TILAK MAHARASHTRA VIDYAPEETH, PUNE

TEACHING AND EXAMINATION SCHEME FOR DIPLOMA COURSE

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

DURATION OF COURSE : SIX SEMESTERS

SEMESTER : FOURTH SEMESTER **DURATION : 16 WEEKS**

FULL TIME

SR. NO.	SUBJECT TITLE	SUBJECT CODE	TEACHING SCHEME		EXAMINATION SCHEME											
			TH	PR	PAPER HRS	TH		INT	TOTAL		PR		OR		TW	
						Max	Min		Max	Min	Max	Min	Max	Min	Max	Min
1	Microprocessors & Programming	CO4001	04	02	3	80	32	20	100	40	25*	10	--	--	--	--
2	Computer Networks	CO4002	04	02	3	80	32	20	100	40	--	--	25*	10	25*	10
3	Data Structure	CO4003	04	04	3	80	32	20	100	40	50**	20	--	--	--	
4	Computer Graphics	CO4004	04	02	3	80	32	20	100	40	50**	20		--	--	--
5	Computer Architecture & Maintenance	CO4005	04	02	3	80	32	20	100	40	--	--	--	--	25*	10
6	Professional Practices-III	CO4006	--	02***	--	--	--	--	--	--	--	--	--	--	50*	20
7	Development of generic Skills-I	CO4011	01	--	2	40	16	10	50	20	--	--	--	--	--	
TOTAL			**21**	**14**	**17**	**440**	--	**110**	**550**	--	**125**	--	**25**	--	**100**	--

STUDENT CONTACT HOURS PER WEEK(FORMAL TEACHING) : **35 HRS**

Theory and Practical Periods are of 60 minutes each

* - INTERNAL ASSESSMENT , ** - EXTERNAL ASSESSMENT, ***-TUTORIAL

TOTAL MARKS – 800

ABBREVIATIONS : TH – THEORY , INT-INTERNAL , PR – PRACTICALS , OR –ORAL, TW – TERMWORK

All Practical, Orals and Term Work assessments are to be done as per the prevailing norms for implementation and assessment.

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

SEMESTER : FOURTH

SUBJECT TITLE : MICROPROCESSORS AND PROGRAMMING

SUBJECT CODE : CO4001

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme			Examination Scheme					
TH	**PR**	**PAPER HRS**	**TH**	**INT**	**PR**	**OR**	**TW**	**TOTAL**
04	02	03	80	20	25*	---	---	125

Pre-requisites: The Student must know the following concepts:

1. Basics of digital electronics signals.
2. Working of digital circuits such as flip-flops, registers, multiplexers etc.

Objectives: The Student will be able to

1. Draw the block diagram of 8085 & 8086 architecture.
2. Understand the concept of pipe lining and segmentation.
3. Write syntax for 8086 instructions.
4. Write assembly language program for different problem statement.
5. Interface memory chips with microprocessor.

Subject Title: MICROPROCESSORS AND PROGRAMMING Subject Code: CO4001

Contents: Theory

Unit	Name of the Topic	Hours	Marks
01	**BASICS OF MICROPROCESSOR** Evolution of Microprocessor and types, salient features of 8085 Microprocessor, architecture of 8085 (Block diagram), register organization, limitations of 8–bit Microprocessor.	**06**	**12**
02	**16-BIT MICROPROCESSOR 8086** Salient features of 8086 Microprocessor, architecture of 8086 (Block diagram, signal description), register organization, concepts of pipelining, memory segmentation and memory address generation, Minimum and Maximum mode operation and diagram.	**08**	**12**
03	**8086 INSTRUCTION SET** Machine Language Instruction format, addressing modes, Instruction set (Arithmetic, logical, data transfer, bit manipulation, string, program control transfer, process control).	**12**	**18**
04	**THE ART OF ASSEMBLY LANGUAGE PROGRAMMING** Program development steps defining problem, algorithms, flowchart, initialization checklist, choosing instructions, converting algorithms to assembly language programs, Assembly Language Programming Tools: Editors, Assembler, Linker, Debugger. Assembler directives, model of 8086 assembly language programming, Programming using assembler.	**12**	**18**
05	**PROCEDURE AND MACRO** Defining Procedure (Directives used, FAR and NEAR CALL and RET instructions), Defining Macros, Assembly Language Programs using Procedure and Macros.	**06**	**12**
06	**SYSTEM INTERFACING** Interfacing Techniques (I/O mapped I/O, Memory mapped I/O, memory and I/O addressing, 8086 addressing, and address decoding, memory interfacing as Even and Odd bank)	**04**	**08**
	TOTAL	**48**	**80**

Practical:

Skills to be developed:

Intellectual skills:

1. Identification of IC's of buffers, latches, data converter & memories.
2. Ability to design Algorithm, flow-chart, assembly language program & decode.

Motor skills:

1. Ability to test different digital IC's.
2. To load the program in memory of microprocessor.
3. To provide commands to execute the program.
4. To observe the result in specific memory location & registers.

List of Practical:

1. Basics of assembler, linker, debugger, editor
2. Write an Assembly Language Program to
    - Add / Sub two 16 bit numbers.
    - Find sum of series of numbers.
    - Multiply two 16 bit unsigned/ signed numbers.
    - Divide two unsigned/ signed numbers (32/16 , 16/8, 16/16, 8/8)
    - Add / Sub / multiply / Divide two BCD numbers.
    - Find smallest/ largest number from array of n numbers.
    - Perform block transfer data using string instructions / without using string instructions.
    - Compare two strings using string instructions / without using string instructions.
    - Display string in reverse order, string length, concatenation of two strings.
    - Convert Hex to Decimal, Decimal to Hex.
    - Arrange numbers in array in ascending/descending order.

Recommended Books:

Sr. No.	Title	Author	Publisher
01	Microprocessor & interfacing (Programming & hardware)	Douglas V-Hall	Tata McGraw Hill
02	Advanced microprocessor & peripheral	A.K. Ray & K.M. Bhurchandi	Tata McGraw Hill
03	An introduction to the Intel family of Microprocessors	James L. Antonakos	Pearson Education Asia
04	Microprocessor Architecture, Programming & application with 8085	Ramesh A. Gaonkar	Penfam International

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

SEMESTER : FOURTH

SUBJECT TITLE : COMPUTER NETWORKS

SUBJECT CODE : CO4002

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme						
TH	**PR**	**PAPER HRS**	**TH**	**INT**	**PR**	**OR**	**TW**	**TOTAL**
04	02	03	80	20	--	25*	25*	150

Pre-requisites: The student must know the following concepts:

1. Basic knowledge of using computer.
2. Basic knowledge of handling computer hardware.

Objectives: The student will be able to

1. Understand the benefits of network.
2. Understand classifications of networks.
3. Describe different types of topology.
4. Describe different types of network devices.
5. Compare different transmission media.
6. Compare OSI and TCP/IP model.
7. Configure TCP/IP.

Subject Title: COMPUTER NETWORKS **Subject Code: CO4002**

Contents: Theory

Unit	Name of the Topic	Hours	Marks
01	**BASIC NETWORK CONCEPTS** Understanding Network : Human Networks, Computer Networks, Network Plan, Identifying the Benefits of Network, Sharing Information, Sharing Resources, Facilitating Centralized Management : Managing Software, Maintaining the Network, Backing Up Data, Distinguishing Between Network Classifications : Classifying Networks by their Geography – LAN, MAN, WAN, Classifying Networks by their Component Role: Peer to Peer, Server based Network. Network Features : File Sharing, Printer Sharing, Application Services, E- Mail, Remote Access.	**08**	**20**
02	**NETWORK TOPOLOGIES AND NETWORKING DEVICES** Types of Topology : Bus Topology, Ring Topology ,Star Topology, Mesh Topology, Tree Topology, Hybrid Topology, Network Control Devices -Hubs, Switches, Routers, Bridges, Repeaters, Gateways, Modems	**08**	**15**
03	**TRANSMISSION MEDIA** Guided Media: Twisted Pair -UPT, STP, Coaxial Cable, Optical Fiber, Optical Fiber Structure, Light Source for disadvantages of optical fiber, Un-guided Media. Wireless Communication: Communication Band, Microwave communication, Satellite Communication, Access Method, Cellular Propagation Mode, Advantages of optical fiber, (Mobile) Telephone – Band in Cellular Telephony, Calls Using Mobile Phones, Transmitting receiving operations, New Developments.	**08**	**15**
04	**NETWORK REFERENCE MODEL** Encapsulation, Horizontal/ Vertical Communication, OSI Reference Model, Interlayer Communication, Data Communication, Encapsulation Terminology, Physical layer, Data link layer, Network layer, Transport layer, Session layer, Presentation layer, Application layer, TCP/IP Reference Model – Link, Internet, Transport, Application layer, Comparison of the OSI and TCP/IP reference models.	**12**	**20**

05	**TCP/IP FUNDAMENTALS** TCP/IP Protocols - SLIP and PPP, ARP, IP, ICMP, TCP and UDP. IP Addressing: IP Address Assignments, IP Address Classes, Subnet Masking, Registered and unregistered Addresses, TCP/IP Configuration - Installing the TCP/IP Protocol, Configuring TCP/IP – Configuring Basic TCP/IP Properties, Configuring Advanced TCP/IP Properties	**12**	**10**
	TOTAL	**48**	**80**

Practical:

Skills to be developed:

Intellectual skills:

1. Knowledge to understand network connectivity.
2. Knowledge of data transfer in network.

Motor skills:

1. Proper handling of network devices.
2. Connectivity in networks using cables.

List of Practical:

1. Draw layout of LAN network.
2. Use step by step procedure for i.e. File sharing & Printer sharing.
3. Compare different Network Topologies.
4. Compare Network directing devices. i.e. Hub, Switch, Router.
5. Create a Network cable using RJ45 connectors.
6. To locate MAC address of computer.
7. Installation of TCP/IP Protocol. i.e. NetBEUI Protocol.
8. Implementing a TCP/IP Network configuring.

Recommended Books:

Sr. No.	Title	Author	Publisher
01	Introduction to Networking	Richard A. McMahan,	Tata McGraw-Hill Edition
02	Networking + Certification (Second Edition)	Microsoft Press --	----------
03	Complete Reference Networking	Craig Zacker	Tata McGraw-Hill Edition
04	Data Communication and Networking	Forozon	Tata McGraw-Hill Edition

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

SEMESTER : FOURTH

SUBJECT TITLE : DATA STRUCTURE

SUBJECT CODE : CO4003

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme						
TH	**PR**	**PAPER HRS**	**TH**	**INT**	**PR**	**OR**	**TW**	**TOTAL**
04	04	03	80	20	50**	--	--	150

Pre-requisites: The student must know the following concepts:

1. Basic knowledge of computer use.
2. Basic knowledge of computer hardware.

Objectives: The student will be able to

1. Learn searching and sorting techniques.
2. Understand the concepts of stack and queue.
3. Implement different data structures like trees and graphs.

Subject Title: DATA STRUCTURE **Subject Code: CO4003**

Contents: Theory

Unit	Name of the Topic	Hours	Marks
01	**INTRODUCTION TO DATA STRUCTURES** Data Representation, Abstract data Types. Data Types, Linear data type, Non-linear data type, Primitive data type, Non primitive data type, Refinement Stages, Difference between Abstract Data Types, Data Types And Data Structures.	**04**	**08**
02	**PRINCIPLES OF PROGRAMMING AND ANALYSIS OF ALGORITHMS** Algorithms, Different approaches for designing an algorithm, Complexity, Big 'O' Notation Algorithm analysis	**02**	**08**
03	**SEARCHING & SORTING** Sorting - Introduction, Efficiency of Sorting Algorithms, Bubble Sort, Selection Sort, Quick Sort, Insertion Sort, Merge Sort, Binary Tree Sort, Radix Sort, Shell Sort, Heap Sort. Searching – An Introduction, Binary Search, Linear Search	**08**	**15**
04	**STACKS** Introduction to Stacks, Stacks as an Abstract Data Type, Primitive operations of stacks, Representation of Stacks through Arrays, Representation of Stacks through Linked List, Application of Stacks: Polish Expression Conversion Stack and Recursion.	**06**	**08**
05	**QUEUES** Introduction, Queue as an Abstract Data Type, Circular Queues, Priority Queue, Application of Queues. Operations on queue : Searching ,Insertion, Deletion, Representation of Queues	**06**	**08**
06	**LINKED LIST** Introduction, Terminologies Node, Address, Pointer, Information, Next, Null pointer, Empty list etc., Operations on list Searching, Insertion and Deletion, Types of lists Linked list and Circular list , Singly linked list Doubly linked list, Array stacks, queues, implementation using list	**06**	**08**
07	**TREES** Introduction to Binary Trees, Types of Trees, Basic Definition of Binary Trees, Operations on Binary Search Tree, Type of tree Binary, Height balanced and Weight, balanced tree Operations on trees : Insertion, Deletion, Traversal Traversing Pre-order, In-order and Post-order	**08**	**10**
08	**GRAPHS** Introduction to Graphs, Terms Associated with graphs Terminology graph, node (vertices), arcs (edge), directed graph, in-degree, out-degree, adjacent, successor, predecessor, relation, Weight, path, length Sequential Representation of Graphs, Linked Representation of Graphs, Traversal of Graphs, Spanning Trees, Shortest Path Application of Graph	**06**	**10**

09	**HASHING** Hash functions, Deleting items from hash tables.	**02**	**05**
	TOTAL	**48**	**80**

Practical:

Skills to be developed:

Intellectual skills:

1. Use of programming language constructs in program implementation.
2. Apply different logics to solve given problem.
3. Write program using different implementations for the same problem
4. Identify different types of errors as syntax semantic, fatal, linker & logical.
5. Debugging of programs.

Motor skills:

Proper handling of Computer System.

List of Practical:

1. Programs based on Array operations, insertion, and deletion.
2. Programs for implementing various sorting techniques.
   (Minimum three sorting techniques from topics mentioned in the syllabus)
3. Programs for implementing various sorting and searching techniques.
   (Minimum two searching techniques from topics mentioned in the syllabus.
4. Programs based on Stacks.
   Implementation of PUSH & POP operations, Evaluate postfix expressions, Infix to postfix conversions.
5. Recursive programs: Factorial, Fibonacci, Ackerman function, and tower of Hanoi.(any two)
6. Programs for demonstrating queue operations.
   One recursive program converted to non recursive ones
7. Two programs based on Linked lists.
8. Programs based on trees.
   Creating a binary tree, in order, preorder and post order traversal of binary tree, deleting a node from binary tree.
9. Assignments based on graph theory.
10. Program based on hashing.

Recommended Books:

Sr.No.	Title	Author	Publisher
01	Data Structure Using C	ISRD Group New Delhi	Tata McGraw Hill
02	Data Structures	Tremblie and Sorrenson	TMH Publications
03	Teach Yourself data Structure & Algorithm in 24 Hrs	Lafore	BPB Publication

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

SEMESTER : FOURTH

SUBJECT TITLE : COMPUTER GRAPHICS

SUBJECT CODE : CO4004

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme						
TH	**PR**	**PAPER HRS**	**TH**	**INT**	**PR**	**OR**	**TW**	**TOTAL**
04	02	03	80	20	50**	--	--	150

Pre-requisites: The student must know the following concepts:

1. Basic knowledge of computer.
2. Knowledge of procedural language such as 'C'.
3. Knowledge of engineering drawing, graphs.
4. Knowledge of mathematical concepts.

Objectives: The student will be able to

1. Describe file structure of graphic file format.
2. Apply algorithms to draw lines, circles and polygons.
3. Use transformation technique to scale and rotate objects.
4. Describe the fundamental of raster graphics and interactive graphics.
5. Develop logic for drawing natural objects using different algorithms for curved lines.

Subject Title: COMPUTER GRAPHICS **Subject Code: CO4004**

Contents: Theory

Unit	Name of the Topic	Hours	Marks
01	**BASICS OF COMPUTER GRAPHICS** Display devices, Primitive operations, The Display-file Interpreter, Display file structure, and Graphics file formats. Text mode graphics function, Graphic mode graphics functions. Shapes, colors, Co-ordinate systems, Applications of computer graphics.	**08**	**10**
02	**LINE, CIRCLE, AND POLYGON** Basic concepts in line drawing, Line drawing algorithms: DDA algorithms, Bresenham's algorithm Circle generating algorithms: DDA circle drawing algorithm, Bresenham's circle drawing algorithm, midpoint circle algorithm. Polygons: Types of polygons, Polygon representation, Entering polygons, inside-outside test, polygon filling, Flood fill, scan-line algorithm	**10**	**15**
03	**TRANSFORMATIONS** 2D transformation: scaling, Reflection, shearing, Rotation, Translation, Rotation about an arbitrary point. 3D Transformation: scaling, rotation, translation, rotation about arbitrary axis.	**06**	**10**
04	**WINDOWING & CLIPPING** Viewing transformation, Normalization transformation Line clipping: Cohen-Sutherland, Line clipping algorithm, midpoint subdivision algorithm Polygon clipping: Sutherland – Hodgeman Polygon clipping algorithm.	**08**	**10**
05	**CURVES AND FRACTALS** Curve generation: arc generation using DDA algorithm. Interpolation, B-Spline, Bezier curves. Fractals: Hilbert's Curve, Koch curve, Fractal lines, Fractal Surfaces.	**08**	**15**
06	**RASTER GRAPHICS AND INTERACTIVE GRAPHICS** Raster scan display, Random scan display Need for graphics standards, Graphics standards, Advantages of Graphics standards, Hazards of Graphics standards. Graphical user interface Open GL: What is Open GL, How Open GL works, Open GL and animation.	**08**	**20**
	TOTAL	**48**	**80**

Practical:

Skills to be developed:

Intellectual skills:

1. Use of programming language constructs in program implementation.
2. Apply different logics to solve given problem.
3. Write program using different implementations for the same problem
4. Identify different types of errors as syntax semantic, fatal, linker & logical.
5. Debugging of programs.

Motor skills:

1. Proper handling of Computer System.
2. Basic understanding of GUI.

List of Practical:

1. Implement DDA algorithm for line drawing.
2. Implement Bresenham's algorithm for line drawing.
3. Implement DDA algorithm for circle drawing.
4. Implement Bresenham's algorithm of circle drawing.
5. Implement Flood fill algorithm for Polygon filling.
6. Implement scan-line algorithm for polygon filling.
7. Write Program for 2-D transformations -> Scaling, Rotation.
8. Write Program for 2 D transformations shearing and Translation program.
9. Write and implement program for rotation about an arbitrary point.
10. Implement Cohen- Sutherland algorithm for line clipping.
11. Implement midpoint subdivision algorithm for line clipping.
12. Implement Sutherland-Hodgeman algorithm for polygon clipping.
13. Write a program to draw a curve using Bezier's algorithm.
14. Write a program to draw fractal lines.

List of Practical oriented projects:

1. Oral geometry insertion for character animation (Develop a system to create an animated mouth in head geometry)
2. Online storyboarding system (Create a system that will keep still images, text descriptions, sample animations, sample audio for each scene of an animation)

Recommended Books:

Sr. No.	Title	Author	Publisher
01	Computer Graphics	ISRD group	Tata McGraw Hill
02	Computer Graphics	Steven Harington	Tata McGraw Hill
03	Computer Graphics	M. Pauline Baker & Donald Hearn	Prentice – Hall
04	Principles of Interactive Computer Graphics	Newman and Sproull	Tata McGraw Hill
05	Computer Graphics	Plastock	Tata McGraw Hill

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

SEMESTER : FOURTH

SUBJECT TITLE : COMPUTER ARCHITECTURE AND MAINTENANCE

SUBJECT CODE : CO4005

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme						
TH	**PR**	**PAPER HRS**	**TH**	**INT**	**PR**	**OR**	**TW**	**TOTAL**
04	02	3	80	20	---	---	25*	125

Pre-requisites: The student must know the following concepts:

1. Basics of computer hardware and software.

Objectives: The student will be able to

1. Debug and repair the fault in the system.
2. Assemble a computer system.
3. Load operating system & device drivers in the system.

Subject Title: COMPUTER ARCHITECTURE AND MAINTENANCE

Subject Code: CO4005

Contents: Theory

Unit	Name of the Topic	Hours	Marks
01	**MOTHERBOARD AND ITS COMPONENTS** Chipset basic, chipset Architecture: North / South Bridge architecture and Hub architecture, Architecture of Intel chipset 915 G & 945 G, Overview and features of ISA, PCI-X, PCI-X press, AGP, PCMCIA, AGP, Processor BUS (no pin description) PCI versus PCI Express, Logical memory organization: Conventional memory, Extended memory, extended memory, upper memory (No memory map) Concept of cache memory: Internal cache, External cache (L1, L2, L3 cache) Overview and features of SDRAM, DDR, DDR2, DDR3. Features of Intel processors: Pentium, P2, Celeron, P3, P4, Pentium D and AMD processors-K6, Athlon XP, Athlon 64. Processor Modes: Real mode, Protected mode, Virtual real mode,64 bit extension mode (AMD 64, EM 64),Bios Basics, main functions. Motherboard Selection criteria.	**10**	**10**
02	**STORAGE DEVICES AND ITS INTERFACING** Recording Technique: FM, MFM, RLL Perpendicular magnetic recording, Hard disk construction and working. Servo Techniques: Wedge servo, Embedded servo, dedicated servo, Terms related to Hard Disk - Track, Sector cylinder, cluster, landing zone, MBR, Zone recording, write pre compensation, Formatting, Low level formatting, High level formatting, Partitioning, FAT basics, Introduction to file system FAT 16, FAT 32, NTFS, Hard disk drive interface, features of Parallel AT Attachment (PATA), Serial ATA (SATA), ATA devices jumper selection - Master, slave, cable select, ATA cables. ATA RAID: RAID 0, RAID CD-ROM drive: Construction, Recording DVD-Construction, Recording Blue-ray disk specification.	**08**	**10**

03	**DISPLAY DEVICES & INTERFACING** CRT color monitor: Block diagram and function of each block, Characteristics of CRT monitor- Dot pitch, Resolution, Video bandwidth, Horizontal scanning frequency, vertical scanning frequency, Interlaced versus non interlaced monitor Advantages of CRT display related to LCD display LCD monitor- functional block diagram of LCD monitor, working principal, Advantages and disadvantages. Types: Passive matrix and Response time Active matrix, Important characteristics - Resolution, Refresh rate, Basic block diagram of a video accelerator care.	**05**	**10**
04	**INPUT AND OUTPUT DEVICES** Construction and Working: Keyboard: Types of key switches - Membrane, Mechanical, Rubber dome, Capacitive and interface. Mouse: Mechanical, Opto-mechanical, optical (New designs). Scanners: Flat bed, sheet fed, Handheld- Block diagram and specifications, OCR, TWAIN, Resolution, Interpolation. Modems: Internal and External- Block diagram and specifications. Printers: Dot matrix, Inkjet, Laser- Block diagram and specifications.	**08**	**10**
05	**POWER SUPPLIES** Block diagram and working of SMPS, Signal description and pin out diagram of AT and ATX connectors, Power supply characteristics- Rated wattage, Efficiency, Regulation, Ripple, Load regulation, Line regulation, Power problems- Blackout, Brownout, surges and spikes, Symptoms of power problems, Protection devices- circuit breaker, Surge suppressor, UPS - Block diagram, working, Types, Ratings.	**05**	**10**
06	**INTERFACES** SCSI, SCSI cables and connectors, SCSI drive configuration. USB features, Rs 232 (voltages and 9 pin description), Cetronics (interface diagram, important signals and timing waveform), Firewire features.	**05**	**10**
07	**PC TROUBLESHOOTING, MAINTENANCE AND TOOLS** Preventive Maintenance: Active, Passive, Periodic Maintenance Procedure, Preventive Maintenance of peripherals of PC's, Fault Finding and trouble shooting of The above peripherals, ESD (Electrostatic Discharge), RFI Protection, Earthing , Diagnostic software, Working of logic probe, Logic pulser, Current tracer, Block diagram and working of logic analysis and CRO. Virus infections symptoms, precautions to prevent a virus infection.	**08**	**20**
	TOTAL	**48**	**80**

Practical:

Skills to be developed:

Intellectual skills:

1. Knowledge of computer hardware and software.
2. Knowledge of electrical appliances.
3. Method of fault finding and fault correction.

Motor skills:

1. Proper and careful handling of computer system.
2. Follow proper procedure for troubleshooting.
3. Follow proper procedure for assembling computer parts.

List of Practical:

1. Drawing the motherboard layout of Pentium IV and studying the chipset through data books or Internet.
2. CMOS setup of Pentium.
3. Hard Disk Partitioning.
4. Study of HDD: Identify various components of HDD and write their functions.
5. Study and installation of any one display cards: VGA or SVGA display cards.
6. Installation of Scanner, Printers and Modems.
7. Study of SMPS (ATX)
8. Study of Diagnostic Soft ware. (Any one)
9. Fault findings:
    a) Problems related to monitor.
    b) Problems related to CPU.
10. Assembling of PC and Installation of Operating System.
11. Configuration of Client and Server PC, Laptop and Network components.
12. RS232C communication between two computers.

Recommended Books:

Sr. No.	Title	Author	Publisher
01	Managing & Troubleshooting PC's	Mike Meyers, Scott Jernigan	Tata McGraw Hill
02	Bigelow's Troubleshooting maintaining & Repairing PCs	Bigelow	Tata McGraw Hill
03	The Complete PC Upgrade & maintenance guide	Mark Minasi	BPB Publication
04	Computer Installation & Servicing	D. Balasubramaniam	Tata McGraw Hill
05	Upgrading & Repairing PCs	Scott Muller	Techmedia

COURSE NAME : DIPLOMA IN COMPUTER ENGINEERING

COURSE CODE : CO

SEMESTER : FOURTH

SUBJECT TITLE : PROFESSIONAL PRACTICES -III

SUBJECT CODE : CO4006

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme						
TH	**TUT**	**PAPER HRS.**	**TH**	**INT**	**PR**	**OR**	**TW**	**TOTAL**
---	02***	---	---	---	---	---	50*	50

Prerequisites: The **s**tudent must know the following concepts:

1. Basic English with an interest in reading.
2. Good presentation skills.
3. Basic knowledge of C, VB.
4. Knowledge of Database concepts.
5. Basic knowledge of Ms Access.
6. Knowledge of use of search engine.

Objectives: The student will be able to

1. Acquire information from different sources, present it in your own words – languages.
2. Acquire experience in developing software.
3. Acquire knowledge of current affairs / topics in industry.
4. Prepare yourself for presenting certain topic in such a way that you may impress. the audience one should take care of
    a. Body language
    b. Eye contact
    c. Voice pitch
    d. Facial expression
    e. Overall impact on the audience

Subject Title: PROFESSIONAL PRACTICES -III **Subject Code: CO4006**

Contents: Theory

Sr. No.	Activity	Hours
01	**INDUSTRIAL VISITS(any 2)** Structured industrial visits be arranged and report of the same should be submitted by the individual student, to form a part of the term work. The industrial visits may be arranged in the following areas / industries (any two): 1) Telephone Exchange 2) District Level National Information Center (NIC) 3) Any other	**10**
02	**GUEST LECTURES** By professional / industrial expert be organized from any three of the following areas: Interview Techniques Cyber Laws Nano Technology Ethical Hacking Any other suitable topic	**6**
03	**INFORMATION SEARCH** Information search can be done through manufacturers, catalogue, internet, magazines; books etc. and submit a report. Following topics are suggested : i) Market survey of different processors. ii) Blue tooth Technology iii) Artificial Technology iv) Data ware-housing v) Cryptography vi) Digital signal processing vii) Bio-informatics viii) Any other suitable areas	**16**
04	**SEMINAR** Each student shall submit a report of at least 10 pages and deliver a seminar (Presentation time – 10 minutes) i) Parallel computing ii) Distributed Processing iii) Wireless communication iv) Virtual reality v) Embedded system vi) Computer security vii) Multimedia Techniques viii) Bio-Technology ix) Any other suitable topic	**8**
05	**MINI PROJECT / ACTIVITIES** a) Web-site development b) Database related any topic c) System projects in VB like notepad, editors d) Animation projects using C, C++, VB etc e) Any other suitable topic.	**8**
	TOTAL	**36**

COURSE NAME : ALL BRANCHES OF DIPLOMA IN ENGINEERING

COURSE CODE : ET/ME/CO

SEMESTER : FOURTH

SUBJECT TITLE : DEVELOPMENT OF GENERIC SKILLS- I

SUBJECT CODE : CO4011

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme		Examination Scheme						
TH	**TUT**	**PAPER HRS**	**TH**	**INT**	**PR**	**OR**	**TW**	**TOTAL**
01	--	02	40	10	--	--	--	50

Pre-requisites:-The student must know the following concept:

1. Communication skills.

Objectives:-The student will be able to

1. Develop reading skills.
2. List techniques of acquisition of information from different sources.
3. Write notes from the text for better learning.
4. Apply the techniques of enhancing the memory power.
5. Develop assertive skills.
6. Prepare reports on industrial visits.
7. Apply techniques of effective time management.
8. Set the goal for personal development.
9. Enhance creative skills.
10. Develop good habits to overcome stress.
11. Face problem with confidence.

Subject Title: DEVELOPMENT OF GENERIC SKILLS-I Subject Code: CO 4011

Contents: Theory

Unit	Name of Topic	Hours	Marks
01	**IMPORTANCE OF DGS** Introduction to subject, importance in present context, application.	**01**	**05**
02	**INFORMATION SEARCH** Information source –Primary, secondary, tertiary Print and non - print, documentary, Electronic Information center, Library, exhibition, Government Departments. Internet Information search – Process of searching, collection of data -questionnaire, taking Interview, observation method.	**02**	**10**
03	**WRITTEN COMMUNICATION** Methods of taking notes Report writing-Concept, types and format.	**02**	**05**
04	**SELF ANALYSIS** Understanding self: Attitude, aptitude, assertiveness, self esteem, Confidence buildings. Concept of motivation.	**02**	**05**
05	**SELF DEVELOPMENT** Stress Management-Concept, causes, effects, remedies to Avoid/minimize stress. Health Management – Importance, dietary guidelines and exercises. Time management- Importance, Process of time planning, Urgent Vs importance, Factors leading to time loss and ways to handle it, Tips for effective time management. Emotion-concept, types, controlling, emotional intelligent. Creativity-concept, factors enhances creativity. Goal setting-concept, setting smart goal.	**06**	**10**
06	**STUDY HABITS** Ways to enhance memory and concentration. Developing reading skill. Organization of knowledge, Model and methods of learning.	**03**	**05**
	TOTAL	**16**	**40**

Recommended Books:

Sr. No.	Title	Author	Publisher
01	Adams Time management	Marshall Cooks	Viva Books
02	Basic Managerial Skills for All	E.H. Mc Grath , S.J.	Pretice Hall of India, Pvt Ltd
03	Body Language	Allen Pease	Sudha Publications Pvt. Ltd.
04	Creativity and problem solving	Lowe and Phil	Kogan Page (I) P Ltd
05	Decision making & Problem Solving	Adair, J	Orient Longman
06	Develop Your Assertiveness	Bishop , Sue	Kogan Page India
07	Make Every Minute Count	Marion E Haynes	Kogan page India
08	Organizational Behavior	Pearson Education Asia	Tata McGraw Hill ISTE New Delhi
09	Presentation Skills	Michael Hatton (Canada – India Project)	Sterling Publisher Pvt Ltd .
10	Target setting and Goal Achievement	Richard Hale ,Peter Whilom	Kogan page India
11	Time management	Chakravarty, Ajanta	Rupa and Company
12	Working in teams	Harding ham .A	Orient Longman