

SEMESTER - V

Course Name : Diploma in Computer Science & Engineering.
 Subject Code :
 Semester V
 Subject title : SOFTWARE ENGINEERING

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 16 Weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Internal Assessment	Board Examination	Total	
SOFTWARE ENGINEERING	5	80	30	70	100	2.5 Hrs

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 the different types of project metrics.
- Understand different software estimation techniques.
- Explain about software maintenance.
- Need for software maintenance.
- Identify and manage risks.
- Describe testing and types of testing used in software engg. like black box and white box testing.
- Understand the concepts of Software quality and quality assurance.

DETAILED SYLLABUS

1	INTRODUCTION TO SOFTWARE ENGINEERING: Basics of Software Engineering : Need for Software Engineering – Definition – Software Characteristics – Software Myths – Program versus Software Products, 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., 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	15Hrs	15
2	SOFTWARE DESIGN AND PLANNING : 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 , 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 .	15 Hrs	17
3	SOFTWARE MAINTENANCE AND RISK MANAGEMENT: 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, Risk management : Definition of risk – Basics for different types of software risks – Monitoring of risks – Risk management – Risk avoidance – Risk detection	10 Hrs	12
4	SOFTWARE QUALITY ASSURANCE: 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, Software Reliability : Definition – Reliability terminologies , Reliability measurement process	10 Hrs	12
5	SOFTWARE TESTING: 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. ,Unit testing - Integration tests – System testing Software Testing strategies: Static testing strategies – Formal technical reviews – Code	14 Hrs	14

REFERENCES

S. No	TITLE	AUTHOR	PUBLISHER	Year of Publishing / Edition
1.	Software Engineering	Ian Sommerville	Pearson Education	Sixth Edition
2.	Fundamentals of Software Engineering	Rajib Mall	PHI Learning Pvt Limited, New Delhi	28 th Printing – August 2011
3.	Software Engineering	Bharat BhusanAgarwal, Sumit PrakashTayal	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

MICROPROCESSOR

Course Name : Diploma in Computer Science & Engineering.

Subject Code :

Semester V

Subject title : MICROPROCESSOR

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 16 Weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Internal Assessment	Board Examination	Total	
Microprocessor	5	80	30	70	100	2.5 Hrs

Detailed Syllabus

1	Introduction to 8-bit Microprocessor History of Microprocessor, 8085 Microprocessor architecture, buses, register, flags, 8085 pin configuration and function of each pin. Fetch, decode and execute operations	7Hrs	8
2	Op-code fetch, execute cycle, T state, Machine cycle. Addressing modes of 8085.	6Hrs	6
3	8085 Microprocessor Architecture & Microcomputer System: Evolution of Microprocessor, Microprocessor Architecture and its operations, Memory, Buses, Input/Output devices, ALU,	7Hrs	8
4	Timing and Control Unit, registers, Pin Configuration, Instruction Cycle, Timing Diagram.	4Hrs	4
5	Introduction Set of Intel 8085 microprocessor and Assembly Language Programming: Instructions Classification, Instruction and Data Formats, Addressing Modes, Opcode and Operands, Instruction Word Size, Static and Dynamic Debugging	7 Hrs	8
6	Assembly Language, High-Level Language, Low- Level Language, Machine Language. Operations, Arithmetic Operations related to Memory, Logic Operations, and Branch. BCD to Binary and Binary to BCD Conversion, BCD Addition, BCD Subtraction, Multiplication.	4 Hrs	4
7	Intel 8085 Microprocessor Instruction Set and Programming Data transfer, Arithmetic, Logical, Rotate, Branch and machine control instructions. Development of 8085 assembly language programs, Counters and Time delays	7 Hrs	8
8	Stack, subroutine, Restart, Conditional Call and Return Instructions, Advanced subroutine concepts. 8085 interrupts, RST, SIM, RIM instructions	7 Hrs	8

9	Introduction of advance Microprocessor Intel 8086 Microprocessor architecture, Addressing modes, 8086 pin configuration and function of each pin. 8086 programming using Data movement instructions, Arithmetic and logic instructions, Program control	7 Hrs	8
10	instructions. 8086 interrupt instructions, operation of real mode and protected mode interrupt, interrupt flag bits, Hardware interrupts.	8 Hrs	8

References :

1. Introduction to microprocessors by Aditya P Mathur. 3 rd edition Tata Macrgew Hills
2. The 8085 Microprocessor: Architecture, Programming and Interfacing, 1/e pearson
3. Microprocessor Architecture, Programming and Applications with 8085/8080A – Ramesh S. Gaonkar, Wiley Eastern Limited
4. Advanced Microprocessors and Peripherals by A. K. Ray & K M Bhurchadi; Tata McGraw Hill.2nd Ed., 13th Reprint 2009.
5. Microprocessor 8085 and Its Interfacing by Sunil Mathur; 2nd Ed., Reprint 2011.
6. Microprocessor & Microcontroller; A.P. Godse, D.A. Godse; Technical Publication Pune
7. Fundamentals of Microprocessor and Microcomputers--B.RAM, DhanpatRai Pub.

MICROPROCESSOR PRACTICAL

No. of weeks per semester: 16 week

Subject	Instructions		Examination			Duration
	Hours/Week	Hours/Semester	Internal Assessment	Board Examination	Total	
MICROPROCESSOR	5	80	30	60	100	3Hrs

Practical's :

1. Study of architecture of microprocessor 8085. Assembly Language Programming.
2. Addition of two 8-bit numbers.
3. Addition of two 16- bit numbers.
4. Subtraction of two 8- bit numbers.
5. Subtraction of two 16 – bit numbers.
6. Multiplication of two 8- bit numbers using repeated Addition.
7. Division of two 8- bit numbers.
8. Find 1's& 2's complement of a 8 – bit & a 16 –bit number.
9. Find larger number between two 8 bit numbers.
10. Find largest and smallest number from an array.
11. Transfer block of data bytes from one memory location to another in same order and in reverse order.
12. Arrange data bytes in ascending / descending order.
13. Find the sum of positive number from an array & store the result at some memory location (Ignore negative number).

JAVA PROGRAMMING

Course Name : Diploma in Computer Science & Engineering.
Subject Code :
Semester V
Subject title : JAVA PROGRAMMING

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester 16 Weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Internal Assessment	Board Examination	Total	
JAVA PROGRAMMING	5	80	30	70	100	2.5 Hrs

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 inJava.

- 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

1	Concept of OOPs , Java History : –Java features –Java Environment –JDK –API, 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	8 Hrs	10 Hrs
2	CONTROL STRUCTURES, ARRAYS, AND VECTORS : Elements: Constants –Variables –Data types - Scope of variables –Type casting – Operators: Special operators – Expressions – Evaluation of Expressions 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. Arrays	10 Hrs	12
3	STRINGS, CLASSES AND INTERFACES : Strings: String Array – String Methods –String Buffer Class 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 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	20 Hrs	20

4	PACKAGES, APPLETS AND AWT CONTROLS : Packages: Java API Packages –System Packages –Naming Conventions –Creating & Accessing a Package – Adding Class to a Package – Hiding Classes 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 AWT Components and Even Handlers: Abstract window tool kit – Event Handlers – Event Listeners – AWT Controls and Event Handling: Labels –Text Component –Action Event – Buttons –Check Boxes –Item Event - Choice –Scrollbars –Layout Managers- Input Events –Menus	15 Hrs	17
5	EXCEPTION HANDLING, MULTITHREADS AND I/O STREAMS : 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 Multithreading: Creating Threads –Life of a Thread –Defining & Running Thread – Thread Methods – Thread Priority – Synchronization –Implementing Runnable interface –Thread Scheduling. I/O Streams: File – Streams – Advantages - The stream classes – Byte streams –Character streams and JDBC Connectivity	10 Hrs	10

TEXT BOOKS

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

JAVA PROGRAMMING PRACTICAL

No. of weeks per semester: 16 week

Subject	Instructions		Examination			Duration
	Hours/Week	Hours/Semester	Internal Assessment	Board Examination	Total	
JAVA PROGRAMMING PRACTICAL	5	80	30	60	100	3Hrs

LIST OF PRACTICALS

- 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 exists 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 copy a file to another file using java.io package Classes.
- 7 Write a program to get a file at runtime and display the number of lines, words and characters in that file.
8. Programming exercise on Arrays and String
9. Programming exercise on inheritance
10. Write Program for exception handling
- 11 Write programs for Multithreading
12. Programming exercise on Java applets
13. Write program for Java Data base connectivity

COMPUTER HARDWARE AND SERVICING

Course Name : Diploma in Computer Science & Engineering.
 Subject Code :
 Semester IV
 Subject title : **COMPUTER HARDWARE ANDSERVICING**

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 16 Weeks

Subject	Instructions		Examination			Duration
	Hours / week	Hours / semester	Internal Assessment	Board Examination	Total	
COMPUTER HARDWARE AND SERVICING	5	80	30	70	100	3 Hrs

TOPICS & ALLOCATION OF HOURS :

UnitNo.	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 perform 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

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. Mother Board: Architecture and block diagram	4 Hrs	6
2	Processors: Introduction –Core2 Duo processor, Quad core processor, Core i3, i5, i7 series, AMD A10 series, XeonProcessor.	4 Hrs	6
3	Chipsets: Chipset basics - North / South Bridge architecture. architecture and Hub	2 Hrs	2
4	Bus Standards: Overview and features of PCI, AGP, USB, & Processor Bus.	2 Hrs	2
5	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	4
6	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 mousecleaning – Troubleshooting flowchart for a mouse.	4 Hrs	4
7	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.	2 Hrs	2
8	Displays and Graphic Cards: Displays: LCD Principles – Plasma Displays – TFT Displays - LED Displays. Graphic Cards: Video capture card.	2 Hrs	2
9	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	4
10	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).	4 Hrs	4
11	POST: Error, Beep Codes, Error messages, Post Hardware. – Faults relatedto	2 Hrs	2

12	Laptop: Difference between laptop and desktop- Types of laptop – Block diagram – working principles – configuring laptops and power settings - SMD components, ESD and precautions	4 Hrs	6
13	Laptop components: Adapter – Types, Battery – Types and basic problems, RAM– types, CPU – types, Laptop Mother Board - block diagram, Laptop Keyboard.	2 Hrs	2
14	Installation and Troubleshooting: Formatting, Partitioning and Installation of OS – Trouble Shooting Laptop and Desktop computer problems.	4 Hrs	4
15	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.	4 Hrs	4
16	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.	2 Hrs	2
17	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	4
18	Installation & Troubleshooting: Assembling and disassembling of different types of mobile phones – Installation of OS - Fault finding & troubleshooting- Jumper techniques and solutions.	4 Hrs	6
19	Software: Flashing- Formatting- Unlocking 3 Hrs -Use of secret Downloading- Routing. codes-	4 Hrs	
420	Diagnostic Software and Viruses: Mobile Viruses – Precautions – Antivirus Software.	4Hrs	4

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	ManaharLotai,	BPB	Second Revised

	Course	PradeepNiar, PayalLotia	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 Laptops 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	PanditSanjib	BPB Publication, New Delhi	First Edition 2010

Course Name : Diploma in Computer Engineering.

Subject Code :

Semester IV

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

TEACHING & SCHEME OF EXAMINATION:

No. of weeks per Semester: 16 Weeks

Subject	Instructions		Examination			Duration
	Hours / week	Hours / semester	Internal Assessment	Board Examination	Total	
COMPUTER HARDWARE AND SERVICING	5	80	30	70	100	3 Hrs

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 HardDisk. b) ConfigureCMOS-Setup. c) Partition and Format HardDisk. d) Identify Master /Slave / IDEDevices. e) Practice with scan disk, disk cleanup, disk De-fragmentation, Virus Detecting and RectifyingSoftware.
2	a) Install and Configure a DVD Writer & Blu-ray DiscWriter. b) Recording a Blank DVD & Blu-rayDisc.
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 Crimping 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.
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	10 Marks
Executing Exercise (PART – A)	10 Marks
Executing Exercise (PART – B)	10 Marks
Result (PART – A)	5 Marks
Result (PART –B)	5 Marks
Demonstration of mini project	5 Marks
VIVA - VOCE	5 Marks
TOTAL	60 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	01 Nos
Laser Printer	02 Nos
Server	01 No
Mobile phones	06 Nos
NetworkRequirements:	
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	

MINOR PROJECT WORK

Course Name : Diploma in Computer Science & Engineering.

Subject Code :

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	8	128	50	150	200	3 Hrs

RATIONALE:

Minor project work aims at exposing the students to the various industries dealing with computers. It is expected from them to get acquainted with computer environment possess desired attitudes. For this purpose student during middle of the course are required to be sent for a period of two to four weeks at a stretch in different establishments. Depending upon the interest of students they are sent for exposure to:

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		20
Second Review		20
Attendance	Entire semester	10
TOTAL		50

EVALUATION FOR BOARD EXAMINATION:

Details of Mark allocation	Max Marks
Marks for Report Preparation, Demo, Viva-voce	100
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.	50
Total	150

SUGGESTION