. What is a directed graph?
17. Define sequential search.
18. Define insertion sort technique.
19. Define hash table.
20. By which method radix sort is being implemented?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Write an algorithm to insert an element into an array. [6]
 ii. Write a program in 'C' to insert an element at a given location at run time in an array containing ten elements. [6]
- [OR]**
- B i. Describe pattern matching algorithm. [6]
 ii. Write a program in 'C' to merge two sorted arrays. [6]

- 22 A. i. Write the functions to implement PUSH and POP operations. [6]
ii. What is recursion? With your own example, explain the simulation to find factorial of a given number using recursion. [6]

[OR]

- B i. Write and describe the algorithm to evaluate a postfix expression. [6]
ii. Explain Priority queue in detail. [6]
- 23 A. i. Describe the advantages and disadvantages of linked list. [6]
ii. Write down the algorithms to insert and delete the header in a doubly linked list. [6]

[OR]

- B i. Write down the algorithm to insert and delete header node of a singly linked list. [6]
ii. List the differences between SLL and DLL. [6]

- 24 A. i. Describe post order traversal of a tree with your own example. [6]
ii. Describe various graphs with neat diagrams. [6]

[OR]

- B i. Describe tree representation of an infix arithmetic expression and obtain post order expression for the same tree. [6]
ii. Explain Complete graph with a neat sketch. [6]

- 25 A. i. Write a complete program in 'C' for sequential search. [6]
ii. With a set of 10 values explain quick sort method. [6]

[OR]

- B i. Write a program to sort a set of integers using selection sort. [6]
ii. Explain hash table and hash function in detail. [6]

SEMESTER - IV

25244 – DATA STRUCTURES USING C
MODEL QUESTION PAPER - II

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. What is an entity?
2. Name the two components required to obtain the address of any location of an array and its size.
3. Write the statement in 'C' to declare a two dimensional array and initialize.
4. List the various string operations.
5. Name the primitive operations of stack.
6. State any two applications of a Stack.
7. Give an example for infix expression.
8. What is a priority queue?
9. What are the two fields a SLL has?
10. Write down the name of the dynamic data structure.
11. Describe the purpose of the link fields of a doubly linked list.
12. What is dangling pointer?
13. Define degree of a tree.
14. Define Binary search tree.
15. Define graph.
16. Define cycle of a graph.
17. Define pass in sorting techniques.
18. Insertion sort requires the initial list to insert a new element.
19. Define collision.
20. What is meant by rehashing?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- | | | | | |
|---------------|----|-----|---|-----|
| 21 | A. | i. | Describe memory allocation for one dimensional array with necessary diagrams. | [6] |
| | | ii. | Write a program in 'C' to delete a particular element in an array. | [6] |
| [OR] | | | | |
| | B | i. | Describe the algorithms for traversing a array and searching for a value in an array. | [6] |
| | | ii. | Write a program in 'C' depicting any two string operations. | [6] |

- 22 A. i. Write a program in 'C' to check empty and full conditions of a stack. [6]
ii. What is a circular queue? Highlight the advantages of circular queue over linear queue. [6]

[OR]

- B i. Write down the algorithms to implement PUSH and POP operations of a stack. [6]
ii. Write down the algorithm to match the parenthesis in an expression. [6]

- 23 A. i. Describe the pointer implementation of a singly linked list. [6]
ii. Write down the algorithm to search for a particular element in a SLL. [6]

[OR]

- B i. Describe Circular linked list in detail with necessary diagram. [6]
ii. Write a program to create a doubly linked list containing a minimum of five elements and print the values. [6]

- 24 A. i. Explain tree representation of an arithmetic expression. [6]
ii. Describe the method of creation of a binary search tree for a set of values. [6]

[OR]

- B i. Explain linear representation of a binary tree. [6]
ii. Explain adjacency matrix method of representation of a graph. [6]

- 25 A. i. Describe binary search algorithm with an example. [6]
ii. Write a program in 'C' to implement bubble sort method. [6]

[OR]

- B i. Describe any one collision resolution method. [6]
ii. Write selection sort algorithm with your own set of values. [6]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25245 – JAVA PROGRAMMING PRACTICAL

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

**STATE BOARD OF TECHNICAL EDUCATION & TRAINING,
TAMILNADU**

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering
Subject Code : 25245
Semester : IV semester
Subject Title : **JAVA PROGRAMMING PRACTICAL**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|-----------------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| JAVA PROGRAMMING PRACTICAL | 6 | 96 | 25 | 75 | 100 | 3 Hrs |

OBJECTIVES:

At the end of the Course, the students will be able to

- Analyze the given problem
- Think the logic to solve the given problem
- 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.
- Work with files.

LAB EXERCISES

PART - A

1. Write a program to print the individual digits of given 3-digit number.
2. 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."
3. Write a program to find the three digit Armstrong numbers.
4. Write a program to read N numbers and find the largest and smallest numbers.
5. 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'.
6. Write a program to display total marks of 5 students using student class. Given the following attributes: Regno(int), Name(string), Marks in three subjects(Integer Array), Total (int).
7. Write a program to show how a class implements two interfaces.
8. Write a Java program to create your own exception subclass that throws exception if the sum of two integers is greater than 99.
9. Write a program to create a text file using Byte stream classes
10. Write a program to copy a file to another file.

PART – B

1. 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
2. a) Create a **StringBuffer** object and illustrate how to append characters. Display the capacity and length of the string buffer.

- b) Create a **StringBuffer** object and illustrate how to insert characters at the beginning.
- c) Create a **StringBuffer** object and illustrate the operations of the append() and reverse() methods.
3. 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”.
4. 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 initializers 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)
5. Write a program to create a player class. Inherit the classes Cricket_player, Football_player and Hockey_player from player class.
6. Write a program to create a package for Book details giving Book Name, Author Name, Price, Year of Publishing.
7. 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.
8. Create an applet for simple calculator to perform Addition, Subtraction, Multiplication and Division using Button, label and Text field classes.
9. Draw a bar chart for the following details using Applets.
- | Subject | Tamil | English | Maths | Physics |
|---------|-------|---------|-------|---------|
| Marks | 78 | 85 | 98 | 56 |
10. Write a Java program for generating two threads, one for printing even numbers and other for printing odd numbers.

SCHEME OF VALUATION

| | |
|---------------------------------------|----------|
| Writing any one program from PART - A | 10 Marks |
| Writing any one program from PART - B | 15 Marks |
| Executing program (PART – A) | 15 Marks |
| Executing program (PART – B) | 20 Marks |
| Result with printout (PART – A) | 5 Marks |
| Result with printout (PART – B) | 5 Marks |
| VIVA - VOCE | 5 Marks |
| TOTAL | 75 Marks |

Note : Student : Computer ratio in lab should be strictly 1:1

HARDWARE REQUIREMENT

- Desktop Computers – 36 Nos
- Laser Printer – 4 Nos

SOFTWARE REQUIREMNT

- JDK1.3 OR JDK1.4



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25246 – DATA STRUCTURES USING C PRACTICAL

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN COMPUTER ENGINEERING SYLLABUS
L – SCHEME

(Implements from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25245
Semester : IV semester
Subject Title : **DATA STRUCTURE USING C PRACTICAL**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|---|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| DATA STRUCTURE USING C PRACTICAL | 6 | 96 | 25 | 75 | 100 | 3 Hrs |

RATIONALE

To provide the hands on experience on implementation of linear and non-linear data structure , this course will be introduced . 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 units of syllabus contents, the students must be able to

- Understand the use of arrays
- Use of arrays and pointers.
- 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.
- Write programs for sorting.

LAB EXERCISES

1. Write a program in 'C' to insert, delete an element from an array of elements. Also print the position of a particular element
2. Write a program in 'C' to merge two sorted array elements into a single array
3. Write a program in 'C' to create a two dimensional array with at least ten elements. Search for a particular element and print its position and address of the element.
4. Write a program in 'C' to perform operations in stack by using array.
5. Write a program in 'C' to convert an infix expression into postfix expression.
6. Write a program in 'C' to evaluate a postfix expression.
7. Write a program in 'C' to create a queue containing ten elements and perform delete and insert operations using array.
8. Write a program in 'C' to create a singly linked list containing at least five elements. Make necessary assumptions.
9. Write a program in 'C' to delete the first node that contains an integer data item of a single linked list.
10. Write a program in 'C' to create and display the contents of a doubly linked list.
11. Write a program in 'C' to create a binary tree.
12. Write a program in 'C' for pre-order traversal of a binary tree.
13. Write a program in 'C' for binary searching
14. Write a program in 'C' to sort 'N' Numbers using Insertion sort.
15. Write a program in 'C' to sort 'N' Numbers using bubble sort.

SCHEME OF VALUATION

| | |
|--------------------------------|----------|
| Write any Two programs (20+20) | 40 Marks |
| Execute any One program | 20 Marks |
| Result with printout | 10 Marks |
| VIVA - VOCE | 5 Marks |
| TOTAL | 75 Marks |

HARDWARE REQUIREMENT

- Desktop Computers – 36 Nos
- Laser Printer – 4 Nos

SOFTWARE REQUIREMENT

- C – Compiler with Editor



DIPLOMA IN ENGINEERING/TECHNOLOGY

L - SCHEME

2011 - 2012

COMMUNICATION AND LIFE SKILLS PRACTICAL

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

**STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
L-SCHEME**

(Implemented from the Academic year 2011-2012 onwards)

Course Name : DIPLOMA IN ENGINEERING/TECHNOLOGY

Subject Code : **20002**

Semester : **IV SEMESTER**

Subject Title : **COMMUNICATION AND LIFE SKILLS PRACTICAL**

TEACHING AND SCHEME OF EXAMINATION:

No. of Weeks per Semester: 16 Weeks

| Subject Title | Instructions | | Examination | | | Duration |
|---|----------------|--------------------|------------------------|----------------------|-------|----------|
| | Hours/ Week | Hours/ Semester | Marks | | | |
| | | | Internal assessment | Board Examination | Total | |
| COMMUNICATION AND LIFE SKILLS PRACTICAL | 4 Hours | 64 Hours | 25 | 75 | 100 | 3 Hours |

Topics and Allocation of Hours:

| Sl. No. | Section | No. of Hours |
|---------|-----------------------------------|--------------|
| 1 | Part-A:Monodic Communication | 16 |
| 2 | Part-B:Dyadic Communication | 16 |
| 3 | Part-C:Professional Communication | 16 |
| 4 | Part-D:Life Skills | 16 |
| Total | | 64 |

RATIONALE

Nowadays, effective and error free communication is a basic need. Communication through English is the order of the day for entry and survival in any corporate. Training in Monodic communication (one man communication) Dyadic communication (a pair communication) and Professional communication (may be Monodic, Dyadic or Group communication) is attempted through these practical modules. One can improve one's communication skills by enriching one's vocabulary , particularly active vocabulary and standard everyday expressions and using them in various contexts. Practice alone, both on the campus and outside the campus, can help a learner to grow proficient in the art of Communication.

Language is the most commonly used and effective medium of self-expression in all spheres of human life - personal, social and professional. A student must have a fair knowledge of English language use and various communicative functions. He/she must be able to pursue the present course of study and handle the future jobs in industry. The objective of the course is to assist the diploma holders to acquire proficiency in monodic, dyadic and professional communication skills and selective but most important life skills. At the end of the course, the student will be able to communicate his ideas fearfree and error free, in social and professional spheres of life and imbibe life skills.

SPECIFIC INSTRUCTIONAL OBJECTIVES

Communication is crucial as it influences every aspect of one's personal development. Having a sound grounding in reading and writing techniques allows a student to progress on to higher level literacy skills. Many students struggle because their basic decoding is so inaccurate that advanced comprehension is difficult for them. Because of their poor exposure and poor use of English language in various spheres of life they suffer proper communication. They also tend to be 'afraid' of words and in turn they are not able to develop their personal vocabulary. In other words, without solid literacy skills, the student's prospects and life chances are limited. It is a fact that Communication skills and Life Skills shapes one's personality.

MONODIC COMMUNICATION

The student is able to:

1. Practise using departmental words and terminology in sentences.
2. Prepare and perform oral presentations.
3. Introduce oneself and others.
4. Deliver welcome address and vote of thanks.
5. Compere a program.
6. Describe the visuals.
7. Take notes, answer very short questions.
8. Comprehend an auditory/oral passage.

DYADIC COMMUNICATION

The student is able to:

1. Adopt various communicative functions.
2. Prepare and perform a dialogue.
3. Adopt the basics of telephone etiquette.

PROFESSIONAL COMMUNICAITON

The student is able to:

1. Prepare a resume.
2. Take part in a group discussion.
3. Communicate through body language.
4. Adopt the interview skills with professional presence.
5. Perform mock interview.

LIFE SKILLS

The student is able to:

1. Prepare for and deal with change.
2. Adopt motivation, goal-setting and self-esteem.
3. Adopt Teamwork skills.
4. Adopt Time management.
5. Adopt Emotional intelligence skills.
6. Assert Positively.
7. Adopt Interview etiquette.
8. Plan career.
9. Understand Strength, weakness (long term, short term).

LEARNING STRUCTURE

To enable the students to practise monodic communication, dyadic communication professional communication and imbibe life skills through various modes of practical learning and assignments.

| PROCEDURE | MONODIC COMMUNICATION | DYADIC COMMUNICATION | PROFESSIONAL COMMUNICATION | LIFE SKILLS |
|-------------------|---|--|---|---|
| PRINCIPLES | identifying various platforms | Exposure to dialogue situations, exposure to telephone etiquette. | Exposure to resume writing, group discussion, interviews. | Exposure to selective life skills/problem solving skills. |
| CONCEPTS | Sharing opinions, feeling, with or without audience. | Understanding the basic communicative functions. Conversing with a neighbour | Writing resume, performing group discussion, facing interviews. | Imbibe and practise the selective life skills. |
| FACTS | Oral presentation, art of introduction, enhancing the list of active vocabulary, listening skills, note taking skills, describing skills. | Audio tapes, compact disk, mikes, various contexts. | FAQ, Resume models, Audio tapes, compact disk, mikes. | Stories, anecdotes, incidences, case studies and assignments. |

COMMUNICATION AND LIFE SKILLS PRACTICAL

SYLLABUS

PART A: MONODIC COMMUNICATION

(16 hours/ periods)

- a) **Vocabulary enrichment:** recording important words and terminology alphabetically connected to the concerned department – playing antakshari.
- b) **Introducing oneself:** using greeting phrases – opening and closing with courteous notes – supplying personal information.
- c) **Introducing others:** using greeting phrases – opening and closing with courteous notes – with information.
- d) **Welcome address, vote of thanks and compering a program:** keeping notes – and personal information of the dignitaries – concerned.
- e) **Making an Oral Presentation:** Preparing the presentation - Talking about people, animals and places – Keywords technique and the rehearsal – Presentation outline – Performing the presentation – answering the questions.
- f) **Oral description:** a picture from an English magazine – a visual ad – a natural scene.
- g) **Auditory/Oral comprehension** – small passage – small dialogue -very short story – note - taking skill.
- h) **News Caption:** giving caption for a news item from an English daily.

PART B: DYADIC COMMUNICATION: COMMUNICATIVE FUNCTIONS

(16 hours/ periods)

- a) **Dialogue:** preparing and performing - Meeting people, exchanging greetings and taking leave – Giving instructions and seeking clarifications – Thanking someone and responding to thanks - minimum seven exchanges including the courteous openings and closings – ten common contexts.
- b) **Telephonic dialogue:** telephonic etiquette - Answering the telephone and asking for someone – Dealing with a wrong number – Taking and leaving messages – Making enquiries on the phone- ordering for supply-bookings and arrangements-handling the complaints – calling for appointment.

PART C: PROFESSIONAL COMMUNICATION

(16 hours/ periods)

- a) Group Discussion - Taking part in a Group Discussion – focus on team spirit.
- b) Interview - Frequently asked questions in an interview – Mock interview - Body language.
- c) Resume Writing – components.

PART D: LIFE SKILLS

(16 hours/ periods)

- a) Preparing for and dealing with change.
- b) Motivation, goal-setting and self-esteem.
- c) Teamwork skills.
- d) Time management

- e) Emotional intelligence skills
- f) Career planning.
- g) Assertive Skills.
- h) Interview skills.

References :-

- 1) Malcolm Goodale, Professional Presentations with VCD, Cambridge University Press
- 2) B.Jean Naterop and Rod Revell, Telephoning in English with 2 Audio CDs Cambridge University Press
- 3) Priyadarshi Patnaik, Group Discussion and Interview Skills with VCD, Cambridge University Press
- 4) Kamalesh Sadanand and Susheela Punitha, Spoken English: A Foundation Course for Speakers of Tamil, Orient BlackSwan.
- 5) S. P. Dhanavel, English and Soft Skills, Orient BlackSwan
- 6) Robert Sherfield and et al, Developing Soft Skills, Pearson Education.
- 7) Poly Skills: A course in communication skills and Life skills, Cambridge University Press.
- 8) English and Communication Skills for Students of science and Engineering by S.P.Dhanavel , Orient BlackSwan.
- 9) Speak Well, edited by Kandula Nirupa Rani, Jayashree and Indira, OrientBlackSwan.
- 10) Fifty ways to improve your telephoning and teleconferencing Skills by Ken Taylor -

COMMUNICATION AND LIFE SKILLS PRACTICAL

Model Question Paper - 1

Time: 3 hrs

Max Marks: 75

PART –A (35 Marks)

Monodic Communication:

1. Introduce one self (5)
 2. Use the mentioned words orally in sentence (2x2 ½ =5)
 3. Prepare and present a welcome address for your college annual day programme. (5)
 4. Listen to the passage read out from the English daily of the week of the examination. Please note: No prerecorded passage (10)
 5. Write a news caption for the passage given from the English daily. (5)
 6. a) Describe orally the visual or the picture found in the English daily of the week of the examination. (5)
- (Or)
- b) Make an oral presentation about an animal.

PART – B (15 Marks)

Dyadic Communication:

1. Play antakshari of five pairs of departmental words with your partner. (5)
 2. Prepare and perform a dialogue with your partner on the given situation (10)
(minimum seven exchanges)
- Or
- Prepare and perform a telephonic dialogue on a flight booking.
(minimum seven exchanges)

PART-C (25 Marks)

Professional Communication:

1. Form a group of six members and perform a discussion on the given theme. (10)
 2. Imagine you are V.Gokulraj ,a diploma holder. Prepare a resume for the post of supervisor in Oberoi computers Ltd.Chennai. (10)
- Professional appearance:** Interview etiquette-dress code- Body language (5)

COMMUNICATION AND LIFE SKILLS PRACTICAL

Model Question Paper - 2

Time: 3 hrs

Max Marks: 75

PART –A (35 Marks)

Monodic Communication:

1. Introduce your friend S.Mohan an a excutive engineer to a group of audience. (5)
 2. Use the mentioned words in sentence orally. (2x2 ½ =5)
 3. Prepare and present a Vote of thanks in your college sports day programme. (5)
 4. Listen to the passage read out from the English daily of the week of the examination. Please note: No prerecorded passage (10)
 5. Write a news caption for the passage given from the English daily. (5)
 6. a) Describe the visual or the picture found in the English daily of the week of the conduct of the examination. (5)
- (Or)
- b) Make an oral presentation about your polytechnic college.

PART – B (15 Marks)

Dyadic Communication:

1. Play antakshari of five pairs of your departmental words with your partner. (5)
 2. Prepare and perform a dialogue with your partner on the given situation (10)
- (minimum seven exchanges)

(Or)

Prepare and perform a telephonic dialogue on ordering the supply of a computer

(minimum seven exchanges)

PART-C (25 Marks)

Professional Communication:

1. Form a group of six members and perform a discussion on the given theme. (10)
2. Imagine you are M.Kishore a diploma holder. Prepare a resume for the post of operating engineer in REC Electricals Ltd.Madurai. (10)
3. **Professional appearance:** Interview etiquette-dress code- Body language (5)

NOTES OF GUIDANCE

Role of the media:

To equip a learner with vocabulary, particularly active vocabulary and standard everyday expressions ,using English dailies and watching selective English T.V. channels both in the classroom and outside the classroom is focused. Such a provision is recommended for the students to establish familiarity with the English dailies and selective English T.V. channels.

Minimum two copies of two English dailies in the laboratory room (students can bring their own copies also).Minimum two systems with net connection for information collection in the laboratory itself.

Synopsis of the news item:

During every lab work day, students must choose a news item from the English daily or weekly or monthly, and write a synopsis of the chosen news item, in not more than five lines. The news item should be pasted on the left page and synopsis on the right page (the chosen news item should not be politically, socially or communally controversial). Students should exercise care in choosing the news items. Teachers have to advise them on this aspect. This can be done outside the class hours also but every record exercise should begin with the synopsis of news item of the date of the lab session.

For example, first lab exercise namely departmental vocabulary and antakshari is performed on 15/12/2011. The student should choose a news item from any English daily of 15/10/2011 and record the synopsis on the right page (in not more than 5 lines) under the caption **Synopsis of the news item of the day/date 15/10/2011**.There is no harm in repeating or copying the lines form the passage. The essence of the passage should be there. The cutout news item for presenting the synopsis should be pasted on the left page of the record notebook.

This is to be done with interest for developing one's personality. This work **does not carry any marks** but without which the record exercise should not be valued. This is the precondition for valuing the record exercise. Each record exercise follows the synopsis of the chosen news item.

At the bottom of the synopsis, the student should record the **dictionary meaning** of atleast **one strange word** found in the chosen news item. At the end of every month, a minimum of 10 Headlines of 10 different days i.e. one Headline a day from anyone English daily should be pasted on the right or left page of the Record Note Book. (This work does not carry marks but this is the precondition for marking the record exercises)

External examiner, before signing the record notebook, should verify whether the Newspaper works were recorded/pasted in the record notebook.

Verbal communication in any language begins with sounds in isolation, union and word formation. Learning everyday words and expressions is the primary factor. Grammar comes next. One can enrich one's every day vocabulary by reading English magazines and listening to or watching an English channel on television. So an English laboratory should be equipped with a minimum of two copies of two English dailies and English weeklies or monthlies.

Watching English channels helps the students improve their vocabulary and expressions. If there is a provision, students may be permitted to watch selective, mind corruption free English channels (sports, education, news, animal channels and so on) for at least 15 min. during the English lab sessions. This will serve as motivation for the students and help them shed their inhibition.

What is antakshari? (Polar word game)

This game can be played on the stage by two or three students using the departmental words. Suppose Mr. A belongs to Dept. of Electrical and Electronics and he says his departmental word 'ampere'. Mr. B has to supply a word beginning with the ending letter of Mr. A's word. The word ampere ends with the letter 'e' so Mr. B says 'electrical'. Mr. A has to continue with the letter 'l'. Like that five pairs of words are to be spoken. (**Letter ending only, not sound ending.**) Suppose departmental words are not available in some English letters like 'x', 'y', 'z' the students may be permitted to use common words.

ANTAKASHARI (Five Exchanges) (Dept. of Mechanical Engineering.)

EXAMPLE:

| Mr. A | Mr. B |
|-------------|-----------|
| 1. Governor | Reservoir |
| 2. Rack | Kelvin |
| 3. Nut | Tool |
| 4. Lathe | Emission |
| 5. Naphtha | Anvil |

Introducing oneself:

One is not expected to introduce one's family. One or two sentences on his family will do. Care must be taken to include general proficiency, titles and merits, awards possessing or secured in academic activities like paper presentation, participation in inter polytechnic or intra polytechnic competitions, sports activity, forums like NCC, NSS, hobby, ambition, strengths and weaknesses.

Introducing others – merits – credentials—one or two points on his family.

Vote of thanks / Welcome address. No doubt it should be all-covering but Focus should be on the important persons/invitees/chief guest and the message of the speaker.

Description (pictures from English weekly/daily) Pictures may be displayed through projector or Magazine cuttings may be used. Just five lines on the picture will do.

Auditory/oral comprehension: A Passage from any English daily of the week of the examination is to be read out for two to three minutes in the end examination. Display of recorded passages can be used as an addition in the class room. The use of pre-recorded passage discouraged in the end examination.

Oral presentation: Students must be encouraged to use English magazines and internet for collecting information on the topic, noting keywords and use them in their presentation in his own language. One must be able to talk extempore for 2 min on any topic, given a time of two minutes for organizing his/her thoughts. The topics can be kept simple and general (current events of interest like sporting event for headline of the day). It must be totally an oral activity without the aid of any other media.

News Caption: A news item ,without heading,of not more than ten lines from an English daily of the week of the conduct of Examination is to be given. The caption may be a passive construction or a catchy phrase on the given news item.

Face to face dialogue: Selective nine situations / topics are to be performed in the class room. (Minimum seven exchanges with courteous openings and closings).

Telephonic dialogue: Selective seven situations to be given. (Minimum seven exchanges).

Resume writing: cover letter—the components of a resume like sender’s address, recipient’s address, career objective to be explained.

Group Discussion: Topics of common interest, avoiding controversial ones, are to be given for discussion. A group may consist of six members.

Students should be exposed to 44 phonemes (sounds) in English language and their symbols.

There shall be no question on this end examination.

COMMUNICATION SKILLS EXERCISES:-

1. Departmental Vocabulary alphabetically (using it in sentence, antakshari).Using the words orally in sentences
2. Introducing oneself and others
3. Vote of thanks / Welcome address
4. Description (pictures from English weekly/daily)
5. Auditory/oral comprehension
6. Oral presentation
7. Face to face dialogue
8. Telephonic dialogue
9. Resume writing
10. Group Discussion

Communication Skills:

Ten Marks for each exercise leading to a maximum of hundred marks in total.

The total marks to be reduced to an average of ten marks.

Texts of the performed activities to be recorded in the Record Note book. Synopsis of the news item of the day/date is mandatory at the beginning of every record exercise.

Life Skills:

- i) Preparing for and dealing with change.
- j) Motivation, goal-setting and self-esteem.
- k) Teamwork skills.
- l) Time management
- m) Emotional intelligence skills
- n) Career planning.
- o) Assertive Skills.
- p) Interview skills.

Life skills are to be intensely inculcated through lectures, quotes, anecdotes and case studies. An excellent awareness of the eight essential life skills is to be created through continuous internal assessment. Five assignments in these topics are to be recorded in the record note book.

- A minimum of five assignments on five different topics.
- Each assignment to be assessed for twenty marks.
- The total marks to be reduced to an average of ten marks.
- All the topics to be covered in the lab.

TIME MANAGEMENT IN THE END EXAM.

For written part 30 min

- Written part of the examination should be the first / beginning of the examination, monadic oral exam to start during the written exam.

Written Part exercises:

- auditory / oral comprehension.
- Resume writing.
- Giving news caption for the passage.
- During the written examination time of 30 minutes, monadic communication examination may also take place simultaneously.

MONODIC COMMUNICATION (ONE MAN COMMUNICATION)

Oral part – 75 min.

Both internal and external examiners (simultaneously) are to examine the students.

Five minutes for each student. 15 students for external & 15 students for internal and within 75 minutes both internal and external examiners complete the monadic communication exam.

DYADIC COMMUNICATION (ONE PAIR COMMUNICATION)

- 5 min for each pair.
- 15 pairs in total. 8 pairs for external and 7 pairs for internal examiner. (8x5=40 min) within **40 min** both internal and external examiners complete the dyadic communication exam.
- The students examined by the external for monadic exam are to be examined by the internal for dyadic and vice versa.

PROFESSIONAL COMMUNICATION

- 30 min for group discussion.
- 6 members in each group.
- 5 min for discussion for each group.
- Both internal and external examiners to supervise / examine simultaneously one group each.
- Within fifteen minutes all the six groups to be examined.

LABORATORY REQUIREMENT

1. An echo-free room for housing a minimum of sixty students.
2. Necessary furniture and comfortable chairs
3. Public Address System.
4. A minimum of two Computers with internet access, with Audio for Listening Skill and related software packages.
5. A minimum of Two different English dailies.
6. A minimum of one standard Tamil daily.
7. Headphone units – 30 Nos. with one control unit with a facility to play and record in Computer.
8. A minimum of Three Mikes with and without cords.
9. Colour Television (minimum size – 29”).
10. DVD/VCD Player with Home Theatre speakers.
11. Clip Chart, white board ,smart board.
12. Projector.
13. video camera.
14. Printer,Xerox,scanner machines **desirable**.
15. English Weeklies/monthlies/journals like ELTOI **desirable**.
16. Frozen thoughts –monthly journal for Lifeskills by Mr.Rangarajan / www.frozenthoughts.com

Mark Pattern

| | | |
|--------------------------------------|---|-----------------|
| End Examination | – | 75 Marks |
| Monodic Communication | – | 35 Marks |
| Dyadic Communication | – | 15 Marks |
| Profession Communication | – | 20 Marks |
| Professional Appearance | – | 5 Marks |
| Internal Assessment | | 25 Marks |
| Communication skills Record Notebook | | 10 Marks |
| Life skills assignments | | 10 Marks |
| Attendance | | 5 Marks |

COMMUNICATION AND LIFE SKILLS PRACTICAL

Allocation & Statement of Marks

Duration:3Hrs.

Name of the Candidate

Reg. No.

A. Monodic communication : 35 Marks

| Introduction (5 mks) | Use in sentence (5 mks) | Vote of thanks / welcome address (5 mks) | Auditory/Oral comprehension (10 mks) | Description/ Oral presentation (5 mks) | News caption (5 mks) | Total (35 mks) |
|-------------------------|-------------------------------|--|--|---|----------------------------|-------------------|
| | | | | | | |

B. Dyadic communication: 15 Marks

| Antakshari (5 mks) | Dialogue (10 mks) | Total (15 mks) |
|-----------------------|----------------------|-------------------|
| | | |

C. Professional communication: 20 Marks

| Group Discussion (10 mks) | Resume (10 mks) | Total (20 mks) |
|------------------------------|--------------------|-------------------|
| | | |

D. Internal Assessment: 25 Marks

| Record Notebook Commn.skills (10 mks) | Assignments Life Skills (10 mks) | Attendance (5 mks) | Total (25 mks) |
|--|-------------------------------------|-----------------------|-------------------|
| | | | |

Professional Appearance:

/ 5 Marks

Total :

/ 100 Marks

Internal examiner

External examiner

FACE TO FACE DIALOGUE TOPICS

1. Between Friends (On any acceptable topic).
2. Between a conductor and a passenger.
3. Between a doctor and a patient.
4. Between a Shopkeeper and a Buyer.
5. Between a Teacher and a Student.
6. Between a tourist and a guide.
7. In a Bank.
- 8 At a railway enquiry counter.
9. Lodging a complaint.

Note: A resourceful teacher may add a few more topics of common interest.

TELEPHONIC DIALOGUE TOPICS

1. Placing an order.
2. Making Enquiries.
3. Fixing appointments
4. Making a hotel reservation.
5. Dealing with a wrong number.
6. Travel arrangements.
7. Handling complaints.

MECHANICAL DEPARTMENTAL VOCABULARY FOR ANTAKASHARI AND USING IN SENTENCES

EXAMPLE:

A:

1. **Anvil – made of cast Iron used in foundry shop.**
2. Axle – A metal rod that connects two wheels.
3. Alloy – alloy is a mixture of two or more metals.
4. Addendum – distance between top of gear teeth and pitch circle.
5. Annealing – It is a heat treatment process for softening the metals.

B:

1. Bearing – it is which supports the shaft.
2. Bolt – it is a type of fastener. Combined with screw.
3. Brake – it is used to halt an auto mobile vehicle.
4. Beed – steel wiring used in tyres to withstand stress.
5. Baffles – it is used to reduce noise, filter dust particles in auto mobile.

C:

1. Cam – it is a lobe like structure, which actuates the valve.
2. Crown – the slope like structure in the piston.
3. Calipers' – they are measuring instruments.
4. Clutch – it is used to disengage and engage the fly wheel and main shaft.
5. Chamber – it is the distance between vertical line and tyre center line.

D:

1. Damper – it is a type of shock absorber, reduces the vibration.
2. Differential – it controls the speed of rotating wheel in the rear axis.
3. Diaphragm – it is used to separate two layers.
4. Detonation – it is the continuous knocking with serious effect on cylinder head.

E:

1. Evaporator – it absorbs heat to vapourise liquid into air
2. Engine-the place where fuel is burnt and heat energy is converted. mechanical energy
3. Electrolyte-it is a liquid substance which is used to transfer current or any metal particle.
4. Emission-the release of burnt gas from automobile.
5. Elongation-the increase of dimension due to application of load.

F:

1. Filter-which is used to remove dust particles.
2. Friction-the resistance on wear occur due to rubbing of two metals.
3. Fly wheel-the wheel like structure used to balance the uneven weight in engine.
4. Fuel – it is a substance that burns with oxygen in the air.
5. Factor of safety - it is the safety limit after which the material will break down.

G:

1. Governor – it is used to control the flow of fuel according to load.
2. Gear – it is used to transmit power from one place to another.
3. Generator – it is used to generate power.
4. Gasket – it prevents the leakage and to provide sealing effect.
5. Goggle – the protective device used to guard the eyes.

H:

1. Hub – it is the center part of wheel.
2. Hammer – it is used to beat sheet metals.
3. Hydraulics – it deals with fluid for various function.
4. Hatching – it is used to highlight the parts in drawings.
5. Head stock – it is the main function unit of lathe.

I:

1. Ignition – it is the function by which fuel is burnt.
2. Injection – it is the process of spraying fuel into engine block.
3. Impeller – it is which converts kinetic energy into pressure energy.
4. Inventory – it is the place where raw materials are stored.
5. Idling – it is the condition at which the automobile engine at stationary state.

J:

1. Jig – it guides the tool and hold the job.
2. Jaw – it is teeth like structure used to hold work pieces.
3. Jog mode – Jog mode is used to give manual feed for each axis continuously.
4. Junk – it is known as waste material in industry.
5. Journal – It is a type of bearing.

K:

1. Keyway – it is a specific path made in shaft to joint parts.
2. Knocking – the sound produced due to Burning of uncompleted burnt fuel.
3. Kelvin – it is the degree of hotness.
4. Knurling – it is the process of lathe done to work piece to improve the gripness.
5. Knuckle joint – It is a type of joint used to connect two work pieces.

L:

1. Lubrication – process of reducing heat by applying cooling substances.
2. Layering – it is used to draw parts of a machine separately and combine together.
3. Lever – it is a supported arm used to engage gears.
4. Lathe – it is the father of machines used in turning operations.
5. Lead screw - it is the screw through which the carriage travels.

M:

1. Manometer – it is used to measure the pressure of fluids.
2. Milling – process of removing metal from work piece by rotating cutting tool.
3. Manifold – it is a passage made for flow of fuel in automobile.
4. Moulding – it is the process of passing hot liquid metal into mould made through sand.
5. Module – it is a metric standard used to identify or specify pitch.

N:

1. Nozzle – it is used to reduce the pressure and increases the velocity.
2. Nut – it is a type of fastener used to couple with screw.
3. Nomenclature – Dimensional property of specific part on component is notified by nomenclature.
4. Neck – Distance between drills body and shank.
5. Naphtha – kind of inflammable oil.

O:

1. Orthography – it is the three dimensional view of an object.
2. Ovality – Elliptical shape of piston.
3. Over haul – it is the complete checking and servicing of a machine or vehicle.
4. Optimum temperature – suitable temperature condition for certain process on working.
5. Offset – it is by which the axis of certain job is defined.

P:

1. Pinion – a small gear is called pinion.
2. Pulley – A cylindrical object used to connect belt for transmitting power.
3. Pump – it is which transfers fluid from one place to another.
4. Piston – it is which transfer power from combustion chamber to connecting rod.
5. Port – it is the opening in two stroke engine for movement of fuel and exhaust.

Q:

1. Quilt – it is used to give automatic feed in machines.
2. Quality control – it is an inspection processl.

R:

1. Reaming – it is the operation used to finish inner surface of a hole.
2. Reservoir – it is used to store fuel or any liquid.
3. Rack – it is a spur gear with infinite radius.
4. Retainer – it is used to bring back to the original position.
5. Radiator – it is the part used in automobile for cooling water.

S:

1. Shackle – it is a rod connected to leaf spring.
2. Spring – it is a circular rod which compresses on load and retracts when released.
3. Strainer – it is used to remove micro particles.
4. Shock absorber - it is used to reduce vibration and give cushioning effect.
5. Suspension- it is used to absorb shocks and give cushioning effect.

T:

1. Tail stock – it is used in lathe to support the job.
2. Tool – it is a metal removal device.
3. Torque – it is the twisting load given on a work piece.
4. Trimming – it s the process of removing excess metal .
5. Turning – it is a metal cutting process used to reduce diameter.

U:

1. Universal joint-it is used to connect propeller shaft and differential unit.
2. Universal divider head- it is used to index various components.

V:

1. Valve – valve is the part used in automobile for flow of fuel and exhaust to cylinder head.
2. Vent hole – it is the hole made in casting for ventilation purpose.
3. Vulcanizing – it is the process of adding carbon to rubber.
4. Vibration – it is caused due to the movement in an uneven surface.
5. Velocity-rate of change of displacement.

W:

1. Wheel-it is a circular object which rotates and moves the vehicle.
2. Wiper-it is used in wind shield to remove water droplets.
3. Work piece-it is the material in which various processes are done to make a component.
4. Wage-it is the amount paid to a worker for his work.
5. Washer-washer is a component used in fasteners to reduce gap.

Y:

1. Yawing-the turning of wind mill towards direction of air is called yawing.
2. Yoke-it is which holds the other end of spindle in milling machine.
3. Yield stress-It is the stress above which it will attain the breaking stress.
4. Young's modulus-it is the ratio between stress and strain.

Pl.note: Suppose departmental words are not available in some English letters like

'x' 'y' 'z' the students may be permitted to use common words. This is only an example. Another student of Mechanical Engineering can have different sets of words under each letter of the English alphabet. Like that there may be variety of sets. The most important point is that One is not supposed to murmur but speak the words intelligibly in an audible manner. Swallowing the words will deprive a student of winning a selection in an interview. In the same way, students of other Departments can have different sets of words of their departments under each letter of the English alphabet.

TELEPHONE LANGUAGE AND PHRASES IN ENGLISH

Answering the phone

" Good morning/afternoon/evening, Madras Enterprises, Premila speaking."

" Who's calling, please?"

Introducing yourself

" This is Raghavan speaking."

" Hello, this is Raghavan from Speak International."

Asking for someone

" Could I speak to Mr. Raman, please?"

" I'd like to speak to Mr Raman, please."

" Could you put me through to Mr Raman, please?"

" Could I speak to someone who ..."

Explaining

" I'm afraid Mr. Raman isn't in at the moment".

" I'm sorry, he's in a meeting at the moment."

" I'm afraid he's on another line at the moment."

" Putting someone on hold"

" Just a moment, please."

" Could you hold the line, please?"

" Hold the line, please."

Problems

" I'm sorry, I don't understand. Could you repeat that, please?"

" I'm sorry, I can't hear you very well. Could you speak up a little, please?"

" I'm afraid you've got the wrong number."

" I've tried to get through several times but it's always engaged."

" Could you spell that, please?"

Putting someone through

" One moment, please. I'll see if Mr Raman is available."

" I'll put you through."

" I'll connect you."

" I'm connecting you now".

Taking a message

" Can I take a message?"

" Would you like to leave a message?"

" Can I give him/her a message?"

" I'll tell Mr. Raman that you called"

" I'll ask him/her to call you as soon as possible."

" Could you please leave your number? I shall ask him to get back to you."

Pl.note: The above ones are samples only. A resourceful teacher may add more.

DAY-TO-DAY EXPRESSIONS (For dialogues)

COMMON PARLANCE

How are you?

Fine. Thank you.

How are you?

Me too.

How do you do?

How do you do?

It's good to see you again.

Glad to meet you.

Thank you.

Thanks very much.

Welcome.

Hello! How is everything?

Just fine. Thanks. What's new?

Nothing much.

I'm pleased to meet you.

The pleasure is mine.

I've heard Paul speak about you often.

Only good things! I hope.

Look who's here!

Are you surprised to see me?

Sure. I thought you were in Chennai.
I was, but I got back yesterday.

Sorry, May I help you?
So kind of you.
That's so nice of you.
Nice talking to you.
Nice meeting you.
It's getting late, and I've to go now.
Certainly. Come back soon.
In that case, I'll be seeing you.
Fine.
Thank you.
Welcome
So long. See you later.
Take care. Bye.
Good-bye.

Could you tell me the time, please?
Certainly. It is 5.35 p.m.
My watch says 5.40 p.m.
Then your watch is five minutes fast.

Excuse me. Can you tell me the way to ...?
May I come in?
How is the weather today?
It is pleasant. / sunny / rainy / warm /windy.

I am sorry, Can you repeat what you have said.
I am sorry, I can't hear you properly.
It is not audible. Can you please repeat it?
Beg your pardon; I don't get your words clearly.
How do you feel now?
Are you ok?
I am fine. And how about you?
I am fine. Thank you.

GROUP DISCUSSION

Let me begin with introducing this concept,
Well, this is to convey that
At the outset, I am here to convey
At this juncture, I would like to
May I intervene?

May I add?
Kindly permit me to say
If you could allow me to say
Let me add a few words
Let me first answer your question
Can you please allow me to convey
Excuse me; I would like to add further

On behalf of my colleagues,
On their behalf
Firstly/ secondly/ thirdly.
Finally/ conclusively/ at the end / Summing up
Eventually/ in the event of
In spite of / otherwise/ although/ though

Please Note:

- The above ones are samples only.
- A resourceful teacher may add more.
- A potential student may exhibit variety.

V SEMESTER



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25251 – WEB PROGRAMMING

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2012 - 2013 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25251
Semester : V Semester
Subject Title : **WEB PROGRAMMING**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|-----------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| WEB PROGRAMMING | 5 | 80 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|--------------------|------------------------------------|-------------|
| I | INTERNET AND HTML | 14 |
| II | ADVANCED HTML AND CSS | 13 |
| III | CLIENT SIDE SCRIPTING (JAVASCRIPT) | 16 |
| IV | SERVER SIDE SCRIPTING (JSP) | 14 |
| V | AJAX | 13 |
| TEST AND REVISIONS | | 10 |
| TOTAL | | 80 |

RATIONALE

The main aim of this subject is to introduce the building blocks of Internet and web i.e. HTML, CSS, Java Script, JSP, and AJAX. Through various examples the course will describe how to design web pages , dynamic and interactive web pages client-side and server-side scripting.

OBJECTIVES

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

- Create local HTML pages and move them to a remote web server.
- Design and develop basic web pages using XHTML and CSS.
- Use graphics and tables in Web pages.
- Link pages so that they create a Web site.
- Design and develop web pages using CSS styles, internal and/or external style sheets.
- Design and develop web pages using CSS for layout.
- 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.
- To teach the Ajax programming and application design techniques necessary to build rich, ultra-responsive web applications
- To introduce the main difference between the conventional web development and Ajax development

DETAILED SYLLABUS

| UNIT I INTERNET & HTML | | 14 HOURS |
|-----------------------------------|--|-----------------------|
| 1.1 | Introduction to Internet: Definition of Internet – History of Internet - Packet Switching – Different types of Connections : Dial-up connection – ISDN – Advantages and Disadvantages – ASDL Connection – Advantages and Disadvantages – DSL – Leased Line – Satellite Connections - Modem - Cable Modem – Internet tools - Web server - Domain name - Search Engines – Web browser – IP address – Versions (concepts only) – Internet Protocols – TCP/IP – FTP – HTTP – TelNet – WAIS | 7 Hrs |
| 1.2. | Introduction to HTML: Introduction - 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 | 7 Hrs |

| UNIT II ADVANCED HTML & CSS | | 13 HOURS |
|--|---|-----------------------|
| 2.1. | Advanced HTML: Links - Anchor tag – Lists - Unordered Lists - Ordered Lists – Definition Lists; Tables - TABLE, TR and TD Tags - 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: COLGROUP - THREAD, TBODY, TFOOT - _blank, _self, _parent, _top – IFRAME –LABEL - Attribute for <SELECT> - TEXTAREA | 5 Hrs |
| 2.2. | CSS: Introduction – Features – Style Sheet basics - Working with CSS files – Syntax - Types of Style Sheets Inline Styles - Embedded Styles - External or Linked Styles | 2 Hrs |
| 2.3 | Formatting Text and Fonts: Font Families Font Size Kerning, Leading, and Indenting - Formatting Colors and Backgrounds: The Color Attribute The Background Attribute Background Colors and Images | 3 Hrs |
| 2.4 | Exploring CSS Class and ID Attributes: Defining the CSS Class Attribute – Defining the CSS ID Attribute - Dynamic effects with CSS - Lists- Tables – Forms - simple Examples using above properties. | 3 Hrs |

| UNIT III CLIENT SIDE SCRIPTING (JAVASCRIPT) | | 16 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 | 5 Hrs |
| 3.2. | Object-Based Programming and Message boxes: Functions - Executing Deferred Scripts - objects : Document object Model , Predefined objects, Array object, History object , Location object - Dialog Boxes - Alert Boxes - Confirm Boxes - Prompt Boxes | 4 Hrs |

| | | |
|------|---|-------|
| 3.3. | Javascript with HTML: Events - Event Handlers : onLoad and onUnload – onFocus and onblur – onError - Forms : Forms Array – Form element properties – Example | 3 Hrs |
| 3.4 | Using JavaScript URLs : Client-side Image maps – Server Side Image Maps – Status bar – Cookies – Live Connect – Java Console – Java Script to Java – Java to JavaScript Communication. | 4 Hrs |

| UNIT IV SERVER SIDE SCRIPTING (JSP) | | 14 HOURS |
|--|---|-----------------------|
| 4.1. | Introduction: Client side scripting versus Server Side scripting – JSP Vs Javascript - Advantages and disadvantages of JSP – Client and server responsibilities – Installing and configuring Tomcat server – JSP Architecture – Life cycle of a JSP page - JSP vs Servlets –JSP Vs ASP.NET – List of JSP servers | 4 Hrs |
| 4.2. | JSP Elements: Comments – Directives: Page, Include and taglib directives – Scripting elements: Declarations - Scriptlets – expressions – Simple JSP page | 4 Hrs |
| 4.3. | Implicit objects: Request, response, pagecontext, application, out, config, page,session, exception – Scope: Application – Session – Request | 4 Hrs |
| 4.4 | Writing Simple JSP programs: Convert entered text into uppercase – Find the maximum of three numbers – Add two numbers. | 2 Hrs |

| UNIT – V AJAX | | 13 HOURS |
|----------------------|--|-----------------------|
| 5.1. | Introduction to AJAX – purpose – Traditional web application – Ajax Application – Alternatives to AJAX | 4 Hrs |
| 5.2. | Ajax Framework - Creating an XMLHttpRequest - Request Object – Use Prototype and Script.aculo.us - Basic communication techniques with server - Interact with XML files in the Web Server – Implementing basic AJAX techniques | 4 Hrs |
| 5.3. | Simple AJAX applications – i) Hello World application ii) Getting the server date time from a JSP page using AJAX. iii) Develop a html search page using Ajax functionality and a server side script that returns results based on search criteria. Develop a html search page containing a textbox for taking search string as input from the user and get the results from the server using Ajax functionality, and display them on the page. | 5 Hrs |

TEXT BOOKS

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|------------------------------------|---------------------------------|-------------------------------------|------------------------------|
| 1. | Web Technology | N.P. Goplan, J.Akilandeswari | PHI Learning Pvt Limited, New delhi | 2011 |
| 2. | Internet Technology and Web Design | ISRD Group | Tata McGraw Hill Publishing Ltd | 2011 |
| 3. | HTML and Web designing | Kris Jamsa and Konrad King | Tata McGraw Hill Publishing Ltd | 2010 |
| 4. | Ajax for Beginners | Ivon Bayross Sharanam Shah | Shroff Publishers and Distributors | Fourth Reprint 2011 |

REFERENCES

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|---------------------------------|---------------|------------------------------------|----------------------------------|
| 1. | Teach yourself Web Technologies | Ivan Bayross | BPB Publications, New Delhi | Reprinted 2011 Second Edition |
| 2. | Web Technology | Ramesh Bangia | Firewall Media, New Delhi | Reprint 2008 |
| 3. | HTML for Beginners | Firuza Aibava | Shroff Publishers and Distributors | Second Edition |

SEMESTER -IV

**25251 – WEB PROGRAMMING
MODEL QUESTION PAPER - I**

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. Define Internet.
2. Define ISDN.
3. What is a Web browser?
4. Define META tag.
5. What is the expansion of CSS?
6. What is the use of letter-spacing?
7. Define cell padding.
- 8.. Define frames.
9. How will you declare a variable in javascript?
10. What is meant by literals?
11. Define document object.
12. What are image maps.
13. What is JSP?
14. What is servlet?
15. What are implicit objects.
16. Define exception object.
17. Define AJAX.
18. What are the alternatives to AJAX?
19. Define AJAX framework.
20. What is the use of XMLHttpRequest Object?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Briefly discuss about the various protocols used in Internet.. [6]
ii. Explain the features of internet. [6]
- [OR]**
- B i. Explain the installation procedure and working principles of a modem. [6]
ii. List the tags for formatting a text with suitable example. [6]

- 22 A. i. Give the features of CSS. [6]
ii. Explain with example how to use multiple style sheets. [6]

[OR]

- B i. Explain about Anchor tag with suitable example. [6]
ii. Briefly explain all the form elements in HTML. [6]

- 23 A. i. Write short notes on data types in javascript. [6]
ii. Explain do-while structure in javascript with example. [6]

[OR]

- B i. What are different types of message boxes available in javascript? Explain any one of them with an example. [6]
ii. Explain the methods available in History object. [6]

- 24 A. i. Briefly explain JSP architecture with neat diagram. [6]
ii. What is session object? Explain. [6]

[OR]

- B i. List down the merits and demerits of JSP. [6]
ii. Write a JSP program to read set of characters through keyboard and convert it into uppercase letters. [6]

- 25 A. i. Explain briefly about AJAX application. [6]
ii. Write a code to get server date and time from JSP page using AJAX. [6]

[OR]

- B i. Explain about the interaction with XML files in the server. [6]
ii. Develop a html search page using Ajax functionality and a server side script that returns results based on search criteria. [6]

SEMESTER -IV
25251 – WEB PROGRAMMING
MODEL QUESTION PAPER - II

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. What is packet switching?
2. What is the use of MODEM?
3. What is HTML?
4. Which tag is used to draw a horizontal line?
5. What is a style sheet?
6. List any two CSS properties.
7. Define rowspan.
- 8.. Define nesting of frames.
9. What is scripting language?
10. State any two events.
11. What is cookies?
12. State the use of alert box.
13. What is server side scripting?
14. List the JSP servers.
15. What are directives?
16. Explain scriptlets.
17. What is the expansion of AJAX?
18. What is the purpose of AJAX?
19. What is Script.aculo.us?
20. What is the use of prototype?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Discuss about a) Dial-up connection b) ASDL Connection. [6]
ii. Explain about IP Protocol in detail. [6]

[OR]

- B i. What is classful addressing? Explain with example. [6]
ii. Explain the usage of formatting tags with examples. [6]
- 22 A. i. What is a style sheet? Explain different types of style sheet with an example. [6]
ii. Explain the CSS properties for formatting colors and background. [6]
- [OR]**
- B i. Explain Ordered List with examples. [6]
ii. Write short notes on Tables in HTML. [6]
- 23 A. i. What are the needs of scripting language? Explain. [6]
ii. Develop a javascript program to accept a string in Textbox and display the length of the string in Alert. [6]
- [OR]**
- B i. What is array of object? Explain. [6]
ii. Write short notes on javascript event. [6]
- 24 A. i. Briefly explain the life cycle of a JSP page. [6]
ii. What are implicit objects in JSP? Explain them. [6]
- [OR]**
- B i. Explain the steps to create a JSP page. [6]
ii. Write a JSP program to find the maximum of three numbers. [6]
- 25 A. i. Briefly explain about the alternatives to AJAX application. [6]
ii. Explain about the basic communication techniques with server. [6]
- [OR]**
- B i. Explain about the implementation of AJAX techniques. [6]
ii. Develop a html search page containing a textbox for taking search string as input from the user and get the results from the server using Ajax functionality, and display them on the page. [6]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

**25242 – RELATIONAL DATABASE MANAGEMENT
SYSTEMS**

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25252
Semester : V Semester
Subject Title : **RELATIONAL DATABASE MANAGEMENT SYSTEMS**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|--|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| RELATIONAL DATABASE MANAGEMENT SYSTEMS | 5 | 80 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|-------------------|--|-------------|
| I | DATABASE SYSTEM CONCEPTS AND DATA MODELING | 15 |
| II | RELATIONAL DATA MODEL | 14 |
| III | INTERACTIVE SQL | 13 |
| IV | SQL PERFORMANCE TUNING | 12 |
| V | PL/SQL | 16 |
| TEST AND REVISION | | 10 |
| TOTAL | | 80 |

RATIONALE

The Database Management system is a collection of programs that enables to store, modify and extract information from a database. The primary resource that fuels knowledge power is the database. Organizations are employing mechanisms to effectively manage and utilize the data stored in the database. Relational Database management System has been developed to harness the information stored in the database.

The major objectives of this subject is to provide a strong formal foundation in Database Concepts, technology and practice to the students to enhance them into well informed application developers. After learning this subject, the students will be able to understand the designing of RDBMS and can use any RDBMS package as a backend for developing database applications.

OBJECTIVES

On completion subject, the students must be able to

- Define data , database , database Management systems and data base models.
- Compare file processing and database system.
- Study about architecture of DBMS.
- Understand the concept of Data mining, Data warehousing and client/Server Technology
- State CODD's Rules.
- Explain normalization and explain different types of Normal Forms.
- Create Normalized Database structure files .
- Perform all database DDL, DML, DCL, and all related commands.
- Write Logical and Conditional statement for Database Query.
- Write PL/SQL block of code.
- Write procedures and functions .
- Create and use Triggers.

DETAILED SYLLABUS

| UNIT I DATABASE SYSTEM CONCEPT AND DATA MODELING | | 15 HOURS |
|---|--|-----------------------|
| 1.1 | Basic Database concepts: Data, Database, Database Management System – File Based Data Management - Disadvantages of file system – Database systems – Need for Database – Advantages of using a database – Characteristics of data in a database – Functions of DBMS - Components of a database - Comparison between Database and file-processing systems – Data dictionary – Data abstraction - Data independence – Logical and Physical data independence - Architecture: Overall Architecture of DBMS, Three level architecture. | 6 Hrs |
| 1.2 | Data Models: Hierarchical, Networking, Relational Data Models – E-R Model – E-R Diagrams - EER Model - Advantages and Disadvantages of each model | 3 Hrs |
| 1.3. | Advanced Concepts: Introduction to Data warehousing and Data mining – Different types | 3 Hrs |
| 1.4. | Client/Server Technology: Client – Server – Distributed and Co-operative processing – Peer- to - Peer processing – Application components - Transaction management | 3 Hrs |

| UNIT – II RELATIONAL DATA MODEL | | 14 HOURS |
|--|--|-----------------------|
| 2.1. | Relational Structure - Characteristics of Relational Database Model – CODD’s rules - Tables (Relations), Rows (Tuples), Domains, Attributes, Extension, Intention. | 3 Hrs |
| 2.2. | Keys: Candidate Key, Primary Key, Foreign Key, Super Keys, Unique Keys. | 2 Hrs |
| 2.3. | Data Constraints: Referential Integrity Constraints, Entity Integrity Constraints, Constraints like Primary key constraint, Unique, Check constraint strong Entity, Weak Entity. | 3 Hrs |
| 2.4. | Normalization: Introduction – Purpose of Normalization – Definition of Functional Dependence (FD) Relational database Design, - Normal forms: 1NF, 2NF, 3NF, BCNF, 4Nf and 5 NF. | 4 Hrs |
| 2.5 | Database Administration : DBA Tasks – DBA Tools – User Privileges - Performance monitoring and tuning – Query tracing - Backup and Recovery | 2 Hrs |

| UNIT – III INTERACTIVE SQL | | 13 HOURS |
|-----------------------------------|---|-----------------------|
| 3.1. | Introduction to SQL: Advantages of SQL - Invoking SQL*PLUS, The Oracle Data-types, Data Definition Language (DDL), Data Manipulation language (DML), Data Control Language (DCL), Data Query Language (DQL) and all related commands. | 4 Hrs |
| 3.2. | Queries using Group by and Order by clause & Join: Querying a Single Table, Ordering results, Grouping the results, Joins, Types of Joins, Sub queries. | 3 Hrs |
| 3.3 | Operators: Logical, Value, Syntax and Query expression operators - Set operators. | 2 Hrs |

| | | |
|-----|---|-------|
| 3.4 | Functions: Character, Arithmetic, Date and time, Group and Miscellaneous Functions, Commit, Rollback, Savepoint. | 2 Hrs |
| 3.5 | Format models: Character, Numeric & Date Format models. | 2 Hrs |

| UNIT – IV SQL PERFORMANCE TUNING & INTRODUCTION TO PL/SQL | | 12 HOURS |
|--|--|-----------------------|
| 4.1. | Views: Introduction – Advantages of views - The Create View Command, Updating Views, Views and Joins, Views and Sub queries - Dropping Views. | 2 Hrs |
| 4.2. | Sequences: Creating Sequences, Altering Sequences, Dropping Sequences. | 1 Hrs |
| 4.3. | Indexes: Index Types, Creating of an Index: Simple Unique and Composite Index, Dropping Indexes. | 2 Hrs |
| 4.4 | Snapshots: Creating a Snapshot, Altering Snapshot, Dropping a Snapshot. | 2 Hrs |
| 4.5 | Introduction to PL/SQL: The PL/SQL Syntax, The PL/SQL Block Structure, Fundamentals of PL/SQL, Advantages of PL/SQL data Types. | 3 Hrs |
| 4.6 | Control Structure: Conditional Control, Iterative Control, Sequential Control. | 2 Hrs |
| UNIT – V PL/SQL | | 16 HOURS |
| 5.1 | Exception handling: Predefined Exception - User defined Exception. | 3Hrs |
| 5.2 | Cursors: Implicit and Explicit Cursors – Declaring - Opening and Closing a Cursor - Fetching a Record from Cursor - Cursor for loops - Parameterized Cursors. | 3 Hrs |
| 5.3 | Procedures: Advantages - Creating - Executing and Deleting a Stored Procedure. | 3 Hrs |
| 5.4 | Functions: Advantages – Creating - Executing and Deleting a Function. | 3Hrs |
| 5.5 | Database Triggers: Use of Database Triggers - How to apply database Triggers - Types of Triggers - Syntax for Creating Trigger - Deleting Trigger. | 4Hrs |

TEXT BOOKS

| Sl.No | TITLE | AUTHOR | PUBLISHER | Year of Publishing/Edition |
|-------|-----------------------------|------------------------------|------------------------|--------------------------------------|
| 1. | Database System Concepts | Silber Schatz A. and Korth H | McGrawHill , New Delhi | Sixth Edition, 2005 |
| 2. | Data Base Management System | ISRD Group | TMH, New Delhi | First Edition, Eleventh reprint 2011 |

REFERENCES

| Sl.No | TITLE | AUTHOR | PUBLISHER | Year of Publishing/Edition |
|-------|--|--|---|---|
| 1. | Essentials of Data Base Management System | Alexis Leon and Mathews Leon | Vikas Publishing Limited, Chennai | First Edition, 2009 |
| 2. | SQL and PL/SQL | Sharad Maheswari Ruchin Jain | Firewall Media New Dehi | First Edition 2010 |
| 3. | Database Management Systems | Ramon a.Mato-Toledo, Pauline K.Cushman | Schaums' Outline series, TMH, New Delhi | Special Indian Edition 2007 |
| 4. | Database Management Systems | R.Pannerselvam | PHI Learning Pvt Ltd, New Delhi | Second Edition, 2011 |
| 5. | Data Warehousing | BPB Editorial Board | BPB Publications, New Delhi | First Indian Edition 2004, Reprinted 2008 |
| 6. | Mastering Database Technologies | Ivan Bayross | BPB Publications, New Delhi | First Indian Edition 2006, Reprinted 2011 |
| 7. | Database Management Systems | Sharad Maheswari, Ruchin Jain | Firewall Media, New Delhi | Second Edition Reprint 2010 |
| 8. | Database management and oracle Programming | Dr.S.S.Khandare | S.Chand and Co, New Delhi | Second Revised Edition 2010 |
| 9. | Oracle for Professionals | Sharanam Shaw | Shroff Publishers and Dsitributors | Third print Sep 2011 |
| 10. | Introduction to database Systems | Atul Kahat | Pearson Education | 2011 |
| 11. | Fundamentals of Database Systems | Ramez Elmasri SHamkant B.Navatha | Pearson Education | Fifth Edition |

SEMESTER – V

25252 – RELATIONAL DATABASE MANAGEMENT SYSTEMS
MODEL QUESTION PAPER – I

Time: 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. Define data.
2. Tabulate any two differences between DBMS and RDBMS.
3. List any two advantages for hierarchical model
4. What is data warehousing?
5. What is attribute?
6. Define unique key.
7. Write down the syntax and use of check constraint.
- 8.. Write any two DBA tasks.
9. List any three oracle data types.
10. What is sub query?
11. Write down the advantages of rollback command.
12. Give the format for date function.
13. List any two advantages of views.
14. Write down the syntax for dropping the sequence.
15. What is the use of index?
16. Define snapshot.
17. What is exception?
18. Define cursor.
19. List the types of parameters available in procedure.
20. What are triggers?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. What is file based database? List and explain the disadvantages of file processing system. [6]
- ii. Explain client/server technology with an example. [6]
- [OR]**
- B i. Explain the architecture of data warehousing with a neat diagram. [6]
- ii. List and explain different types of data mining techniques with example. [6]
- 22 A. i. List and explain the characteristics of relational database model. [6]

- ii. Explain different types of user privilege commands with example. [6]
- [OR]**
- B i. Explain different forms of normalization with an example. [12]
- 23 A. i. Explain different types of DDL commands with example. [6]
- ii. List and explain different types of operators with an example. [6]
- [OR]**
- B i. Explain the following commands with an example [6]
 i) Commit ii) Rollback iii) Savepoint
- ii. Explain any six arithmetic functions with an example. [6]
- 24 A. i. What is view? Explain with an example. [6]
- ii. Explain sequence with an example. [6]
- [OR]**
- B i. Explain different types of index with an example query. [6]
- ii. How to create and alter snapshot? Explain with an example. [6]
- 25 A. i. Give the general syntax for PL/SQL block and explain each block with an example. [6]
- ii. What is user defined exception? Explain with an example. [6]
- [OR]**
- B i. Explain different types of conditional statements with an example. [12]

SEMESTER – V
25252 – RELATIONAL DATABASE MANAGEMENT SYSTEMS
MODEL QUESTION PAPER – II

Time: 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. Define database.
2. Give any two disadvantages of file based database system.
3. List down any two advantages of Network model.
4. What is data mining?
5. What are tuples?
6. Define primary key.
7. What is weak entity?
- 8.. Write any two DBA tools.
9. List any two advantages of SQL.
10. Give the syntax for group clause.
11. Write down any two advantages of save point command.
12. List the different types of set operators.
13. What is sub query?
14. Write down the syntax for creating the sequence.
15. What is the use of component index?
16. How to alter the snapshot?
17. List down any two advantages of PL/SQL block.
18. What is parameterized cursor?
19. Give any two advantages of stored procedure.
20. What is the difference between functions and procedures?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. What is ER model? Explain with an example. [6]
ii. Explain the architecture of DBMS with a neat diagram. [6]
- [OR]**
- B i. Explain different types of data models with an example. [12]
- 22 A. i. Explain referential integrity constraint with an example. [6]
ii. What is functional dependency? Explain. [6]

[OR]

- B i. List and explain different types of Codd's rules. [12]
- 23 A. i. Explain different types of DCL commands with example. [6]
ii. List and explain different types of format models with an example for each. [6]
- [OR]**
- B i. List and explain different types of logical operators with an example. [6]
ii. Explain different types of joins with an example query. [6]
- 24 A. i. How will you create and use views? Explain with an example. [6]
ii. What is the use of index? Explain. [6]
- [OR]**
- B i. How to create and alter a sequence? Explain with an example. [6]
ii. Explain about creating and dropping a snapshot with an example. [6]
- 25 A. i. How to create and handle a user defined exceptions? Explain with an example. [6]
ii. Write a PL/SQL block for implementing cursor for loop. [6]
- [OR]**
- B i. How to create triggers? Explain with suitable examples. [12]



DIPLOMA IN COMPUTER ENGINEERING

L – SCHEME

2011 – 2012

25243 – . NET PROGRAMMING

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 – 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25253
Semester : V semester
Subject Title : **. NET PROGRAMMING**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|-------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| . NET PROGRAMMING | 4 | 64 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|--------------------|--|-------------|
| I | INTRODUCTION TO .NET FRAMEWORK | 11 |
| II | INTRODUCTION TO VISUAL BASIC.NET | 11 |
| III | APPLICATION DEVELOPMENT USING ADO .NET | 11 |
| IV | INTRODUCING ASP.NET | 11 |
| V | XML | 10 |
| TEST AND REVISIONS | | 10 |
| TOTAL | | 64 |

RATIONALE

.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

- List the major elements of the .NET Framework and describe some of the major enhancements to the new version of Visual Basic.
- Describe the basic structure of a Visual Basic .NET project and use the main features of the integrated development environment (IDE).
- Use the new language features and syntax in Visual Basic .NET.
- Explain the basic concepts and terminology of object-oriented design specifically for Visual Basic .NET.
- Explain and use the basic concepts and terminology of object-oriented programming in Visual Basic .NET.
- Create applications by using Microsoft Windows Forms.
- Create Internet applications that use Web Forms and Web Services.
- Create applications that use ADO.NET.
- Create components in Visual Basic .NET.
- Set up and deploy various types of Visual Basic .NET-based applications.
- Prepare existing Visual Basic-based applications for upgrade to Visual Basic .NET.
- Develop Web applications and .NET applications using XML as back end database

DETAILED SYLLABUS

| UNIT – I INTRODUCTION TO .NET FRAMEWORK | | 11 Hours |
|--|---|----------------|
| 1.1 | Introduction to .NET framework: Managed Code and the CLR- Intermediate Language, Metadata and JIT Compilation – Automatic Memory Management. | 4 Hrs |
| 1.2. | Language Concepts and the CLR: Visual Studio .NET – Using the .NET Framework. Exploring the Visual Studio Integrated Development Environment | 4 Hrs |
| 1.3. | The Framework Class Library - .NET objects – ASP .NET - .NET web services – Windows Forms | 3 Hrs |

| UNIT – II INTRODUCTION TO VISUALBASIC.NET | | 11 Hours |
|--|--|----------------|
| 2.1 | Elements : 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. | 3 Hrs |
| 2.2. | Types: Value data types – Structures, Enumerations. Reference data types – Single dimensional – Multi-dimensional arrays – Jagged arrays – Dynamic arrays | 2 Hrs |
| 2.3. | Windows programming – Creating windows Forms – Working with Toolbox Controls – Button, Check box, Combo box, Label, List box, Radio Button, Text box. Events – Click, Close, Deactivate, Load, Mousemove, Mousedown, MouseUp. | 3 Hrs |
| 2.4 | Menus and Dialog Boxes – Creating menus – Menu items – Context menu – Using dialog boxes – showDialog() method. | 3 Hrs |

| UNIT – III APPLICATION DEVELOPMENT USING ADO .NET | | 11 Hours |
|--|--|----------------|
| 3.1 | Features of ADO.NET. Architecture of ADO.NET – ADO.NET providers – Connection – Command – Data Adapter – Dataset. | 5 Hrs |
| 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. | 6 Hrs |

| UNIT – IV INTRODUCING ASP.NET | | 11 Hours |
|--------------------------------------|--|----------------|
| 4.1 | ASP.NET Features: Change the Home Directory in IIS – Add a Virtual Directory in IIS - Set a Default Document for IIS – Change Log File Properties for IIS – Stop, Start, or Pause a Web Site – Global.asax file | 4 Hrs |

| | | |
|------|---|-------|
| 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 Hrs |
| 4.3. | Creating Web Forms: Server Controls – Types of Server Controls – Adding ASP.NET Code to a Page. | 3 Hrs |

| UNIT – V XML | | 10 Hours |
|---------------------|--|----------------|
| 5.1 | Introduction: Advantages – HTML Vs XML – Browsing and parsing XML – Creating a XML file – Data island – Well formed XML document – XML components - elements – Entities – Comments – Processing instructions – Attributes | 4 Hrs |
| 5.2. | DTD: Declarations in DTD: Element, Attribute, Entity and Notation – Construction of an XML document – XML Namespaces – Declaring namespaces – Default namespaces – XML schema – Need and use of Schema – Building blocks – Simple elements – Defining attributes – Complex elements | 4 Hrs |
| 5.3. | XML with .NET: XML Serialization in the .NET Framework – SOAP Fundamentals - Using SOAP with the .NET Framework. | 2 Hrs |

TEXT BOOKS

| Sl.No | TITLE | AUTHOR | PUBLISHER | Year of Publishing/Edition |
|-------|----------------------------------|------------|------------------------------------|----------------------------|
| 1. | Introduction to Visual basic.NET | NIIT | Prentice Hall of India | 2005 |
| 2. | Applications of .NET Technology | ISRD Group | TMGH Education Pvt Ltd., New Delhi | 2011 |

REFERENCES

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|---|-------------------|------------------------------|------------------------------|
| 1. | Introducing Microsoft .NET | David S. Platt | Microsoft Press | Saarc Edition, 2001 |
| 2. | . Introduction to Microsoft ASP.NET - Work Book | - | Microsoft Microsoft Press | - |
| 3. | Developing XML Web Services Using Microsoft ASP.NET | - | Microsoft Microsoft Press | 2009 |
| 4. | Designing Microsoft ASP.NET Applications | Douglas J. Reilly | Microsoft Press | First Edition |

| | | | | |
|----|--|---------------------|---------------------------|------|
| 5. | Learning Visual Basic.NET through applications | Clayton E.Crooks II | Firewall Media, New Delhi | 2008 |
| 6. | VB.NET | Dinesh Maidasani | Firewall Media, New Delhi | 2008 |

SEMESTER -V
25253 - .NET PROGRAMMING
MODEL QUESTION PAPER - I

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. What is meant by managed code?
2. What is the use of JIT compilation?
3. Name any two languages .NET support?
4. What is a web service?
5. How will you declare a constant variable?
6. What is an array?
7. Write any four events in VB.NET.
- 8.. Which control is used to add menus in VB.NET?
9. What are the components in .NET Data provider?
10. Define Dataset.
11. What are the commands available in Data adapter?
12. What do you meant by Data Reader?
13. What is IIS?
14. How will you create a Website?
15. What are Validation controls?
16. What is a web form?
17. What is XML schema?
18. Define DTD.
19. What is meant by Deserialization?
20. List the web service protocols.

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Explain CLR in detail. [6]
 ii. How will you use Visual Studio .NET and .NET Framework? [6]

[OR]

- B i. Briefly explain about Automatic memory management. [6]

- ii. Briefly Explain about .NET objects. [6]
- 22 A. i. What are the various operators available in VB.NET? Explain them. [6]
ii. Explain the looping statements in VB.NET. Give example. [6]
- [OR]**
- B i. List the types of Arrays and explain each of them with suitable examples. [6]
ii. Create a simple window application using any six controls in VB.NET. [6]
- 23 A. i. Explain ADO.NET architecture with a neat diagram. [6]
ii. Write a code to insert a record using Dataset. [6]
- [OR]**
- B i. What are the steps needed to connect a Database using Grid view? [6]
ii. Briefly explain about Stored procedures. [6]
- 24 A. i. Explain the features of ASP.NET. [6]
ii. Define IIS. How will you change the Home directory and add a virtual directory in IIS? Explain. [6]
- [OR]**
- B i. Explain briefly about Intrinsic controls. [6]
ii. Explain about various Validation controls? Create a web page to validate user inputs. [6]
- 25 A. i. What is XML? Compare XML with HTML. [6]
ii. Briefly explain about XML components. [6]
- [OR]**
- B i. Explain XML serialization process. [6]
ii. Explain SOAP building blocks. [6]

SEMESTER -V
25253 - .NET PROGRAMMING
MODEL QUESTION PAPER - II

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. Define JIT.
2. Which is the root namespace in .NET framework?
3. List any two features of Visual studio .NET.
4. What is WSDL?
5. What is a variable? How will you declare it?
6. What are the data types available in VB.NET?
7. What is the use of IS operator?
- 8.. What is an event?
9. Define ADO.
10. What is the use of fill method?
11. Define DataTableCollection.
12. Define Data Reader.
13. What is the use of ASP.NET?
14. Name the default home directory.
15. What are Container controls?
16. Define Intrinsic controls.
17. Define XML.
18. What are the important classes of XML?
19. What is XML serialization?
20. Define UDDI.

PART – B (5 x 12 = 60 Marks)

Answer either A or B from each Question. Each question carries 12 Marks

- 21 A. i. Explain the features of .NET Framework. [6]
ii. Explain about Intermediate language, Metadata, JIT compilation. [6]
- [OR]**
- B i. Write short notes on .NET Framework class library. [6]
ii. Explain the Life cycle of Web forms page with a neat diagram. [6]

- 22 A. i. Briefly explain about Enumeration in VB.NET. [6]
ii. Explain the Decision statements in VB.NET [6]
- [OR]**
- B i. Design an application to implement the methods of List box control. [6]
ii. What is context menu? Create your own Context menu using visual studio. [6]
- 23 A. i. Explain the features of ADO.NET. [6]
ii. Explain the objects in .NET Data provider. [6]
- [OR]**
- B i. Write your own ADO.NET application with suitable steps and code. [6]
ii. What are the steps required to create a Stored procedure. [6]
- 24 A. i. Define Virtual Directory. List the steps to create a Virtual Directory in IIS. [6]
ii. What are the major events in GLOBAL.ASAX? [6]
- [OR]**
- B i. Write down the steps to change the properties of Log file. [6]
ii. What are server controls and explain it briefly. [6]
- 25 A. i. Explain about browsing and parsing in XML. [6]
ii. List down the steps to create an XML file. [6]
- [OR]**
- B i. Explain briefly about DTD. [6]
ii. Explain briefly about XML Schema. [6]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25271 – CONCEPTS OF ADVANCED COMPUTING

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the Academic Year 2012-2013 on wards)

Course Name : Diploma in Computer Engineering
Subject Code : 25271
Semester : V Semester
Subject Title : **CONCEPTS OF ADVANCED COMPUTING**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|--------------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| CONCEPTS OF ADVANCED COMPUTING | 5 | 80 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|-------------------|--|-------------|
| I | CLOUD COMPUTING | 14 |
| II | CLOUD COMPUTING ARCHITECTURE | 14 |
| III | VIRTUALIZATION | 14 |
| IV | PERVASIVE COMPUTING | 14 |
| V | PERVASIVE COMPUTING DEVICES AND APPLICATIONS | 14 |
| TEST AND REVISION | | 10 |
| TOTAL | | 80 |

RATIONALE

The course aims to groom the students to enable them to work on current technology scenarios as well as prepare them to keep pace with the changing face of technology and the requirements of the growing IT industry. The course curriculum has been designed keeping in view the emerging trends in advanced computing as well as contemporary and futuristic human resource requirements of the IT industry.

OBJECTIVES:

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

- To understand an overview of the basic concepts of cloud Computing;
- To understand the highlight and advantages of deploying cloud Computing;
- To know the practical adoption of a cloud deployment through real life case studies.
- To know the Advantages and limitations of Cloud Computing
- To understanding Cloud architecture
- To know the Cloud services and benefits
- To understand the concepts of Virtualization
- To Understand Virtualization Tools
- To know the Installation Multiple OS in single PC
- To understand how to increase use of hardware resources
- To know how to reduced management and resource costs
- To understand the basic concepts of pervasive computing
- To know the hardware architecture of pervasive computing
- To know the recent efforts in the field of pervasive computing

DETAILED SYLLABUS

| UNIT-I CLOUD COMPUTING BASICS | | 14 Hours |
|--------------------------------------|---|-----------------------|
| 1.1 | Cloud Computing Overview – Origins of Cloud computing – Cloud components - Essential characteristics – On-demand self-service , Broad network access , Location independent resource pooling , Rapid elasticity , Measured service | 5 Hrs |
| 1.2. | Architectural influences – High-performance computing , Utility and Enterprise grid computing , Autonomic computing , Service consolidation , Horizontal scaling , Web services, High scalability architecture | 4 Hrs |
| 1.3. | Cloud scenarios – Benefits: scalability , simplicity , vendors ,security | 2 Hrs |
| 1.4. | Limitations – Sensitive information - Application development – Security concerns - privacy concern with a third party - security level of third party - security benefits | 2 Hrs |
| 1.5. | Regularity issues: Government policies | 1 Hrs |

| UNIT-II CLOUD COMPUTING ARCHITECTURE AND APPLICATIONS | | 14 Hours |
|--|---|-----------------------|
| 2.1 | Cloud architecture: Cloud delivery model – SPI framework , SPI evolution , SPI vs. traditional IT Model | 3 Hrs |
| 2.2. | Software as a Service (SaaS): SaaS service providers – Google App Engine, Salesforce.com and google platform – Benefits – Operational benefits - Economic benefits – Evaluating SaaS | 4 Hrs |
| 2.3. | Platform as a Service (PaaS): PaaS service providers – Right Scale – Salesforce.com – Rackspace – Force.com – Services and Benefits | 2 Hrs |
| 2.4. | Infrastructure as a Service (IaaS): IaaS service providers – Amazon EC2 , GoGrid – Microsoft soft implementation and support – Amazon EC service level agreement – Recent developments – Benefits | 3 Hrs |
| 2.5. | Cloud deployment model : Public clouds – Private clouds – Community clouds - Hybrid clouds - Advantages of Cloud computing | 2 Hrs |

| UNIT-III VIRTUALIZATION | | 14 Hours |
|--------------------------------|--|-----------------------|
| 3.1 | Virtualization : Virtualization and cloud computing - Need of virtualization – cost , administration , fast deployment , reduce infrastructure cost - limitations | 4 Hrs |
| 3.2. | Types of hardware virtualization: Full virtualization - partial virtualization - para virtualization | 4 Hrs |

| | | |
|------|--|-------|
| 3.3. | Desktop virtualization: Software virtualization – Memory virtualization - Storage virtualization – Data virtualization – Network virtualization | 3 Hrs |
| 3.4. | Microsoft Implementation: Microsoft Hyper V – Vmware features and infrastructure – Virtual Box - Thin client | 3 Hrs |

| UNIT-IV PERVASIVE COMPUTING | | 14 Hours |
|------------------------------------|--|----------------|
| 4.1 | Introduction: Origins and History of pervasive computing – Centralized computing vs Pervasive computing – Peer to Peer Computing - Principles of pervasive computing – vision and challenges - Architecture for Pervasive computing | 5 Hrs |
| 4.2. | Platforms & Environments: Location Management - Context Awareness - Mobility of computing and communication | 5 Hrs |
| 4.3. | Middleware – Object Request Broker (ORB) - Message Oriented Middleware - Object Middleware - RPC Middleware - Database Middleware - Transaction Middleware - General issues of middleware | 4 Hrs |

| UNIT-V PERVASIVE COMPUTING DEVICES AND APPLICATIONS | | 14 Hours |
|--|--|----------------|
| 5.1 | Pervasive Software systems : Integration with hardware – embedded real-time operating systems | 4 Hrs |
| 5.2. | Mobile computing : Mobile computing vs Pervasive computing – PDA Device characteristics - introduction to Wireless Mark-Up language - (WML) – PDA based access architecture | 5 Hrs |
| 5.3. | Pervasive Computing Applications: image processing , Robotics , Sensor networks , Wearable computing - Smart cards | 3 Hrs |
| 5.4 | Recent efforts in the field of pervasive computing – Aura Oxygen | 2 Hrs |

REFERENCES

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|---|--|------------------------------|------------------------------|
| 1. | Cloud computing a practical approach | Anthony T.Velte , Toby J. Velte Robert Elsenpeter | TATA McGraw-Hill , New Delhi | 2010 |
| 2. | Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online | Michael Miller | Que | 2008 |
| 3. | Fundamentals of Mobile and Pervasive Computing | Sandeep Gupta, Frank Adelstein, Golden Richard, Loren Schweibert. | McGraw Hill Publication | 2004 |
| 4. | Pervasive Computing | Jochen Burkhardt , Horst Henn , Stefan Hepper , Klaus Rindtorff , Thomas Schaeck | Pearson Education | 2010 |

25271 - CONCEPTS OF ADVANCED COMPUTING

MODEL QUESTION PAPER - I

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. Define cloud Computing.
2. List out Cloud component.
3. What is on-demand self-service ?
4. Define web services .
5. What is SPI ?
6. Give Example for SaaS.
7. Define Public Cloud.
8. What is PaaS ?
9. Define virtualization .
10. What is VMware ?
11. List out the advantages of Virtualization .
12. Define Thin Client.
13. Define ORB.
14. What is Middleware ?
15. What is Centralized computing ?
16. Define pervasive computing platform.
17. List out some application of pervasive computing.
18. What is mobile computing ?
19. List out the Recent efforts in the field of pervasive computing .
20. What are the features of wearable computing?

PART – B (5 x 12 = 60 Marks)

Answer either A or B from each Question. Each question carries 12 Marks

21. A. i. Explain in detail about the origin and history of cloud computing. [6]
ii. Explain the limitations of cloud computing. [6]

[OR]

- B i. Explain the characteristics of cloud computing. [6]
ii. Explain architectural influences of cloud computing. [6]
- 22 A. i. Explain the architecture of cloud computing. [6]
ii. Explain the benefits of SaaS . [6]

[OR]

- B i. Explain the benefits of PaaS. [6]
ii. Explain any Cloud deployment model of private and public cloud. [6]
- 23 A. i. Explain the need and application of Virtualization. [6]
ii. Explain different Types of hardware virtualization. [6]

[OR]

- B i. Explain in detail about storage virtualization. [6]
ii. Explain the features of VMWare. [6]
- 24 A. i. Explain the requirements of computational infrastructures of pervasive computing. [6]
ii. Explain in detail about the pervasive computing architecture. [6]

[OR]

- B i. List and explain the applications of pervasive computing. [6]
ii. Compare Centralized computing with Pervasive computing. [6]
- 25 A. i. Explain Pervasive Software systems. [6]
ii. Explain in detail about wearable computing. [6]

[OR]

- B i. Explain in detail about the relationship between pervasive and mobile computing. [6]
ii. Briefly Explain about the Recent efforts in the field of pervasive computing. [6]

SEMESTER – V

25271 - CONCEPTS OF ADVANCED COMPUTING

MODEL QUESTION PAPER - II

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. List out any two limitations of cloud Computing
2. What is measured service?
3. What is autonomic computing?
4. What is sensitive information?
5. What is hybrid cloud ?
6. Give example for IaaS.
7. Define Private Cloud
8. What is SaaS ?
9. What is full virtualization?
10. What is Virtual Box?
11. What is thin client?
12. What is Microsoft Hyper V?
13. What is Peer to Peer Computing?
14. What is Middleware?
15. What is RPC?
16. What is pervasive computing
17. What is PDA?
18. What is smart card?
19. What is WML?
20. What is real-time operating system?

PART – B (5 x 12 = 60 Marks)

Answer either A or B from each Question. Each question carries 12 Marks

- 21 A. i. Explain architectural influences of cloud computing. [6]
ii. Explain in detail about cloud scenarios. [6]
- [OR]**
- B i. Explain in detail about regularity issues in cloud computing. [6]

- ii. Explain security concerns in cloud computing. [6]
- 22 A. i. Compare SPI model with traditional IT Model. [6]
ii. Explain in detail about Google App Engine. [6]
- [OR]**
- B i. Explain the benefits of IaaS. [6]
ii. Explain the deployment model of community cloud. [6]
- 23 A. i. Explain in detail about Desktop Virtualization. [6]
ii. Explain different types of hardware virtualization. [6]
- [OR]**
- B i. Explain in detail about data virtualization. [6]
ii. Explain the features of Virtual Box. [6]
- 24 A. i. Explain the history of pervasive computing. [6]
ii. Explain in detail about the pervasive computing architecture. [6]
- [OR]**
- B i. What is middleware? Explain in detail about object oriented middleware. [6]
ii. Explain Platforms and Environments of pervasive computing. [6]
- 25 A. i. Explain about embedded real-time operating systems. [6]
ii. Explain in detail about PDA based access architecture. [6]
- [OR]**
- B i. Explain in detail about the application of pervasive computing in the field of image processing. [6]
ii. Explain in detail about wearable computing. [6]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25272 – SOFTWARE ENGINEERING

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25272
Semester : V Semester
Subject Title : **SOFTWARE ENGINEERING**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|----------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| SOFTWARE ENGINEERING | 5 | 80 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|-------------------|--|-------------|
| I | INTRODUCTION TO SOFTWARE ENGINEERING | 14 |
| II | SOFTWARE DESIGN AND PLANNING | 14 |
| III | SOFTWARE MAINTENANCE AND RISK MANAGEMENT | 14 |
| IV | SOFTWARE TESTING | 16 |
| V | SOFTWARE RELIABILITY AND QUALITY ASSURANCE | 12 |
| TEST AND REVISION | | 10 |
| TOTAL | | 80 |

RATIONALE

Software Engineering deals with reliability and quality assurance of the software under development. It provides framework for development of quality software product. The course enables the students to write specifications for software system understand the importance of good software, design and develop test plans from design specifications. The course also covers other important aspects of software Engineering such as software lifecycle, requirement analysis and documentation, characteristics of good design, design techniques, testing, software implementation and maintenance etc.

OBJECTIVES

On completion subject, the students must be able to

- Define Software Engineering.
- Understand the 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 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.

DETAILED SYLLABUS

| UNIT I INTRODUCTION TO SOFTWARE ENGINEERING | | 14 HOURS |
|--|--|-----------------------|
| 1.1 | Basics of Software Engineering : Need for Software Engineering – Definition – Software Characteristics – Software Myths – Program versus Software Products | 2 Hrs |
| 1.2. | Software Development Life Cycle Models: Introduction – Waterfall Model – Prototyping model – Spiral Model – Iterative Enhancement model - RAD model – Object Oriented Model - Advantages and Disadvantages of above models – Comparison of various models. | 6 Hrs |
| 1.3 | Software Requirement Analysis (SRS) : Value of good SRS – Requirement Process – Requirement Specification – Desirable characteristics of an SRS – Components of an SRS – Structures of a requirements documents - Problems in SRS – Requirements gathering tools – Analysis tools – Data flow diagram – Data dictionary – ER diagram | 6 Hrs |

| UNIT – II SOFTWARE DESIGN AND PLANNING | | 14 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 | 4 Hrs |
| 2.2. | CODING: Information Hiding – Programming style – Internal documentation – Monitoring and Control for coding – Structured programming | 2 Hrs |
| 2.3. | Software Planning: Software metrics - Definition – Types of metrics – Product and Project metrics – Function point and feature point metrics – Software project estimation – Steps for estimation – Reason for poor and inaccurate estimation – Project estimation guidelines – Models for estimation – COCOMO Model – Automated tools for estimation. | 5 Hrs |
| 2.4. | CASE : CASE and its scope – Architecture of CASE environment – Building blocks for CASE – CASE support in software Life cycle – Objectives of CASE – Characteristics of CASE tools – List of CASE tools – Categories, advantages and advantages of CASE tools. | 3 Hrs |

| UNIT – III SOFTWARE MAINTENANCE AND RISK MANAGEMENT | | 14 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 | 6 Hrs |
| 3.2. | Risk management : Definition of risk – Basics for different types of software risks – Monitoring of risks – Risk management – Risk avoidance – Risk detection – Risk control – Risk recovery – Sources of risks – Types of risks | 5 Hrs |
| 3.3. | Project scheduling : Introduction – Factors affecting the task set for the project – scheduling methods – Work breakdown structure – Flow graph – Gant chart - PERT | 3 Hrs |

| UNIT – IV SOFTWARE TESTING | | 16 HOURS |
|-----------------------------------|---|-----------------------|
| 4.1. | Software Testing : Introduction to testing – Testing principles – Testing objectives – Test Oracles - Basic terms used in testing – Fault – Error – Failure - Test cases – Black box and white box testing – Advantages and disadvantages of above testing – Methods for Block box testing strategies – Methods for white box testing strategies – Testing activities – Test plan. | 5 Hrs |
| 4.2. | Levels of testing: Unit testing - Integration tests – System testing – Types. | 3 Hrs |
| 4.3. | Software Testing strategies: Static testing strategies – Formal technical reviews – Code walkthrough – Code inspection - Debugging – Definition – Characteristics of bugs – Life cycle of a Debugging task – Debugging approaches. | 2 Hrs |
| 4.4 | Software Testing Tools: Need for tools – Classification of tools – Functional/Regression Testing tools – Performance/Load Testing Tools – Testing process management Tools – Benefits of tools – Risk Associated with tools – Selecting tools – Introducing the tool in the testing process - Different categories of tools – Examples for commercial software testing tool. | 4 Hrs |
| 4.5 | Code of Ethics for Software Professionals: Human Ethics – Professional Ethics – Ethical issues in Software Engineering – Code of Ethics and professional Practice: Software Engineering code of ethics and professional Practice – Ethical issues: Right versus Wrong | 2 Hrs |

| UNIT – V SOFTWARE RELIABILITY AND QUALITY ASSURANCE | | 12 HOURS |
|--|--|-----------------------|
| 5.1. | Software Quality Assurance : Verification and validation – SQA - Objectives and Goals – SQA plan - Definition of software quality – Classification of software qualities - Software quality attributes – Important qualities of software products - Importance of software quality – SEI – CMM - Five levels - ISO 9000 – Need for ISO Certification – Benefits of ISO 9000 certification – Limitation of ISO 9000 certification – Uses of ISO - Salient features of ISO 9000 Requirements – Introduction to ISO 9126 | 7 Hrs |
| 5.2 | Software Reliability : Definition – Reliability terminologies – Classification of failures – Reliability metrics – Reliability growth modeling - Reliability measurement process | 2 Hrs |
| 5.3 | Reverse Software Engineering: Definition – Purpose - Reverse engineering Process – Reverse engineering tasks – Characteristics and application areas of reverse engineering – Software re-engineering – Principle – Re- engineering process – Difference between forward engineering and re-engineering. | 3 Hrs |

REFERENCES

| S. No | TITLE | AUTHOR | PUBLISHER | Year of Publishing / Edition |
|-------|---|--|-------------------------------------|---|
| 1. | Software Engineering | Ian Sommerville | Pearson Education | Sixth Edition |
| 2. | Fundamentals of Software Engineering | Rajib Mall | PHI Learning Pvt Limited, New Delhi | 28 th Printing – August 2011 |
| 3. | Software Engineering | Bharat Bhusan Agarwal, Sumit Prakash Tayal | Firewall Media, New Delhi | Second Edition 2008 |
| 6. | Software Testing | K.Mustafa and R.A.Khan | Narosa Publishing House, New Delhi | Reprint 2009 |
| 7. | Software Quality | R.A. Khan, K.Mustafa and SI Ahson | Narosa Publishing House, New Delhi | Reprint 2008 |
| 8. | Software Engineering | Stephen Schach | TMGH Education Pvt Ltd, New Delhi | Eight Reprint 2011 |
| 9. | Software Engineering fundamentals | Ali Behforooz and Fredick J Hudson | Oxford University press, | 2005 |
| 10. | Software Testing Principles and Practices | Srnivasan desikan, Gopalswamy Ramesh | Pearson | First Edition |
| 11. | Software Testing Concepts and Tools | Nageshwara Rao Pusulri | DreamTeach | First Edition |
| 12. | Software Engineering Concepts and application | Subhasjit Dattun | OXFORD University Press | 2010 |
| 13. | Software Engineering | Rohit Khurana | Vikas Publishing | Second Edition |

SEMESTER - V

**25272 – SOFTWARE ENGINEERING
MODEL QUESTION PAPER - I**

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. Define the term : “Software Product”
2. State any two disadvantages of waterfall model.
3. What is a data dictionary?
4. What are the symbols used in data flow diagram?
5. What is software design?
- 6.. What are the three types of modules?
7. What is coupling?
8. Expand the term “CASE”
9. Write down any two needs for software maintenance.
10. What are the different types of risks?
11. Expand the term “ PERT”
12. What is risk control?
13. What is an error?
14. Define the term “ Debugging”
15. What are the classifications of software testing tools?
16. List any two commercial software testing tools.
17. Expand the term ISO
18. Define system error.
19. What is re-engineering?
20. What is forward Engineering?

PART – B (5 x 12 = 60 Marks)

Answer either A or B from each Question. Each question carries 12 Marks

- 21 A. i. Briefly explain about software myths. [6]
- ii. Compare the different types of Software Development Life Cycle Models. [6]

[OR]

- B i. Draw the E-R diagram for hotel reception desk management. [6]
- ii. What are the uses of analysis tool? Briefly explain about analysis tools. [6]

- 22 A. i. List down any six objectives of software design. [6]
ii. Explain different types of cohesion. [6]
- [OR]**
- B i. Write short notes on : (a) Product metrics (b) Project metrics [6]
ii. Explain about the Architecture of CASE Environment [6]
- 23 A. i. Briefly explain about the different categories of software maintenance. [6]
ii. Explain different types of risks. [6]
- [OR]**
- B i. Write short notes on : (a) Flow graph and (b) Break down structure [6]
ii. Briefly explain about risk avoidance and risk control [6]
- 24 A. i. Explain different methods for black box testing strategies. [6]
ii. What are the characteristics of bugs? Explain briefly about the life cycle of a debugging task. [6]
- [OR]**
- B i. Explain testing process management tasks. [6]
ii. What are the code of ethics for software professionals?. [6]
- 25 A. i. Explain reliability growth modeling. [6]
ii. What are the limitations of ISO 9000 Certification? [6]
- [OR]**
- B i. With a neat diagram explain reverse engineering task. [6]
ii. List down the characteristics and applications of reverse engineering. [6]

SEMESTER - V
25272 – SOFTWARE ENGINEERING
MODEL QUESTION PAPER - II

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. Define the term : “Software Engineering”
2. Differentiate program from the software product.
3. What is SRS?
4. What is data flow diagram?
5. What is structure chart?
- 6.. What is cohesion?
7. State any two advantages of function point.
8. List down any two characteristics of CASE tools.
9. What is risk?
10. What are the sources of risk?
11. What is the use of Gant Chart?
12. State the use of flow graph.
13. What is a fault?
14. What are the different levels of testing?
15. State any two needs for software testing tools?
16. What are professional ethics?
17. What is SQA?
18. What is software reliability?
19. Define “ System failure”
20. List down any two applications of reverse Engineering

PART – B (5 x 12 = 60 Marks)

Answer either A or B from each Question. Each question carries 12 Marks

- 21 A. i. List down any six characteristics of Software Engineering and explain [6]
- ii. Explain spiral model with a neat diagram [6]
- [OR]**
- B i. Explain data flow diagram with an example. [6]
- ii. List down and explain characteristics of SRS. [6]

- 22 A. i. Briefly explain about modular design. [6]
ii. Explain different types of coupling. [6]
- [OR]**
- B i. Explain COCOMO model. [6]
ii. List down the characteristics of CASE tools. List advantages and disadvantages of CASE tools. [6]
- 23 A. i. Briefly explain about software configuration management activities. [6]
ii. Explain (i) Risk Management and (ii) Risk detection [6]
- [OR]**
- B i. Explain about scheduling methods. [6]
ii. Explain different categories of maintenance. [6]
- 24 A. i. Compare black box and white box testing. [6]
ii. Explain Code walkthrough and Code inspection. [6]
- [OR]**
- B i. Explain different categories of software testing tools. [6]
ii. Write short notes on “ Software Engineering ethics and professional practices” [6]
- 25 A. i. Briefly explain about the classification of software qualities. [6]
ii. List down the benefits ISO 9000 Certification? [6]
- [OR]**
- B i. Explain five levels of SEI – CMM Model. [12]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25255 – WEB PROGRAMMING PRACTICAL

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering

Subject Code : 15255

Semester : V Semester

Subject Title : **WEB PROGRAMMING PRACTICAL**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|----------------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| WEB PROGRAMMING PRACTICAL | 4 | 64 | 25 | 75 | 100 | 3 Hrs |

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.
- Use of CSS .to develop rich Web applications
- Use of Ajax to develop ultra-responsive web applications

LAB EXERCISES

| PART – A | |
|-----------------|--|
| 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 computer languages. List the language. Each Language's name is a link. Prepare separate HTML documents for each language 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 college 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. | 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. |
| 5. | Write a program using CSS to create a time table for the class. |
| 6. | Write a program using CSS to set the background colors, fonts and paragraphs |
| 7. | 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. |
| 8. | 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) |
| 9. | Create a site containing banner advertisement at the top of the page. The ads are changed every 10 or 15 seconds. |
| PART - B | |
| 1. | Collect the definitions of 5 items in Open Source. 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. |
| 2. | Write a JSP code to manipulate cookies. |
| 3. | Write a JSP code to upload data from client side. |
| 4. | Create a JSP application using image map to give information about the institution |
| 5. | Write a program to check how many users have visited a website. Use Application object. |
| 6. | Write a Code in Java Script to count number of times you move over a link or record. |
| 7. | Write a program to check whether a person will be permitted to open a particular page or not. Use permission checker component. |
| 8. | Develop a simple Hello World application using AJAX |

| | |
|--------------------------------|---|
| 9. | Develop an AJAX application to get the server date time from a JSP page using AJAX. |
| 10. | Develop a html search page using Ajax functionality and a server side script that returns results based on search criteria. Develop a html search page containing a textbox for taking search string as input from the user and get the results from the server using Ajax functionality, and display them on the page. |
| PART – C - MINI PROJECT | |
| | <p>Maximum 2 Students in a batch</p> <p>Design a static web site having a minimum of 6 web pages using all the html features studied. Include the coding and output of the above mini project in the lab record.</p> |

SCHEME OF VALUATION

| | |
|--|----------|
| Writing answer for any one program from PART - A | 10 Marks |
| Writing answer for any one program from PART - B | 15 Marks |
| Executing program (PART – A) | 10 Marks |
| Executing program (PART – B) | 20 Marks |
| Result with printout (PART – A) | 5 Marks |
| Result with printout (PART – B) | 5 Marks |
| Demonstration of Mini Project | 5 Marks |
| VIVA - VOCE | 5 Marks |
| TOTAL | 75 Marks |

Note : Student : Computer ratio in lab should be strictly 1:1

Internet facility to be improved

HARDWARE REQUIREMENT

- Desktop Computers – 36 Nos
- Laser Printer – 4 Nos

SOFTWARE REQUIREMENT

- Notepad or any one Editor
- Web browser
- Apache Tomcat 4.0 x or JRun 3.x



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

**25256 – RELATIONAL DATABASE MANAGEMENT
SYSTEMS PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering
Subject Code : 25256
Semester : V Semester
Subject Title : **RELATIONAL DATABASE MANAGEMENT SYSTEMS
PRACTICAL**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|---|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| RELATIONAL DATABASE MAANGEMENT SYSTEMS PRACTICAL | 6 | 96 | 25 | 75 | 100 | 3 Hrs |

OBJECTIVES:

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

- Know all SQL editor commands.
- Create and manipulate tables.
- 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
- Work with pre-defined functions.

LAB EXERCISES

| PART - A | |
|----------|---|
| 1 | <p>Create a table "Customer" with the following fields: Id, Company name, Last name, First name, Address, City, State, Pin code and Perform the following operations</p> <ul style="list-style-type: none"> • Find the customer who does not have last name. • Change the pin code of any customer • Insert new record into the table • Update the field's First name and Last name into Name. |
| 2. | <p>Implement the following Transaction Control Statements</p> <p>a. Commit b. Rollback c. Save point</p> |
| 3. | <p>Create a table client master with the following fields client_no, name, address 1, 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.</p> <ul style="list-style-type: none"> • Insert data into client master. • Insert data into supplier master from client master. <p>Delete the selected row in the client master.</p> |
| 4. | <p>Create a table to show the salary details of the employees and perform the following operations</p> <ul style="list-style-type: none"> • Create an updatable view to modify and display the details of the employees for the above table. • Grant select and update privileges on above table to other users. • Grant all the privileges to some other users. <p>Revoke all the above granted permissions.</p> |
| 5. | <p>Create two tables "Item details" with the fields of Item id,, Order Id, Part Id, Quantity, Total and Create a another table "Order Details: with the fields of Order id, Customer id, Order Date and Perform the following operations</p> <ul style="list-style-type: none"> • Create the view that calculates the total for all the items in each order <p>Create view to join order and corresponding line item information from the above two tables.</p> |
| 6. | <p>Create a table student with their elective paper as one field.</p> <ul style="list-style-type: none"> • Create another table staff with the subject names they have handled and number of times handled. • Construct a English sentence to display the rows in the staff table. • Use sub-queries to display the information about student's name and staff names where both have same subject names. • Display the subject name, staff names where same subject is handled by more than one staff. <p>Display the student, subject name where the subject is not at all handled any staff in the staff table.</p> |
| 7. | <p>Create two tables "Department" and "Staff Details". Apply a Master Transaction relationship between them.</p> |

| | |
|--------------------------------|---|
| 8. | <p>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.</p> <ul style="list-style-type: none"> • Add a new column for storing salesman number using ALTER command. • Set the s_order_no as foreign key as column constraint • Set the s_order_no as foreign key as table constraint • Enforce the integrity rules using CHECK. |
| PART - B | |
| 1. | Create a table 'master_book' to contain the information of magazine code, magazine name, publisher, Weekly/biweekly/monthly, price. Write PL/SQL block to perform insert, update, delete operations on the above table. |
| 2. | 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 |
| 3. | Create a table to store the salary details of the employees in a company. Declare the cursor to contain Employee number, Employee name and Net salary. Use cursor to update update the employee salaries. |
| 4. | Write a PL/SQL trigger to update the records while deleting the one record in another table. |
| 5. | Create a table to contain phone number, user name, address of the phone user. Write a function to search for a address using phone number. |
| 6. | Create a table 'stock' to contains the itemcode, itemname, current stock, date of last purchase. Write a stored procedure to seek for an item using itemcode and delete it, if the date of last purchase is before one year from the current date. If not, update the current stock. |
| 7. | Write a PL/SQL block to handle built-in exception like No_DATA_FOUND and TOO_MANY_ROWS. |
| 8. | Write a PL/SQL block to create and handle any two user defined exception. |
| PART – C - MINI PROJECT | |
| | <p>Maximum 4 Students in a batch</p> <p>Using any front end tool develop an application involving minimum 2 – 4 tables. Include the coding and output screens in the lab record.</p> |

SCHEME OF VALUATION

| | |
|--------------------------------------|----------|
| Writing any one answer from PART - A | 10 Marks |
| Writing any one answer from PART - B | 15 Marks |
| Execution (PART – A) | 10 Marks |
| Execution (PART – B) | 20 Marks |
| Result with printout (PART – A) | 5 Marks |
| Result with printout (PART – B) | 5 Marks |
| Demonstration of mini project work | 5 Marks |
| VIVA - VOCE | 5 Marks |
| TOTAL | 75 Marks |

Note : Student : Computer ratio in lab should be strictly 1:1

HARDWARE REQUIRED

1. A Server with Oracle 8i or higher (Oracle 10g is preferred)
2. 36 computers networked and configured with TCP/IP.
3. Laser Printer – 3 Nos

SOFTWARE REQUIRED

1. SQL *PLUS



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25257 – . NET PROGRAMMING PRACTICAL

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.

Subject Code : 25257

Semester : V semester

Subject Title : **. NET PROGRAMMING PRACTICAL**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|------------------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| . NET PROGRAMMING PRACTICAL | 6 | 96 | 25 | 75 | 100 | 3 Hrs |

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

LAB EXERCISES

| PART – A VB.NET PROGRAMMING | |
|---|--|
| 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 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. |
| PART – B ASP.NET and XML PROGRAMMING | |
| 1. | Create a simple ASP.NET page to Output Text with a form, two HTML text boxes, an HTML button, and an HTML element. Create an event procedure for the button. |
| 2. | Create a web application in ASP.NET using 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. |
| 3. | 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. |
| 4. | Develop a web application to read the details of the selected country stored in XML database and display back to the user using Web controls |
| 5. | Develop a web application to read an XML document containing subject, mark scored, year of passing into a DataSet |

SCHEME OF VALUATION

| | |
|---------------------------------------|----------|
| Writing any one program from PART - A | 10 Marks |
| Writing any one program from PART - B | 15 Marks |
| Executing program (PART – A) | 15 Marks |
| Executing program (PART – B) | 20 Marks |
| Result with printout (PART – A) | 5 Marks |
| Result with printout (PART – B) | 5 Marks |
| VIVA - VOCE | 5 Marks |
| TOTAL | 75 Marks |

Note : Student : Computer ratio in lab should be strictly 1:1

SOFTWARE REQUIRED:

1. . Net Frame Work
2. Visual Studio IDE

HARDWARE REQUIRED:

- 1 Computer with Pentium IV / Dual core Processors. – 36 Nos
- 2 Laser printers – 4 Nos

VI SEMESTER



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25261 – COMPUTER HARDWARE AND SERVICING

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25261
Semester : VI Semester
Subject Title : **COMPUTER HARDWARE AND SERVICING**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|---------------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| COMPUTER HARDWARE AND SERVICING | 6 | 96 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|--------------------|---|-------------|
| I | MOTHERBOARD AND ITS COMPONENTS | 16 |
| II | MEMORY AND STORAGE DEVICES | 18 |
| III | INPUT & OUTPUT DEVICES | 17 |
| IV | DISPLAY, POWER SUPPLY AND BIOS | 17 |
| V | MAINTENANCE AND TROUBLE SHOOTING OF DESKTOP & LAPTOPS | 18 |
| TEST AND REVISIONS | | 10 |
| TOTAL | | 96 |

RATIONALE

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 provides the required background of installation, maintenance and testing of peripheral with Computers and Laptops.

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 Core i, 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 the specification of I/O Ports of all I/O devices like serial, parallel, USB – Game port, Blue tooth and IP Connectors
- Know the technology of high quality multiple color graphic output devices like Dot matrix, Inkjet, Laser, Line Printers
- 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 and firewall.
- Know the aspects related to Power Supply.
- Understand the common problems in the computer system and the peripherals
- Trouble shoot the problems in Personal computers.
- Trouble shoot the problems in Computer peripherals.
- Explain diagnostic Software.
- Know and explain the major components of Laptop.
- Trouble shoot the problems in Laptop.

DETAILED SYLLABUS

| UNIT – I MOTHERBOARD AND ITS COMPONENTS | | 16 HOURS |
|--|--|-----------------------|
| 1.1 | Motherboard Components : Processor sockets/slots – emory sockets – Chipsets – Cache – BIOS – Clock generator – RTC – Super I/O Controller – Power connector – Battery – Keyboard/Mouse Connectors – Jumpers – Ports and Headers – Pin Connectors - Motherboard Form factor - Hardware, Software and Firmware. | 4 Hrs |
| 1.2. | Mother Board: Architecture and block diagram | 2 Hrs |
| 1.3. | Processors: Introduction – Pentium - Functional block diagram, Hyper threading, Turbo boost technology, Multi core - dual core technology, Core2 Duo technology, Core i series- AMD Series, Itanium Processor, Xeon Processor. | 4 Hrs |
| 1.4 | Chipsets: Chipset basics - North / South Bridge architecture and Hub architecture. | 2 Hrs |
| 1.5 | Bus Standards: Overview and features of PCI, AGP, USB, PCMCIA, Processor BUS - High Speed Bus | 4 Hrs |

| UNIT – II MEMORY AND STORAGE DEVICES | | 18 HOURS |
|---|---|-----------------------|
| 2.1 | Primary Memory: Introduction - Memory speed - Access time - Wait states, Main Memory – DDR2 - DDR3, RAM versions – 1TB RAM – Direct RDRAM - Flash Memory - Shadow RAM, Cache L1, L2, L3 – Memory errors - types. | 3 Hrs |
| 2.2. | Secondary Storage: Hard Disk - Introduction – Construction – Working Principle – Specification of IDE, Ultra ATA, Serial ATA, SCSI, SAS, Disk Array controller, HDD Partition - Formatting. Troubleshooting Hard disk drives: Problem diagnosis, Typical problems and Troubleshooting | 6 Hrs |
| 2.3. | Removable Storage Devices: CD – ROM drive operation – Internal and External CD – ROM drives – CD-R – CD-RW ; DVD – ROM – Recordable DVD - Rewritable DVD – Combo Drive – Drive interfaces and connections – Preventive Maintenance for DVD and CD drives- Cleaning CD drives Blu-ray: Introduction - Main Blu-ray Disc Parameters - Recording and Playback Principles – Basic troubleshooting flowchart for a CD drive | 6 Hrs |
| 2.4 | Special drives: External drives, Memory stick, USB-flash drive - Solid state drive. | 3 Hrs |

| UNIT – III INPUT AND OUTPUT DEVICES | | 17 HOURS |
|--|--|-----------------------|
| 3.1 | Keyboard: Signals – Interfacing (DIN, DS/2, USB, Wirless) – Types of keys- Keyboard Matrix, Key bouncing – Types of keyboard (Simple, Mechanical), Preventive Maintenance - Troubleshooting, | 4 Hrs |

| | | |
|------|---|-------|
| 3.2 | Mouse: Types of mice - connectors - Optical mouse operation – Optical mouse cleaning – Troubleshooting flowchart for a mouse. | 2 Hrs |
| 3.3. | Scanners: Introduction – Types of Scanners (Barcode, Handheld, B/W, Colour, Flatbed) – Interface – Scanner mechanism – working principle – Preventive maintenance – troubleshooting | 3 Hrs |
| 3.4. | Printers: Introduction – Types of printers – Dot Matrix – Inkjet – Laser - line printer, MFP (Multi Function Printer) Operation – Common problems – Preventive Maintenance Troubleshooting | 4 Hrs |
| 3.5 | Web Camera: Introduction – Interface – working principle – Specifications - Applications – Troubleshooting | 3 Hrs |
| 3.6 | MODEM and Broadband router : Applications – interface | 1 Hr |

| UNIT– IV DISPLAY, POWER SUPPLY and BIOS | | 17 HOURS |
|--|---|-----------------------|
| 4.1. | Displays and Graphic Cards: Panel Displays– LCD Principles – Plasma Displays – TFT Displays- LED Displays. Graphics Card: Definition and Applications – Video capture card. Adapters: SVGA, EGA cards. | 5 Hrs |
| 4.2. | SMPS: Block diagram – Basic Principles and Operations – O/P Voltage – Capacity – Cable color code – Connector and Power Good – Common Failures (No circuit diagram to be discussed) | 5 Hrs |
| 4.3. | Other Devices : UPS – factors for selecting UPS – Stabilizers and spike Guards | 2 Hrs |
| 4.4. | Bios: Bios functions – Cold and Warm booting – BIOS error codes – BIOS interrupts – identification of Different BIOS (AMI, AWARD BIOS) – Bios Memory Assignments – BIOS advance setup | 5 Hrs |

| UNIT – V MAINTENANCE AND TROUBLESHOOTING OF DESKTOP & LAPTOPS | |18 HOURS |
|--|--|----------------------|
| 5.1. | POST: Error, Beep Codes, Error messages , Post – Faults related to Hardware – Faults related to Software. | 2 Hrs |
| 5.2. | Laptop: Difference between laptop and desktop- Types of laptop – Block diagram – working principles–configuring laptops and power settings - SMD components, ESD and precautions | 3 Hrs |
| 5.3. | Laptop components: Adapter – Types, Battery –Types and basic problems, RAM– types, CPU – types, Laptop Mother Board - block diagram, Laptop Keyboard | 3 Hrs |
| 5.4 | Preventive Maintenance and Upgrading: Preventive Maintenance : Tools required – active and Passive Maintenance – Types of Diagnostics software – Preventive Maintenance Schedule - Upgrading of Systems: Mother Board, Memory, CPU, Graphic | 4 Hrs |

| | | |
|------|---|-------|
| | Card, BIOS upgradation, Additional features, Updating of System Software and Applications Software (Requirements and How to update) | |
| 5.5. | Installation and Troubleshooting: Formatting, Partitioning and Installation of OS – Trouble Shooting Laptop and Desktop computer problems | 4 hrs |
| 5.6. | Diagnostic Software and Viruses: Computer Viruses – Precautions – Anti-virus Software – identify the signature of viruses – Firewalls and latest diagnostic software’s | 2 Hrs |

REFERENCES

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|--|--|---|--|
| 1. | Computer Installation and Servicing | D.Balasubramanian | Tata Mc-Graw Hill, New Delhi | Eleventh Reprint 2010 |
| 2. | PC Repair and Maintenance | Joel Rosenthal | Fire wall Media, New Delhi | First Edition 2007 Reprint : 2008 |
| 3. | Comdex Hardware and Networking Course Kit | Vikas Gupta | DreamTech Press | Reprint Edition 2011 |
| 4. | Modern Computer Hardware Course | Manahar Lotai, Pradeep Niar, Payal Lotia | BPB Publication , New Delhi | Second Revised and Upodated Edition 2011 |
| 5. | Troubleshooting, Maintaining and Repairing PCs | Stephen J.Bigelow | TMH, New Delhi | Fifth Edition |
| 6. | PC Hardware in a nutshell | Robert Bruce and Co | O’ Reilly, Shroff Publishers and Distributors | Third Indian Reprint 2008. |

25261 - COMPUTER HARDWARE AND SERVICING
MODEL QUESTION PAPER - I

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. What is Firmware?
2. What is meant by PCI?
3. What is the use of AGP?
4. Give the technology used in Itanium processor.
5. What is flash memory?
6. List the types of memory errors.
7. Define cache memory.
8. What is meant by SATA?
9. Define scan resolution.
10. What is a barcode scanner?
11. List the different file formats of scanner.
12. Define interpolation.
13. What is a game port?
14. What is Fire ware?
15. Expand the term MODEM.
16. What is MIDI?
17. What is BIOS?
18. Mention any two antivirus software.
19. List the types of adapters used in Laptop.
20. List the SMD components of Laptop.

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Briefly explain about the features of hyper threading, turbo boost and dual core technologies. [6]
- ii. What is a Chipset? Briefly explain its architecture. [6]
- [OR]**
- B i. Briefly explain about the different Bus standards in detail. [6]
- ii. Explain briefly about the AMD series processors. [6]

- 22 A. i. What are the different types of RAMs? State the features of each. [6]
ii. Explain the recording and playback principles of Blu-ray disc. [6]

[OR]

- B i. State the features of External drives, memory stick and USB flash drive. [6]
ii. Briefly explain about the problems faced in Hard disk drive and write about the troubleshooting of Hard disk drive [6]

- 23 A. i. Briefly explain about the principle of operation of a scanner. [4]
ii. Explain in brief about the principle of operation of a digital camera. [8]

[OR]

- B i. Explain the working principle of wireless keyboard. [6]
ii. Briefly explain the basic principle of operation of a laser printer. [6]

- 24 A. i. Explain briefly about the Blue tooth interface. [6]
ii. Draw the block diagram and explain the operation of the plasma and TFT display. [6]

[OR]

- B i. Draw the block diagram of ATX power supply connection and explain its operation. [6]
ii. Briefly explain about (i) Cold and Warm Booting and (ii) BIOS Error codes. [6]

- 25 A. i. What is IPL Hardware? State its advantages. [4]
ii. Briefly explain about the SMD components of a Laptop. [8]

[OR]

- B i. What is a computer virus? What are the various steps to be followed for virus detection? [6]
ii. Explain the steps for systematic troubleshooting of a laptop. [6]

25261 - COMPUTER HARDWARE AND SERVICING

MODEL QUESTION PAPER - II

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. Expand the term USB.
2. What is a chipset?
3. Where Xeon processors are mainly used?
4. Expand the term PCMCIA.
5. What is meant by Shadow RAM?
6. What is a memory stick?
7. List the different versions of RAM.
8. What is a disk array controller?
9. Mention the different scan modes of scanner.
10. What is a virtual keyboard?
11. What is the job of speech synthesizer?
12. List the different types of printers.
13. Give the use of input/output ports.
14. Expand the term SMPS.
15. What is SVGA?
16. What is the use of IR connector?
17. What is POST?
18. Differentiate between laptop and desktop.
19. List the types of Laptop.
20. What is a firewall?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. With a neat block diagram explain the architecture of a mother board. [6]
- ii. Briefly explain about the features of hyper threading, turbo boost and dual core technologies. [6]

[OR]

- B i. Briefly explain about the different Bus standards in detail. [6]
ii. Explain briefly about the Core i series processors [6]
- 22 A. i. Explain the construction and working principle of DVD ROM. [6]
ii. Explain in brief about the Disk array controller. [6]
- [OR]**
- B i. State the features of External drives, memory stick and USB flash drive. [6]
ii. Briefly explain about the problems faced in Hard disk drive and write about the troubleshooting of Hard disk drive. [6]
- 23 A. i. Briefly explain the operation and different file formats of a scanner.. [6]
ii. Explain in brief about the principle of operation of a i) Barcode scanner ii) Flat bed scanner [6]
- [OR]**
- B i. Explain the working principle of Web camera [6]
ii. Briefly explain the basic principle of operation of a MFP printer [6]
- 24 A. i. Draw the signal diagram of serial port and explain the function of each signal. [6]
ii. Draw the block diagram and explain the operation of the plasma and TFT display. [6]
- [OR]**
- B i. Draw the block diagram of UPS and explain its operation. [6]
ii. Briefly explain about the BIOS interrupts. [6]
- 25 A. i. Explain in brief about the PC Bios communication. [6]
ii. Briefly explain about the components of a Laptop with a block diagram. [6]
- [OR]**
- B i. What is a computer virus? What are the precautions taken to avoid viruses? [6]
ii. Explain in brief about the preventive maintenance techniques adopted for laptops. [6]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25262 – MOBILE COMPUTING

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25262
Semester : VI Semester
Subject Title : **MOBILE COMPUTING**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| MOBILE COMPUTING | 6 | 96 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|-------------------|---|-------------|
| I | INTRODUCTION TO MOBILE COMPUTING | 19 |
| II | EMERGING TECHNOLOGIES | 18 |
| III | WAP , CDMA AND 3G | 18 |
| IV | MOBILE NETWORK LAYER | 17 |
| V | WIRELESS APPLICATION LANGUAGES , OS AND DEPLOYMENT OF CELLULAR SYSTEM | 14 |
| TEST AND REVISION | | 10 |
| TOTAL | | 96 |

RATIONALE

Wireless and mobile computing provides the detailed description of wireless cellular industry and the industries that produce product that provide wireless extensions to wired IEEE 802.x data networks and wireless connectivity to the internet. It also includes GSM and CDMA cellular systems ,2G,3G cellular System and IEEE standards based wireless LANs . This course is illuminating the principles, commonalities, key differences and specific implementation issues associated with virtually every leading wireless system.

OBJECTIVES

On completion subject, the students must be able to

- Learn mobile Computing Principles and Architecture
- Understand GSM and GPRS Networks
- Know Short Message Service(SMS) technology, GPRS, WAP, CDMA, 3G.
- Understand Wireless LAN , wifi and WLL (Wireless Local loop) Architecture
- Learn Bluetooth, and Satellite Communications.
- Study Mobile Network Layer and its configuration.
- Differentiate different routing techniques.
- Describe Mobile Transport layer and its configuration.
- Explain Wireless Markup Language.

DETAILED SYLLABUS

| UNIT I INTRODUCTION TO MOBILE COMPUTING | | 19 HOURS |
|--|---|-----------------------|
| 1.1 | Introduction : Evolution of Mobile Computing – Important terminologies - Mobile computing functions – Mobile computing Devices – Networks: Wirleline, Wirleless , Adhoc - Comparison of wired and wireless mechanism - Various types of wireless communication technologies used in Mobiles, Antennas | 6 Hrs |
| 1.2. | Architecture : Architecture of Mobile Computing – 3- Tier Architecture – Presentation (Tier-1), Application (Tier -2), Data (Tier – 3) | 4 Hrs |
| 1.3 | Mobile computing through Telephony: Evolution through telephony – Mutiple Access Procedures: FDMA, TDMA, CDMA, SDMA – features – Satellite Communication System : Communicating through satellite – Low orbit satellite – Medium orbit satellite – Geo stationary Satellite – Satellite phones | 5 Hrs |
| 1.4 | Wireless LAN: Introduction - Definition – Applications of WLAN – Infrared versus Radio transmission – Features of WI-FI and WI-MAX - Roaming Issues | 4 Hrs |

| UNIT – II EMERGING TECHNOLOGIES | | 18 HOURS |
|--|---|-----------------------|
| 2.1 | Bluetooth : Introduction - Bluetooth application - Bluetooth standards documents - Protocol architecture - Usage models - Piconets & Scatternets - Radio specification - Base band specification - Frequency hopping - Physical links - Packets (outline) - Error Correction - Logical channels - Channel control - Bluetooth Security - Link manager specification (outline) - Logical link control and adaptation protocol (outline) - L2CAP Channels - L2CAP packets - Signalling commands - Quality of service | 7 Hrs |
| 2.2. | Global System for Mobile Communication (GSM): Introduction – GSM Architecture – GSM Entities (Basics only) | 3 Hrs |
| 2.3. | Short Message Service (SMS): Mobile computing over SMS – Short Message Service – Strength of SMS – SMS Architecture – Value added services through SMS – VAS Examples | 3 Hrs |
| 2.4. | General Packet Radio Service (GPRS): Introduction – GPRS Packet data Network : Capacity & Other End user aspects – Quality of Service (QoS) , Integral part of the future 3G systems – GPRS Network Architecture – GPRS Networks Enhancements – Applications for GPRS : Generic Applications, GPRS Specific Applications – Limitations of GPRS | 5 Hrs |

| UNIT – III WAP , CDMA AND 3G | |18 HOURS |
|-------------------------------------|---|----------------------|
| 3.1. | WAP: Introduction – Wireless Markup Language (WML) - WAP Application Environment - User Agent – User Agent Profile (UAProf) – Wireless Transaction Protocol (WTP) – Wireless Transport Layer Security (WTLS) – Wireless Data Protocol (WDP) – WMLScript – Wireless Telephony Application (WTA, WTAI) – WAP Push Architecture – | 10 Hrs |

| | | |
|------|---|-------|
| | The Push framework – Wireless Session protocol (WSP) – WAP Gateway) Advanatages of WAP – Protocol stack – Components of WAP Architecture – WAE Components | |
| 3.2. | CDMA and 3G : Introduction – Spread Spectrum Technology – Architecture - Speech and channel coding - Channel structure - Call processing - Channel capacity -CDMA Vs GSM – Wireless data – Short Message Service (SMS) – Third Generation Networks – CDMA 2000 - UMTS/WCDMS, Fixed wireless – Applications on 3G – 3G Specific applications | 8 Hrs |

| UNIT – IV MOBILE NETWORK LAYER | |17 HOURS |
|---------------------------------------|---|----------------------|
| 4.1. | Mobile IP : Goals, assumptions & requirements - Entities & terminology - IP packet delivery - Agent advertisement & discovery – Registration - Tunneling & encapsulation - Reverse tunneling – IPV6 . | 7 Hrs |
| 4.2. | Routing : Introduction – Routing types: Lease Cost – Adaptive – Non Adaptive | 4 Hrs |
| 4.3. | Mobile Transport Layer: Traditional TCP - Congestion control - Slow start - Fast retransmit & fast recovery - Transmission / time out freezing - Selective retransmission – Indirect TCP – Snooping TCP – Mobile TCP | 6 Hrs |

| UNIT – V WIRELESS APPLICATION LANGUAGES , OS AND DEPLOYMENT OF CELLULAR SYSTEM | |14 HOURS |
|---|--|----------------------|
| 5.1. | Wireless Application languages and operating systems - Understanding of Wireless Application languages - XML, JAVA, J2ME, JAVA CARD - Understanding of Mobile operating system - Palm OS, Windows CE , Android | 8 Hrs |
| 5.2. | Evolution and Deployment of cellular system : Enhanced Message services(EMS), Multimedia Message Services (MMS) & Mobile Instant Messaging(MIM) - Know about 4G and its features – Emerging Wireless technology | 6 Hrs |

TEXT BOOKS

| Sl.No | TITLE | AUTHOR | PUBLISHER | Year of Publishing/Edition |
|-------|-----------------------|--|---|-------------------------------|
| 1. | Mobile Computing | Asoke K Talukder, Hasan Ahmed, Roopa R Yavagal | TMGH, New Delhi | Second Edition, |
| 2. | Mobile communications | Jochen schiller | Pearson Education, New Delhi. | Fourth Indian Reprint 2005 |
| 3. | Mobile Computing | Sipra Dasbit Biplab K. Sikdar | PHI Learning Private Ltd , New Delhi | 2009 |

REFERENCES

| Sl.No | TITLE | AUTHOR | PUBLISHER | Year of Publishing/Edition |
|-------|---|--|------------------------------------|----------------------------|
| 1. | Mobile Computing | Raj Kamal | OXFORD | Second Edition 2012 |
| 2. | Wireless Communication and Networks | William Stallings | PHI , New Delhi | 1st edition. |
| 3. | Wireless Communications and Networks – 3 G and Beyond | ITI Saha Misra | TMGH, New Delhi | Third reprint 2011 |
| 4. | Wireless and Mobile Networks Concepts and protocols | Dr.Sunilkumar S.Manvi & Mahabaleshwar S.Kakkasageri | Wiley Publisher | First Edition |
| 5. | Mobile Computing | Dr.N.N. Jani, Kamaljit I.Lakhtara, dr.Ashish N.Jani, Neeta Kanabar | S.Chand and Co, New Delhi | Reprint 2011 |
| 6. | Mobile Computing – Theory and Practice | Kumkum Gay | Pearson Eduction | 2010 |
| 7. | Mobile Computing for Beginneris | Raksha Shende | Shroff Publishers and Distributors | First Edition Feb 2012. |

SEMESTER - VI
25262 MOBILE CPMPUTING
MODEL QUESTION PAPER - I

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. Define Handsoff.
2. What are entities present in BSS?
3. Give any two application of WLAN.
4. Define cell splitting.
5. Expand GPRS.
6. What is scatternet?
7. List any two advantage of Bluetooth.
- 8.. What frequency the GSM mobile operate?
9. Expand the term CDMA
10. What do you mean by Channel capacity?
11. State the application of 3G.
12. Expand WSP.
13. What is mobile node?
14. What is tunneling?
15. What is low cost routing?
16. List any two advantage of Snooping TCP
17. Expand J2ME.
18. Name any two operating system in mobile computing.
19. Expand MIM.
20. Define OFDM.

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. Explain FDMA and TDMA in detail. [8]
ii. Explain the concept of WI MAX. [4]
- [OR]**
- B i. Explain how HandOver takes place in Mobile. [6]
ii. Explain Mobile Architecture of Mobile computing [6]

- 22 A. i. With a neat diagram explain Bluetooth Protocol. [8]
ii. What are limitations of GPRS? Explain. [4]
- [OR]**
- B i. Explain SMS architecture in detail. [7]
ii. Explain GSM architecture with neat block diagram. [5]
- 23 A. i. Explain the main architectural components of WAP 2.1. [8]
ii. What do you mean by WAE? Explain briefly. [4]
- [OR]**
- B i. Explain Spread spectrum technology in detail. [8]
ii. State the differences between CDMA and GSM. [4]
- 24 A. i. Briefly explain about Adaptive routing [6]
ii. List down the steps for processing of IP packet delivery [6]
- [OR]**
- B i. Explain tunneling and encapsulation in Mobile IP [6]
ii. Write briefly snooping TCP and Mobile TCP [6]
- 25 A. i. Explain how wireless application are created using J2ME [6]
ii. Explain briefly about Android Mobile operating system [6]
- [OR]**
- B i. What are enhanced message service in mobile? [6]
ii. Explain about 4G features in Mobile system [6]

SEMESTER - VI
25262 MOBILE CPMPUTING
MODEL QUESTION PAPER - II

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen questions. Each question carries 1 mark.

1. List any two dimension of multiplexing
2. Expand the term FDMA
3. List any two terminology of mobile computing.
4. Define cell.
5. Expand SMS.
6. What is a piconet?
7. What frequency the Bluetooth operate?
- 8.. What do mean by L2CAP?
9. List any two advantages of WAP.
10. What is WML script?
11. Write down the language supported by WAP 2.0.
12. List any two feature of WML.
13. What is fast retransmit?
14. Define Reverse tunneling
15. List any four TCP supported by Mobile Transport Layer.
16. What is congestion?
17. Name two wireless application languages
18. Mention any two feature of 4G.
19. Expand DSL.
20. Mention the uses of XML

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- | | | | | |
|---------------|----|-----|--|-----|
| 21 | A. | i. | Explain the architecture and function of mobile computing | [8] |
| | | ii. | What are the difference between Infrared and Radio transmission. | [4] |
| [OR] | | | | |
| | B | i. | Explain in detail the different types of communication technologies used in mobile | [6] |
| | | ii. | Explain the concept of WI- FI | [6] |
| 22 | A. | i. | Briefly explain about security in Bluetooth | [6] |
| | | ii. | Explain briefly about GPRS network Enhancement | [6] |

[OR]

- B i. Explain GPRS Network Architecture in detail [8]
ii. Explain Short message service. [4]
- 23 A. i. Explain WAP push architecture in detail [6]
ii. Explain how WSP works in detail. [6]

[OR]

- B i. Name different type of 3G Specific application and explain any one of them in detail [8]
ii. Explain briefly about Wireless data. [4]
- 24 A. i. Explain IPV6 in detail [8]
ii. What do you mean by congestion control ? Explain [4]

[OR]

- B i. Explain slow start ,fast retransmit in detail. [6]
ii. Explain the indirect TCP in Detail. [6]
- 25 A. i. Explain multimedia message service in mobile in detail. [6]
ii. Explain Palm OS in detail. [6]

[OR]

- B i. Explain briefly about Windows CE Mobile operating system [6]
ii. Explain briefly about emerging wireless technology [6]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25281 – MULTIMEDIA SYSTEMS

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25281
Semester : VI Semester
Subject Title : **MULTIMEDIA SYSTEMS**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|-------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| MUTIMEDIA SYSTEMS | 5 | 80 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|--------------------|--|-------------|
| I | INTRODUCTION TO MULTIMEDIA | 14 |
| II | DEFINING OBJECTS FOR MULTIMEDIA SYSTEMS | 13 |
| III | MULTIMEDIA DATA AND STANDARDS | 16 |
| IV | MULTIMEDIA DEVICES AND MAKING MULTIMEDIA | 14 |
| V | MULTIMEDIA DESIGN, MULTIMEDIA FOR INTERNET | 13 |
| TEST AND REVISIONS | | 10 |
| TOTAL | | 80 |

RATIONALE

The exponential growth of Engineering and Technology particularly information and communications engineering has benefited the day-today life of entire mankind in all respects. The research and developments are continually happening in this field to fine tune and improve the field particularly also in multimedia which directly or indirectly has impact on every man's daily life. As such the introduction of current and future trends and technology of multimedia systems would strengthen the knowledge and skills of engineering community in taking one-step further the prosperity of man kind.

OBJECTIVES

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

- To understand the relevance and underlining infrastructure of multimedia system.
- The purpose of the course for the students is to apply contemporary theories of multimedia learning to the development of multimedia products.
- Analyze instructional and informational media (audio/ visual materials, web based materials, games and simulations etc) applied with multimedia techniques.
- Acquire knowledge about multimedia software tools.
- To understand the multimedia systems components, evolving technologies and fundamental elements of any multimedia system.
- Acquire knowledge about the fundamentals of handling multimedia data, compression / decompression and various media file formats.
- Understand the underlying principles of processing various multimedia data.
- Understand the working principles of various multimedia input–output devices.
- Gain knowledge about various multimedia related standards.
- Understand the design and development process of multimedia projects.
- Understand the technologies of multimedia used in Internet and its applications.

DETAILED SYLLABUS

| UNIT I INTRODUCTION TO MULTIMEDIA | | 14 HOURS |
|--|---|-----------------------|
| 1.1 | Introduction : Definition of multimedia - Multimedia Basics - Where to use Multimedia - Multimedia Elements –Multimedia Applications - Virtual Reality - Delivering Multimedia. | 2 Hrs |
| 1.2. | Multimedia Systems Architecture: Multimedia Workstation Architecture - High resolution Graphic displays - Multimedia Architecture Based on interface bus - Network architecture for Multimedia systems. | 3 Hrs |
| 1.3. | Evolving Technologies For Multimedia Systems: Hypermedia Documents – Hypertext - Hyper Speech - HDTV and UDTV - 3D Technologies and Holography - Fuzzy Logic and Digital Signal Processing. | 3 Hrs |
| 1.4. | Defining Objects for Multimedia System: Text – Images - Audio and Voice - Full-Motion and Live Video - Multimedia Data Interface Standards - File formats for multimedia systems - Video processing standards. | 3 Hrs |
| 1.5 | Multimedia Software: Overview of Multimedia Software Tools - Open Source Replacements - Multimedia Authoring - Some Useful Editing and Authoring Tools - VRML. | 3 Hrs |

| UNIT II DEFINING OBJECTS FOR MULTIMEDIA SYSTEMS | | 13 HOURS |
|--|--|-----------------------|
| 2.1. | TEXT: About Fonts and Faces - Using Text in Multimedia - Designing with Text - Hypermedia and Hypertext - The Power of Hypertext - Using Hypertext - Hypermedia Structures - Hypertext Tools, | 2 Hrs |
| 2.2. | Images: Making Still Images – Bitmaps - 1 bit images - 8-bit gray level images - 8-bit color images- Dithering- 24 bit color images - Vector Drawing - Vector-Drawn Objects vs. Bitmaps- 3-D Drawing and Rendering – Color - Understanding Natural Light and Color - Computerized Color - Color Palettes - Color Look-up table. | 3 Hrs |
| 2.3. | Sound : The Power of Sound - Digital Audio - Making Digital Audio Files - MIDI Audio - MIDI vs. Digital Audio - Multimedia System Sounds - Adding Sound to Your Multimedia Project - Audio Recording - Keeping Track of Your Sounds - Audio CDs - Sound for Your Mobile - Sound for the Internet. | 3 Hrs |
| 2.4. | Animation: the Power of Motion- Principles of Animation - Animation by Computer - Animation Techniques. | 2 Hrs |
| 2.5 | Video: Using Video- How Video Works and Is Displayed - Analog Video - Digital Video, Displays - Digital Video Containers – Codec - Video Format Converters - Obtaining Video Clips - Shooting and Editing Video. | 3 Hrs |

| UNIT III MULTIMEDIA DATA AND STANDARDS | | 16 HOURS |
|---|--|-----------------------|
| 3.1. | Data Compression: Need for Data compression - General Data compression Scheme - Compression standards - Non-lossy compression for images - Lossy compression for Photographs and video - Hardware Vs Software Compression. | 5 Hrs |
| 3.2. | Compression Schemes and standards: (Only Concepts of) Binary image compression -, Color, Gray Scale and Still-video image compression - JPEG, video image compression - Multimedia Standards for Video - Requirements for Full-motion Video Compression – MPEG - Audio compression - Fractal compression - advantages / disadvantages. | 4 Hrs |
| 3.3. | Data and File Format Standards: Popular File Formats - RTF, RIFF, GIF, PNG, TIFF, MIDI, JPEG, JFIF, AVI, WAV, BMP, WMF, MIX, MPEG standards - TWAIN. | 3 Hrs |
| 3.4 | Multimedia Databases, Storage and Retrieval - Database Management systems - Database Organization and Transaction management for multimedia systems. | 4 Hrs |

| UNIT IV MULTIMEDIA DEVICES AND MAKING MULTIMEDIA | | 14 HOURS |
|---|---|-----------------------|
| 4.1. | Multimedia input/output Technologies: Limitations of Traditional input devices - Multimedia input output devices - PEN input - Working of Electronic Pen - Video and image display systems - Video display technology standards – CRT - display terminology - Flat panel display system. | 4 Hrs |
| 4.2. | Print Output, image, audio and video Technologies: Comparison of printing technologies - Laser printing - Dye sublimation printer - Color printing technology issues - Image scanners – types - Digital voice and audio - Voice recognition systems - Digital Camera - video frame grabber - video and still image processing - video camera - full-motion video controllers - video capture board. | 4 Hrs |
| 4.3 | Making Multimedia: The Stages of a Multimedia Project – Creativity - Organization, Communication - Hardware - Software - Text Editing and Word Processing Tools - OCR Software - Painting and Drawing Tools, 3-D Modeling and Animation Tools - Image-Editing Tools - Sound-Editing Tools - Animation, Video, and Digital Movie Tools, Authoring Systems - Making Instant Multimedia - Types of Authoring Tools. | 4 Hrs |
| 4.4 | Multimedia Skills: The Team - Project Manager - Multimedia Designer - Interface Designer – Writer - Video Specialist - Audio Specialist - Multimedia Programmer - Producer of Multimedia for the Web. | 2 Hrs |

| UNIT – V MULTIMEDIA DESIGN, MULTIMEDIA FOR INTERNET | | 13 HOURS |
|--|--|-----------------------|
| 5.1. | Designing and Producing: Designing - Designing the Structure - Designing the User Interface – Producing – Tracking – Copyrights - Virtual reality designing and modeling. | 4 Hrs |

| | | |
|------|---|-------|
| 5.2. | The Internet and Multimedia: The Bandwidth Bottleneck - Internet Services - MIME-Types - Multimedia on the Web - Web Page Makers and Site Builders - Plug-ins and Delivery Vehicles. | 3 Hrs |
| 5.3. | Designing for the World Wide Web: Developing for the Web - The Desktop Workspace and the Small-Device Workspace - Text for the Web - Images for the Web - GIF and PNG Images - JPEG Images - Clickable Buttons - Client-Side Image Maps - Sound for the Web - Animation for the Web - GIF89a - Video for the Web - Plug-ins and Players. | 4 Hrs |
| 5.4 | Delivering: Testing - Preparing for Delivery - File Archives - Delivering on CD-ROM - Delivering on DVD. | 2 Hrs |

TEXT BOOKS

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|---------------------------|--------------------------------------|-----------------------------------|------------------------------|
| 1. | Multimedia:Making It Work | Tay Vaughan | Tata McGraw Hill Ltd | Eighth Edition |
| 2. | Fundamental of Multimedia | Ze-Nian Li & M. S. Drew | PHI Learning Pvt Ltd New Delhi | Indian Reprint 2011 |
| 3. | Multimedia Systems Design | Prabhat k.Andleigh, Kiran Thakra, | PHI Learning Pvt Ltd New Delhi | Indian reprint 2011 |
| 4. | Multimedia Systems | John F.Koegel Buford | Pearson Education | Ninth Impression 2012 |

REFERENCES

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|---|---|-----------------------------------|------------------------------|
| 1. | Computer Graphics Multimedia and Animation | Malay K. Pakhira | PHI , New Delhi | Second edition |
| 2. | Principles of Multimedia | Ranjan Parekh | TMGH, New Delhi | Twelfth Reprint, |
| 3. | Computer Graphics and Multimedia | Anirban Mukhapathyay Aruop Chattopadhyay | Vikas Publishing Ltd | Second Edition |
| 4. | Multimedia Technology & Applications | David Hillman | Galgotia Publications Pvt Ltd. | Second Edition |

SEMESTER - VI
25281 – MULTIMEDIA SYSTEMS
MODEL QUESTION PAPER - I

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. Define Multimedia
2. What is VRML? Where it is used?
3. Name some evolving Multimedia technologies
4. Explain in what way Multimedia standards are useful?
5. What is anti-aliased text?
6. Differentiate a bitmap and a vector-drawing
7. What is a color palette?
- 8.. Write any two advantages of digital video?
9. Mention any two needs for compression?
10. What are the files formats used for images?
11. What is multimedia database?
12. Define TWAIN.
13. Give any two limitations of traditional input devices.
14. List the categories of flat panel display systems.
15. Give two examples for image editing software
16. Define the role of project manager.
17. Define hotspot.
18. What is a plug-in?
19. Name some common image formats suitable for web.
20. What is GIF89a?

PART – B (5 x 12 = 60 Marks)

Answer either A or B from each Question. Each question carries 12 Marks

- 21 A. i. Explain in detail the multimedia workstation architecture. [6]
ii. Discuss the differences among multimedia, interactive multimedia, hypertext, and Hypermedia. [6]
- [OR]**
- B i. Write in detail about the various multimedia authoring software tools their importance and uses. [6]
ii. Discuss in detail about the various evolving multimedia technologies. [6]
- 22 A. i. Discuss and compare about any two image formats. [6]
ii. Describe what MIDI is, what its benefits are, and how it is best used in a multimedia project. [6]

[OR]

- B i. Discuss in detail about animation principles and techniques. [6]
ii. Explain about fonts and typefaces and their use with text in multimedia. [6]
- 23 A. i. Discuss about the requirements for full-motion video compression. [6]
ii. Explain and discuss about multimedia database systems. [6]
- [OR]**
- B i. Explain about the compression of photographs and video. [6]
ii. Explain the various image data file formats used [6]
- 24 A. i. Explain the limitations of traditional input-output devices. [6]
ii. Explain the role of audio and video specialist in multimedia design. [6]
- [OR]**
- B i. Explain the various stages of making a multimedia project. [6]
ii. Explain about any one type of image scanner in detail [6]
- 25 A. i. Write in detail about multimedia designing and producing. [6]
ii. List and explain the various MIME-types. [6]
- [OR]**
- B i. Explain in detail about delivering and testing a multimedia product. [6]
ii. Explain in detail - Designing multimedia for the World Wide Web. [6]

SEMESTER - VI
25281 – MULTIMEDIA SYSTEMS
MODEL QUESTION PAPER - I

Time : 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. Define Virtual reality
2. What is Hypermedia?
3. How multimedia presentations can be classified?
4. What is multimedia data interface standard?
5. Define type face.
6. What is dithering?
7. What is audio-CD?
- 8.. What is lossy compression?
9. Define fractal compression.
10. Mention any one advantage and one disadvantage of binary image compression.
11. What are the series of specifications included in JPEG?
12. What is the format of text used for messaging systems?
13. List the types of image scanners.
14. What is sampling in digital audio?
15. What are the categories of authoring tools?
16. What is multimedia skill-set?
17. Define image map.
18. What is MIME?
19. What is clickable image button?
20. Name some plug-in needed for playing video on web.

PART – B (5 x 12 = 60 Marks)

Answer either A or B from each Question. Each question carries 12 Marks

- | | | | | |
|---------------|----|-----|--|-----|
| 21 | A. | i. | Explain in detail the multimedia architecture based on interface bus.. | [6] |
| | | ii. | Discuss about various Multimedia elements and their importance in detail | [6] |
| [OR] | | | | |
| | B | i. | Explain in detail about the evolving multimedia technology – 3D and Holography | [6] |
| | | ii. | Discuss about various tools and the open source replacements available for multimedia authoring. | [6] |
| | | | | |
| 22 | A. | i. | Discuss about fonts and typefaces in detail. | [6] |
| | | ii. | Explain computerized color, color palette, color look-up table. | [6] |

[OR]

- B i. Explain the terms video containers, codec and video format converters. [6]
 - ii. Explain sound for mobile and internet in the context of multimedia. [6]
- 23 A. i. Explain non-lossy compression for images [6]
- ii. Compare and contrast the different file formats used for video. [6]

[OR]

- B i. Write in detail about MPEG Compression [6]
 - ii. Explain the need for data compression and general schemes of compression. [6]
- 24 A. i. Discuss about video display technology standards. [6]
- ii. Explain 3-D Modeling and Animation Tools and their use in making multimedia. [6]

[OR]

- B i. List and mention the role of various members of a multimedia project team. [6]
 - ii. Explain the working of Dye sublimation printer. [6]
- 25 A. i. Write in detail about virtual reality designing and modeling. [6]
- ii. Explain Plug-ins and delivery vehicles [6]

[OR]

- B i. Explain the terms - text for web, images for the web in the context of multimedia design. [6]
- ii. Explain on detail testing and delivering multimedia. [6]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25282 – OPEN SOURCE SOFTWARES

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25282
Semester : VI Semester
Subject Title : **OPEN SOURCE SOFTWARES (ELECTIVE THEORY – II)**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|-----------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| OPEN SOURCE SOFTWARES | 5 | 80 | 25 | 75 | 100 | 3 Hrs |

TOPICS AND ALLOCATION OF HOURS

| Unit No | Topic | No of Hours |
|-------------------|---|-------------|
| I | OVERVIEW OF OPEN SOURCE SOFTWARE AND OPERATING SYSTEM | 15 |
| II | OPEN SOURCE PROGRAMMING LANGUAGE – PHP | 14 |
| III | OPEN SOURCE DATABASE | 14 |
| IV | PHYTON | 14 |
| V | OPEN SOURCE SOFTWARE TOOLS AND TECHNOLOGIES | 13 |
| TEST AND REVISION | | 10 |
| TOTAL | | 80 |

RATIONALE

The main aim of this subject is to enable the students to know the basic concepts of open source software and tools. The students will learn about the principles of open source software, web servers, databases, operating systems, programming languages and application development.

OBJECTIVES

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

- Understand the need, advantages and disadvantages of Open Source software.
- Understand the general concepts and modes of Linux Operating System.
- Understand the advanced concepts like Scheduling, Time Accounting, Personalities and coning.
- Understand Linux Networking.
- Know the basic concepts of Open Source Database.
- Know how to connect MYSQL database and closing connection.
- Write Simple MYSQL Programs.
- Creating database and tables in MYSQL.
- Manipulate database tables in MYSQL.
- Understand the concepts of Record Selection technologies
- Install and Configure of PHP on Windows.
- Understand the basic concepts of PHP.
- Understand the String and Array concepts in PHP.
- List the advanced features of PHP.
- Discuss the Memory Management, Parameter Handling and Variables in PHP.
- Understand how to access a database using PHP
- Discuss about the advanced Database techniques.
- Discuss about the Apache Web Server and Configuring the server.
- Explain the History and Architecture of Eclipse IDE Platform.
- Understand the basics of Python
- Knowing the building blocks of python language
- Knowing the development process of a Python program,
- Understanding file handling using python

DETAILED SYLLABUS

| UNIT I OVERVIEW OF OPEN SOURCE SOFTWARE AND OPERATING SYSTEM 15 HOURS | | |
|--|---|-------|
| 1.1 | Introduction : Need of Open Sources – Advantages of Open Sources – Applications – FOSS – FOSS usage - Free Software Movement, Commercial aspects of Open Source movement - Certification courses issues - global and Indian. Application of Open Sources | 4 Hrs |
| 1.2. | Open Source Operating Systems: LINUX – Introduction – General Overview – Kernel mode and User mode process. | 2 Hrs |
| 1.3. | Linux Advanced Concepts: Scheduling, Time Accounting – Personalities – Cloning and Backup your Linux System – Linux Signals – Development with Linux. | 6 Hrs |
| 1.4. | Linux Networking: Configuration Files – Red Hat Linux network GUI configuration tools– Assigning an IP address – Subnets – Route – Tunneling – Useful Linux network commands – Enable Forwarding | 3 Hrs |

| UNIT II OPEN SOURCE PROGRAMMING LANGUAGE – PHP 14 HOURS | | |
|--|---|-------|
| 2.1. | Introduction: What is PHP? - Basic Syntax of PHP – programming in web environment - Common PHP Script Elements - Using Variables - Constants – Data types - Operators ; Statements - Working With Arrays -Using Functions – OOP - String Manipulation and Regular Expression | 5 Hrs |
| 2.2. | File and Directory Handling - Including Files - File Access | 3 Hrs |
| 2.3. | Working With Forms -Processing Forms -Form Validation – Introduction to advanced PHP concepts | 3 Hrs |
| 2.4. | Simple programs using PHP | 3 Hrs |

| UNIT III OPEN SOURCE DATABASE 14 HOURS | | |
|---|---|-------|
| 3.1 | MySQL: Introduction - Setting up an account - Starting, Terminating and writing your own MySQL Programs - Record Selection Technology - Working with Strings - Date and Time - Sorting Query Results module - Generating Summary - Working with Metadata - Using Sequences – MySQL and Web | 8 Hrs |
| 3.2. | PHP and SQL database: PHP and LDAP ; PHP Connectivity ; Sending and receiving e-mails | 2 Hrs |
| 3.3 | PHP Database Connectivity: Retrieving data from MySQL - Manipulating data in MySQL using PHP | 2 Hrs |
| 3.4. | Simple programs using MySQL | 2 Hrs |

| UNIT – V PYTHON | | 14 HOURS |
|------------------------|---|-----------------------|
| 4.1. | Basic features of Python: Overview – Installing – Running in windows/Linux | 2 Hrs |
| 4.2. | Variables and Strings: Data types - Operators – Decision Control - Conditional Statements - Loops – Example Programs | 3 Hrs |
| 4.3. | Sequences: Lists: Introduction –Fixed size lists and arrays – Lists and Loops – Assignment and references - Identity and equality – Sorted lists – Tuples: Tuples and string formatting – String functions - Sets: Unordered Collections – Simple programs Dictionaries– File Handling -Exception – Handling exception | 5 Hrs |
| 4.4. | Dictionaries : Introduction – Combining two dictionaries with UPDATE – Making copies – Persistent variables – Internal Dictionaries | 2 Hrs |
| 4.5 | Functions and Files : Functions - File Handling – Exception – Handling Exceptions | 2 Hrs |

| UNIT V OPEN SOURCE SOFTWARE TOOLS AND TECHNOLOGIES | | 13 HOURS |
|---|--|-----------------------|
| 5.1 | WEB SERVER : Apache Web server – Working with web server – Configuring and using apache web server | 4 Hrs |
| 5.2. | Open Source Software tools and Processors : Introduction – Eclipse IDE Platform – Compilers – Model driven architecture tools – Selenium ID – Features and uses | 5 Hrs |
| 5.3 | CASE STUDY: Government Policy toward Open Source (E- Governance) – Wikipedia as an open Source Project | 4 Hrs |

REFERENCES

| S.No | Title | Author | Publisher | Year of Publishing / Edition |
|------|------------------------------|------------------|------------------------------------|------------------------------|
| 1. | The Complete Reference Linux | Richard Peterson | Tata McGraw Hill, New Delhi | Third Edition |
| 2. | Web Programming | Chris Bates | Wiley India, New Delhi | Third Edition, Reprint 2011 |
| 3. | MySQL Bible: | Steve Suchring | John Wiley sons | 2002 |
| 4. | PHP and MySQL | Brett MLaughlin | Shroff publishers and Distributors | 2002 |
| 5. | Exploring Python | Timothy A.Budd | Tata McGraw Hill, New Delhi | 2011 |
| 6. | Web Design Technology | D.P.Nagpal | S.Chand& Co Ltd, New Delhi | Second Revised Edition 2012 |

| | | | | |
|-----|-------------------------|-----------------------------|------------------------------|---------------------------|
| 7. | PHP5 and MySQL Bible | Tim converse and Joyce Park | Wiley India, New Delhi | Reprint 2007 |
| 8. | PHP – A Beginners Guide | Vikram Vaswani | TMGH, New Delhi | Sixth Reprint 2011 |
| 9. | PHP | Dinesh Maidasani | Firewall Media, New Delhi | Reprint 2008 |
| 10. | Programming Python | Mark Lutz | O'Reilly , Shroff publishers | First Indian Reprint 2011 |

WEBSITES

<http://developer.android.com>

[Learning to Program](#) - A free Python web-book by Alan Gauld

<http://www.freenetpages.co.uk/hp/alan.gauld/>

http://en.wikibooks.org/wiki/Python_Programming

SEMESTER – VI
25282 – OPEN SOURCE SOFTWARES (ELECTIVE THEORY – II)
MODEL QUESTION PAPER - I

Time: 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any fifteen questions. Each question carries 1 mark.

1. Give one example for open source operating system?
2. List any two kernel mode processes.
3. What is scheduling?
4. What is the configuration file?
5. Difference between static and global scope of variables in PHP?
6. Define file access?
7. How will you assigning a range of values for array?
8. Give the syntax for declaring an object in PHP?
9. List out the data types available in MySQL?
10. Define timestamp.
11. Write down the syntax for creating MySQL connection using PHP script?
12. Write a command for sending e-mails using PHP and SQL database.
13. Define persistent variables.
14. Give an example for combining two dictionaries with update?
15. Write the syntax for equality?
16. Give any two operations for file handling?
17. What is the service offered by apache software?
18. State any two open source software tools?
19. What you mean by Eclipse?
20. What are the uses of web servers?

PART – B (5 x 12 = 60 Marks)

Answer all questions either A or B from each question. Each question carries 12 Marks

- 21 A. i. What are the needs and advantages of open sources? [6]
- ii. Explain any five useful linux network commands? [6]

[OR]

- B i. Explain about cloning and backup your linux system? [6]

- ii. Explain linux network GUI configuring tools? [6]
- 22 A. i. Generate a PHP script that will display the multiplier of the numbers 1 to 5, up to 5 rows. [6]
- ii. Calculating the sum of an array? [6]
- [OR]**
- B i. Explain the procedure for installing PHP and configuring PHP in your system. [12]
- 23 A. i. Explain the procedure for creating a database and a table. [6]
- ii. Explain about PHP database connectivity. [6]
- [OR]**
- B i. Explain briefly about sending and receiving e-mails using PHP SQL database. [6]
- ii. Create a table named persons with three columns, the column names will be first name, last name and age using PHP. [6]
- 24 A. i. Explain about sequence of lists in Python. [6]
- ii. Briefly explain about dictionaries in Python. [6]
- [OR]**
- B i. Explain about functions and files with an example. [6]
- ii. How to Python running in windows / linux? [6]
- 25 A. i. Explain about the Government policy towards open sources? [6]
- ii. How will you configure and the use of apache web server? [6]
- [OR]**
- B i. Explain about the history and architecture of Eclipse IDE platform. [12]

SEMESTER – VI

25282 – OPEN SOURCE SOFTWARES(ELECTIVE THEORY – II)

MODEL QUESTION PAPER - II

Time: 3 Hrs

Max. Marks: 75

PART – A (15 x 1 = 15 Marks)

Answer any Fifteen Questions. Each question carries 1 mark.

1. Define FOSS.
2. What is user mode process?
3. Write any one linux network command?
4. List any two applications of open sources.
5. Give the general structure of declare statement of the PHP.
6. Define traversing of an array.
7. How to process a form?
- 8.. Write about autoincrement and autodecrement operators.
9. Define metadata.
10. Expand LDAP.
11. Write any two date and time functions.
12. What are the datatypes available in MySQL.
13. Give the syntax for handling exception.
14. List down any two string functions.
15. How to make an independent copy of a dictionary using copy method?
16. Give the example for fixed size lists.
17. What is workbench?
18. Define placeholders.
19. What is an SAPI?
20. What is zval data type?

PART – B (5 x 12 = 60 Marks)

Answer all questions choosing either A or B from each question. Each question carries 12 Marks

- 21 A. i. State any five linux network command and explain linux signals. [6]
- ii. Explain about kernel mode and user mode processes. [6]

[OR]

- B i. Explain the following terms: i) Scheduling ii) Closing and Backups [6]

- ii. What are the needs of open source software in the current scenario? [6]
- 22 A. i. How will you compare two strings in PHP? Explain with example. [6]
- ii. Explain about form validation and processing forms in detail. [6]
- [OR]**
- B i. Write a PHP script to display individual characters of string in separate lines. [12]
- 23 A. i. Explain the procedure for downloading MySQL database. [6]
- ii. Write down the facts about MySQL database. [6]
- [OR]**
- B i. Briefly explain about record selection technology. [12]
- 24 A. i. Explain about conditional statement and operators with an example program using Python. [12]
- [OR]**
- B i. Explain about file handling and exception and handling exception. [6]
- ii. Explain about basic features of Python. [6]
- 25 A. i. What are model driven architecture tools? Explain. [6]
- ii. Explain in detailed about the different types of open source software tools. [6]
- [OR]**
- B i. What is webserver? How will you configure apache server. [12]



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

**25264 – COMPUTER SERVICING AND NETWORKS
PRACTICAL**

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2012 - 2013 onwards)

| | | |
|---------------|---|---|
| Course Name | : | Diploma in Computer Engineering. |
| Subject Code | : | 25264 |
| Semester | : | VI Semester |
| Subject Title | : | COMPUTER SERVICING AND NETWORK PRACTICAL |

SCHEME OF INSTRUCTION AND EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | |
|--|--------------|------------------|---------------------|-------------------|-------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total |
| COMPUTER SERVICING AND NETWORK PRACTICAL | 4 | 64 | 25 | 75 | 100 |

RATIONALE

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

OBJECTIVES

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

- Know the various indicators, switches and connectors used in Computers.
- 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 devices like scanner, web camera, cell phone and bio-metric devices.
- Assemble PC system and checking the working condition.
- Installation of Dual OS in a system.
- Identify the problems in Computer systems, software installation and rectification also.

- Assembling and disassembling of Laptop to identify the parts and to install OS and configure it.
- Enable to perform different cabling in a network.
- Configure Internet connection and use utilities to debug the network issues.
- Configure router for any topology

LAB EXERCISES

| PART A – COMPUTER SERVICING PRACTICALS | |
|---|--|
| 1 | Identification of System Layout. <ol style="list-style-type: none"> a) Front panel indicators & switches and Front side & rear side connectors. b) Familiarize the computer system Layout: Marking positions of SMPS, Motherboard, FDD, HDD, CD, DVD and add on cards. c) Configure bios setup program and troubleshoot the typical problems using BIOS utility. |
| 2 | HARD DISK <ol style="list-style-type: none"> a) Install Hard Disk. b) Configure CMOS-Setup. c) Partition and Format Hard Disk. d) Identify Master /Slave / IDE Devices. e) Practice with scan disk, disk cleanup, disk De-fragmenter, Virus Detecting and Rectifying Software. |
| 3 | <ol style="list-style-type: none"> a) Install and Configure a DVD Writer and a Blu-ray Disc writer. b) Recording a Blank DVD and Blu-ray Disc. |
| 4 | Printer Installation and Servicing: <ol style="list-style-type: none"> a) Head Cleaning in dot matrix printer b) Install and configure Dot matrix printer and Laser printer c) Troubleshoot the above printers. d) Check and connect the data cable connectivity |
| 5 | Install and configure Scanner, Web cam, Cell phone and bio-metric device with system. Troubleshoot the problems |
| 6 | Assemble a system with add on cards and check the working condition of the system and install OS. |
| 7 | Dual OS Installation |
| 8 | Assembling and Disassembling of Laptop to identify the parts and to install OS and configure it. |

| PART B – COMPUTER NETWORK PRACTICALS | |
|---|---|
| 9 | Do the following Cabling works in a network a) Cable Crimping b) Standard Cabling c) Cross Cabling d) IO connector crimping e) Testing the crimped cable using a cable tester |
| 10 | Configure Host IP, Subnet Mask and Default Gateway in a system in LAN (TCP/IP Configuration). Configure Internet connection and use IPCONFIG, PING / Tracert and Netstat utilities to debug the network issues |
| 11 | Interface two PCs using Peer To Peer network using connectivity devices – Switch and Router in a LAN and share the Drives and Folders. |
| 12 | Transfer files between systems in LAN using FTP Configuration, install Print server in a LAN and share the printer in a network. |
| 13 | Configure DNS to establish interconnection between systems and describe how a name is mapped to IP Address |
| 14 | Install and configure Network Devices: HUB, Switch and Routers |
| 15 | Install and Configure Wired and Wireless NIC and transfer files between systems in LAN and Wireless LAN. |

| PART C - MINI PROJECT WORK | |
|-----------------------------------|---|
| | <p>Visit Any industry/ Institute (Engineering colleges, University campus etc.,) and study the following:</p> <ul style="list-style-type: none"> • Type and configuration of client PCs and OS • Type and configuration of Server and Domains Used • Type of Networking (Topology and medium used) • Different Network devices used (Switches, Routers, Access points etc.,) • Different types of peripherals used • Applications used by the user. <p>Prepare a detailed report of about 4 to 5 pages and include in the lab record.</p> |

Note:

The students must and should install software's. After the demonstration, the same is uninstalled. Each batch has to learn to install and use the tools.

SCHEME OF VALUATION

| | |
|--|-----------------|
| Procedure Writing – One Question from PART - A | 10 Marks |
| Procedure Writing – One Question from PART - A | 15 Marks |
| Executing Exercise (PART – A) | 10 Marks |
| Executing Exercise (PART – B) | 20 Marks |
| Result with printout (PART – A) | 5 Marks |
| Result with printout (PART – B) | 5 Marks |
| Demonstration of mini project | 5 Marks |
| VIVA - VOCE | 5 Marks |
| TOTAL | 75 Marks |

COMPUTER SERVICING AND NETWORK PRACTICAL - REQUIREMENTS

| PART A – COMPUTER SERVICING PRACTICAL | |
|---------------------------------------|--|
| 1. | <p><u>Hardware Requirements :</u></p> <ul style="list-style-type: none"> • Computer with Pentium / Core processors with add on cards – 36Nos • Hard disk drive - 06 Nos • CD Drive - 06 Nos • DVD Writer - 06 Nos • Blank DVD - 50 Nos • Blank Blu-ray disk - 50 Nos • Head cleaning CD • Dot matrix Printer - 06 Nos • Laser Printer - 06 Nos • Digital Camera - 02 Nos • Web Camera - 02 Nos • Scanner - 02 Nos • Blue tooth device and cell phone - 02 Nos • Bio-metric device - 02 Nos • Laptop - 18Nos |
| 2. | <p><u>Software Requirements:</u></p> <ul style="list-style-type: none"> • 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) • Blu-ray Burning S/W |
| PART B – COMPUTER NETWORK PRACTICAL | |
| 1. | <p><u>Tools Requirement</u></p> <ul style="list-style-type: none"> • Crimping Tool - 06 Nos • Network Cables |
| 2. | <p><u>Equipment Requirement</u></p> <ul style="list-style-type: none"> • Modem - 01 No • Laser Printer - 01 No • Hub - 01 No • Router - 01 No • Switch - 01 No |

| | |
|----|--|
| 3. | <u>System Requirement</u> <ul style="list-style-type: none">• Pentium Systems with on board Ethernet Card (NIC) - 18 Nos |
| 4. | <u>Software Requirement</u> <ul style="list-style-type: none">• Windows 2000 or 2003 or LINUX Server.• OS Windows XP with service pack• Drivers Software |



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25265 – SYSTEM ADMINISTRATION PRACTICAL

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25265
Semester : VI semester
Subject Title : **SYSTEM ADMINISTRATION PRACTICAL**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|--|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| SYSTEM ADMINISTRATION PRACTICAL | 4 | 64 | 25 | 75 | 100 | 3 Hrs |

OBJECTIVES

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

- Install and configure Windows 2003 Server
- Design a Windows 2003 Server Active Directory forest
- Install and configure server hardware devices
- Troubleshoot server hardware devices
- Monitor server hardware
- Manage storage

LAB EXERCISIES

PART – A WINDOWS 2003/2008 SERVER EXPERIMENTS

| | |
|----|---|
| 1. | Installation of Windows 2003 / 2008 Server . |
| 2. | Installing Hardware, Devices and Drivers using Device manager and Driver Query |
| 3. | Configure Active Directory Services, create a user and assign permissions using Logon Script and Group permissions. |
| 4. | Automated installation of Windows Server using answer files. |
| 5. | Installing required Windows 2003 server components using Control panel. |
| 6. | Installation and configuration of DHCP server. |
| 7. | Configuring Disks and Volumes using Disk Manger and Managing disks and volumes from the command prompt. |
| 8. | Installation and Configuration of Mail Server in windows 2003/2008 server environment. |
| 9. | Establish RAID (0, 1 and 5) configuration on windows 2003/2008 server. |
| 10 | Configure a router to connect two different networks and transfer files between them. |

PART - B LINUX SERVER EXPERIMENTS

| | |
|----|--|
| 1. | Installation of Red Hat Linux using Graphical mode. |
| 2. | Installation of Red Hat Linux using command prompt |
| 3. | Creating a user in Linux server and assigning rights |
| 4. | a) Configuring and Troubleshooting of /etc/inittab. b) Configuring and Troubleshooting of /etc/passwd |
| 5. | Configuring and Troubleshooting of /etc/grub.conf |
| 6. | Linux TCP/IP Network Configuration |
| 7. | Installation of additional software using RPM |
| 8. | Sharing of data using Samba Server. |
| 9. | File Data Backup using tar |

SCHEME OF VALUATION

| | |
|----------------------------------|-----------------|
| Procedure Writing – One Question | 30 Marks |
| Executing Exercise | 30 Marks |
| Result with printout | 10 Marks |
| VIVA - VOCE | 5 Marks |
| TOTAL | 75 Marks |

Hardware Requirement

- Pentium Systems with on board Ethernet Card (NIC) - 18 Nos
- Server - 1 No

Software Requirement

- Windows 2000 or 2003 or LINUX Server.
- OS Windows XP with service pack



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25283 – MULTIMEDIA SYSTEMS PRACTICAL

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25283
Semester : VI Semester
Subject Title : **MULTIMEDIA SYSTEMS PRACTICAL (ELECTIVE – II PRACTICAL)**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|-----------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| MUTIMEDIA SYSTEMS PRACTICAL | 4 | 64 | 25 | 75 | 100 | 3 Hrs |

OBJECTIVES:

Students will be able

- To understand the relevance and underlining infrastructure of multimedia system.
- To introduce and make understand the multimedia software and hardware tools by way of interacting practically.
- To get familiar with the use of multimedia audio/ visual tools, web based tools, games and simulations etc.
- To acquire knowledge about the working of multimedia software tools and various media formats.
- To acquire knowledge about the fundamentals of handling multimedia data, compression / decompression and various media file formats.
- To practically work with the principles of processing various multimedia data.
- To practically work with various multimedia input–output devices.
- To practically get familiar with various multimedia related standards.
- To gain practical understanding of the technologies of multimedia used in Internet and its applications.

GUIDELINES:

- Experiments may be done using either OSS or commercial software giving importance towards achieving the skill.
- No experiment shall be omitted for Board Practical Examinations.
- Care should be taken that experiments are done with the intended level / depth so that the student may acquire the skill / knowledge and not to liquidate the objective of the lab by way of simplifying the experiments.

LAB EXERCISES

1. Use HTML multimedia support to play different audio and video formats in a browser.
2. Use a audio processing Software and perform the audio editing tasks– Import audio, Select and edit the sound, Create fade-in fade-out effects, Label audio segments, Use noise remove filter, Mix audio, Change stereo to mono tracks, Export audio to different format and save.
3. Use a video processing Software to perform – Trim video clips, crop video, rotate video, join video, add subtitles, and edit video dimension, bit rate, frame rate, sample rate, channel, and video/audio quality tasks on a video.
4. Create a Movie from video clips to demonstrate :- Audio-Video Mixing, Music, Video Effects, Video Transitions, Titles
5. Create a logo using a 3D modeling software.
6. Create a 3D animation (such as a animated eye) using a 3D modeling software.
7. Create a 2D Animation / cartoon using any 2D software.
8. Use a scanner to create two or more partial scanned images of large poster / photo. Create a panoramic view of multiple photos by stitching together them using any panorama software.
9. Create an advertisement banner for using it in a web page.
10. Use a DVD ripper for copying the audio and video content of a DVD to a file encoded in AVI, MP4, MPEG, WMV or other video formats. Use a Video converter to convert a video between different video formats, audio format, portable device formats
11. Use audio ripper tools to rip Audio-CDs, audio from video, audio from DVD. Convert the ripped audio into various formats. Burn the audio in to CDs.
12. Use a audio recording program to record audio from different sources of input such as line-in, PC speaker output etc applying different filters, encoding and compression schemes. Split the audio into pieces. Merge different pieces together. Use appropriate tools.
13. Use a photo editing tool to convert a photo into a cartoon image. Create a DVD photo slideshow and add music to slideshow using a slideshow creating tool.
14. Use a DVD authoring tool to create a Video DVD with interactive menus, multiple subtitle and audio tracks and other features.
15. Stream audio / video in different formats to systems in a LAN using a media stream player / server software.

SCHEME OF VALUATION

| Allocation | Maximum Marks |
|---|---------------|
| Identification of tools needed and description of procedure | 30 |
| Execution | 30 |
| Result / Output | 10 |
| Viva-voce | 05 |
| TOTAL | 75 |

LIST OF HARDWARE SUGGESTED

| | | |
|-----|--|----------|
| I | Desktop PCs P-IV or Higher configuration, 200 GB HDD, 2 MB RAM | -30 Nos |
| II | Laser printer Monochrome, Color | - 1 each |
| III | Digital (video)Camera | - 2 No. |
| IV | Flat bed A4 size Scanner | - 1 No. |

LIST OF SOFTWARE SUGGESTED

Operating system : Windows XP, Windows 7, Linux

Software tools : Open Source software or Commercial software. The following list is a suggestive list of Open Source software and their commercial replacement. Experiments may be done using either OSS or commercial software.

3D Graphics and Animation

1. Art of Illusion Replaces: AutoDesk Maya
2. Blender Replaces: AutoDesk Maya

Audio Players

3. Songbird Replaces: iTunes
4. CoolPlayer Replaces: Windows Media Player
5. Zinf Replaces: Windows Media Player

Audio Recorders and Editors

6. Audacity Replaces: Sonar X1, , Sony ACID, Adobe Audition
7. Frinika Replaces: Sonar X1, , Sony ACID

Audio Ripping and Conversion

8. BonkEnc Exact Audio Copy, Audio Convertor Studio
9. CDex Exact Audio Copy
10. MMConvert Exact Audio Copy,

Multimedia Players

11. VLC Media Player Replaces: Windows Media Player
12. Mplayer Replaces: Windows Media Player
13. XBMC Media Center Replaces: Windows Media Player
14. MediaPortal Replaces: Windows Media Player

Video Editing

15. Cinelerra Replaces: Adobe Premiere
16. OpenShot Video Editor Replaces: Adobe Premiere Pro CS5
17. Avidemux Replaces: Adobe Premiere

18. Kdenlive Replaces: Adobe Premiere Pro CS5

19. CineFX Replaces: Adobe Premiere Pro CS5

Video File Conversion

20. DVDx Replaces: Movavi Video Converter, Zamzar

21. DVD Flick Replaces: Movavi Video Converter, Zamzar

22. FFDSHOW Replaces: Movavi Video Converter, Zamzar

Video Player

23. Miro Replaces: Windows Media Player

CD / DVD Burners

24. Infrared Recorder

25. CDRDAO

DVD Authoring

26. DVD Flick, **DVDStyler**, Bombono DVD



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25284 – OPEN SOURCE SOFTWARES PRACTICAL

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering
Subject Code : 15284
Semester : VI semester
Subject Title : **OPEN SOURCE SOFTWARE PRACTICAL**

TEACHING AND SCHEME OF EXAMINATION

No. Of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|---------------------------------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| OPEN SOURCE SOFTWARE PRACTICAL | 4 | 64 | 25 | 75 | 100 | 3 Hrs |

OBJECTIVES:

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

- Install Linux server.
- Connect internet in Linux environment
- Write PHP script for simple problems.
- Create data base and tables using MySql.
- Use PHP to access a database
- Install Apache Web server
- Set up and configure PHP to work under Apache web server
- Test PHP/Apache web server setup

LIST OF EXPERIMENTS

LINUX

- 1 a. Set up a Local Area Network in Linux Environment
2. a. Connect Internet in Linux Environment
b. Setting up a Print Server in Linux Environment
3. a. Installation of Apache Web server and configuring for PHP support.
b. Uploading Web page in Apache.

PHP and MYSQL

- 4 Create a web page and execute a PHP file on submission of the HTML form and display the information using PHP.
- 5 a. Write a program to find the factorial of a number and display.
b. Generate a PHP script that will display the grade on the basis of marks as follows :
 - Distinction – 80 and above
 - First Class – From 60 to below 80
 - Second Class – From 45 to below 60
 - Pass Class – From 35 to below 45
 - Fail – Below 35

Test the above program using the following set of values stored in an array : 67,82, 23, 37, 57, and 97
6. Write a program to show that array is received on server side during multiple options in SELECT.
7. Create a PHP code, which will retrieve the data captured by the HTML form, display the name of the form and also display the message “Data Entered successfully” after performing validations.
8. Write a program to redirect the browser.
9. Write a PHP script using function call.
- 10 Write a program in PHP to create a file and write the data into it.
- 11 Create a database of an employee in MySql.
- 12 Write a program to connect to the database already created in MySql.
- 13 Write a program to read, write, update and delete the database using PHP..

PYTHON

- 14 a. Take Fahrenheit temperatures from the command line, and prints their Celsius equivalents
- b. Use regular expressions to check whether a phone number is valid
- 15 Write a python program to display the content of all text files (txt) in a directory.

| SCHEME OF VALUATION | |
|---------------------------------------|--------------------|
| Writing any two programs | 15 + 15 = 30 Marks |
| Executing two program | 15+15 = 30 Marks |
| Result with printout for two programs | 5+5 = 10 Marks |
| VIVA – VOCE | 5 Marks |
| TOTAL | 75 Marks |

Hardware Requirement

- Pentium Systems with on board Ethernet Card (NIC) - 18 Nos
- Server - 1 No

Software Requirement

- Open Source Software : PHP, MySQL and Python



DIPLOMA IN COMPUTER ENGINEERING

L - SCHEME

2011 - 2012

25267 – PROJECT WORK

**DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU**

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

L – SCHEME

(Implemented from the academic year 2011 - 2012 onwards)

Course Name : Diploma in Computer Engineering.
Subject Code : 25267
Semester : VI Semester
Subject Title : **PROJECT WORK**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 16 weeks

| Subject | Instructions | | Examination | | | Duration |
|--------------|--------------|------------------|---------------------|-------------------|-------|----------|
| | Hours / Week | Hours / Semester | Internal Assessment | Board Examination | Total | |
| PROJECT WORK | 6 | 96 | 25 | 75 | 100 | 3 Hrs |

RATIONALE:

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 and gain knowledge about disaster management.

GUIDELINES FOR PROJECT FORMULATION

The project work constitutes a major component in most of the professional programmes and it is to be carried out with due care and should be executed with seriousness by the candidates.

Batch Size : Maximum 6 students per batch

TYPE OF PROJECT

As majority of the students are expected to work out a real life project in some industry/research and development laboratories/educational institutions/software companies, it is suggested that the project is to be chosen which should have some direct relevance in day-to-day activities of the candidates in his/her institution. Students are encouraged to work in the areas listed at the end. However, it is not mandatory for a student to work on a real life project. The student can formulate a project problem with the help of Guide.

PROJECT PROPOSAL (SYNOPSIS)

The project proposal should be prepared in consultation with your guide during fifth semester. The project proposal should clearly state the project objectives and the environment of the proposed project to be undertaken. **The project work should compulsorily include the software development.** The project proposal should contain complete details in the following form:

1. Title of the Project.
2. Introduction and Objectives of the Project.
3. Project Category (DBMS/OOPS/Networking/Multimedia/Artificial Intelligence/Expert Systems etc.).
4. Tools / Platform, Hardware and Software Requirement specifications.
5. Analysis (DFDs at least up to second level , ER Diagrams/ Class Diagrams/ Database Design etc. as per the project requirements).
6. A complete structure which includes:
 - Number of modules and their description to provide an estimation of the student's effort on the project.
 - Data Structures as per the project requirements for all the modules.
 - Process logic of each module.
 - Testing process to be used.
 - Reports generation (Mention tentative content of report).
7. Are you doing this project for any Industry/Client? Mention Yes/No. If Yes, Mention the Name and Address of the Industry or Client.
8. Future scope and further enhancement of the project. Also mention limitation of the project.

PROJECT PROPOSAL SUBMISSION AND APPROVAL

After finalizing the topic and the selection of the guide, students should be submitting the Project Proposal to the HOD along with the synopsis and bio-data of the guide. Incomplete project proposals in any respect will be immediately rejected. The project synopsis will be sent to project monitoring committee for final approval.

SUGGESTIVE AREAS OF PROJECT WORK:

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

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.

| Detail of assessment | Period of assessment | Max. Marks |
|----------------------|-----------------------|------------|
| First Review | 6 th week | 10 |
| Second Review | 14 th week | 10 |
| Attendance | Entire semester | 5 |
| Total | | 25 |

EVALUATION FOR BOARD EXAMINATION:

| Details of Mark allocation | Max Marks |
|---|-----------|
| Marks for Report Preparation, Demo, Viva-voce | 45 |
| 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 2marks = 30 Marks) | 30 |
| Total | 75 |

PROJECT WORK - SCHEDULING

| TASKS | RESOURCE NEEDED | I WEEK | II WEEK | III WEEK | IV WEEK | V WEEK | VI WEEK | VIII WEEK | VIII WEEK | VACATION | IX WEEK | X WEEK | XI WEEK | XII WEEK | XIII WEEK | XIV WEEK | XV WEEK | XVI WEEK |
|--|---|-------------------------------|---|----------|---------|--------|---------|-----------|-----------|----------|---------|--------|---------|----------|-----------|----------|---------|----------|
| | | Literature survey for project | Internet / library / industry / Research Centers | ←→ | | | | | | | | | | | | | | |
| Finalisation of the Area in which the project has to be done | Internet / library / industry | | | ←→ | | | | | | | | | | | | | | |
| Finding out Facility to do the project | Laboratory / Industry/ Project Sites | | | | ←→ | | | | | | | | | | | | | |
| Collecting Data / Doing experiments / writing of code | Laboratory / Industry/ Project Sites | | | | | | ←→ | | | | | | | | | | | |
| Analysis of Data | Using relevant software | | | | | | | | | | | | ←→ | | | | | |
| Results and Fine tuning the experiment using the Data Analysis | Laboratory / Industry/ Project Sites | | | | | | | | | | | | | | ←→ | | | |

DETAILED SYLLABUS

ENTREPRENEURSHIP, ENVIRONMENTAL & DISASTER MANAGEMENT

1. ENTREPRENEURSHIP

- 1.1 Introduction – Entrepreneur - characteristics of Entrepreneur - contributions of an Entrepreneur - functions of entrepreneur - Barriers to entrepreneurship - Roll of government in Entrepreneurial development.
- 1.2 Small scale industries (SSI) - SSI role in country's economic growth – importance of SSI -starting of an SSI - Government organization and Non-governmental organizations supporting SSI - DIC,NSIC,SIDO,KVIC, Development banks and their objectives - role of commercial banks in assisting SSI - Women entrepreneurs and opportunities – Subsidy and concessions to Small Scale Industries.

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..
- 3.2 Disaster Mitigation measures – Causes for major disasters – Risk Identification – Hazard Zones – Selection of sites for Industries and residential buildings – Minimum distances from Sea – Orientation of Buildings – Stability of Structures – Fire escapes in buildings - Cyclone shelters – Warning systems.
- 3.3 Disaster Management – Preparedness, Response, Recovery – Arrangements to be made in the industries / factories and buildings – Mobilization of Emergency Services - Search and Rescue operations – First Aids – Transportation of affected people – Hospital facilities – Fire fighting arrangements – Communication systems – Restoration of Power supply – Getting assistance of neighbors / Other organizations in Recovery and Rebuilding works – Financial commitments – Compensations to be paid – Insurances – Rehabilitation.

LIST OF QUESTIONS

1. ENTREPRENEURSHIP

1. Define the term Entrepreneur.
2. What is Entrepreneurship? Explain.
3. List the various stages of decisions an entrepreneur has to make before reaching the goal of his project.
4. What is innovation?
5. State briefly the role of an entrepreneur in the economic growth of a country.
6. List the characteristics of an Entrepreneur.
7. What are the critical elements of an Entrepreneur?
8. State the major functions of an Entrepreneur.
9. What are barriers to Entrepreneurship?
10. Define Small Scale Industry.
11. What are the qualities of Entrepreneur?
12. What are the benefits of Entrepreneur?
13. What are the various SSI that can flourish in your district?
14. Identify the infrastructural needs for an industry.
15. What are the various agencies involved in the establishment and development of various SSI?
16. Name some of the agencies funding SSI.
17. Explain the roles played by Government in Entrepreneurial development.
18. What are the various concessions and incentives available for a SSI.
19. Name some consumer products with wide demand that can be manufactured by a SSI?
20. What is feasibility study?
21. What is the importance of SSI?
22. What is DIC? State its functions.
23. What is NSIC? State its functions.
24. What is SIDO? State its functions.
25. Name the Development Banks in India working towards Entrepreneurial development.
26. State the role of commercial bank in assisting SSI sector.
27. What are the different phases of Entrepreneurial Development programme?
28. What is an Industrial Estate?
29. What are the facilities available in an Industrial Estate?
30. Identify the various training agencies associated with SSI.
31. List the governmental agencies from whom you shall get financial assistance for a SSI.
32. What is KVIC? State its objectives.

33. Name some state finance corporations.
34. What are the steps involved in preparing a feasibility report?
35. What are the factors to be considered regarding raw materials for a SSI?
36. What are the features of a SSI?
37. What are the advantages of becoming an Entrepreneur?
38. Name the Organizations offering assistance for the development of Women entrepreneurs.
39. State the business opportunities for Women entrepreneurs.
40. State the different subsidies given to SSI's.

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.
16. Describe any two methods of converting waste into energy.
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 inmates 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 nearby 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 safety measures taken by them are found to be inadequate.
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?

DIPLOMA IN COMPUTER ENGINEERING
ALTERNATIVE SUBJECTS FOR K- SCHEME

| K- SCHEME | | L - SCHEME | |
|------------------------|---|-----------------------|--|
| Subject Code | Subject Name | Subject Code | Subject Name |
| THIRD SEMESTER | | | |
| 15031 | Basics of Electrical and Electronics Engineering | 25231 | Basics of Electrical & Electronics Engineering |
| 15032 | C and Data Structures | 25244 | Data Structure Using C |
| 15033 | Operating Systems | 25232 | Operating Systems |
| 15034 | Electrical and Electronics Laboratory | 25234 | Electrical & Electronics Practical |
| 15035 | C and Data Structures Laboratory | 25246 | Data Structure Using C Practical |
| 15036 | Operating Systems Laboratory | 25235 | Linux Practical |
| FOURTH SEMESTER | | | |
| 15041 | Computer Architecture and Assembly Language Programming | 25241 | Computer Architecture |
| 15042 | Internet Concepts and Web Designing | 25251 | Web Programming |
| 15043 | Object Oriented Programming with Java | 25243 | Object Oriented Programming with Java |
| 11011 | English Communication Laboratory | 20002** | Communication and Life Skills Practical |
| 15045 | Web Designing Laboratory | 25255 | Web Programming Practical |
| 15046 | Java Programming Laboratory | 25245 | Java Programming Practical |
| FIFTH SEMESTER | | | |
| 15051 | Computer Networks and Security | 25242 | Computer Networks and Security |
| 15052 | Relational Data Base Management Systems | 25252 | Relational Database and Management Systems |
| 15071 | .Net Programming | 25253 | .NET Programming |
| 15072 | Embedded Systems | NO ALTERNATIVE | |
| 15054 | Computer Networks and Security Laboratory | 25264 | Computer Servicing and Network Practical |

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| 15055 | Relational Data Base Management System Laboratory | 25256 | Relational Database and Management Systems Practical |
| 15073 | .Net Programming Laboratory | 25257 | .NET Programming Practical |
| 15074 | Embedded Systems Laboratory | NO ALTERNATIVE | |
| SIXTH SEMESTER | | | |
| 15061 | PC Hardware and Servicing | 25261 | Computer Hardware and Servicing |
| 15062 | Mobile Computing | 25262 | Mobile Computing |
| 15081 | Software Engineering | 25272 | Software Engineering |
| 15082 | Multimedia Systems | 25281 | Multimedia Systems |
| 15064 | PC Hardware and Servicing Laboratory | 25264 | Computer Servicing and Network Practical |
| 15083 | E-Publishing Laboratory | NO ALTERNATIVE | |
| 15084 | Multimedia Systems Laboratory | 25283 | Multimedia Systems Practical |
| 15066 | Project Work and Entrepreneurship | 25267 | Project work |

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