SYLLABUS

DIPLOMA IN COMPUTER ENGINEERING

Course Code: 1052

2015-2016

M- SCHEME

DIRECTORATE OF TECHNICAL EDUCATION
GOVERNMENT OF TAMILNADU

DEPARTMENT OF TECHNICAL EDUCATION

Branch: 1052(FT) – DIPLOMA IN COMPUTER ENGINEERING

Chairperson

Thiru. KUMAR JEYANT, I.A.S.,
Commissioner of Technical Education
Directorate of Technical Education
Chennai–600025.

Co-ordinator	*Convener*
Tmt. A. Ghousia Jabeen Principal TPEVR Government Polytechnic College Vellore - 2	**Thiru .D. Arulselvan** HOD/Computer Applications Thiagarajar Polytechnic College Salem–636005 deearul2006@rediffmail.com

MEMBERS

Thiru. V.G. Ravindhren Lecturer(Sel.Gr) / Computer Engg., Seshasayee Institute of Technology, Trichirapalli – 620 010.	Tmt. P.S. Neelayathatchi Lecturer(Sel.Gr) / Computer Engg., Valivalam Desikar Polytechnic College, Nagapattinam – 611 001.
Thiru. M.Suresh Babu, HoD / Computer Engg., NPA Centenary Polytechnic College, Kotagiri – 643 217	Thiru . S.Manisekar Lecturer(Sel.Gr) / Computer Engg., Valivalam Desikar Polytechnic College, Nagapattinam – 611 001.
Tmt. P. Saradha HoD(UG)/Computer Engg., Government Polytechnic College, Krishnagiri .	Thiru. Sivagurunathan HoD / Electronics and communication Engg., Government Polytechnic College, Coimbatore.
Dr. S.Rathi Assistant Professor(Sr.Grade) Department of CSE and IT, Government College of Technology, Coimbatore.	

DIPLOMA COURSES IN ENGINEERING/TECHNOLOGY

(SEMESTER SYSTEM)
(Implemented from 2015- 2016)
M – SCHEME

R E G U L A T I O N S*

***** *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 Diploma in Engineering (sandwich) 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 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 15 weeks duration of study with 35 hrs. /Week for Regular Diploma Programme and 18hrs/ week (21 hrs. / Week I year) for Part-Time Diploma Programmes.

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 2015 – 2016 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 Examination 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 Secretaryship.

- For the diploma Courses related with Engineering/Technology, the related / equivalent subjects prescribed along with Practical 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. Medium of Instruction: English

6. 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

7. 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. The curriculum outline is given in Annexure **- I**

8. 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.

9. 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 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 6th week	50	2 Hrs
Test II	Unit – III & IV	End of 12th week	50	2 Hrs
Test III	**Model Examination** - **Compulsory** Covering all the 5 Units. (Board Examination-question paper-pattern).	End of 15th week	75	3 Hrs

 # - From the Academic year 2015-2016 onwards.

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

With no choice:

PART A type questions:	4 Questions X 2 mark	… … 8 marks
PART B type questions:	4 Questions X 3 marks	… … 12 marks
PART C type questions:	3 Questions X 10 marks	… … 30 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 as 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 assignment, Test 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.*

10. Life and Employability Skill Practical:

The Life and Employability Skill Practical with more emphasis is being introduced in IV Semester for Circuit Branches and in V Semester for other branches of Engineering.
Much Stress is given to increase the employability of the students:

Internal assessment Mark **….. 25 Marks**

11. Project Work:

The students of all the Diploma Programmes **(except Diploma in Modern Office Practice)** have to do a Project Work as part of the Curriculum and in partial fulfillment for the award of Diploma by the State Board of Technical Education and Training, Tamilnadu. In order to encourage students to do worthwhile and innovative projects, every year prizes are awarded for the best three projects i.e. institution wise, region wise and state wise. **The 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 subjects 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 Mark for Project Work & Viva Voce in Board Examination:

Viva Voce	…	**30 marks**
Marks for Report Preparation, Demo	…	**35 marks**
Total		**65 marks**

c) Written Test Mark (from 2 topics for 30 minutes duration): $

i) Environment Management	2 questions X 2 ½ marks	= **5 marks**
iI) Disaster Management	2 questions X 2 ½ marks	= **5 marks**
		10marks

$ **-** 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	--	**65 Marks**
Written Test Mark (from 2 topics for 30 minutes duration)	--	**10 Marks**
TOTAL	--	**75 Marks**

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

12. Scheme of Examinations:

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

13. 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 subject* out of the total prescribed maximum marks including both the internal assessment and the Board Examination 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's Theory examinations and a minimum of 35 marks out of 75 marks in the Board Practical Examinations.*

14. Classification of successful candidates:

Classification of candidates who will pass out the final examinations from April 2018 onwards (Joined in first year in 2015-2016) will be done as specified below.

First Class with Superlative Distinction:

A candidate will be declared to have passed in **First Class with Superlative Distinction** if he/she secures not less than 75% of the marks in all the subjects and passes all the semesters in the first appearance itself and passes all subjects within the stipulated period of study 3/ 3½/ 4 years (Full Time/Sandwich/Part Time) without any break in study.

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 of marks in all the semesters put together and passes all the semesters except the I and II semesters in the first appearance itself and passes all the subjects 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 and passes all the subjects 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 pass out Final Examination from October 2018 /April 2019 onwards (both joined in First Year in 2015-2016)

15. 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).

16. Seminar:

For seminar the total seminar 15 hours(15 weeks x 1hour) should be distributed equally to total theory subject per semester(i.e 15 hours divided by 3/4 subject). A topic from subject or current scenario is given to students. During the seminar hour students have to present the paper and submit seminar material to the respective staff member, who is handling the subject. It should be preserved for 2 Semesters and produced to the flying squad and the inspection team at the time of inspection/verification.

-xXx-

ANNEXURE - I

CURRICULUM OUTLINE

THIRD SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
35231	Basics of Electrical & Electronics Engineering	5	-	-	5
35232	Operating Systems	5	-	-	5
35233	C Programming	6	-	-	6
35234	Electrical & Electronics Practical	-	-	4	4
35235	Linux Practical	-	-	4	4
35236	C Programming Practical	-	-	6	6
30001	Computer Applications Practical**	-	-	4	4
	Seminar	1	-	-	1
TOTAL		17	-	18	35

FOURTH SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
35241	Computer Architecture	4	-	-	4
35242	Computer Networks and Security	4	-	-	4
35243	Object Oriented Programming with Java	6	-	-	6
35244	Data Structures using C	6	-	-	6
35245	Java Programming Practical	-	-	4	4
35246	Data Structures using C Practical	-	-	6	6
30002	Life and Employability Skill Practical**	-	-	4	4
	Seminar	1	-	-	1
TOTAL		21	-	14	35

** Common with all Branches of Engineering / Technology

FIFTH SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
35251	Web Programming	5	-	-	5
35252	Relational Database and Management Systems	5	-	-	5
35253	Component Based Technology	4	-	-	4
	ELECTIVE - I – THEORY	4		-	4
35271	a. Cloud Computing				
35272	b. Software Engineering				
35255	Web Programming Practical	-	-	4	4
35256	Relational Database and Management Systems Practical	-	-	6	6
35257	Component Based Technology Practical	-	-	6	6
	Seminar	1	-	-	1
TOTAL		19	-	16	35

SIXTH SEMESTER

Subject Code	SUBJECT	HOURS PER WEEK			
		Theory Hours	Tutorial / Drawing	Practical hours	Total Hours
35261	Computer Hardware and Servicing	6	-	-	6
35262	Mobile Computing	5	-	-	5
	ELECTIVE –II THEORY	**5**	-	-	5
35281	a. Multimedia Systems				
35282	b. Open Source Software				
35264	Computer Servicing and Network Practical	-	-	6	6
35265	Mobile Computing Practical	-	-	4	4
	ELECTIVE – II -PRACTICAL	-	-	4	4
35283	a. Multimedia Systems Practical				
35284	b. Open Source Software Practical				
35267	Project work	-	-	4	4
	Seminar	1	-	-	1
TOTAL		17	-	18	**35**

1052 – COMPUTER ENGINEERING

SCHEME OF THE EXAMINATION III SEMESTER

Subject Code	SUBJECT	Examination Marks			Minimum for pass	Duration of Exam Hours
		Internal Assessment Marks	Board Exam. Marks	Total Mark		
35231	Basics of Electrical & Electronics Engineering	25	75	100	40	3
35232	Operating Systems	25	75	100	40	3
35233	C Programming	25	75	100	40	3
35234	Electrical & Electronics Practical	25	75	100	50	3
35235	Linux Practical	25	75	100	50	3
35236	C Programming Practical	25	75	100	50	3
30001	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		
35241	Computer Architecture	25	75	100	40	3
35242	Computer Networks and Security	25	75	100	40	3
35243	Object Oriented Programming with java	25	75	100	40	3
35244	Data Structures using C	25	75	100	40	3
35245	Java Programming Practical	25	75	100	50	3
35246	Data Structures using C Practical	25	75	100	50	3
30002	Life and Employability Skill Practical	25	75	100	50	3
TOTAL		**175**	**525**	**700**		

FIFTH SEMESTER

Subject Code	SUBJECT	Examination Marks			Minimum for pass	Duration of Exam Hours
		Internal Assessment Marks	Board Exam. Marks	Total Mark		
35251	Web Programming	25	75	100	40	3
35252	Relational Database and Management Systems	25	75	100	40	3
35253	Component Based Technology	25	75	100	40	3
	ELECTIVE - I - THEORY					
35271	a. Cloud Computing	25	75	100	40	3
35272	b. Software Engineering					
35255	Web Programming Practical	25	75	100	50	3
35256	Relational Database and Management stems Practical	25	75	100	50	3
35257	Component Based Technology 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	Total Mark		
35261	Computer Hardware and Servicing	25	75	100	40	3
35262	Mobile Computing	25	75	100	40	3
	ELECTIVE –II THEORY					
35281	a. Multimedia Systems	25	75	100	40	3
35282	b. Open Source Software					
35264	Computer Servicing and Network Practical	25	75	100	50	3
35265	Mobile Computing Practical	25	75	100	50	3
	ELECTIVE – II -PRACTICAL					
35283	a. Multimedia Systems Practical	25	75	100	50	3
35284	b. Open Source Software					
35267	Project work	25	75	100	50	3
TOTAL		**175**	**525**	**700**		

	EQUIVALENT PAPERS FOR COMPUTER ENGINEERING		
	L SCHEME SUBJECTS		**MSCHEME SUBJECTS**
	III SEMESTER W.E.F OCT 16		
25231	BASICS OF ELECTRICAL AND ELECTRONIC ENGG	35231	BASICS OF ELECTRICAL AND ELECTRONIC ENGG
25232	OPERATING SYSTEM	35232	OPERATING SYSTEM
25233	C PROGRAMMING	35233	C PROGRAMMING
25234	ELECTRICAL AND ELECTRONICS PRACTICAL	35234	ELECTRICAL AND ELECTRONICS PRACTICAL
25235	LINUX PRACTICAL	35235	LINUX PRACTICAL
25236	C PROGRAMMING PRACTICAL	35236	C PROGRAMMING PRACTICAL
20001	COMPUTER APPLICATIONS PRACTICAL	30001	COMPUTER APPLICATIONS PRACTICAL
	IV SEMESTER W.E.F APR 17		
25241	COMPUTER ARCHITECTURE	35241	COMPUTER ARCHITECTURE
25242	COMPUTER NETWORK AND SECURITY	35242	COMPUTER NETWORK AND SECURITY
25243	OOPS WITH JAVA	35243	OOPS WITH JAVA
25244	DATA STRUCTURES USING C	35244	DATA STRUCTURES USING C
25245	JAVA PROGRAMMING PRACTICAL	35245	JAVA PROGRAMMING PRACTICAL
25246	DATA STRUCTURES USING C PRACTICAL	35246	DATA STRUCTURES USING C PRACTICAL
25245	COMMUNICATION AND LIFE SKILL PRACTICAL	35245	Life and Employability Skill Practical
	V SEMESTER W.E.F OCT 17		
52551	WEB PROGRAMMING	35251	WEB PROGRAMMING
25252	RELATIONAL DATABASE MANAGEMENT SYSTEMS	35252	RELATIONAL DATABASE MANAGEMENT SYSTEMS
25253	.NET PROGRAMMING	35253	COMPONENT BASED PROGRAMMING
	ELECTIVE –I -THEORY		**ELECTIVE –I -THEORY**
25272	SOFTWARE ENGINEERING	352572	SOFTWARE ENGINEERING
25271	CONCEPTS OF ADVANCED COMPUTING	352571	CLOUD COMPUTING
25255	WEB PROGRAMMING PRACTICAL	35255	WEB PROGRAMMING PRACTICAL
25256	RELATIONAL DATABASE MANAGEMENT SYSTEMS PRACTICAL	35256	RELATIONAL DATABASE MANAGEMENT SYSTEMS PRACTICAL
25257	.NET PROGRAMMING PRACTICAL	35257	COMPONENT BASED PROGRAMMING PRACTICAL
	VI SEMESTER W.E.F APR 18		
25261	COMPUTER HARDWARE AND SERVICING	35261	COMPUTER HARDWARE AND SERVICING
25262	MOBIL E COMPUTING	35262	MOBIL E COMPUTING
	ELECTIVE –II THEORY		**ELECTIVE –II THEORY**
25281	a. MULTIMEDIA SYSTEMS	35281	a. MULTIMEDIA SYSTEMS
25282	b. OPEN SOURCE SOFTWARE	35282	B. OPEN SOURCE SOFTWARE
25264	COMPUTER SERVICING AND NETWORK PRACTICAL	35264	COMPUTER SERVICEING AND NETWORK PRACTICAL
25265	SYSTEM ADMIN PRACTICAL		NO EQUIVALENT
	ELECTIVE-II PRACTICAL		**ELECTIVE-II PRACTICAL**
25283	a.MULTIMEDIA SYSTEMS PRACTICAL	35283	a. MULTIMEDIA SYSTEMS PRACTICAL
25284	b.OPEN SOURCE SOFTWARE PRACTICAL	35284	b.OPEN SOURCE SOFTWARE PRACTICAL
25267	PROJECT WORK AND ENTREPRENEURSHIP	35267	PROJECT WORK

Board Examination - Question paper pattern

Common for all theory subjects

Time: 3 Hrs **Max. Marks: 75**

PART A ***- (1 to 8) 5 Questions are to be answered out of 8 questions for 2 marks each.*****(Question No. 8 will be the compulsory question and *can be asked from any one of the units)(From each unit maximum of two 2 marks questions alone can be asked)***

PART B ***- (9 to 16)5 Questions are to be answered out of 8 questions for 3 marks each.*** **(Question No. 16 will be the compulsory question and *can be asked from any one of the units) (From each unit maximum of two 3 marks questions alone can be asked)***

PART C ***- (17 to 21) Five Questions will be in the Either OR Pattern. Students have to answer these five questions. Each question carries 10 marks. (Based on the discretion of the question setter, he/she can ask two five mark questions (with sub division A & sub division B) instead of one ten marks question if required)***

SEMESTER - III

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M– SCHEME

III SEMESTER

2015 –2016 onwards

35231 - BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35231

Semester : III

Subject title : BASICSOF ELECTRICAL AND ELECTRONICS ENGINEERING

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	**Instructions**		**Examination**			
Basics of Electrical and Electronics Engineering	Hours / Week	Hours / Semester	Marks			Duration
	5Hrs	75Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	3 Hrs

TOPICS AND ALLOCATION OF HOURS

Unit No.	Topic	No of Hours
I	AC FUNDAMENTALS , BATTERIES AND UPS	12
II	TRANSFORMER AND SPECIALMOTORS	12
III	SEMICONDUCTOR DEVICES	14
IV	BOOLEAN ALGEBRA ,LOGIC GATES AND COMBINATIONAL SYSTEMS	14
V	SEQUENTIAL LOGICSYSTEM	13
TEST AND REVISION		10
TOTAL		**75**

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 electronic 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 AC fundamentals
- Understand the working principle of UPS
- Know about stepper motors and servo motors
- Familiarize with semiconductor devices, rectifier circuits, transistors and its applications
- Use Binary, Octal and Hexadecimal numbers
- Define logic gates
- Significance of Boolean algebra in digital circuits
- Understand the working principles of sequential and combinational logic circuits
- Define Flip- flops and describe behavior of various flip flops
- Know about Synchronous and Asynchronous counters
- Know about the function of shift registers

DETAILED SYLLABUS

UNIT I. AC FUNDAMENTALS ,BATTERIES AND UPS		**12Hrs**
1.1	**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
1.2	**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.	3 Hrs
1.3	**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

UNIT II.TRANSFORMER AND SPECIAL MOTORS		**12 Hrs**
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)	5Hrs
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.	5Hrs
2.3	**Electrical Safety:** Electric shock-need for earthing-types of earthing, fuses-need-types of fuses	2Hrs
UNIT III.SEMICONDUCTOR DEVICES		**14 Hrs**
3.1	**Diodes:** PN Junction diode – 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 -Characteristics (Forward and Reverse) – Avalanche and Zener break down - Applications of Zener diode. Light Emitting Diodes-operation, construction and characteristics. LDR – Principle of operation and Characteristics .Photo Diode – Principle of operation(concept only)	6Hrs
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	4Hrs
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.	4Hrs
UNIT IV.BOOLEAN ALGEBRA ,LOGIC GATES COMBINATIONAL SYSTEM		**14 Hrs**
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	3Hrs

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 .	3Hrs
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 and three variable Karnaugh map	3Hrs
4.4	**Arithmetic Circuits:** Half Adder and full adder- Truth table, Circuit diagram – Half subtractor and Full subtractor - Truth table, Circuit diagram.	3Hrs
4.5	**Combinational logic circuits**: Parity generator and checker - Multiplexer - De multiplexer – Encoder - Decoder (Definition and Basic Circuits only) – Comparator Circuit for two bit words.	2Hrs
UNIT V .SEQUENTIAL LOGIC SYSTEM		**–13 Hrs**
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.	5Hrs
5.2	**Counters:** Need- Types of counters- 4 bit Asynchronous counter-Mod N counter-Decade Counter- 4 bit Synchronous counter-Distinguish between Synchronous and Asynchronous counter-Application of counters	4Hrs
5.3	**Registers:** Shift register - Block diagram representation and waveform of serial –in Serial out, Serial – in Parallel – out, Parallel in -parallel out Applications of Shift Registers.	4Hrs

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	TataMc-GrawHill, 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 Edition2012
2.	Basic Electricall Engineering	V.N.Mittle	Tata Mc-Graw Hill, NewDelhi	First Edition
3.	Basic Electrical and Electronics Engineering	R,Muthusubramanian R.Salivajanan	Tata Mc-Graw Hill, NewDelhi	Seventh Reprint 2011
4..	Principles of Electronics	V.K.Mehta	S.Chand & Co, NewDelhi	Second Edition
5.	Digital Electronics	G.K.Kharate	Oxford University Press	2010

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M– SCHEME

III SEMESTER

2015 –2016 onwards

35232 – OPEARTING SYSTEMS

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35232

Semester : III

Subject title : OPEARTING SYSTEMS

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 15 Weeks

Subject	Instructions		Examination			
OPEARTING SYSTEMS	Hours / Week	Hours / Semester	Marks			Duration
	5 Hrs	75 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	3 Hrs

TOPICS AND ALLOCATION OF HOURS

Unit	Topic	No of
1	Introduction to Operating System	14
2	Process management	16
3	Memory Management	12
4	I/O and File Management, Security and Protection	13
5	Linux – Case study	10
	TEST AND REVISION	10
	TOTAL	**75**

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.
- 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 OPERATING SYSTEMS		**14 Hrs**
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.	4 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	4 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 Hrs**
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.	5 Hrs
2.3	Inter-process Communication and Synchronization: Definition – Shared Memory System – Message passing – Critical section – Mutual Exclusion - Semaphores.	4 Hrs
2.4	Deadlocks: Definition – Deadlock characteristics – Deadlock Prevention – Deadlock Avoidance – Deadlock detection and Recovery.	3 Hrs
UNIT – III MEMORY MANAGEMENT		**12 Hrs**
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.	5 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)	7 Hrs
UNIT – IV I/O AND FILE MANAGEMENT , SECURITY & PROTECTION		**13Hrs**
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	6 Hrs
4.3	Security and Protection: Security threats – Security Policies and mechanisms – Authentications	3 Hrs
UNIT – V LINUX – A CASE STUDY		**10 Hrs**
5.1	Introduction – History of Linux – Features of Linux- Linux Architecture - Popular Flavors of Linux - FSF/GNU - Linux Desktop: GNOME-KDE.	6 Hrs
5.2	File System – ext2 – Virtual File System - Different types of files - File Management – File Security – 3 levels – Mounting file system – Unmounting	4 Hrs

TEXT BOOKS

Sl.No.	TITLE	AUTHOR	PUBLISHER	Edition
1	Operating System concepts	Abraham Siberschatz Galvin, Gagne	Wiley	9th Edition
2	Operating System Internal and Design Principles	William Stallings	Pearson Education	7th Edition

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	Rohit Khurana ITLESE	Vikas Publishing Ltd	First Edition 2011

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M– SCHEME

III SEMESTER

2015 –2016 onwards

35233– C PROGRAMMING

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(Implemented from the academic year 2016-2017 onwards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35233

Semester : III

Subject title : C PROGRAMMING

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	Instructions		Examination			
C Programming	Hours / Week	Hours / Semester	Marks			Duration
	6 Hrs	90 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	3 Hrs

TOPICS & ALLOCATION OF HOURS

Unit No.	Topics	No. of Hours
I	PROGRAM DEVELOPMENT AND INTRODUCTION TO C	15
II	DECISION MAKING, ARRAYS AND STRINGS	16
III	FUNCTIONS, STRUCTURES AND UNIONS	16
IV	POINTERS	17
V	FILE MANAGEMENT & PREPROCESSORS	16
TEST AND REVISION		10
TOTAL		**90**

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 "Programmingconcept 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.
- Use of command line arguments.
- Explain compiler controlled directives.
- 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.
- To understand the dynamic data structure and memory management.

DETAILED SYLLABUS

UNIT - I Program Development & Introduction to C		**15Hrs**
1.1	Program Algorithm & flow chart:- Program development cycle- Programming language levels & features. Algorithm – Properties & classification of Algorithm, flow chart – symbols, importance & advantage of flow chart.	3Hrs
1.2	Introduction C: - History of C – features of C structure of C program – Compiling, link & run a program. Diagrammatic representation of program execution process.	2Hrs

1.3	Variables, Constants & Data types:. C character set-Tokens-Constants- Key words – identifiers and Variables – Data types and storage – Data type Qualifiers – Declaration of Variables – Assigning values to variables- Declaring variables as constants-Declaration – Variables as volatile- Overflow & under flow of data	4Hrs
1.4	C operators:-Arithmetic, Logical, Assignment .Relational, Increment and Decrement, Conditional, Bitwise, Special Operator precedence and Associativity. C expressions – Arithmetic expressions – Evaluation of expressions- Type cast operator	4Hrs
1.5	.I/O statements: Formatted input, formatted output, Unformatted I/O statements	2Hrs
UNIT – II DECISION MAKING,ARRAYS and STRINGS		**16 Hrs**
2.1	Branching:- Introduction – Simple if statement – if –else – else-if ladder , nested if-else-Switch statement – go statement – Simple programs.	4Hrs
2.2	Looping statements:- While, do-while statements, for loop, break & continue statement – Simple programs	4Hrs
2.3	Arrays:- Declaration and initialization of One dimensional, Two dimensional and Character arrays – Accessing array elements – Programs using arrays	4Hrs
2.4	Strings :- Declaration and initialization of string variables, Reading String, Writing Strings – String handling functions (strlen(),strcat(),strcmp()) – String manipulation programs	4Hrs
UNIT – III FUNCTIONS, STRUCTURES AND UNIONS		**16 Hrs**
3.1	Built –in functions: -Math functions – Console I/O functions – Standard I/O functions – Character Oriented functions – Simple programs.	4Hrs
3.2	User defined functions:- Defining functions & Needs-, Scope and Life time of Variables, , Function call, return values, Storage classes, Category of function – Recursion – Simple programs	6Hrs
3.3	Structures and Unions:- Structure – Definition, initialization, arrays of structures, Arrays with in structures, structures within structures, Structures and functions – Unions – Structure of Union – Difference between Union and structure – Simple programs.	6Hrs
UNIT - IV POINTERS		**17 Hrs**

4.1	Pointers:- Definition – advantages of pointers – accessing the address of a variable through pointers - declaring and initializing pointers- pointers expressions, increment and scale factor- array of pointers- pointers and array - pointer and character strings –function arguments – pointers to functions – pointers and structures – programs using pointer.	12Hrs
4.2	Dynamic Memory Management:- introduction – dynamic memory allocation – allocating a block memory (MALLOC) – allocating multiple blocks of memory (CALLOC) –releasing the used space: free – altering the size of a block (REALLOC) – simple programs	5Hrs
UNIT –V FILE MANAGEMENT AND PREPROCESSORS		**16 Hrs**
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	9Hrs
5.2	Command line arguments: Introduction – argv and argc arguments – Programs using command Line Arguments –Programs	3Hrs
5.3	The preprocessor: Introduction – Macro Substitution, File inclusion, Compiler control directives.	4Hrs

Text book:

1. Programming in ANSI C 4E by Prof. E. BALAGURUSAMY, the TATA McGRAW – HILL publications.

REFERNCES

S.No	Title	Author	Publisher	Year of Publishing/ Edition
1.	Programming and Problem solving using C	ISRD Group, Lucknow	Tata Mc-GrawHill, NewDelhi	Sixth Reprint 2010
2.	Let us C	Yeswanth Kanetkar	BPB Publications	Fourth Revised
3.	A TextBook on C	E.Karthikeyan	PHI Private Limited, New Delhi	2008

4.	Programming in C	D.Ravichandran	New Age International Publishers,Chennai	FirstEdition1996 Reprint2011
5.	Computer Concepts and	Dr.S.S.Khandare	S.Chand & Company Ltd. New Delhi	FirstEdition2010
6.	Complete Knowledge in C	Sukhendu Dey, Debobrata Dutta	Narosa Publishing House, New Delhi	Reprint2010
7.	Programming in C	Reema Theraja	Oxford University Press	FirstEdition2011
8.	Practical C Programming	Steve Oualline	O'Reilly, Shroff	Eleventh Indian ReprintOct2010

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M– SCHEME

III SEMESTER

2015 –2016 onwards

35234 – ELECTRICAL AND ELECTRONICS ENGINEERING PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35234

Semester : III

Subject title : Electrical and Electronics Engineering Practical

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	Instructions		Examination			
Electrical and Electronics Engineering Practical	Hours / Week	Hours / Semester	Marks			Duration
	4 Hrs	60 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	3 Hrs

OBJECTIVES

On completion of the following practical contents the students must be able to

- Verify Power supply of SMPS
- Find the efficiency and voltage regulation of a single phase transformer
- Study the characteristics of PN junction diode and Zener Diode
- Function of Rectifier circuit
- Test the performance of Light devices
- Know about the function of a Transistor
- How to construct different logic functions using universal gates
- Realize the combinational circuits and sequential circuits

LAB EXERCISES

1	A	Checking of power supply in SMPS
	B	To determine Efficiency and Voltage Regulation of single phase transformer using direct loading method
2	A	Construct the circuit and draw the forward characteristics of PN junction Diode and find input resistance.
	B	Construct the circuit and draw the reverse characteristics of Zener Diode and find breakdown voltage.
3		Construct the circuit and draw the graph for different stages of Bridge rectifier with filter using CRO
4	A	Construct the circuit and draw the characteristics of LDR
	B	Construct the circuit and draw the VI characteristics of LED
5	A	Construct CE configuration circuit and draw the input characteristics and also find input resistance
	B	Construct CE configuration circuit and draw the output characteristics and also find output resistance .
6	A	Verify the truth tables of NAND,AND,NOR,OR,NOT,XOR using IC's
	B	Realization of basic gates using either NAND or NOR gate.
7		Construct and verify Half adder and Half Subtractor
8		Construct and verify the truth table of Full adder
9		Construct and verify the truth table of Full subtractor
10		Verify the truth tables of RS, D, T and JKFF
11		Construct and test the parity generator and checker function using IC 74180
12		Construct and test encoder and decoder circuit(IC 74138)
13		Construct and test the function of Multiplexer and De-ultiplexer(IC 74151)
14		Construct and test the 4 bit Ripple counter (IC7493)
15		Construct and test decade counter (IC 7490)

SCHEME OF VALUATION	
Writing any one Experiment (CIRCUIT DAIGRAM,TABULAR COLUMN,TRUTHTABLE/EQUATION/FORMULA)	30 Marks
Construction	30 Marks
Result	10 Marks
VIVA – VOCE	05 Marks
Total	75 Marks

EQUIPMENTS/COMPONENTS REQUIRED

EQUIPMENTS

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

COMPONENTS

S.No	Name of the components	
1	Resistors	1150Ω, 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	Ic 74180,IC 74153,IC 7476,IC 7474	
8	IC 7490,IC 7493,IC 7495	

DIRECTORATEOF TECHNICALEDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M– SCHEME

III SEMESTSER

2015 –2016 onwards

35235 –LINUX PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35235

Semester : III

Subject title : Linux Practical

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	Instructions		Examination			
Linux Practical	Hours / Week	Hours / Semester	Marks			Duration
	4Hrs	60Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	3 Hrs

OBJECTIVES:

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

- Login and logoff 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.

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 LINUX 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- pscommand , Process management commands: &,nohup, kill, nice
6	Communication Commands: news, write, mail, wall, calendar
7	Device pattern using meta character to match each of the following situation:- a. All two character filenames. b. All filenames consisting of two lowercase letters. c. All filenames ending with c. d. All filenames beginning with a c and ending with a digit. e. 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	a)Shell script to say Good morning/Afternoon/Evening as you log in to system b)Write a shell-script that print out date information in this order: time, day of the week, day number, year – that is like this. 21:18:00 IST Thu 4 Feb 2016
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 presents a multiple-choice question, gets the user's answer and report back whether the answer is right, wrong or not one of the choices.

8	a) Write script to determine whether given file exist or not, file name is supplied as command line argument, also check for sufficient number of command line argument b) 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	
Commands in Part-A	10 Marks
Execution of Commands in Part-A	15 Marks
Program in Part-B	15 Marks
Execution of program in Part-B	20 Marks
Printed Output (Part –A)	5 Marks
Printed Output (Part –B)	5 Marks
VIVA – VOCE	5 Marks
TOTAL	**75 Marks**

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M– SCHEME

III SEMESTSER

2015 –2016 onwards

35236 – C PROGRAMMING PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35236

Semester : III

Subject title : C Programming Practical

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	Instructions		Examination			
C Programming Practical	Hours / Week	Hours / Semester	Marks			Duration
	6Hrs	90 Hrs	Internal Assessment	Board Examination	Total	
			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 command line arguments.
- Write programs using compiler control directives.
- 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.

LAB EXERCISES

Part – A

1. Write a simple C program.
    a. Print your name and address.
    b. Find simple and compound interest
2. Write a C program to swap two variable's using(i)third variable and(ii) without using a third variable.
3. Write a program to convert a given number of days into months and days using integer arithmetic operators.
4. Write a program the use of variables in expression and their evaluation.
5. Write a program converts the given temperature in Fahrenheit to Celsius using preprocessor.
6. Write a program to find the largest number between given three numbers.
7. Write a program to perform following tasks
    a. Find factorial of a number
    b. Print prime numbers up N times.
8. Write a program to prepare the total marks for N students by reading the Reg.No, Name, Mark1 to Mark6 by using array of structures.
9. Write a program using the function power (a,b) to calculate the value of a raised to b.
10. Write a program to find the length of the given string using pointers.

Part – B

1. Read an integer number, find the number of digit and sum of all individual digits and also print the above number in reverse order.
2. Write a program to perform following tasks
    a. Print Fibonacci series up to N terms and its sum.
    b. Print whether a given year is leap or not.
3. Read a sentence through command line argument. Write a program to write out the string arguments to main in reverse order.
4. Write a program to arrange the given N names in alphabetical order.
5. Write a program to count the numbers and chars in the string.
6. Write a program that uses a function to sort an array of integers.
7. Write a program to calculate the subject wise and student wise totals and store them as a part of the structure.

8. Write a program to read 10 values to an array variable. Use pointers to locate and display each value.
9. Write a program that uses a table of integers whose size will be specified interactively at run time.
10. Write a program to store a character string in a block of memory space created by MALLOC and then modify the same to store a larger string.

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)	05 Marks
Result with printout (PART – B)	05 Marks
VIVA – VOCE	05 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

- C – Compiler with Editor

DIRECTORATEOF TECHNICALEDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M– SCHEME

III SEMESTSER

2015 –2016 onwards

30001- COMPUTER APPLICATIONS PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : For All Branches

Subject Code : 30001

Semester : III

Subject title : COMPUTER APPLICATIONS PRACTICAL

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 15 Weeks

Course	Instruction		Examinati			
			Max.			Duration
	Hours/ week	Hours/ Semester	Continuous Assessment	Semester- End Examinations	Total	
COMPUTER APPLICATIONS PRACTICAL	4 Hrs	60 Hrs	25	75	100	3 Hrs

RATIONALE:

The application of Computer knowledge is essential 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 and presentation of documents with audio visual effects ina computer and produces necessary skills in E- Learning and Chatting tools..

OBJECTIVES:

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

- Use the GUI operating systems
- Familiarize and customize the desktop
- Use the different facilities available in the word processor
- Prepare Power Point presentation with different formats
- Expose E-learning tools and chatting tools
- Analyze the datasheet
- Create and manipulate the database
- Create different types of charts
- Prepare PowerPoint presentation
- Understand Internet concepts and usage of e-mail

GUIDELINES:

- All the experiments given in the list of experiments should be completed and all the experiments should include for the end semester practical examination.
- The computer systems should be 1:1ratioforpracticalclasses

SYLLABUS
LAB EXERCISES
SECTION – A

GRAPHICAL OPEARTING SYSTEM

Introduction to GUI OS; Features and various versions of GUI OS & its use; Working with GUI OS; My Computer & Recycle bin ; Desktop, Icons and Explorer; Screen description & working styles of GUI OS; Dialog Boxes & Toolbars; Working with Files & Folders; simple operations like copy, delete, moving of files and folders from one drive to another, Shortcuts &Autostart; Accessories and Windows Settings using Control Panel- setting common devices using control panel, modem, printers, audio, network, fonts, creating users, internet settings, Start button & Program lists; Installing and Uninstalling new Hard ware & Software program on your computer - 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.

WORD PROCESSING

Introduction to Word Processing – Examples- Creation of new documents, opening document, insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header footer deleting, moving, replace, editing text in document. Saving a document, spell checker.

Printing a document. Creating a table, entering and editing, Text in tables. Changing format of table, height width of row or column. Editing, deleting Rows, columns in table. Borders, shading, Templates, wizards, drawing objects, mail merge.

Exercises

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

<table>
<tr><th>DAYS</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th></tr>
<tr><td>MON</td><td colspan="2">←TEST→</td><td colspan="3">A: JPP
B:RDBMS</td><td>CA</td><td>RDBMS</td><td>TUT</td></tr>
<tr><td>TUE</td><td>CA</td><td>OOP</td><td>CN</td><td>RDBMS</td><td colspan="4">A: RDBMS
B: JPP</td></tr>
<tr><td>WED</td><td>CN</td><td>RDBMS</td><td>OOP</td><td>RDBMS</td><td colspan="2">COMMUNICATIO N</td><td>CN</td><td>CA</td></tr>
<tr><td>THU</td><td>OOP</td><td colspan="3">A: JPP
B: RDBMS</td><td>CA</td><td>RDBMS</td><td>CN</td><td>OOP</td></tr>
<tr><td>FRI</td><td colspan="2">COMMUNICATI ON</td><td colspan="2">A: RDBMS
B: JPP</td><td>OOP</td><td>CN</td><td>RDBMS</td><td>CA</td></tr>
<tr><td>SAT</td><td>OOPS</td><td>RDBMS</td><td>CN</td><td>CA</td><td colspan="4">---------</td></tr>
</table>

4. 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.
5. 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 to Analysis Package – Examples - Concepts of Workbook & Worksheets; Using Wizards; Various Data Types; Using different features with Data, Cell and Texts; Inserting, Removing & Resizing of Columns & Rows; Working with Data & Ranges; Different Views of Worksheets; Column Freezing, Labels, Hiding, Splitting etc.; Using different features with Data and Text; Use of Formulas, Calculations & Functions; Cell Formatting including Borders & Shading; Working with Different Chart Types; Printing of Workbook & Worksheets with various options.

Exercises

6. 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.

7. 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 color and lowest donation with red colour. The table should have a heading.

8. Create line and bar chart to highlight the sales of the company for three different periods for the following data.

SALES BAR CHART

Period	Product1	Product2	Product3	Total
JAN	35	40	50	125
FEB	46	56	40	142
MAR	70	50	40	160

SECTION – B

DATABASE

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

Exercises

9. 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

10. create a students table with the following fields: Sr.No, Reg. No, Name, Marks in 5 subjects. Calculate total and percentage of 10 students. Perform the following queries.

    - To find the details of distinction student
    - To find the details of first class students
    - To find the details of second class students

11. Design a report for the above exercise to print the consolidated result sheet and mark card for the student.

PRESENTATION

Introduction - Opening new presentation, Parts of PowerPoint window – Opening -Saving and closing presentations - Features of PowerPoint, Background design, Word art, Clip art, Drawings,3D settings - Animations, Sound, Views, types of views - Inserting and deleting slides, arranging slides, slides show, rehearsal, setup show, custom show - Creating custom presentations, action setting, auto content wizard, working with auto content wizard

Exercises

12. 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.
13. Create a Presentation about our institution or any subject with different slide transition with sound effect.

INTERNET

Introduction – Getting acquainted with Internet Connection - Browsers – Website URL - Open a website – Net Browsing - Email: Creating E-mail id – Sending , receiving and deleting E-mail - Email with Attachments – CC and BCC - Chatting – Creating Group mail - Google docs – Search Engines – Searching topics .

Most Popular Social Networking Sites : History – Features – Services – Usage of Face book , Twitter and Linkdln.

Transferring data through wifi / bluetooth among different devices.

Introduction to cybercrime – Software Piracy – Viruses – Antivirus Software

Exercises

14. 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.

15. Create a presentation on Google docs. Ask your friend to review it and comment onit. Use “Discussion” option for your discussions on the presentation.

Hardware and Software Requirements

Hardware Requirements:

- Computers – 36Nos
    - Intel Core i3 Processor
    - 500 GB Hard Disk, 2 MB RAM
    - 14” Monitor
- Projector – 1 Nos
- Laser Printer – 1 No
- Internet Connection – Minimum of 512 KB

Software Requirement

- Any GUI Operating System
- Open Source Software / MS- Office

1. SemesterEndExamination–75 Marks

Content	Max.Marks
Writing Procedure – One Question from Section A	15
Demonstration	15
Results with Printout	5
Writing Procedure – One Question from Section B	15
Demonstration	15
Results with Printout	5
Viva voce	5
Total	**75MARK**

SEMESTER - IV

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M – SCHEME

IV SEMESTER

2015 – 2016 onwards

35241 – COMPUTER ARCHITECTURE

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35241

Semester : IV

Subject title : COMPUTER ARCHITECTURE

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	**Instructions**		**Examination**			
Computer Architecture	***Hours / Week***	***Hours / Semester***	***Marks***			***Duration***
	4 Hrs	60 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	3 Hrs

UNIT	**TOPIC**	**HOURS**
I	REGISTER TRANSFER LOGIC AND CPU	12
II	INPUT – OUTPUT MODULE	10
III	MEMORY MODULE	8
IV	MICROPROCESSORS AND PARALLEL PROCESS	10
V	ARCHITECTURE AND CONCEPTS OF ADVANCED PROCESSORS	10
	REVISION	10
	TOTAL	60

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

- Know the fundamental blocks of computer
- Realize the function of I/O in different operation modes
- Use of I/O processor
- Know about different memory types and their operations
- Study about the fundamental blocks of CPU
- Know about the computer arithmetic
- Study the different processors

UNIT I REGISTER TRANSFER LOGIC AND CPU ----------12 HOURS		
1.1	**Register transfer:** Register Transfer Language – Inter Register transfer – control function-Bus transfer-memory transfer	3 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	4Hrs
1.3	**Central processing unit:** components of CPU- General register organization, bus system-register set with common ALU-memory stack - stack limits, Instruction format(3,2,1,0 address instructions)	3 Hs
1.4	**Control unit:** structure of control unit-fetch cycle, indirect cycle, Execute cycle, interrupt cycle, instruction cycle.	2 Hrs
UNIT II INPUT – OUTPUT MODULE ---------- 10 HOURS		
2.1	**Input output Interface** : Need for I/O interface, I/O bus and interface, I/O commands, Example of I/O interface	2 Hrs
2.2	**Asynchronous data transfer**-strobe control, handshaking, Asynchronous serial transfer, Asynchronous communication interface	3 Hrs
2.3	**Modes of transfer**- Programmed I/O,Interrupt initiated I/O-vectored interrupt, non-vectored interrupt, Priority interrupt, Interrupt controller ,DMA –DMA controller, DMA transfer	3 Hrs

2.4	**I/O Processor**: CPU-IOP communication. Serial communication	1 Hr
UNIT III MEMORY MODULE ---------- 8 HOURS		
3.1.	**Memory types:** CPU registers, Main memory, Secondary memory, Cache	1Hr
3.2	**Main Memory:** ROM, RAM, Memory address map, memory connection to CPU	2 Hrs
3.3	**Secondary Memory:** Magnetic tape , Magnetic Disk	1 Hr
3.4	**Cache:** Need for cache memory, operational principle, Cache initialization, Different mapping techniques, Writing into cache	2 Hrs
3.5	**Memory Management :** Virtual memory concept-virtual address, physical address, memory table for mapping a virtual address, address mapping using pages, Associative memory page table, Page replacement technique	2Hrs
UNIT IV MICROPROCESSORS AND PARALLEL PROCESS ---------10HOURS		
4.1	**Microprocessor**: Block diagram of 8086-registers: segment registers, address: effective address, flag registers and application of microprocessor	3 Hrs
4.2	**Parallel processing:** types of parallel processing systems. parallel organizations	4 Hrs
4.3	**Pipe Lining**: instruction pipeline, arithmetic pipeline, pipelining in super scalar processors	3 Hrs
UNIT V . ARCHITECTURE AND CONCEPTS OF ADVANCED PROCESSORS 10 HOURS		
5.1	**Symmetric Multiprocessors: Organizations, a mainframe**	2 Hrs
5.2	**Multithreading and clusters: Implicit and explicit multi threading, cluster configuration**	2 Hrs
5.3	**NUMA and vector**:: NUMA organizations and approaches to vector computation	3 Hrs
5.4	**Multi Core :** Multicore organization	3 Hrs

Text Book

Sl.No.	TITLE	AUTHOR	PUBLISHER	Edition
1.	COMPUTER SYSTEM ARCHITECTURE	M.MORRIS MANO	Prentice –Hall of India Pvt Limited	THIRD EDITION
2.	COMPUTER ORGANIZATION AND ARCHITECTURE designing for performance	William Stallings	Pearson Publications.	Eighth Edition

REFERENCE BOOKS:

Sl.No.	TITLE	AUTHOR	PUBLISHER	Edition
1.	Computer Organization	V.carl Hamacher, Zvonko G.Vransic, Safgat G.Zaky	McGraw-Hill International Editions-Computer science series	Fifth Edition
2.	Computer Organization and Design	David A. Patterson and John L. Hennessey	Morgan Kauffman / Elsevier	Fifth edition
3.	Computer Architecture and Organization	John P. Hayes	Tata Mc Graw Hill	Third Edition

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M – SCHEME

IV SEMESTER

2015 – 2016 onwards

35242 – COMPUTER NETWORS AND SECURITY

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35242

Semester : IV

Subject title : COMPUTER NETWORKS AND SECURITY

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	**Instructions**		**Examination**			
Computer Networks and Security	***Hours / Week***	***Hours / Semester***	***Marks***			***Duration***
	4 Hrs	60 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	3 Hrs

TOPICS AND ALLOCATION OF HOURS

UNIT	**TOPIC**	**HOURS**
I	DATA COMMUNICATIONS	10
II	OSI MODEL AND LAN PROTOCOLS	10
III	TCP/IP SUIT	10
IV	NETWORK SECURITY	10
V	APPLICATIONS OF NETWORK SECURITY	10
	TEST & REVISION	10
	TOTAL	60

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 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 mankind.

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 and FDDI 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.
- Discuss about Network Security Applications.
- Know the applications of Network Security.
- Discuss about VPN and Firewalls.
- Identify the Wireless Security Issues.

DETAILED SYLLABUS

UNIT I DATA COMMUNICATIONS		**……. 10 HOURS**
1.1	**Data Communication:** Components of a data communication – Data flow: Simplex - Halfduplex – Full duplex; Networks – Network criteria – Types of Connections: Point topoint – multipoint; Topologies: Star, Bus, Ring, Mesh, Hybrid – Advantages andDisadvantages of each topology.	2 Hrs
1.2.	**Types of Networks:** Need for computer Networks **-** LAN – MAN – WAN – CAN – HAN –Internet – Intranet – Extranet , Client-Server, Peer to Peer	2 Hrs

	Networks.	
1.3	**Transmission Media** : Characteristics of Transmission Media - Classification oftransmission media - Guided – Twisted pair – Coaxial – Fiber optics – Unguided – Radiowaves – 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 ……. 10 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 – Broad Band ISDN	1Hrs
UNIT III TCP/IP SUIT ……. 10 HOURS		
3.1.	**Overview of TCP / IP:** OSI & TCP/IP – Transport Layer Protocol– Connection Orientedand Connectionless Services – Sockets - TCP & UDP.	3Hrs
3.2.	**Network Layers Protocol:** IP – Interior Gateway Protocols (IGMP, ICMP, ARP, RARPConcept only).	2 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 ……. 10 HOURS		
4.1.	Introduction to Network security: Definition – Need for security – Principles of Security – Attacks – Types of Attacks – Criminal attacks – Legal Attacks – Passive and Activeattacks – Security Services – Security Mechanisms .	2 Hrs
4.2.	Cryptography: Definition – Symmetric Encryption principles – Symmetric BlockEncryption Algorithms – DES, AES – Stream ciphers – RC4 – Digest function – Public key Cryptography Principles–RSA-Diffe-Hellmanalgorithm– Digital Signature(Definitiononly)	3Hrs
4.3**.**	Network Security Application: Authentication applications – Kerberos (concepts only) - Overview- Motivation –Encryption Techniques;	2Hrs
4.4.	Internet Security: Email security – PGP - S/MIME - IP security – Overview –	3Hrs

	IP Security Architecture - Web security - SSL, TLS ,SET (Concepts only)	
UNIT – V APPLICATIONS OF NETWORK SECURITY ……. 10 HOURS		
5.1	Introduction to network security : Definition and Basic concepts-Basic concepts ofRAID levels(0,1,2,3,4,5).	2 Hrs
5.2	Hackers Techniques: Historical hacking techniques & open sharing-Bad Passwords- Advanced Techniques- Viruses-worms-Trojan horses-SPAM	2 Hrs
5.3	Security Mechanism : Introduction – Types of Firewalls – Packet filters – Application gate ways – Limitations of firewalls.	2 Hrs
5.4	Intrusion: Intruders– Intruder detection – Classification of Intruder Detection systems –Honey pots.	2Hrs
5.5	Wireless Security Issues: Definition and Types -Transmission Security, Authentication ,WLAN Detection, Eaves Dropping, Active Attacks, WEP Definition and Features.	2Hrs

Text Book:

Sl.No.	TITLE	AUTHOR	PUBLISHER	Edition
1.	Data Communication and networking	Behrouz A.Forouzen	TataMcGraw-Hill,New Delhi	Fifth Edition
2.	Network Security Essentials	William Stallings	Pearson Publications.	Fifth Edition
3.	CRYPTOGRAPHY AND NETWORK SECURITY	William Stallings	Pearson Publications.	Sixth Edition

Reference Books:

Sl.No.	TITLE	AUTHOR	PUBLISHER	Edition
1.	Computer Communication Networks	AchyutS.Godbole	TataMcGraw-Hill,New Delhi	
2.	Computer Networks	Andrew S.Tanenbaum	Pearson Publications.	Fifth edition
3.	CRYPTOGRAPHY AND NETWORK SECURITY	BehrouzA.Forouzen	TataMcGraw-Hill,New Delhi.	ThirdEdition

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M – SCHEME

IV SEMESTER

2015 – 2016 onwards

35243 – OBJECT ORIENTED PROGRAMMING WITH JAVA

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35243

Semester :IV

Subject title : Object Oriented Programming with Java

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Internal Assessment	Board Examination	Total	
Object Oriented Programming with Java	6	90	25	75	100	3 Hrs

UNITS AND ALLOCATION OF HOURS

UNIT No.	TOPIC	No. of Hours
I	INTRODUCTION TO OOPS AND JAVA	15
II	CONTROL STRUCTURES, ARRAYS, AND VECTORS	13
III	STRINGS, CLASSES AND INTERFACES	18
IV	PACKAGES, APPLETS AND AWT CONTROLS	16
V	EXCEPTION HANDLING, MULTITHREADS AND I/O STREAMS	18
	TEST AND REVISION	10
	TOTAL	90

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		**15 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.	8 Hrs

1.2	**Java :** History – Java features – Java Environment – JDK – API.	2 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		**13 HOURS**
2.1	Elements: Constants – Variables – Data types - Scope of variables – Type casting – Operators: Special operators – Expressions – Evaluation of Expressions	5 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 – labeled loop – continue Statement.	5 Hrs
2.3	Arrays: One Dimensional Array – Creating an array – Array processing – Multidimensional Array – Vectors – ArrayList – Advantages of Array List over Array Wrapper classes	4 Hrs
UNIT III STRINGS, CLASSES AND INTERFACES		**18 HOURS**
3.1	Strings: String Array – String Methods – String Buffer Class	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	7 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 – Final 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	8 Hrs
UNIT IV PACKAGES, APPLETS AND AWT CONTROLS		**16 HOURS**
4.1	**Packages:** Java API Packages – System Packages – Naming Conventions – Creating & Accessing a Package – Adding Class to a Package – Hiding Classes	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	8 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	4 Hrs

UNIT–V EXCEPTION HANDLING, MULTITHREADS AND I/O STREAMS		18 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	6 Hrs
5.2	**Multithreading:** Creating Threads – Life of a Thread – Defining & Running Thread – Thread Methods – Thread Priority – Synchronization – Implementing Runnable interface – Thread Scheduling.	7 Hrs
5.3	**I/O Streams:** File – Streams – Advantages - The stream classes – Byte streams –Character streams	5 Hrs

TEXT BOOKS

Sl.No.	TITLE	AUTHOR	PUBLISHER	Edition
1	Programming with Java	E. Balagurusamy	TataMc-Graw Hill, New Delhi	5th Edition
2	Java, A Beginner's Guide	Herbert Schildt	Oracle Press	6th Edition

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M – SCHEME

IV SEMESTER

2015 – 2016 onwards

35244 – DATA STRUCTURES USING C

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35244

Semester : IV

Subject title : DATA STRUCTURES USING C

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Internal Assessment	Board Examination	Total	
DATA STRUCTURES USING C	6	90	25	75	100	3 Hrs

TOPICS AND ALLOCATION OF HOURS

Unit No	Topic	No of Hours
I	INTRODUCTION TO DATA STRUCTURES , ARRAYS AND STRINGS AND ARRAYS	16
II	STACKS , RECURSION AND QUEUES	16
III	LINKED LISTS	16
IV	TREES AND GRAPHS	17
V	SEARCHING , SORTING AND HASHING	15
TEST AND REVISION		10
TOTAL		90

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.

DETAILED SYLLABUS

UNIT – I. INTRODUCTION TO DATA STRUCTURES , ARRAYS AND STRINGS …. 16 Hours		
1.1.	Introduction to Data Structures : Introduction - Data and Information - Elementary data structure organization - Types of data structures - Primitive and Non Primitive data structures – Operations on data structures : Traversing, Inserting, Deleting, Searching, Sorting, Merging - Different Approaches to designing an algorithm : Top-Down approach , Bottom-up approach - Complexity : Time complexity , Space complexity - Big 'O' Notation.	6 Hrs
1.2	ARRAYS: Introduction - Characteristics of Array - One Dimensional Array - Two Dimensional Arrays - Multi Dimensional Arrays – Advantages and Disadvantages of linear arrays - Row Major order - Column Major order - Operations on arrays with Algorithms (searching, traversing, inserting, deleting - Pointer and Arrays – Pointers and Two Dimensional Arrays - Array of Pointers - Pointers and Strings – Implementation of arrays -	7 Hrs
1.3	Strings : Strings and their representations - String Conversion- String manipulation, String arrays	3 Hrs
UNIT – II STACKS , RECURSION AND QUEUES … 16 Hours		
2.1	Definition of a Stack - Operations on Stack (PUSH & POP)- Implementing Push and Pop Operations - Implementation of stack through arrays – Applications of Stack : Reversing a list - Polish notations - Conversion of infix to postfix expression	6 Hrs

	- Evaluation of postfix expression - Algorithm for evaluating Infix to prefix expression.	
2.2	Recursion - Recursive definition – Algorithm and C function for : Multiplication of Natural numbers - Factorial Function - GCD function - Properties of Recursive algorithms/functions – Advantages and Disadvantages of Recursion	4 Hrs
2.3	Queues: The queue and its sequential representation - implementation of Queues and their operations - implementation of Circular queues and their operations - Dequeue and Priority queues(Concepts only)	6 Hrs
UNIT – III LINKED LISTS …… 16 Hours		
3.1	Terminologies: Node, Address, Pointer, Information, Null Pointer, Empty list -. Type of lists : Singly linked list , Doubly linked list, Circular list - Representation of singly linked lists in Memory-Difference between Linked & sequential List – Advantages and Disadvantages of Linked list- Operations on a singly linked list (only algorithm) : Traversing a singly linked list , Searching a singly linked list , Inserting a new node in a singly linked list (front, middle, end), Deleting a node from a singly linked list (front, middle, rear) - Doubly linked list, Circular linked lists (Concepts only, no implementations)	16 Hrs
UNIT – IV TREES AND GRAPHS …… **17** Hours		
4.1	Trees: Terminologies: Degree of a node, degree of a tree, level of a node, leaf node, Depth / Height of a tree, In-degree & out-Degree, Path, Ancestor & descendant nodes-, siblings - Type of Trees : Binary tree - List representation of Tree - Binary tree traversal (only algorithm) : In order traversal , Preorder traversal , Post order traversal - Expression tree – Binary Search Tree – Creation of a Binary Serach tree without duplicate node.	10 Hrs
4.2	Graphs : Introduction - Terminologies: graph, node (Vertices), arcs (edge), directed graph, in-degree, out-degree, adjacent, successor, predecessor, relation, weight, path, length - Representations of a graph - Adjacency Matrix Representation - Adjacency List Representation - Traversal of graphs : Depth-first search (DFS) , Breadth-first search (BFS) - Applications of Graph	7 Hrs
UNIT – V SORTING ,SEARCHING AND HASHING ….. **15** Hours		
5.1	Sorting Techniques : Introduction – Algorithms and " C" programs for : Selection sort , Insertion sort , Bubble sort – Algorithms only : Merge Sort ,Radix sort, Shell sort , Quick sort	6 Hrs
5.2	Searching : Introduction - Algorithms and " C" programs for Linear search and Binary search	4 Hrs
5.3	Hashing : Hash tables – methods- Hash function - Collision resolution techniques	5 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	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

REFERENCES

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	Reprint 2008
6.	Data structures Using C	ISRD Group	TMGH, New Delhi	Ninth Reprint 2011
7.	Fundamentals of Data structures in C	Horowitz , sahni Anderson- freed	University Press, Hyderabad	Second Edition
8.	Data and file structures	Rohit Khurana	Vikas Publishing Ltd	First Edition 2010

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M– SCHEME

IV SEMESTER

2015 –2016 onwards

35245 –JAVA PROGRAMMING PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

DIPLOMA IN COMPUTER ENGINEERING

M – SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35245

Semester : IV Semester

Subject : JAVA PROGRAMMING PRACTICAL

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 week

Subject	Instructions		Examination			Duration
	Hours/Week	Hours/ Semester	Internal Assessment	Board Examination	Total	
JAVA PROGRAMMING PRACTICAL	4	60	25	75	100	3Hrs

Objectives:

- Analyze the given problem
- Develop the logic to solve the given problem
- Develop Java application
- Develop programs using different operators and expressions.
- Develop programs using sequential, conditional and Iterative statements.
- Handle arrays of fixed and variable size.
- Develop applications using Vectors.
- Create classes and objects
- 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 to develop GUI applications
- Use multithreading in programs.

S.No	PART-A CONSOLE APPLICATIONS
1	Write a Java program to display the count of all commands line arguments and list each in a line
2	Write a program to find out sum of digits of given number
3	Write a program to display multiplication table in row , column format
4	Write a program to **a)** To find whether the given number is prime or not **b)** To display all prime numbers in a given range of numbers
5	Write a program to create an array of integers and accept a number. Check whether it exits in the array. Create your own exception with appropriate error message and raise the exception when the element is not found in the array.
6	Write a program to implement stack using Vector class or ArrayList
7	Write a program to execute any given windows application and report the exit status of the application
8	Write a program to get a file name at run time and check for its existence check whether it is a directory or normal file. If it is a normal file display its size and other attributes of the file.
9	Write a program to copy a file to another file using java.io package Classes.
10	Write a program to get a file at runtime and display the number of lines, words and characters in that file.
S.No	**PART-B GUI APPLICATIONS**
11	Create a Frame with two labels. At runtime display x and y co-ordinates of mouse pointer in the Labels.
12	Create a Frame and Checkbox group with five Checkboxes with labels as Red, Green, Blue, Yellow and White. At run time change the background color of Frame using Checkboxes.
13	Create a Frame with 3 Scrollbars representing the three basic colors RED, GREEN and BLUE. Change the background color of the Frame using the values of Scrollbars.
APPLETS	
14	Create an Applet to calculate Simple and Compound interest by passing parameters through <PARAM> tags of HTML file.
15	Draw a bar chart for the MARKS scored in 5 subjects by a student using Graphics object

SCHEME OF VALUATION		
1.	Any one program from PART- A	20
2.	Execution and Result	10
3.	Print out	5
4.	Any one program from PART - B	20
5.	Execution and Result	10
6.	Print out	5
7.	Viva voce	5
TOTAL		75

HARDWARE REQUIREMENT	**SOFTWARE REQUIREMNT**
Desktop Computers – 36 Nos Printer – 1 No Student : Computer = 1 : 1	1. Any Text Editor (OR) Net beans 2. JDK 1.7 or above 3. Java enabled Browser

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M – SCHEME

IV SEMESTER

2015 – 2016 onwards

35246 – DATA STRUCTURES USING C PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

(Implemented from the academic year 2016-2017 onwards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35246

Semester : IV

Subject title : DATA STRUCTURES USING C PRACTICAL

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Internal Assessment	Board Examination	Total	
DATA STRUCTURE USING C PRACTICAL	6	90	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 and 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. Implement array using row major order and column major order.
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 PUSH and POP operations in stack by using array.
5. Write a program in 'C' to display the reverse of a string using a stack.
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 implement recursive function.
9. Write a program in 'C' to create a singly linked list containing at least five elements. Make necessary assumptions.
10. Write a program in 'C' to delete the first node that contains an integer data item of a single 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.
16. Write a program in 'C' to sort 'N' Numbers using selection 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 REQUIREMNT : • C – Compiler with Editor

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

II YEAR

M – SCHEME

IV SEMESTER

2015 – 2016 onwards

30002 – LIFE AND EMPOLYABILITY SKILL PRACTICAL

[COMMON TO ALL BRANCHES]

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

DIPLOMA IN ENGINEERING – SYLLABUS – M Scheme

(Being implemented from the Academic Year 2016-2017 onwards)

Course Name : **All Branches of Diploma in Engineering and Technology and Special Programmes**

Subject Code : **30002**

Semester : **IV**

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

Teaching and Scheme of Examination: **No. of Weeks per Semester: 15 Weeks**

Subject	Instruction		Examination			
			Marks			
	Hours/ Week	Hours/ Semester	Internal assessment	Board Examination	Total	Duration
Life and Employability Skills	4 Hours	60 Hours	25	75	100	3 Hours

Topics and Allocation of Hours:

Sl. No.	Section	No. of Hours
1	**Part – A** Communication	**30**
2	**Part – B** Entrepreneurship, Project Preparation, Productivity, Occupational Safety, Health, Hazard, Quality Tools& Labour Welfare	**20**
3	**Part – C** Environment, Global Warming, Pollution	**10**
TOTAL		**60**

RATIONALE

Against the backdrop of the needs of the Industries, as wells as based on fulfilling the expectations of the Industries, the Diploma Level students have to be trained directly and indirectly in toning up their competency levels. Proficiency in Communication only, equips them with confidence and capacity to cope with the employment. Hence, there is a necessity to focus on these in the curriculum. At the end of the Course, the student is better equipped to express himself in oral and written communication effectively.

SPECIFIC INSTRUCTIONAL OBJECTIVES

1. Emphasize and Enhance Speaking Skills

2. Increase Ability to Express Views & Opinions

3. Develop and Enhance Employability Skills

4. Induce Entrepreneurship and Plan for the Future

5. Expose & Induce Life Skills for Effective Managerial Ability

LIFE AND EMPLOYABILITY SKILLS PRACTICAL

SYLLABUS

Unit	Topics	Activity	Hours
I	**Communication, Listening, Training, Facing Interviews, Behavioural Skills**	-- instant sentence making – say expressions/phrases-- self- introduction/another higher official in company – describe/explain product – frame questions based on patterns – make sentences based on patterns	**30**
II	**Entrepreneurship, Project Preparation, Marketing Analysis, Support & Procurement**	-- prepare an outline of a project to obtain loan from bank in becoming an entrepreneur – prepare a resume	**10**
III	**Productivity – comparison with developed countries, Quality Tools, Circles, Consciousness, Management, House Keeping**	-- search in the website -- prepare a presentation – discuss & interact	**05**
IV	**Occupational Safety, Health Hazard, Accident & Safety, First-Aid,Labour Welfare Legislation, Welfare Acts**	-- search in the website -- prepare a presentation – discuss & interact	**05**
V	**Environment, Global Warming, Pollution**	-- taking down notes / hints – answering questions -- fill in blanks the exact words heard	**10**

LEARNING STRUCTURE **100 Marks**

-- Focus more on Speaking & Listening Skills
-- Attention less on Reading & Writing Skills
-- Apply the skills in fulfilling the Objectives on Focused Topics

a) Listening **25 Marks**

1. Deductive Reasoning Skills (taking down notes/hints) **10**
2. Cognitive Skills (answering questions) **10**
3. Retention Skills (filling in blanks with exact words heard) **05**

b) Speaking Extempore/ Prepared **30 Marks**

1. Personality/Psychological Skills (instant sentence making) **05**
2. Pleasing & Amiable Skills (say in phrases/expressions) **05**
3. Assertive Skills (introducing oneself/others) **05**
4. Expressive Skills (describe/explain things) **05**
5. Fluency/Compatibility Skills (dialogue) **05**
6. Leadership/Team Spirit Skills (group discussion) **05**

c) Writing & Reading **20 Marks**

1. Creative & Reasoning Skills (frame questions on patterns) **05**
2. Creative & Composing Skills (make sentences on patterns) **05**
3. Attitude & Aim Skills (prepare resume) **05**
4. Entrepreneurship Skills (prepare outline of a project) **05**

d) Continuous Assessment (Internal Marks) **25 Marks**
(search,read, write down, speak, listen, interact & discuss)

1. Cognitive Skills (Google search on focused topics)
2. Presentation Skills& Interactive Skills (after listening, discuss)

Note down and present in the Record Note on any 5 topics **10 Marks**
Other activities recorded in the Record note **10 Marks**
Attendance **05 Marks**

INTERNAL MARKS **25 MARKS**

EXTERNAL MARKS AT END EXAMINATION **75 MARKS**

MODEL QUESTION

Time: 3 Hours **Maximum Marks: 75**

A. LISTENING **25 Marks**

1. Listen to the content and take down notes/hints 10
2. Listen to the content and answer the following questions. 10
3. Listen to the content and fill in the blanks the exact words heard. 05

B. SPEAKING **30 Marks**

1. Say in a sentence instantly on hearing the word(5 words, one after another). 05
2. Say any five expressions commonly used in communication. 05
3. Imagine, a consultant has come to your department.
   Introduce him to your subordinates. 05
4. Explain/describe the product you are about to launch in the market. 05
5. Speak with your immediate boss about the progress you have made. 05
6. Discuss within the group on the topic of focus in the syllabus. 05

C. WRITING & READING **20 Marks**

1. Frame new questions from the pattern given by changing sets of words with your own. 05

a.	When	do	you	return?
b.	How	is	his performance?	
c.	Where	has	the manager	gone?
d.	What	is	the progress	today?
e.	Why	are	the machines	not functioning?

2. Make sentences from the pattern given by changing sets of words with your own. 05

3.

a.	The workers	are	on strike		
b.	The labourers	are paid	well	in this factory	
c.	There	is	a rest room	for the workers	
d.	These	are	the new products	launched	by our company
e.	Almost everyone	come	to the company	on motorbikes	

Prepare a resume for the post of Department Manager. 05

4. Prepare an outline of a project to obtain a loan. (Provide headings and subheadings) 05

I. Guidelines for setting the question paper:

A. LISTENING :

ONLY TOPICS related to
POLLUTION /
ENVIRONMENT /
GLOBAL WARMING are to be taken.
These topics are common for all the three types of evaluation.

B. SPEAKING :

1. WORDS of common usage
2. Fragments – expression of politeness, courtesy, cordiality
3. Introduce yourself as an engineer with designation or
   Introduce the official visiting your company/department

4. Describe/Explain the product/machine/department
5. Dialogue must be with someone in the place of work.
6. Group of six/eight
   Discuss the focused topic prescribed in syllabus

C. WRITING & READING:

1. Provide five different structures.
   Students are to substitute at least one with some other word/words
2. Provide five different structures.
   Students are to substitute at least one with some other word/words
3. Provide some post related to industries.
4. Outline of the project (skeleton/structure)
   Only the various headings and subheadings
   Content is not needed

II. Guidelines for recording the material on the Focused Topics in the Record note.

Write in the record note, **on any five topics**, from the list of topics given below. **10 Marks**
(5 topics x 10 marks = 50 marks. Thus, the **Average of 5 topics is 10 Marks)**

1. Productivity in Industries – Comparison with developed countries
2. Quality Tools, Quality Circles and Quality Consciousness

3. Effective Management
4. House Keeping in Industries
5. Occupational Safety and Hazard
6. Occupational Accident and First Aid
7. Labour Welfare Legislations
8. Labour Welfare Acts and Rights
9. Entrepreneurship
10. Marketing Analysis, Support and Procurement

LABORATORY REQUIREMENT:

1. An echo-free room
2. Necessary furniture and comfortable chairs
3. A minimum of two Computers with internet access
4.A minimum of two different English dailies
5. A minimum of Three Mikes with and without cords
6. Colour Television (minimum size – 29")
7. DVD/VCD Player with Home Theatre speakers
8. Smart board
9. Projector

Suggested Reading:

1. Production and Operations Management by S.N. Chary, TMH
2. Essentials of Management by Koontz &Weihrich, TMH
3. Modern Production / Operations Management by E.S. Buffa and R.K. Sarin, John Wiley & Sons
4. Production Systems: Planning, Analysis and Control by J.L.Riggs, 3rd ed., Wiley.
5. Productions and Operations Management by A.Muhlemann, J.Oakland and K.Lockyer, Macmillan
6. Operations Research - An Introduction by H.A.Taha, Prentice Hall of India
7. Operations Research by J.K.Sharma, Macmillan
8. Business Correspondence & Report Writing by R.C. Sharma and K.Mohan, TMH
9. How to prepare for Group Discussion & Interview (With Audio Cassette) by Prasad, TMH
10. Spoken English – A self-learning guide to conversation practice (with Cassette)
11. Introduction to Environmental Engineering by Mackenzie, L. Davis and A. David, Cornwell, McgrawHill, 3rd Ed.
12. Environmental Engineering by Peary, Rowe and Tchobanoglous, McgrawHill
13. Total Quality Management – An Introductory Text by Paul James, Prentice Hall
14. Quality Control and Applications by Housen&Ghose
15. Industrial Engineering Management by O.P. Khanna

SEMESTER - V

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M– SCHEME

V SEMESTER

2015 –2016 onwards

35251 – WEB PROGRAMMING

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

(Implemented from the academic year 2016-2017 onwards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35251

Semester : V

Subject title : WEB PROGRAMMING

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 15 Weeks

Subject	Instructions		Examination			
WEB PROGRAMMIN	Hours / Week	Hours / Semester	Marks			Duration
	5 Hrs	75 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	3 Hrs

UNITS AND ALLOCATION OF HOURS

UNIT No.	TOPIC	No. of Hours
I	INTERNET AND HTML	13
II	HTML5 AND CSS3	15
III	CLIENT SIDE SCRIPTING (JAVASCRIPT)	12
IV	SERVER SIDE SCRIPTING (JSP)	13
V	JSP Programming – Database Access	12
	TEST AND REVISION	10
	TOTAL	75

Rationale:

The main aim of this subject is to introduce the building blocks of Internet and web i.e. HTML, CSS, Java Script, JSP. 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 HTML5 and CSS.
- Using SVG in HTML5
- 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.
- 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.

DETAILED SYLLABUS

UNIT I INTERNET & HTML5	**13 Hrs**
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.- GPRS – Definition. EDGE – 2.75 G – 3 G – 4G Concepts only
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
UNIT II HTML 5 & CSS3	**15 Hrs**
2.1	**HTML5:** What is HTML5?-Difference between HTML&HTML5- New elements in HTML5 - canvas elements - Media elements – Form elements- Semantic and structural element - New **graphic**elements: <svg> and <canvas>. **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 – TextBox - 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
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 What is CSS3? Animation – Borders – Backgrounds – Fonts –Multiple columns – Text effects.
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
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.
UNIT III CLIENT SIDE SCRIPTING (JAVASCRIPT) …. 12 Hrs	
3.1	**JavaScript Basics :** Need of scripting languages – Variables and Data Types : Declaring Variables – Life span of variables - Data Types - Operators : Assignment , comparison, computational and logical operators - Control Structures : Conditional Statements – Loop Statements : for, while, for in, break and continue statements
3.2	**Object-Based Programming and Message boxes:** Functions - Executing Deferred Scripts - objects : Document object Model , Predefined objects, Array object, History object , Location object - Dialog Boxes - Alert Boxes - Confirm Boxes - Prompt Boxes
3.3	**Javascript with HTML:** Events - Event Handlers : onLoad and onUnload – onFocus and onBlur – onError - Forms : Forms Array – Form element properties – Example
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.
UNIT IV SERVER SIDE SCRIPTING (JSP) ……13 Hrs	
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
4.2	**JSP Elements**: Comments – Directives: Page, Include and taglib directives – Scripting elements: Declarations - Scriplets – expressions – Simple JSP page
4.3	**Implicit objects**: Request, response, pagecontext, application, out, config, page,session, exception – Scope: Application – Session – Request
UNIT V JSP programs & DATABASE ACCESS ……12 Hrs	
5.1	**Writing Simple JSP programs:** Convert entered text into uppercase – Find the maximum of three numbers – Add two numbers.

5.2	MySQL – create table – create records <sql:setDataSource> var, driver, url attributes. JdbcOdbcDriver. Creating connection, Creating statement - Statement – executeUpdate(),executeQuery() methods - Select, insert, update, delete opertions
5.3	Develop a mini project using HTML5, CSS, JSP to manipulate data in MySQL database.

TEXT BOOKS

Sl.No.	TITLE	AUTHOR	PUBLISHER	Edition
1	Web Development and Design Foundations with HTML5	Terry Felke-Morris	Pearson	8th Edition
2	JavaScript the Complete Reference	Powell, Thomas	MC Grawhill	3rd Edition
3	HTML & CSS: The Complete Reference	Thomas Powell	MC Grawhill	**Fifth Edition**
4	JSP: The Complete Reference	Phil Hanna	MC Grawhill	
5.	The Internet	Douglas E.Comer	*Prentice Hall*	

REFERENCES

Sl.No.	TITLE	AUTHOR	PUBLISHER	Edition
1.	Pro HTML5 and CSS3 Design Patterns	Dionysios Synodinos, Michael Bowers, Victor Sumner	Springer India Private Limited (2012)	

Websites:

1.http://www.tutorialspoint.com/jsp/jsp_quick_guide.htm
2. http://www.html5andcss3.org/html5tutorialpdf
3. http://www.tutorialspoint.com/html/html_tutorial.pdf

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M– SCHEME

V SEMESTER

2015 –2016 onwards

35252 – RELATIONAL DATABASE MANAGEMENT SYSTEMS

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35252

Semester : V

Subject title : RELATIONAL DATABASE MANAGEMENT SYSTEM

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 15 Weeks

Subject	Instructions		Examination			
RELATIONAL DATABASE MAANGEMENT SYSTEM	Hours / Week	Hours / Semester	Marks			Duration
	5 Hrs	75 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	3 Hrs

UNITS AND ALLOCATION OF HOURS

UNIT No.	TOPIC	No. of Hours
I	Database Systems and Data modeling	14
II	MySQL Administration & Database Design	15
III	MySQL Performance Tuning	11
IV	Storage Engines, Stored Program concept , Optimization & API's	14
V	Data warehousing & Introduction to Big data	11
	TEST AND REVISION	10
	TOTAL	75

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 warehousing , Big Data 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 procedures and functions .
- Create and use Triggers.
- Understanding Data warehousing, Big data and NoSQL

DETAILED SYLLABUS

UNIT - I Database Systems and Data modeling		**14 HOURS**
1.1	**Database systems:** Database Management System – Characteristics of Database Components of Database - Functions of Database - Understanding database model- Evolution – Types of database models: Hierarchical Database Model, Network Database Model, Relational Database Model.	3 Hrs
1.2	**Types of Databases:** Transactional Databases, Decision Support Databases and Hybrid Databases – Open Source databases .	2 Hrs
1.3	**Relational data model:** CODD's rules – Components of RDBMS - Table structure - Records ,rows, tuples , attributes. - Keys : Primary, Foreign , Composite, unique keys – Meta Data – Data Dictionary. - Data Integrity - Data Constraints and validation : Types of Constraints Difference between SQL and MYSQL	4 Hrs
1.4	**ER Diagram and Normalization:** Methodologies of Designing Database- Entities-Relationships (1:1, 1 : many and many : many) - ER Diagram – Samples . Normalization : Benefits – Normal Forms - 1st Normal Form, 2nd Normal Form , 3rd Normal Form .	3 Hrs

1.5	**Database Administration : Server/client And Distributed concept:** DBA Tasks – DBA Tools/utilities – Data Base Maintenance – Backup and Recovery.	2 Hrs
UNIT-II MySQL Administration & Database Design		**15 HOURS**
2.1	**Installation of MySQL:**Features of MySQL- Download, Installing, Starting & Stopping connections to the MySQL server – Accessing MySQL – Command Line, Web Interface (PHP Myadmin) and Desktop Tools (MySQL workbench).	2 Hrs
2.2	**Working with MySQL Databases :** Creating (CREATE cmd), selecting (USE cmd) And describing database (DESC cmd)- SHOW cmd - backing up databases.	3 Hrs
2.3	**Introduction to MySQL :** MySQL data types –Data Definition Commands: creating, altering, renaming, copying and deleting tables - temporary tables – Data manipulation commands : Insert, update & deleting rows. Data retrieval commands. MySQL Operators and Expressions : Types of operators –Arithmetic, comparison & logical operators - Pattern matching - Import and Export of data	4 Hrs
2.4	**Built-in Functions:** Single row functions - Aggregate functions – Conversion functions .	2 Hrs
2.5	**Querying the table:** Selecting rows using Where , Order by , group by & Having clauses. Sub-queries – operators used in sub-queries - correlated sub-queries.	3 Hrs
2.6	**Flow control :** IF(), IF NULL(),CASE,LOOP,LEAVE,ITERATE,REPEAT,WHILE	1 Hr
UNIT- III MySQL Performance Tuning		**11 HOURS**
3.1	**Indexes and sequences:** Creating index– primary key (single & multiple field) & foreign key, unique key, composite keys, full text indexing, leftmost indexing - dropping index.-Sequences: creating, altering and deleting sequences.	3 Hrs
3.2	**Performing multiple table retrieval using Joins & Unions:** Joins – definition – aliasing – Types of Joins: natural join, inner join, self-join, left join, right join. Unions: Definition – Types – Union, Union ALL, Union Distinct – order by and LIMIT handling.	3 Hrs
3.3	**Views:** Introduction – Advantages of Views- creating Views, Updating the Views, Deleting the Views.	2 Hrs
3.4	**User & Transaction management:** creating users, deleting users, renaming users, grant & revoke commands - Transactions – committing & rollback transactions – save points.	3 Hrs
UNIT- IV Storage Engines, Stored Program concept , Optimization & API's		**14 HOURS**
4.1	**Storage Engines:** MySQL Storage engines-Choosing the right engine - Types of storage engines - MyISAM, InnoDB & Memory – Features – Advantages and disadvantages of storage engines .	4 Hrs

4.2	**Stored Procedures & Functions:** Definition - Creating stored Procedures – Invoking - Dropping procedures -Creating and calling stored functions – Deleting stored functions - Advantages.	4 Hrs
4.3	**MySQL trigger & Cursor :** Use of trigger - Creating triggers - Types of trigger – Deleting triggers – Cursor – creation – deletion.	3 Hrs
4.4	**MySQL Optimizations:** Query optimization using EXPLAIN command.	1 Hr
4.5	**MySQL and web:** Need for own MySQL programs – MySQL's Application Programming Interfaces.	2 Hrs
UNIT - V Data warehousing & Introduction to Big data		**11 HOURS**
5.1	**Data warehousing :** Functions of Warehouse – Architecture – Applications – Data mining concepts.- Advantages.	3 Hrs
5.2	**Big Data :** Definition – Characteristics – Various Technologies used - Applications - Overview of NoSQL : Difference between RDBMS and NoSQL – Tools used in Big Data, Scalability, Understanding storage architecture .	4 Hrs
5.3	**Types of Data stores in NoSQL:** Column oriented data store, Document Store, Key value Store & Graph store - create, access, update and delete data - Querying NoSQL Stores. Using NoSQL in the cloud - Amazon Simple DB	4 Hrs

TEXT BOOK

Sl.No.	Title	Author	Publisher
1.	MySQL	Paul DuBios	Addison Wesley (Fourth Edition)
2.	Database System Concepts	Silber Schatz A. and Korth H	McGraw Hill Education (India) Pvt Limited, Sixth Edition
3.	Murach's MySQL	Joel Murach	Shroff / Murach(2012)
4.	NO SQL Distilled	PRAMOD J. SADALAGE MARTIN FOWLER	Addison Wesley (First Edition)

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M– SCHEME

V SEMESTER

2015 –2016 onwards

35253 – COMPONENT BASED TECHNOLOGY

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35253

Semester : V

Subject title : COMPONENT BASED TECHNOLOGY

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 15 Weeks

Subject	Instruction		Examination			Duration
	Hours/ Week	Hours/ Semester	Internal Assessment	Board Examination	Total	
Component based Technology	4	60	25	75	100	3 Hours

UNITS AND ALLOCATION OF HOURS

UNIT No.	TOPIC	No. of Hours
I	INTRODUCTION TO .NETFRAMEWORK	10
II	INTRODUCTION TO C#	10
III	WINDOW APPLICATION USING WINDOW FORMS	10
IV	APPLICATION DEVELOPMENT USING ADO.NET	10
V	XML	10
	TEST AND REVISION	10
	TOTAL	60

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 C#.Net is covered in this course. Concepts of developing Window applications using C#.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 C#.
- Describe the basic structure of a C#.NET project and use the main features of the integrated development environment (IDE).
- Use the new language features and syntax in C# .NET.
- Explain the basic concepts and terminology of object-oriented design specifically for C#.NET.
- Explain and use the basic concepts and terminology of object-oriented programming in C# .NET.
- Create applications by using Microsoft Windows Forms.
- Create applications that use ADO.NET.
- Create components in C# .NET.
- Set up and deploy various types of C# .NET-based applications.
- Develop Window applications using XML as back end database

Detailed Syllabus

UNIT–I INTRODUCTION TO .NET FRAMEWORK		**…. 10 Hours**
1.1	**Introduction to .NET framework:** Dot Net Architecture – Managed Code and the CLR –Intermediate Language, Metadata and JIT Compilation–Automatic Memory Management.	3 Hrs
1.2	**Introduction to.NET framework:** Common Type System(CTS) – Common Language Specification (CLS) – Assembly –Namespace .	3 Hrs
1.3	**Visual Studio .NET**– Using the .NET Framework. Exploring the Visual Studio Integrated Development Environment – System requirement – Versions	2 Hrs
1.4.	**The Framework Class Library**-.NETobjects – ASP.NET-.NET web services–Windows Forms	2 Hrs
UNIT–II INTRODUCTION TO C#		**…. 10 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	3 Hrs
2.2.	**Loop statements**– while..end while, do..loop, for..next, for..each..next.	2 Hrs
2.3.	**Types:** Value data types – Structures, Enumerations. Reference data types – Single dimensional– Multi-dimensional arrays–Jagged arrays– Dynamic arrays	2 Hrs
2.4	**Classes & objects** –Abstract & override methods – Creating and using your own classes – Data members and member methods – Instantiate an object –This keyword	3 Hrs
UNIT–III WINDOW APPLICATION USING WINDOW FORMS		**…. 10 Hours**
3.1	**Windows programming**–Creating windows Forms–Working with Toolbox Controls– Button, Check Box, Combo Box, Label, List Box, Radio Button, Text Box, Group Boxes, Picture Box	3 Hrs
3.2.	**Advanced Controls & Events** : Timer , Progress Bar, Month Calendar , ToolTips, Tab Controls, Panels -Events–Click, Close, Deactivate, Load, MouseMove, MouseDown, MouseUp, Keypress ,KeyDown, KeyUp.	2 Hrs
3.3	**Multiple Document Interface (MDI) Forms** – Creating MDI Applications – Creating MDI Child Windows –Arranging MDI Child Windows	2 Hrs
3.4	**Menus and Dialog Boxes** – Creating menus – Menu items – Creating Submenus , Menu Shortcuts, Context menu – Using dialog boxes – show Dialog() method.	3 Hrs
UNIT–IV APPLICATIONDEVELOPMENTUSINGADO.NET		**…. 10 Hours**
4.1	**FeaturesofADO.NET.** Architecture ofADO.NET– ADO.NET providers– connection – Command–Data Adapter–Dataset.	3 Hrs
4.2	**AccessingDatawithADO.NET: c**onnecting to Data Source, Accessing Data with Data set and Data Reader– Modifying Table data using Command Objects – Understanding Data Set and working with Data Column and DataRow – Data Tables - Working with Data GridView	4Hrs
4.3	**Create an ADO.NET application**– Using Stored Procedures.	3 Hrs
UNIT–VXML		**…. 10 Hours**
5.1	**Introduction:** Advantages –HTML Vs XML–Browsing and parsing XML– Creating a XML file–Datails and–Wellformed XML document–XML components-elements– Entities–Comments–Processing instructions–Attributes	3 Hrs

5.2.	**DTD:** Declarations in DTD: Element, Attribute, Entity and Notation– Construction of an XML document – XML Namespaces –Declaring name spaces –Default namespaces – XML schema–Need and use of Schema– Building blocks–Simple elements–Defining attributes–Complex elements	4 Hrs
5.3.	**XMLwith.NET:**XMLSerializationinthe.NETFramework–SOAPFundamentals– Using SOAP with the .NET Framework.	3 Hrs

TEXTBOOKS

Sl.No	TITLE	AUTHOR	PUBLISHER	Yearof Publishing/Edition
1.	Programming In C#, 3E	E. Balagurusamy	Tata McGraw-Hill Education,	2010
2.	Applications of .NET Technology	ISRD Group	TMGH Education Pvt Ltd.,New Delhi	2011

REFERENCES

S.No	Title	Author	Publisher	YearofPublishing/ Edition
1.	IntroducingMicrosoft.NET	David S.Platt	Microsoft Press	SaarcEdition,2001

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M – SCHEME

V SEMESTER

2015 –2016 onwards

35271- CLOUD COMPUTING

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35271

Semester : V

Subject title : CLOUD COMPUTING

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	Instructions		Examination			
CLOUD COMPUTING	Hours / Week	Hours / Semester	Marks			Duration
	4 Hrs	60 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	3 Hrs

UNITS AND ALLOCATION OF HOURS

UNIT No.	TOPIC	No. of Hours
I	CLOUD COMPUTING BASICS	7
II	CLOUD COMPUTING ARCHITECTURE & SERVICES, APPLICATIONS	12
III	VIRTUALIZATION	12
IV	STORAGE MANAGEMENT	11
V	SECURITY IN THE CLOUD	8
	TEST AND REVISION	10
	TOTAL	60

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

- 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 and List the benefits of cloud computing
- To understanding Cloud architecture
- To Know the Cloud services and benefits
- To Understanding the concepts of Virtualization
- To Understanding Virtualization Tools
- Analyze the role technology plays in the design of a storage solution in a cloud architecture
- Investigate how a global storage solution can be optimized so that it can be delivered successfully from the cloud
- Analyze how best to provide reliable access to information both locally and remotely using storage technologies

DETAILED SYLLABUS

UNIT I	**CLOUD COMPUTING BASICS (Book 1)**	**7 Hrs**
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	3 Hrs
1.2	Architectural influences – High-performance computing , utility and enterprise grid computing , Autonomic computing , Service consolidation , Horizontal scaling Web services ,High scalability architecture.	2 Hrs
1.3	Cloud scenarios**(Book 2)**– Benefits - scalability , simplicity , vendors ,security. Limitations – Sensitive information , Application development – Security concerns -privacy concern with a third party , security level of third party , security benefits. Regularity issues – Government policies	2 Hrs
UNIT II	**CLOUD COMPUTING ARCHITECTURE & SERVICES (Book 1)**	**12 Hrs**
2.1	Cloud architecture: Cloud delivery model – SPI framework , SPI evolution , SPI vs. traditional IT Model.	2 Hrs
2.2	Software as a Service (SaaS): SaaS service providers – Web Services – Web 2.0 – Web Operating system -Google App Engine, Salesforce.com and google platfrom – benefits – Operational benefits, Economic benefits – Evaluating SaaS	2 Hrs
2.3	Platform as a Service (PaaS): Cloud Plat form & Management – Computation	

	& Storage - PaaS service providers – Right Scale – Salesforce.com – Rackspace – Force.com – services and benefits.	3 Hrs
2.4	Infrastructure as a Service (IaaS): IaaS service providers –Amazon EC2 , GoGrid – Microsoft soft implementation and support – Amazon EC service level greement – recent developments – benefits.	3Hrs
2.5	Cloud deployment model : Public clouds – private clouds – community clouds – hybrid clouds - Advantages of Cloud computing.	2 Hrs
UNIT III Virtualization		**12 Hrs**
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	3 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	2 Hrs
UNIT IV STORAGE MANAGEMENT		**11 Hrs**
4.1	Storage Network: Architecture of storage, analysis and planning. Storage network design considerations;	3 Hrs
4.2	NAS and FC SANs, hybrid storage networking technologies (ISCSI, FCIP, FCoE), design for storage virtualization in cloud computing,	4 Hrs
4.3	File systems or object storage.	4 Hrs
UNIT V SECURITY IN THE CLOUD		**8 Hrs**
5.1	Understanding Cloud Security - Securing the Cloud - Security service boundary: CSA Cloud Reference Model - Securing Data – Brokered cloud storage access - Storage location and tenancy – Encryption (Book 3)	5 Hrs
5.2	Cloud Computing Security Challenges - Security Policy Implementation - Policy Types - Virtualization Security Management - Virtual Threats **(Book 1)**	3 Hrs

TEXT BOOK

Sl.No.	Title	Author	Publisher
1	CLOUD SECURITY: A Comprehensive Guide to Secure Cloud Computing	Ronald L. Krutz Russell Dean Vines	Wiley Publishing, Inc
2	Cloud Computing A practical Approach 2008 Edition	Cloud Computing A practical Approach	Tata McGrawHill
3.	Cloud Computing Bible	Barrie Sosinsky	Wiley Publishing, Inc.

DIRECTORATEOF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M– SCHEME

V SEMESTER

2015 –2016 onwards

35272 – SOFTWARE ENGINEERING

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35272

Semester : V

Subject title : SOFTWARE ENGINEERING

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	Instructions		Examinatio			Duration
	Hours / Week	Hours / Semester	Internal Assessment	Board Examination	Total	
SOFTWARE ENGINEERING	4	60	25	75	100	3 Hrs

TOPICS AND ALLOCATION OF HOURS

Unit No	Topic	No of
I	INTRODUCTION TO SOFTWARE ENGINEERING	**10**
II	SOFTWARE DESIGN AND PLANNING	**10**
III	SOFTWARE MAINTENANCE AND RISK MANAGEMENT	**10**
IV	SOFTWARE TESTING	**10**
V	SOFTWARE RELIABILTY AND QUALITY ASSURANCE	**10**
TEST AND REVISION		**10**
TOTAL		60

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 mange 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 .. 10 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.	4 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	4 Hrs
UNIT – II SOFTWARE DESIGN AND PLANNING ……. 10 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	3 Hrs
2.2.	**CODING:** Information Hiding – Programming style – Internal documentation – Monitoring and Control for coding – Structured	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.	3 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.	2 Hrs
UNIT – III SOFTWARE MAINTENANCE AND RISK MANAGEMENT ……. 10 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	5 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	3 Hrs
3.3.	**Project scheduling** : Introduction – Factors affecting the task set for the project – scheduling methods – Work breakdown structure – Flow graph – Gant chart - PERT	2 Hrs
UNIT – IV SOFTWARE TESTING ……. 10 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.	2 Hrs
4.2.	**Levels of testing:** Unit testing - Integration tests – System testing – Types.	2 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.	2 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 ……. 10 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	5 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	28th Printing – August 2011

3.	Software Engineering	Bharat Bhusan Agarwal, Sumit Prakash Tayal	Firewall Media, New Delhi	Second Edition 2008
4.	Software Testing	K.Mustafa and R.A.Khan	Narosa Publishing House, New Delhi	Reprint 2009
5.	Software Quality	R.A. Khan, K.Mustafa and SI	Narosa Publishing House, New Delhi	Reprint 2008
8.	Software Engineering	Stephen Schach	TMGH Education Pvt Ltd, New Delhi	Eight Reprint 2011
7.	Software Engineering fundamentals	Ali Behforooz and Fredick J Hudson	Oxford University press,	2005
8.	Software Testing Principles and Practices	Srnivasan desikan, Gopalswamy Ramesh	Pearson	First Edition
9.	Suftware Testing Concepts and Tools	Nageshwara Rao Pusulri	DreamTeach	First Edition
10.	Software Engineering Concepts and application	Subhasjit Dattun	OXFORD University Press	2010
11.	Software Engineering	Rohit Khurana	Vikas Publishing	Second Edition

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M– SCHEME

V SEMESTER

2015 –2016 onwards

35255 –WEB PROGRAMMING PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35255

Semester : V

Subject title : WEB PROGRAMMING PRACTICAL

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
WEB PROGRAMMING PRACTICAL	4 Hrs	60 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	3 Hrs

Objectives:

- Create web pages using simple HTML tags
- Create web pages using HTML5 and advanced HTML tags.
- Create web pages with CSS3
- Create simple Java script codes.
- Design web pages using JSP and HTML codes.
- Use of CSS to develop rich Web applications

LAB EXERCISES

PART-A	
1.	Design a HTML page describing your profile in one paragraph. Design in such a way hat 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	Develop a web page using CSS to create a time table for the class using different border style
5.	a)Write a Java script code that converts the entered text to uppercase b)Write a Java script code to validate the username and password. The username and password are stored in variables
6.	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)
7.	Create a site containing banner advertisement at the top of the page. The ads are changed every 10 or 15 seconds
8.	Write Jquery Program for Count the number of milliseconds between the two click events on a paragraph
9.	Write Jquery Program for Fade in and fade out all division elements
10.	Write Jquery Program for Disable/enable the form submit button&Blink the text.
PART-B	
11.	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.
12.	Write a JSP code to manipulate cookies
13.	Write a JSP code to upload data from client side.
14.	Write a program to check how many users have visited a website. Use Application object.
15.	Write a Code in Java Script to count number of times you move over a link or record.

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

HARDWARE REQUIREMENT	SOFTWARE REQUIREMNT
Desktop Computers – 36 Nos Printer – 1 No	4. Notepad or any Text Editor 5. HTML5 supporting browsers (Any one) • Internet Explorer 10 • Opera 11.60 • Chrome 19 • Safari 5.1

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M– SCHEME

V SEMESTER

2015 –2016 onwards

35256 – RELATIONAL DATABASE MANAGEMENT SYSTEM PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

(Implemented from the academic year 2016-2017 onwards)

Course Name : Diploma in Computer Engineering.

Subject Code : 3525**6**

Semester : V

Subject title : RELATIONAL DATABASE MANAGEMENT SYSTEM PRACTICAL

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	**Instructions**		**Examination**			
RELATIONAL DATABASE MAANGEMENT SYSTEM	Hours / Week	Hours / Semester	Marks			Duration
	6 Hrs	75 Hrs	Internal Assessment	Board Examination	Total	
			25	75	100	3 Hrs

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 warehousing , Big Data 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 procedures and functions .
- Create and use Triggers.
- Understanding Data warehousing & Introduction to Big data and NoSQL

LAB EXERCISES

PART - A

1) Install, configure and connect to **MySQL server and MySQL workbench** in Windows. Create a database, backup and restore the database.

2) Create a simple database for Social Networking Platform with the following entities.

   a. users - table

   id - auto increment, primary key field
   username - varchar (60)
   email - varchar(255)
   address - varchar(150)
   dob - timestamp
   is_active - TINY INT
   registered_on - timestamp
   last_logged_on - timestamp

   b. friends - table_name

   id - auto increment, primary key field
   user_id - unsigned INT, NOT NULL
   friend_name - varchar(60)

   c. users_profiles

   id -
   user_id
   location

   Perform the following operations on above entities.

   i) Create table with fields of appropriate datatypes.
   ii) Verify the table created using DESCRIBE command
   iii) Insert 10 users and some friendship data in friends table
   iv) Add a 'gender' field of type CHAR(1). Allow NULL values for this field.
   v) Rename friends table to users_friends
   vi) Modify the dob field type to date_of_birth.
   vii) Remove the field is_active
   viii) Drop the table users_profiles

3) Perform the following operations on database created in **Ex.no.2** using **SELECT command.**

   i) Fetch the most recent 5 registered users.
   ii) Fetch all the friends of user_id user x
   iii) Fetch all the users who are above 21 years old.
   iv) Find the count of users who signed-up with gmail Id. (ie. users' email ends with @gmail.com)
   v) Fetch all the users who registered last month.

vi) Fetch all users of ‘Chennai’ location .
vii) Find actively monthly and weekly users count. ie. Count of users who have logged-in in the last 15 days.
viii) Find how many users who have not mentioned their gender.

4) a) Create a database **' Polytechnic_College '** .Create 2 users namely ‘Staff’ and ‘student’.

- Grant all privileges to the user 'Staff ‘and grant only ‘create’ privilege to ‘student’ user and verify the same .
- Revoke all privileges to the 2 users and verify the same.

b) Implement the following transaction control statements
i) Commit ii) Rollback iii) Save point

5) Create a table **‘author’** with the following structure
author_id
author_name
address
mobile
book_title
pages
published_on

i) Insert 4 books published by 3 authors each. (12 records)
ii) Fetch all the rows and observe how the data duplicated.
iii) Apply 1st and 2nd normal forms to fix it.

6) Create table, **"mail"** with the following fields

```
t  DATETIME,  # when message was sent
srcuser VARCHAR(8),  # sender (source user and host)
srchost VARCHAR(20),
dstuser VARCHAR(8),  # recipient (destination user and host)
dsthost VARCHAR(20),
size  BIGINT,  # message size in bytes
```

i) Sort the mail with the largest mail being first.
ii) List the mails that is over 25 MB
iii) Remove the duplicate rows from result set.
iv)Execute a 'SELECT' query and store its result in a user defined variable. Use another ‘SELECT' to display the value of the variable.

7) Create two tables with the following structure.

a) Requests table
request_id - UNSIGNED, INT, AUTO INCREMENT, PRIMARY KEY
from_id - INT
to_id - INT

b) requests_log table

request_id - FOREIGN KEY refers to request_id field of requests table
request_status - enum("PENDING", "APPROVED", "REJECTED")

Create a view combining both tables to display all the requests along with their most recent status for the requests.

8) Create a library Table with proper fields. Create another table called Library1 and insert rows from Library table.

Hint:
CREATE TABLE new_table LIKE original_table;
INSERT INTO new_table SELECT * FROM original_table;

PART – B

9) Create a table to store the details of a customer in a Bank. Do some transactions like withdrawal, deposit. Find the Balance amount(Credit Limit). Based on customer's credit limit, write a program using **IF** or **CASE** flow control statements to find the customer levels namely `SILVER`, `GOLD` or `PLATINUM`.

If the Credit limit is

- greater than 50K, then the customer level is PLATINUM
- less than 50K and greater than 10K, then the customer level is GOLD
- less than 10K, then the customer level is SILVER

10) Create two tables with the following structure.

a) users - table name

user_id - UNSIGNED, INT, AUTO INCREMENT, PRIMARY KEY
username - VARCHAR (60)
password - VARCHAR (128)
email - VARCHAR (255)

b) users_profiles

user_id - FOREIGN KEY refers to user_id field of user table
first_name - VARCHAR(60)
last_name - VARCHAR(60)
mobile - VARCHAR(15)

i) SELECT all the users along with their profile details. (Hint: Use INNER JOIN)
ii) SELECT the users who do not have profiles (Hint: USE LEFT JOIN and exclude the rows generated with NULL values from joining table)

11) Create an employee database and create a stored procedure that accepts employee_Id as input and returns complete details of employee as output.

12) Create two tables with the following structure

Authors

author_id - INT
name VARCHAR (60)
titles_count INT -- holds the total number numbers of titles authored

Titles

author_id - INT
Name VARCHAR (512) -- name of the title

a. Create a trigger to update the titles count field of respective row in authors table each time a title gets inserted into titles table.
b. Create a **log table** with the following structure

author_id - INT
Name VARCHAR (512) -- name of the title
Status VARCHAR(25) --- ADDITION,DELETION,UPDATION

and insert an entry in that table each time the tile is added, deleted or updated. Use a trigger to accomplish this.

13) Create a table containing phone number, user name, address of the phone user. Write a **function** to search the address using phone number.

14) 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.

15) 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.

SCHEME OF VALUATION

Writing answer for any one program from PART - A	10 Marks
Writing answer for any one program from PART - B	20 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
VIVA - VOCE	5 Marks
TOTAL	75 Marks

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M– SCHEME

V SEMESTER

2015 –2016 onwards

35257 – COMPONENT BASED TECHNOLOGY PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(To be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35257

Semester : V

Subject title : COMPONENT BASED TECHNOLOGY PRACTICAL

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 15 Weeks

Subject	Instructions		Examination			
COMPONENT BASED TECHNOLOGY PRACTICAL	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
	6 Hrs	90 Hrs	25	75	100	3 Hrs

OBJECTIVES

- On completion of the following exercises, the students must be able to
- Develop and execute simple programs using C#.NET
- Understand the concepts of event handlers.
- Know the usage of various C#.Net controls
- Create C#.NET applications using menus.
- Access SQL database by using ADO.NET
- Use Form controls.
- Create Window applications using C#.NET form controls
- Develop XML database handling methodologies
- Accept a character from console and check the case of the character.

LIST OF EXPERIMENTS

PART-A

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 program to accept a string and convert the case of the characters.
4. Develop a menu based 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 to pick a date from Calendar control and display the day, month,year details in separate text boxes.
7. Develop a application to perform timer based quiz of 10 questions.
8. Develop a 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 application using Datagrid to display records.
12. Develop a application using Datagrid to add, edit and modify records.

PART-B

1. Develop a application to read the details of the selected country stored in XML database and display back to the user
2. Develop a Window application to read an XML document containing subject, mark scored, year of passing into a Dataset
3. Develop a Window application to read an XML document containing employee name,code,Basic pay, HRA, DA into a Dataset
4. Develop a Window application to read employee records from Database and generate XML document containing employee records
5. Develop a Window application to read students records from Database using ADO.NET and generate XML document containing students records

SCHEME OF VALUATION

Writing answer for any one program from PART - A	10 Marks
Writing answer for any one program from PART - B	20 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
VIVA - VOCE	5 Marks
TOTAL	75 Marks

HARDWARE REQUIREMENT	**SOFTWARE REQUIREMNT**
1.Desktop Computers – 36 Nos 2. Printer – 1 No	1.Visual Studio 2008/2012/2013/2015 2.Microsoft SQL Server 2005/2008 or above

SEMESTER - VI

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M– SCHEME

VI SEMESTER

2015 –2016 onwards

35261 – COMPUTER HARDWARE AND SERVICING

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35261

Semester : VI

Subject title : **COMPUTER HARDWARE AND SERVICING**

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 15 Weeks

Subject	Instructions		Examination			Duration
	Hours / week	Hours / semester	Internal Assessment	Board Examination	Total	
COMPUTER HARDWARE AND SERVICING	6	90	25	75	100	3 Hrs

TOPICS & ALLOCATION OF HOURS :

Unit No.	Topics	Time (Hours)
I	MOTHERBOARD COMPONENTS	15
II	MEMORY & I/O DEVICES	15
III	DISPLAY, POWER SUPPLY & BIOS	15
IV	MAINTENANCE & TROUBLESHOOTING OF DESKTOP AND LAPTOP COMPUTERS	17
V	MOBILE PHONE SERVICING	18
TEST AND REVISION		10
TOTAL		90

RATIONALE:

A Computer Engineer should be able to install and maintain Keyboard, Printer, Mouse, Monitor, etc. along with the computer system. Additionally he should also be able to maintain and service mobile phones. 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. The student will also get to know about how Mobile phones are maintained. This subject provides the required background of installation, maintenance and testing of peripheral with Computers and Laptops. This also provides the background of installation and troubleshooting of Mobile Phones.

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 operation, working principle and troubleshooting of devices like Dot matrix, Inkjet, Laser, Thermal, MFP Printers.
- 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.
- Know and explain the major components of Laptop.
- Trouble shoot the problems in Laptop.
- Understand the basic components and tools used in servicing of Mobile phones.
- Know to install the software required for mobile phones and to maintain it.
- Troubleshoot the problems in Mobile Phones.

DETAILED SYLLABUS

UNIT – I MOTHERBOARD COMPONENTS		**……. 15 HOURS**
1.1	**Motherboard components:** Processor sockets/slots – Memory 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.	5 Hrs

1.2	**Mother Board:** Architecture and block diagram	2 Hrs
1.3	**Processors:** Introduction –Core2 Duo processor, Quad core processor, Core i3, i5, i7 series, AMD A10 series, 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, & Processor Bus.	2 Hrs
UNIT – II MEMORY AND I/O DEVICES ……. 15 HOURS		
2.1	**Primary and Secondary Memory**: Introduction - Memory speed - Access time - Wait states. Main Memory – types - Memory errors. Hard Disk: Introduction – Construction – Working Principle – File Systems – Formatting and Troubleshooting.	4 Hrs
2.2	**Removable Storage and Special Devices:** DVD-ROM – Recordable DVD - Rewritable DVD. Blu-ray: Introduction - Blu-ray Disc Parameters - Recording and Playback Principles. Special drives: External drives, Memory stick, USB flash drive, Solid state drive.	4 Hrs
2.3	**Keyboard and Mouse:** Keyboard**:** Interfacing and Signals (USB, Wireless), Types of keys, Keyboard Matrix, Key bouncing, Types of keyboard (Simple, Mechanical). Mouse: Optical mouse operation – Optical mouse cleaning – Troubleshooting flowchart for a mouse.	4 Hrs
2.4	**Printers and Scanners:** Printer: Introduction – Types of printers – Dot Matrix, Inkjet, Laser, Thermal, MFP printer (Multi Function Printer) - Operation and Troubleshooting. Scanner: Introduction, Scanner mechanism, working principle – Types of Scanners (Barcode, Handheld, Flatbed) – Preventive maintenance and Troubleshooting.	3 Hrs
UNIT– III DISPLAY, POWER SUPPLY and BIOS ……. 15 HOURS		
3.1	**Displays and Graphic Cards:** Displays: LCD Principles – Plasma Displays – TFT Displays **-** LED Displays. Graphic Cards: Video capture card.	4 Hrs
3.2	**SMPS:** Block diagram – Basic Principles and Operations – O/P Voltage – Cable color code – Connectors and Power Good – Common Failures (No circuit diagram to be discussed)	4 Hrs
3.3	**Bios:** Bios functions – Cold and Warm booting – BIOS error codes – BIOS interrupts – BIOS advanced setup. Upgrading BIOS, Flash BIOS-setup. Identification of different BIOS (AMI, AWARD BIOS).	5 Hrs
3.4	**POST:** Error, Beep Codes, Error messages, Post – Faults related to Hardware.	2 Hrs
UNIT – IV MAINTENANCE AND TROUBLESHOOTING OF DESKTOP & LAPTOP COMPUTERS ……. 17 HOURS		

4.1	**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
4.2	**Laptop components:** Adapter – Types, Battery –Types and basic problems, RAM– types, CPU – types, Laptop Mother Board - block diagram, Laptop Keyboard.	2 Hrs
4.3	**Installation and Troubleshooting:** Formatting, Partitioning and Installation of OS –Trouble Shooting Laptop and Desktop computer problems.	5 Hrs
4.4	**Preventive Maintenance and Upgrading:** Preventive Maintenance: Tools required –active and passive maintenance – Types of Diagnostics software – Preventive Maintenance Schedule. Upgrading of Systems: Motherboard, Memory, CPU, Graphics Card, BIOS up gradation and Updating of System & Application software.	7 Hrs
UNIT – V MOBILE PHONE SERVICING	**…… 18 HOURS**	
5.1	**Mobile phone components:** Basics of mobile communication, Components: battery**-** antenna-ear piece- microphone -speaker-buzzer-LCD- keyboard. Basic circuit board components – Names and functions of different ICs used in mobile phones.	4 Hrs
5.2	**Tools & Instruments used in mobile servicing:** Mobile servicing kit -- soldering and de-soldering components using different soldering tools - Use of multi-meter and battery booster.	4 Hrs
5.3	**Installation & Troubleshooting:** Assembling and disassembling of different types of mobile phones – Installation of OS - Fault finding & troubleshooting- Jumper techniques and solutions.	5 Hrs
5.4	**Software**: Flashing- Formatting- Unlocking -Use of secret codes- Downloading- Routing.	3 Hrs
5.5	**Diagnostic Software and Viruses:** Mobile Viruses – Precautions – Antivirus Software.	2 Hrs

REFERENCES

S.No.	Title	Author	Publisher	Year of Publishing / Edition
1	Computer Installation and Servicing	D.Balasubramanian	TataMc-Graw Hill, New Delhi	Second Edition 2010
2	PC Repair and Maintenance	Joel Rosenthal	Fire wall Media, New Delhi	First Edition 2007 Reprint : 2012
3	Modern Computer Hardware	Manahar Lotai,	BPB	Second Revised

	Course	Pradeep Niar, Payal Lotia	Publication, New Delhi	and Updated Edition 2011
4	Troubleshooting, Maintaining and Repairing PCs	Stephen J.Bigelow	TMH, New Delhi	Fifth Edition
5	PC Hardware in a nutshell	Robert Bruce Thompson.	O'Reilly Media	Third Indian Reprint 2008.
6	The Laptop Repair Workbook: An Introduction to Troubleshooting and Repairing Laptop Computers.	Morris Rosenthal	Foner books	First Edition 2008
7	The Cell Phone Handbook	P.J. Stetz and Penelope Stetz	FindTech Ltd	Second Edition
8	Advanced Mobile Repairing	Pandit Sanjib	BPB Publication, New Delhi	First Edition 2010

DIRECTORATE OF TECHNICALEDUCATION

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M– SCHEME

VI SEMESTER

2015 –2016 onwards

35262 – MOBILE COMPUTING

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35262

Semester : VI

Subject title : **MOBILE COMPUTING**

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Internal Assessment	Board Examination	Total	
MOBILE COMPUTING	5	75	25	75	100	3 Hrs

Topics and Allocation of Hours:

Sl.No	Topic	Time (Hrs)
1	Introduction to Mobile Computing , WiFi , Bluetooth	11
2	Introduction to GSM , SMS ,GPRS , Mobile OS	11
3	Introduction to ANDROID	15
4	VIEWs	14
5	Location Based Service and SQLite	14
	TEST AND REVISION	10
	TOTAL	75

Rationale:

Knowing the details of Mobile and their working principle are need of the every common man. Mobile Application development is the very hot business domain. Majority of the corporate have a separate division for the development of mobile applications. It is imperative that students must know the way to apply advanced data communicating methods and networking protocols for wireless and mobile devices.

Students must utilize and employ application frameworks for developing mobile applications including under disconnected and weakly connected environment They should be in a position to

select components and networks for particular application , creatively analyze mobile and wireless networks and critically analyze security issues of mobile and wireless computing systems

Objectives:

- To introduce the characteristics, basic concepts and systems issues in mobile Computing
- To illustrate architecture and protocols in Mobile computing and to identify the trends and latest development of the technologies in the area
- To understand the network protocols governing the mobile communication
- To know the different kinds of mobile OS prevailing in the market
- To know Android OS in detail
- To understand the components of a Mobile App.
- To give practical experience in the area through the development of Mobile apps
- To design successful mobile computing applications and services
- To evaluate critical design tradeoffs associated with different mobile technologies, architectures, interfaces and business models and how they impact the usability, security, privacy and commercial viability of mobile and pervasive computing services and applications
- To know the development of Mobile apps using database

DETAILED SYLLABUS

UNIT -I Introduction to Mobile Computing , WiFi , Bluetooth		**11 Hrs**
1.1	Introduction : Evolution of Mobile Computing – Important terminologies – Mobile computing functions – Mobile computing Devices – Networks: Wired , Wireless , Adhoc - Comparison of wired and wireless mechanism - Various types of wireless communication technologies used in Mobiles, Antennas	3 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	1 Hrs
1.4	Wireless LAN: Introduction - Applications of WLAN – Infrared versus Radio transmission – Features of WI-FI and WI-MAX – Bluetooth : Introduction and application	3 Hrs
UNIT-II Introduction to GSM , SMS ,GPRS , Mobile OS		**11 Hrs**
2.1	Global System for Mobile Communication (GSM): Introduction – GSM Architecture – GSM Entities (Basics only) – Introduction to CDMA	2 Hrs
2.2	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
2.3	General Packet Radio Service (GPRS): Introduction – GPRS Packet data Network : Applications for GPRS : Generic Applications, GPRS Specific Applications – Limitations of GPRS – Features of 3G and 4G Data Service	3 Hrs

2.4	Mobile Operating Systems : Evaluation of Mobile Operating System-Handset Manufactures and their Mobile OS- Mobile OS and their features. Linux Kernel based Mobile OSr	3 Hrs
UNIT-III Introduction to ANDROID		**15 h**rs
3.1	ANDROID : Android Versions – Features of Android – Architecture of Android – Android Market – Android Runtime (Dalvik Virtual Machine)	4 Hrs
3.2	ANDROID SDK & ADT : Android SDK – Android Development Tool (ADT) – Installing and configuring Android – Android Virtual Device (AVD)	3 Hrs
3.3	ACTIVITIES & INTENTS : Understanding Activites – Linking activities and indents – Calling built-in applications using intents – Fragments Displaying Notifications	4 Hrs
3.4	User Interface : Views and Viewgroups – Layouts – Display Orientation – Action Bar – Listening for UI Notifications	4 Hrs
UNIT-IV VIEWs		
4.1	Basic Views : Textview, Button, Image Button, EditText, CheckBox, ToggleButton, RadioButton and RadioGroup Views, ProgressBar View, Auto Complete Text View	4 Hrs
4.2	Advanced Views : Time Picker View and Date Picker View – List Views – Image View – Menus – Analog and Digital View – Dialog Boxes	4 Hrs
4.3	Displaying Pictures & Menus with Views: Image View – Gallery View – ImageSwitcher – GridView - Creating the Helper Methods – Options Menu – Context Menu	4 Hrs
4.4	SMS, Phone: Sending SMS – Receiving SMS – Making phone call	2 Hrs
UNIT V Location Based Service and SQLite		
5.1	Location Based Services : Obtaining the Maps API Key- Displaying the Map – Zoom Control – Navigating to a specific location – Adding Marker – Geo Coding and reverse Geo coding	5 Hrs
5.2	Content Provider : Sharing data – view contacts – Add contacts – Modify contacts – Delete Contacts	3 Hrs
5.3	Storage : Store and Retire data's in Internal and External Storage – SQLite - Creating and using databases	2 Hrs
5.4	Android Service : Consuming Web service using HTTP , downloading binary Data – Downloading Text Content – Accessing Web Service	4 Hrs

TEXT BOOK

Sl.No.	Title	Author	Publisher
1.	Beginning Android 4 Application Development	Wei-Meng Lee	Wiley India Edition

2.	Android Apps for Absolute Beginners	Jackson	Apress
3	Mobile Computing	Computing Asoke K Talukder, Hasan Ahmed, Roopa R Yavagal	TMGH
4	Mobile communications	Jochen schiller	Pearson Education,

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMAIN COMPUTER ENGINEERING

III YEAR

M– SCHEME

VI SEMESTER

2015 –2016 onwards

35281 – MULTIMEDIA SYTEMS

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35281

Semester : VI

Subject title : **MULTIMEDIA SYTEMES**

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 15 Weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Internal Assessment	Board Examination	Total	
MULTIMEDIA SYSTEMS	5	75	25	75	100	3 Hrs

Topics and Allocation of Hours:

Sl.No	Topic	Time (Hrs)
1	INTRODUCTION TO MULTIMEDIA	10
2	DEFINING OBJECTS FOR MULTIMEDIA SYSTEMS	10
3	MULTIMEDIA DATA AND STANDARDS	16
4	MULTMEDIA DEVICES AND MAKING MULTIMEDIA	16
5	MULTIMEDIA DESIGN, MULTIMEDIA FOR INTERNET	13
	TEST AND REVISION	10
	TOTAL	75

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:

- Students will be able 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		**10 Hours**
1.1	**Introduction :** Definition of multimedia, Multimedia Basics, Where to use Multimedia, Multimedia Elements –Multimedia Applications, Virtual Reality, Delivering Multimedia.	2
1.2	**Multimedia Systems Architecture**: Multimedia Workstation Architecture, High resolution Graphic displays, Multimedia Architecture Based on interface bus, Network architecture for Multimedia systems.	2
1.3	**Evolving Technologies For Multimedia Systems**: Hypermedia Documents, Hypertext, Hyper Speech, HDTV and UDTV, 3D Technologies and Holography,	2
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.	2
1.5	**Multimedia Software** :Overview of Multimedia Software Tools, Open Source Replacements, Multimedia OS, Multimedia Authoring, Some Useful Editing and Authoring Tools, VRML, OpenGL, Windows and Open Source API	2
UNIT II DEFINING OBJECTS FOR MULTIMEDIA SYSTEMS		**10 HOURS**

2.1	**Text:** About Fonts and Faces, Using Text in Multimedia, Hypermedia and Hypertext, Using Hypertext, Hypermedia Structures, Hypertext Tools.	2
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, 3-D Drawing and Rendering, Color, Understanding Natural Light and Color, Computerized Color, Color Palettes, Color Look-up table. Image Processing, Image acquisition, Image enhancement. Color image processing.	2
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.	2
2.4	**Animation**, the Power of Motion, Principles of Animation, Animation by Computer, Animation Techniques. animation using OpenGL	2
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.	2
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.	3
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
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
3.4	**Multimedia Databases**, Storage and Retrieval, Database Management systems, Database Organization and Transaction management for multimedia systems.	3
3.5	**Multimedia Information Sharing and Retrieval** - Social Media Sharing User-Generated Media Content Sharing - Media Propagation in Online Social Networks. Content-Based Retrieval in Digital Libraries	3
UNIT IV MULTMEDIA DEVICES AND MAKING MULTIMEDIA		**16 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

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.	5
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
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.	3
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
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
5.3	**Designing for the World Wide Web**: Developing for the Web, Small-Device Workspace, text and images for the Web, Clickable Buttons, Client-Side Image Maps, Sound for the Web, Animation for the Web, and Video for the Web, HTML5 Video - Plug-ins and Players.	3
5.4	Multimedia Communication and applications, Study of Multimedia networking, Quality of data transmission, Media on demand, Multimedia Over Wireless and Mobile Networks - Media Entertainment, web-based applications, e-learning and education-Cloud Computing for Multimedia Services - Cloud-Assisted Media Sharing	3

Text Books:

S.No.	Title	Author	Publisher	Year of Publishing / Edition
1	Fundamental of Multimedia	Ze- Nian Li and M. S. Drew.	Pearson Education	Second edition 2014
2	Multimedia: Making It Work.	Tay Vaughan	Tata-McGrawHill	Eighth Edition
3	Multimedia systems Design.	Prabhat k.Andleigh, Kiran Thakra	PHI.	

4	"Multimedia Computing, Communication andApplications",.	Ralf Steinmetz and Klara Nahrstedt	Pearson Education	
5	Multimedia Communication Systems: Techniques, Standards, and Networks	K.R. Rao	TMH	

Reference Books:

S.No.	Title	Author	Publisher	Year of Publishing / Edition
1	Computer Graphics Multimedia and Animation,	Malay K. Pakhira	PHI	second edition
2	Principles of Multimedia,	RanjanParekh	TMGH, New Delhi	
3	Multimedia Systems	John F. Koegel Buford	Pearson Education	
4	Multimedia Technology & Applications,	David Hillman	Galgotia Publications Pvt Ltd.	

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMAIN COMPUTER ENGINEERING

III YEAR

M– SCHEME

VI SEMESTER

2015 –2016 onwards

35282 – OPEN SOURCE SOFTWARE

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35282

Semester : VI

Subject title : **OPEN SOURCE SOFTWARE**

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 15 Weeks

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

TOPICS AND ALLOCATION OF HOURS			
UNIT NO.	**TOPIC**	**NO .OF HOURS**	**MARKS**
I	OVERVIEWOF OPEN SOURCE SOFTWARE AND OPERATING SYSTEM	10	20
II	OPEN SOURCE PROGRAMMING LANGUAGE – PHP	13	20
III	OPEN SOURCE DATABASE	12	20
IV	PYTHON	15	20
V	OPEN SOURCE SOFTWARE TOOLS AND TECHNOLOGIES	15	20
TEST & REVISION		10	
TOTAL		75	100

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 ApacheWeb 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	1.1Introduction **:** 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 1.2 Open source software operating systems – LINUX – features of linux – linux architecture - Linux advanced concepts 1.3 Open SPARC Project – Open source compilers – Model driven architecture – Eclipse IDE Platform
Unit – II	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 2.2 File and Directory Handling - Including Files - File Access 2.3Working With Forms -Processing Forms -Form Validation – Introduction to advanced PHP concept Simple programs Using PHP
Unit –III	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 3.2 PHP and SQL database: PHP and LDAP ; PHP Connectivity ; Sending and receiving emails 3.3PHP Database Connectivity: Retrieving data from MySQL - Manipulating data in MySQL using PHP
Unit – IV	4.1 Basic features of Python: Overview – Installing – Running in windows/Linux 4.2 Variables and Strings: Data types - Operators – Decision Control – Conditional Statements - Loops – Example Programs 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, Sets)Using modules – File Handling -Exception – Handling exception 4.4 Dictionaries : Introduction – Combining two dictionaries with UPDATE – Making copies – Persistent variables – Internal Dictionaries 4.5 Functions and Files : Functions - File Handling – Exception – Handling Exceptions

Unit – V	5.1 WEB SERVER : Apache Web server – Working with web server – Configuring and using apache web server 5.2. Open Source Software tools and Processors : Introduction – Eclipse IDE Platform – Compilers – Model driven architecture tools 5.3CASE STUDY: Government Policy toward OpenSource (E- Governance) – Wikipedia as an open Source Project

REFERENCE BOOKS:

Sl.No.	Name of the Book	Author	Publisher
1.	The Complete Reference Linux	Richard Peterson	TataMcGraw 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.	Programming PHP	Rasmus Lerdorf and Levin Tatroe	O'Reilly Publications2002 2002

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

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMAIN COMPUTER ENGINEERING

III YEAR

M– SCHEME

VI SEMESTER

2015 –2016 onwards

35264 – COMPUTER SERVICING AND NETWORK PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

(Implemented from the academic year 2016-2017 onwards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35264

Semester : VI

Subject title : **COMPUTER SERVICING AND NETWORK PRACTICAL**

SCHEME OF INSTRUCTION AND EXAMINATION:

No. of weeks per Semester: 15 Weeks

Subject	Instructions		Examination			Duration
	Hours / week	Hours / semester	Internal Assessment	Board Examination	Total	
COMPUTER SERVICING AND NETWORK PRACTICAL	4	60	25	75	100	3 Hrs

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.

- 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
- 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
- Install and configure Windows 2008 / 2013 Server
- Design Windows server Active directory Services.
- Install and configure server hardware devices.

LAB EXERCISES

PART A - COMPUTER SERVICING AND NETWORK PRACTICALS	
	Identification of system layout (Study Exercise) a) Front panel indicators & switches and front side & rear side connectors. b) Familiarize the computer system Layout: Marking positions of SMPS, Motherboard, HDD, DVD and add on cards. c) Configure bios setup program and troubleshoot the typical problems using BIOS utility.
1	HARD DISK 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-fragmentation, Virus Detecting and Rectifying Software.
2	a) Install and Configure a DVD Writer & Blu-ray Disc Writer. b) Recording a Blank DVD & Blu-ray Disc.
3	Printer Installation and Servicing a) Install and configure Dot matrix printer and Laser printer. b) Troubleshoot the above printers
4	Assemble a system with add on cards and check the working condition of the system and install Dual OS.
	Identification of mobile phone components (Study Exercise)

	a) Basic mobile phone components. b) Familiarizing the basic circuit board components: Marking position of different IC and Switches in the Network and Power sections of the PCB.
5	a) Assembling and Disassembling of Mobile Phones. b) Fault finding and troubleshooting of Ear piece, Microphone, Keypad and Display Sections of Mobile Phones.
6	Flashing, Unlocking and Formatting memory cards in Mobile phones.
7	Do the following cabling works in a network a) Cable Crimpling b) Standard Cabling c) Cross Cabling d) I/O Connector Crimping e) Testing the Crimped cable using a Cable tester
8	a) Configure Host IP, Subnet Mask and Default Gateway in a system in LAN (TCP/IP Configuration). b) Configure Internet connection and use IPCONFIG, PING / Tracert and Netstat utilities to Debug the Network issues.
9	a) Install and configure Network Devices: HUB, Switch and Routers b) Install and Configure Wired and Wireless NIC and transfer files between systems
10	Transfer files between systems in LAN using FTP Configuration. Install a printer in LAN and share it in the network.

PART B – SYSTEM ADMINISTRATION PRACTICAL	
11	Installation of Windows 2008 / 2013 Server.
12	Installation and configuration of DHCP Server.
13	Installation and configuration of Mail Server.
14	a) Installation of Red Hat Linux using Graphical mode. b) Installation of Red Hat Linux using VMware.
15	a) Configuring and troubleshooting of /etc/grub.conf b) Configuring and trouble shooting of /etc/passwd

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 - B	15 Marks
Executing Exercise (PART – A)	10 Marks
Executing Exercise (PART – B)	20 Marks
Result (PART – A)	5 Marks
Result (PART – B)	5 Marks
Demonstration of mini project	5 Marks
VIVA - VOCE	5 Marks
TOTAL	75 Marks

REQUIREMENTS

Hardware Requirements :	
Desktop Systems	30 Nos
Hard disk drive	06 Nos
DVD, Blu-ray Drive	06 Nos
Blank DVD , Blu-ray Disc	20 Nos
Head cleaning CD	
Dot matrix Printer	02 Nos
Laser Printer	02 Nos
Server	01 No
Mobile phones	06 Nos
Network Requirements:	
Crimping Tool	06 Nos
Screwdriver set	06 Nos
Network Cables	
Modem	02 Nos
Hub	01 No
Router	01 No
Switch	02 Nos
Software Requirements:	
Windows OS	
Windows Server 2008 / 2013 and LINUX.	
Antivirus software.	
DVD and Blu-ray Burning S/W.	
Mobile Phone Flashing S/W	

DIRECOTARTE OF TECHNICAL EDUCATION

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M– SCHEME

VI SEMESTER

2015 –2016 onwards

35265 - Mobile computing Lab

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

(Implemented from the academic year 2016-2017 onwards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35265

Semester : VI

Subject title : Mobile computing Lab

SCHEME OF INSTRUCTION AND EXAMINATION:

No. of weeks per Semester: 15 Weeks

Subject	Instructions		Examination			Duration
	Hours / week	Hours / semester	Internal Assessment	Board Examination	Total	
Mobile computing Lab	4	60	25	75	100	3 Hrs

RATIONALAE:

The Mobile Computing Lab studies design principles and evaluation methodologies for understanding and building systems support mechanisms for mobile computing systems including mobile ad hoc and sensor networks for achieving the goal of anytime, anywhere computing in wireless mobile environments. The primary research focuses of the Mobile Computing Lab are in mobility management, data and service management, security and dependability aspects in mobile computing environments.

OBJECTIVES:

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

1. Provide a solid foundation and skills for programming to create applications for Mobile Devices
2. Install, configure and use Android development environment.
3. To Learn about Basic Mobile Application Development tools
4. To learn How to create interactive applications in android with multiple activities
5. Create Mobile Application Portfolio using Android and IOs

LIST OF EXPERIMENTS:

1.	Write a program to demonstrate activity (Application Life Cycle)
2.	Write a program to demonstrate different types of layouts
3.	Write a program to implement simple calculator using text view, edit view, option button and button
4.	Write a program to demonstrate list view
5.	Write a program to demonstrate photo gallery
6.	Write a program to demonstrate Date picker and time picker
7.	Develop an simple application with context menu and option menu
8.	Develop an application to send SMS
9.	Write a program to view, edit contact
10.	Write a program to send e-mail
11.	Write a program to demonstrate a service
12.	Write a program to demonstrate web view to display web site
13.	Write a program to display map of given location/position using map view
14.	Write a program to demonstrate the application of intent class
15.	Write a program to create a text file in a external memory

SCHEME OF EVALUATION	
Aim	5
Procedure / Program	25
Execution	30
Result & Print out	10
Viva	5
Total	75

HARDWARE REQUIREMENTS:

Desktop Computers – 36 Nos	Printer – 1 No

SOFTWARE REQUIREMENTS:

Net beans/Eclipse / Android Studio	Android ATD
Android SDK	JDK 6.0 or above

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M– SCHEME

VI SEMESTER

2015 –2016 onwards

35283 - MULTIMEDIA SYSTEMS LAB

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35283

Semester : VI

Subject title : **MULTIMEDIA SYSTEMS PRACTICAL**

SCHEME OF INSTRUCTION AND EXAMINATION:

No. of weeks per Semester: 15 Weeks

Subject	Instructions		Examination			Duration
	Hours / week	Hours / semester	Internal Assessment	Board Examination	Total	
MULTIMEDIA SYSTEMS LAB	4	60	25	75	100	3 Hrs

RATIONALAE:

The competencies which form the basis for this practical enable students to develop skills with interactive visual and auditory technology. This lab prepares students to use digital multimedia for communication, creativity, collaboration, critical thinking. This practical is to bring awareness to the students regarding the numerous resources available in the area of multimedia. Students will become a skilled and creative user of current multimedia technology with an increased understanding of multimedia concepts and techniques

OBJECTIVES:

After the completion of this lab students should know about

- How to create Audio hardware & software applications
- How to Record & Edit digital audio using sound editing software
- To learn about Video Editing
- How to apply various filters & Compression techniques in Multimedia Applications.
- To learn about 3D and cloud animation

LIST OF EXPERIMENTS

1. Use HTML5 multimedia support to play different audio and video formats in a browser using a desktop and a mobile.
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, and Titles.
5. Create a 3D image of an object such as a magnifying glass using 3D software.
6. Create a 3D animation (such as a animated eye) using a 3D modeling software.
7. Create a moving cloud animation using any animation 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 a glossy web menu bar for a using in a web page.
10. Using photo editor software and /or GIF creator software create a animation such as a flying balloon.
11. Create a pencil sketch of a picture using a suitable software.
12. 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.
13. 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.
14. Use suitable software to (a) compress / decompress audio / video files. (b). convert audio / video to different formats. (c). split, join, rip audio / video.
15. Create a fireworks art using a suitable software tool.

SCHEME OF EVALUATION	
Aim	5
Procedure / Program	25
Execution	30
Result & Print out	10
Viva	5
Total	75

LIST OF HARDWARE SUGGESTED

I	Desktop PCs with i3 or High end processor, 200 GB HDD, 4 MB RAM	-36 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. OSS is preferred**.**

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

III YEAR

M– SCHEME

VI SEMESTER

2015 –2016 onwards

35284 - OPEN SOURCE SOFTWARE PRACTICAL

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU.

DIPLOMA IN COMPUTER ENGINEERING

M- SCHEME

(to be implemented to the student Admitted from the Year 2015-2016 on wards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35284

Semester : VI

Subject title : **OPEN SOURCE SOFTWARE PRACTICAL**

SCHEME OF INSTRUCTION AND EXAMINATION:

No. of weeks per Semester: 15 Weeks

Subject	Instructions		Examination			Duration
	Hours / week	Hours / semester	Internal Assessment	Board Examination	Total	
OPEN SOURCE SOFTWARE PRACTICAL	4	60	25	75	100	3 Hrs

RATIONALE:

The objective of this practical is to train students in becoming proficient PHP/MySQL web developers. At the end of this lab, students will have basic understanding of the web technology and be able to architect, write, debug, and run complete web applications using PHP /MySQL and python.

OBJECTIVES

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

- Write PHP script for simple problems.
- Create data base and tables using MySql.
- Use PHP to access a database
- Install WAMP Web server
- Set up and configure PHP to work under WAMP web server
- Test PHP/WAMP web server setup

LIST OF EXPERIMENTS

PHP

1.	Write a program to create Student registration form
2.	Write a program to perform EB bill calculation
3.	Write a program to perform Student grade manipulation
4.	Write a program to perform String operations in PHP
5.	Write a program to create Book master form
6.	Write a program to perform Form validation – Railway ticket reservation
7.	Write a program to perform Date and time operations in PHP
8.	Write a program to Identify the web browser
9.	Demonstrate the Database – Insert operation
10.	Demonstrate the Database – Delete operation
11.	Demonstrate the Database - Update operation

MYSQL

12.	Demonstrate the Queries Record selection operation
13.	Write the queries to demonstrate the working with date and time functions
14.	Write the queries to demonstrate the working of Summaries operation (Group by and order by)

PYTHON

15.	Demonstrate the File handling operation

SCHEME OF EVALUATION	
Aim	5
Procedure / Program	25
Execution	30
Result & Print out	10
Viva	5
Total	75

HARDWARE REQUIREMENT

- Desktop Computers – 36 Nos
- Printer – 1 No

SOFTWARE REQUIREMNT

- Lamp server (or) wamp server (or) XAMP server
- Any text editor
- Browser with Javascript support

DIPLOMA IN COMPUTER ENGINEERING

III YEAR

M– SCHEME

VI SEMESTER

2015 –2016 onwards

35267 – PROJECT WORK

CURRICULUM DEVELOPMENT CENTRE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

M – **SCHEME**

(Implemented from the academic year 2015 - 2016 onwards)

Course Name : Diploma in Computer Engineering.

Subject Code : 35267

Semester : VI Semester

Subject Title : **PROJECT WORK**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Internal Assessment	Board Examination	Total	
PROJECT WORK	4	60	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 PROJECTWORK:

- 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}	10
Second Review	14^{TH}	10
Attendance	Entire semester	5
	TOTAL	25

EVALUATION FOR BOARD EXAMINATION:

Details of Mark allocation	Max Marks
Marks for Report Preparation, Demo, Viva-voce	65
Marks for answers of 4 questions which is to be set by the external examiner from the given question bank consisting of questions in the following two topics Disaster Management and Environmental Management. Out of four questions two questions to appear from each of the above topics i.e. 2 questions x 2 topics = 4 questions 4 questions x 2 ½ marks = 10 Marks	10
Total	**75**

DETAILED SYLLABUS

ENTREPRENEURSHIP, ENVIRONMENTAL & DISASTER MANAGEMENT

1. ENVIRONMENTAL MANAGEMENT

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.

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.

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

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

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

2. DISASTER MANAGEMENT

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..

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.

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. ENVIRONMENTRAL 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?

2. DISASTER MANAGEMENT

1. What is meant by Disaster Management? What are the different stages of Disaster management?
2. Differentiate Natural Disasters and Man made Disasters with examples.
3. Describe the necessity of Risk identification and Assessment Surveys while planning a project.
4. What is Disasters recovery and what does it mean to an Industry?
5. What are the factors to be considered while planning the rebuilding works after a major disaster due to flood / cyclone / earthquake? (Any one may be asked)
6. List out the public emergency services available in the state, which could be approached for help during a natural disaster.
7. Specify the role played by an Engineer in the process of Disaster management.
8. What is the cause for Earthquakes? How they are measured? Which parts of India are more vulnerable for frequent earthquakes?
9. What was the cause for the Tsunami 2004 which inflicted heavy loss to life and property along the coast of Tamilnadu ? Specify its epicenter and magnitude.
10. Specify the Earthquake Hazard Zones in which the following towns of Tamilnadu lie: (a) Chennai (b) Nagapattinam (c) Coimbatore (d) Madurai (e) Salem.
11. Which parts of India are experiencing frequent natural calamities such as (a) heavy rain fall (b) huge losses due to floods (c) severe cyclones
12. Define basic wind speed. What will be the peak wind speed in (a) Very high damage risk zone – A, (b) High damage risk zone, (c) Low damage risk zone.
13. Specify the minimum distance from the Sea shore and minimum height above the mean sea level, desirable for the location of buildings.
14. Explain how the topography of the site plays a role in the disasters caused by floods and cyclones.
15. Explain how the shape and orientation of buildings could reduce the damages due to cyclones.
16. What is a cyclone shelter ? When and where it is provided? What are its requirements ?
17. What Precautionary measures have to be taken by the authorities before opening a dam for discharging the excess water into a canal/river ?

18. What are the causes for fire accidents ? Specify the remedial measures to be taken in buildings to avoid fire accidents.
19. What is a fire escape in multistoried buildings ? What are its requirements ?
20. How the imamates of a multistory building are to be evacuted in the event of a fire/Chemical spill/Toxic Air Situation/ Terrorist attack, (any one may be asked).
21. Describe different fire fighting arrangements to be provided in an Industry.
22. Explain the necessity of disaster warning systems in Industries.
23. Explain how rescue operations have to be carried out in the case of collapse of buildings due to earthquake / blast / Cyclone / flood.
24. What are the necessary steps to be taken to avoid dangerous epidemics after a flood disaster?
25. What relief works that have to be carried out to save the lives of workers when the factory area is suddenly affected by a dangerous gas leak / sudden flooding?
26. What are the difficulties faced by an Industry when there is a sudden power failure? How such a situation could be managed?
27. What are the difficulties faced by the Management when there is a group clash between the workers? How such a situation could be managed?
28. What will be the problems faced by the management of an Industry when a worker dies because of the failure of a mechanical device due to poor maintenance? How to manage such a situation ?
29. What precautionary measures have to be taken to avoid accidents to labourers in the Industry in a workshop / during handling of dangerous Chemicals / during construction of buildings / during the building maintenance works.
30. Explain the necessity of medical care facilities in an Industry / Project site.
31. Explain the necessity of proper training to the employees of Industries dealing with hazardous products, to act during disasters.
32. What type of disaster is expected in coal mines, cotton mills, Oil refineries, ship yards and gas plants?
33. What is meant by Emergency Plan Rehearsal? What are the advantages of such Rehearsals?
34. What action you will take when your employees could not reach the factory site because of continuous strike by Public Transport workers?
35. What immediate actions you will initiate when the quarters of your factory workers are suddenly flooded due to the breach in a nearly lake / dam, during heavy rain?
36. What steps you will take to avoid a break down when the workers union of your Industry have given a strike notice?
37. List out few possible crisis in an organization caused by its workers? What could be the part of the middle level officials in managing such crisis?
38. What types of warning systems are available to alert the people in the case of predicted disasters, such as floods, cyclone etc.

39. Explain the necessity of Team work in the crisis management in an Industry / Local body.
40. What factors are to be considered while fixing compensation to the workers in the case of severe accidents causing disability / death to them?
41. Explain the legal / financial problems the management has to face if safely measures taken by them are found to be in adequate.
42. Describe the importance of insurance to men and machinery of an Industry dealing with dangerous jobs.
43. What precautions have to be taken while storing explosives in a match/ fire crackers factory?
44. What are the arrangements required for emergency rescue works in the case of Atomic Power Plants?
45. Why residential quarters are not constructed nearer to Atomic Power Plants?