

**Scheme of Teaching and Examination for
V Semester DIPLOMA in COMPUTER SCIENCE & ENGINEERING**

THEORY

Sl. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME		EXAMINATION - SCHEME					
			Periods per Week	Periods in one Session (Year)	Hours of Exam.	Terminal Exam. (A) Marks	Final Exam. (B) Marks	Total Marks (A+B)	Pass Marks Final Exam.	Pass Marks in the Subject
1.	System Maintenance	18501	04	60	03	20	80	100	26	36
2.	Data Communication & Networking	18502	04	50	03	20	80	100	26	36
3.	Internet & Web Technology	18503	06	60	03	20	80	100	26	36
4.	Software Engineering	18504	04	50	03	20	80	100	26	36
5.	Object Oriented Programming through C++	18505	06	60	03	20	80	100	26	36
Total :-			24					500		

PRACTICAL

Sl. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME		EXAMINATION – SCHEME					
			Periods per Week	Periods in one Session (Year)	Hours of Exam.	Marks Internal Exam. (A)	Marks External Exam. (B)	Total Marks (A+B)	Pass Marks Final Exam.	Pass Marks in the Subject
6.	Data Communication & Network Lab	18506	06	60	03	10	40	50	16	21
7.	Internet & Web Technology Lab	18507	06	60	03	10	40	50	16	21
8.	System Maintenance Lab	18508	06	60	03	10	40	50	16	21
Total :-			18					150		

SESSIONAL

Sl. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME		EXAMINATION - SCHEME			
			Periods per Week	Periods in One Session (Year)	Marks of Internal Examiner (X)	Marks of External Examiner (Y)	Total Marks (X+Y)	Pass Marks in the Subject
9.	In Plant Training & Visit to Work	18509	4 weeks continuous		40	60	100	50
Total :-							100	

Total Periods per Week	42	Total Marks	750
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SYSTEM MAINTENANCE

Subject Code 18501	Theory			No of Period in one session : 60		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	04	-	-	Internal Exam.	:	20

Rationale & Objective:

Today, the computer has become a household thing. In order to understand the proper functioning of Computer System one need to get exposed to various hardware components in the computer system. This subject will expose the diploma students to understand the various hardware components and will teach them to troubleshoot the problems in these components.

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
01	Hardware Organization of PC	(12)
02	Bus Standard and Architecture	(08)
03	HDD	(08)
04	Monitors	(10)
05	Printers	(10)
06	PC Installation	(12)
Total:-		(60)

CONTENTS:

TOPIC: 01 – HARDWARE ORGANIZATION OF PC: **[12]**

- 01.01 The Motherboard of PC
- 01.02 Memory Organization : BIOS, ROM, RAM etc.

TOPIC: 02 – BUS STANDARD AND ARCHITECTURE: **[08]**

- 02.01 PC Bus-16 bit, 32 bit.
- 02.02 Slots-ISA, EIAS, PCI.
- 02.03 Ports-USB, Serial, Com

TOPIC: 03 – HDD: **[08]**

- 03.01 Understanding types (IDE, SCSI, ESDI)
- 03.02 Connecting HDD.

TOPIC: 04 –MONITORS: **[10]**

- 04.01 Type of monitors CCA, HGA, SVGA, PGA and their functions.
- 04.02 Troubleshooting.

TOPIC: 05 –PRINTERS: **[10]**

- 05.01 Types of printers: Dot matrix, inkjet, Laserjet and their working.

TOPIC: 06 – PC INSTALLATION:

[12]

06.01 Installation of motherboard, peripheral devices and Operating System.

06.02 Troubleshooting : Diagnostic Software

Books Recommended:

1. IBM PC Technical Manual -
2. Computer maintenance and repair - Schott Muller
3. Computer Architecture - Raffiquzzaman
4. Hardware and Software of PC, Willey Eastern Ltd., - S. K. Bose
New Delhi.
5. Computer Installation and Trouble shooting, - M. Radhakrishnan and D.
I.S.T.E. Balasubramaniam

DATA COMMUNICATION & NETWORK

Subject Code 18502	Theory			No of Period in one session : 50		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	04	-	-	Internal Exam.	:	20

Rationale:

This course will allow students to develop background knowledge as well as core expertise in data communications and networking, which is one of the fastest growing technologies in our culture today. It forms an integral part of the modern Information Technology. Starting from Intranet in small offices to the global Internet, principles of data communication and networking play an important role.

Objective:

At the end of the course, the students will be able to know:

- Evolution of data communication and networking up to the internet
- Principles of data communication, channel characteristics, signalling, modulation and encoding
- Various transmission media, their comparative study, fibre optics and wireless communication in details
- Categories and topologies of networks
- OSI model vis-à-vis TCP/IP architecture
- Multiplexing, channel error detection and correction, data link protocols
- Ethernet and token ring, X.25 ATM, BISDN
- Details of IP operations in the INTERNET and associated routing principles
- Operation of optical networks, satellite networks and wireless mobile systems
- Strategies for securing network application using cryptography
- Emerging technologies such as SONET, FDDI, mobile telephony etc.

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
01	Fundamentals of Data Communications	(03)
02	Transmission Media	(05)
03	Data Modems	(04)
04	Multichannel Data Communication	(04)
05	Networking Fundamentals	(04)
06	OSI Model and TCP/IP Suite	(08)
07	Data Link Protocol	(04)
08	Local Area Network (LAN)	(04)
09	Wide Area Network (WAN)	(05)
10	Data Transmission Network	(04)
11	Wireless Communication	(03)
12	Security and Privacy	(02)
Total		(50)

CONTENTS:

<u>TOPIC: 01 – FUNDAMENTALS OF DATA COMMUNICATIONS:</u>	[03]
Introduction, Communication Systems, Signal and data, Channel Characteristics, Transmission modes, Synchronous and asynchronous transmission.	
<u>TOPIC: 02 – TRANSMISSION MEDIA:</u>	[05]
Guided Media:	
- Twisted pair	
- Co-axial cable	
- Optical fibre	
Unguided Media	
- Radio, VHF, Microwave, Satellite	
Infrared Transmission	
<u>TOPIC: 03 – DATA MODEMS:</u>	[04]
Concept of Modulation, Pulse Code Modulation (PCM), Shift Keying (ASK, FSK, PSK)	
<u>TOPIC: 04 – MULTICHANNEL DATA COMMUNICATION:</u>	[04]
Circuits, channels and multi channeling, Multiplexing (FDM, TDM, WDM).	
<u>TOPIC: 05 – NETWORKING FUNDAMENTALS:</u>	[04]
An overview of networking	
Switching techniques:	
- Circuit Switching	
- Packet Switching	
- Message Switching	
Network Topologies:	
- Bus Topologies	
Ring Topologies:	
Star Topologies:	
<u>TOPIC: 06 – OSI MODEL AND TCP/IP SUITE:</u>	[08]
Network architectures, Layering the communication process, The need for layered solutions, Open Systems Interconnection (OSI) model, TCP/IP Model, Introduction to Protocol TCP/IP, UDP, FTP.	
<u>TOPIC: 07 – DATA LINK PROTOCOL:</u>	[04]
Protocol, Transmission Control Procedure:	
- Synchronous Protocols	
- Asynchronous Data Link Control (DLC) Protocols	
Character Oriented Protocols (COP):	
Bit Oriented Protocols (BOP):	
Synchronous Data Link Control Protocol (SDLC)	
High Level Data Control Protocol (HDLC)	
<u>TOPIC: 08 – LOCAL AREA NETWORK (LAN):</u>	[04]
Baseband versus Broadband, Media Access Control, LAN hardware, LAN operating systems	
Extending LAN: Fibre Optic Extension, Repeaters, Bridges, Router, Gateways, Switches Hubs, Virtual LANs	

TOPIC: 09 – WIDE AREA NETWORK (WAN): [05]

Router Concepts:

- Forwarding Function
- Filtering Function

Routing Method - Static and Dynamic routing

TOPIC: 10 – LOCAL AREA NETWORK (LAN): [04]

Telephone Networks:

- Dial up Telephone Networks
- Leased Line
- X.25

The Integrated Services Digital Network (ISDN):

- Narrow band ISDN
- Broadband ISDN Service

Frame Relay, Cell Relay

TOPIC: 11 – WIRELESS COMMUNICATION: [03]

Cellular Radio, Telephony (GSM), VSAT

TOPIC: 12 – SECURITY AND PRIVACY: [02]

Network Security, Firewall, VPN

Books Recommended:

Text Books

1. Data Communication and Networking, First Edition, 1999 - B. Forouzan Tata McGraw Hill
2. Data and Communication, Sixth Edition, 2002 - W. Stallings Prentice Hall of India
3. Wireless and Mobile Network Architecture, 2001 - Lin and Chlatmtac John Wile and Sons, India

Reference Books

1. Computer Networks, Fourth Edition, 2002 - A.S. Tanenbaum Pearson Education
2. Communication Networks, First Edition, 2000 - A. Leon-Gracia and I Widjaja Tata McGraw Hill
3. An Engineering Approach to Computer Networking, 1999 - S. Keshav Addison Wesley
4. Understanding Data Communication and Networks, Second Edition, 1999 - William A. Shay Brook Cole Publishing Company
5. Local Area Networks, 1997 - C.E. Keiser Tata McGraw Hill

INTERNET AND WEB TECHNOLOGY

Subject Code 18503	Theory			No of Period in one session : 60		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	06	-	-	Internal Exam.	:	20

Rationale & Objective:

Internet is the easiest and fastest way of communication. The use of Internet can be easily seen in our day to day life, be it sending a mail or looking for some information, its importance can't be overruled. This subject exposes the diploma students to basic networking technology and the Internet technology. IT will teach the students, the Internet technology and different features available on the Internet.

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
01	Review of Network concepts.	(08)
02	IP Addressing	(09)
03	IP Datagram	(09)
04	TCP	(09)
05	Domain Name System	(07)
06	E-mail and File transfer	(10)
07	World Wide Web (WWW)	(08)
Total:-		(60)

CONTENTS:

TOPIC: 01 –REVIEW OF NETWORK CONCEPTS: [08]

- 01.01 Introduction to Networking
- 01.02 Network Topology, Interconnecting devices: (Repeaters, Bridges, Switches, Router, Gateway, Hub)
- 01.03 Introduction to Wi-Fi and Bluetooth
- 01.04 OSI Stack and TCP/IP model.

TOPIC: 02 –IP ADDRESSING: [09]

- 02.01 Scheme.
- 02.02 Hierarchy Classes.
- 02.03 Division of Address space.
- 02.04 Special Address.

TOPIC: 03 –IP DATAGRAM: [09]

- 03.01 Header.
- 03.02 Virtual Packet.
- 03.03 Routing Tables.
- 03.04 Error detection and correction.
- 03.05 Ethernet , Fast Ethernet and Gigabit Ethernet, Comparison between IPV4 and IPV6

TOPIC: 04 –TCP: [09]

- 05.01 Segment Format of TCP
- 05.02 Three way handshake
- 05.03 Congestion control.

TOPIC: 05 –DOMAIN NAME SYSTEM: [07]

- 06.01 Structure
- 06.02 DNS client, server model
- 06.03 Hierarchy Multiple Server
- 06.04 Resolving a Name.

TOPIC: 06 –E-MAIL AND FILE TRANSFER:

[10]

- 07.01 SMTP
- 07.02 Mail Transfer
- 07.03 Dial up and POP
- 07.04 FTP general model and user interface.
- 07.05 File name translation and Network file system.

TOPIC: 07 –WORLD WIDE WEB (WWW):

[08]

- 08.01 Interface.
- 08.02 Hypertext.
- 08.03 Hypermedia.
- 08.04 HTML format and representation.
- 08.05 Embedding graphics and images.
- 08.06 HTTP.

Books Recommended:

1. Network Theory - A. Tanaunbomb
2. HTML-4 for world wide web, Wesley (Singapore) Pvt., New Delhi. - Castro Addison
3. Using the world wide web, Prentice Hall of India Pvt., New Delhi - Wall
4. Internet for everyone, Vikas Publishing House Pvt. Ltd., New Delhi. - Alexis Leon and Mathew Leon
5. HTML 4.0 Unlashed, Tech Media Publication - Rick Dranell
6. Teach yourself HTML 4.0 with XML, DHTML and Java Script, IDG Books India Pvt. Ltd., New Delhi - Stephanie, Cottrell, Bryant

SOFTWARE ENGINEERING

Subject Code 18504	Theory			No of Period in one session : 50		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	04	-	-	Internal Exam.	:	20

Rationale & Objective:

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
01	Software Engineering Concepts	(04)
02	Software Life Cycle Models	(08)
03	Software Requirements Analysis and Design	(10)
04	Programming Tools and Standards	(08)
05	Testing and Maintenance	(10)
06	Software Project Management	(10)
		(50)

CONTENTS:

TOPIC: 01 – SOFTWARE ENGINEERING CONCEPTS: **[04]**

- 01.01 Categories and characteristics of software systems
- 01.02 Attributes of a good software product
- 01.03 Software Engineering (SE) principles and their role in software system design

TOPIC: 02 – SOFTWARE LIFE CYCLE MODELS: **[08]**

- 02.01 Classical life cycle, iterative waterfall model, spiral model, comparison of different models

TOPIC: 03 – SOFTWARE REQUIREMENTS ANALYSIS AND DESIGN: **[10]**

- 03.01 Need and preparation of Software requirements.
- 03.02 Design concepts and notations; high level and low level design; modularization techniques; structured and object-oriented design; attributes of good requirement specifications and design.

TOPIC: 04 – PROGRAMMING TOOLS AND STANDARDS: **[08]**

- 04.01 Procedural and nonprocedural languages..
- 04.02 Coding standards and guidelines.

TOPIC: 05 – TESTING AND MAINTENANCE: **[10]**

- 05.01 Introduction to verification and validation methods.
- 05.02 Debugging and testing strategies.
- 05.03 Black box and white box testing of software systems
- 05.04 Software maintenance, configuration management.

TOPIC: 06 – Software Project Management:

[10]

06.01 Project size and its categories

06.02 Planning and estimations

06.03 Gantt and PERT charts; software measures: LOC, function point and COCOMO models

Books Recommended:

1.	Software Engineering	- R.S. Pressman McGraw Hill International Edition
2.	Software Engineering, 1996	- Ghezzi C.et al Prentice Hall of India
3.	Software Engineering	- Pankaj Jalote, Narosa Publication

OBJECT ORIENTED PROGRAMMING THROUGH C++

Subject Code 18505	Theory			No of Period in one session : 60		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	06	-	-	Internal Exam.	:	20

Rationale:

C++ is an object-oriented language, which enables a programmer to write programs, so that the object can be made to work collaboratively to produce the solution to live problems. By undergoing this course, the students will be able to understand the principles of object oriented programming, write programs in C++ and use them to make small application programs.

Objective:

The objective of the course is to make the students understand the basic concepts of object-oriented programming language C++ (Classes, Objects, Inheritance and Polymorphism).

The Course will enable the students to:

- Understand OOPs concepts.
- Use of various C++ constructs and functions.
- Use of C++ to develop programs to solve the real world problems.
- Implementing Inheritance, Encapsulation, Operator Over-loading and Dynamic Binding in C++.
- C++ Streams and concept of exception handling, class libraries, fundamentals of Microsoft foundation classes.

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
01	Introduction to Object Oriented Programming	(04)
02	Elements of C++ Language	(10)
03	Functions	(08)
04	Objects and Classes	(08)
05	Constructors and Destructors	(06)
06	Operator Overloading	(08)
07	Derived Classes and Inheritance	(08)
08	Pointers	(08)
		(60)

CONTENTS:

TOPIC: 01 – INTRODUCTION TO OBJECTS ORIENTED PROGRAMMING (OOP): [04]

- Basic concept of OOPs
- Comparison of procedural programming and OOP
- Advantages of OOP, OOP Languages
- Definitions: Class, Objects
- Concepts of inheritance and encapsulation
- Operator overloading
- Dynamic binding
- Overview of OOP using C++
- Basic program construction: main and functions, Program statements, class declaration, comments.

TOPIC: 02 – ELEMENTS OF C++ LANGUAGE: [10]

- Tokens and Identifiers: Character Set and Symbols, Keywords, C++ Identifiers
- Variables and Constants: Integers & Characters, Constants and Symbolic constants, Dynamic initialization of variables, reference variables, enumerated variables
- Data Types: Basic data types, arrays and strings, user defined data types
- Operators: Arithmetic, relational operators and operators precedence, logical operators, manipulators, type conversions and type cast operators
- Console I/O: cin, cout functions
- Control Statements: The *if* statement, *if-else*; *else ... if* switch statements
- Loops: *for* and *While-do* statements, *Break*, *continue*, *go to*

TOPIC: 03 – FUNCTIONS: [08]

- Simple functions: Declaration of functions, calling functions, function definition
- Passing arguments and returning values: Passing constants and variables, pass by value
- Return statement, types of functions
- Passing and returning structure variables

TOPIC: 04 – OBJECTS AND CLASSES: [08]

- Declaration of classes and objects in C++, Class definition
- Declaration of members, objects as date, time, objects as functions arguments
- Array of objects
- Returning objects from function
- Structures and classes

TOPIC: 05 – CONSTRUCTORS AND DESTRUCTORS: [06]

- Basic constructors, parameterized constructors, multiple constructors
- Dynamic initialization of objects
- Use of copy constructor
- Dynamic constructors
- Destructors
- Constraints on constructors and destructors

TOPIC: 06 – OPERATOR OVERLOADING:**[08]**

- Overloading unary operators: Operator keyword, Argument and return values, Laminations of increment operators
- Overloading binary operators: Arithmetic operators, Examples: Addition of polar coordinates and concatenation of strings, Comparison operators, Arithmetic assignments operators
- Data and type conversions: Conversion between basic types, Conversion between object and basic types, Conversion between objects of different classes

TOPIC: 07 – DERIVED CLASSES AND INHERITANCE:**[08]**

- Derived classes and Base class: Defining a derived class, Accessing the base class members, The protected access specifier
- Derived class constructors
- Overriding the member functions
- Class hierarchies: Abstract base class, Constructors and member functions
- Inheritance: Public and private inheritance.

TOPIC: 08 – POINTERS:**[08]**

- Addresses and Pointers: The address of operator & Pointer variables, Accessing the variable pointed to Pointer to void
- Pointer and Arrays
- Pointers and Functions: Call by value, Call by reference, pointer to functions, passing function to another function
- Pointers and strings: Pointer to string constants, strings as function arguments, Arrays of pointers to strings
- Pointers to objects, Pointers to pointers.

Books Recommended:**Text Books**

- | | |
|---|--------------------------------------|
| 1. C++ Primer, Third Edition, 1998 | - Stanley B. Lippman, Addison-Wesely |
| 2. Problem Solving with C++, Second Edition, 1999 | - W. Savitch Pearson Education |
| 3. Object Oriented Programming with C++, 1999 | - E. Balagurusamy Tata McGraw Hill |
| 4. Object Oriented Programming with C++, 1999 | - Nabajyoti Barkakati PHI |

Reference Books

- | | |
|---|--|
| 1. Object Oriented Programming in C++, Fourth Edition, 2001 | - R. Lafore
Techmedia |
| 2. The Elements of C++ Programming, Third Edition, 2000 | - B. Stroustrup
Addison Wesley |
| 3. Mastering C++, First Edition, 1997 | - K.V. Venugopal, R. Kumar and
T. Tavishankar, Tata McGraw Hill |

DATA COMMUNICATION & NETWORK

Subject Code 18506	Practical			No of Period in one session : 60		
	No. of Periods Per Week			Full Marks	:	50
	L	T	P/S	Annual Exam.	:	40
	-	-	06	Internal Exam.	:	10

Rationale & Objective:

CONTENTS:

List of Experiments:

- 01 Consider a PCM system in which 24 signals are to be time-multiplexed. Each signal has a bandwidth from 400 to 3.4 KHz the sampling rate is 33.33% higher than the theoretical minimum, and 8 bits are used for each sample. Determine the output bit rate.
- 02 A very heavily loaded 1-km-long 10-Mbps token ring has a propagation speed of 200m/ usec. Fifty stations are uniformly spaced around the ring. Data frames and are thus included as spare bits within the data frames and are effectively free. The token is 8 bits. Calculate the effective data rate of the ring.
- 03 Explain the steps involved in computing the checksum for a given message frame, and hence find the complete frame bit pattern for the data given below:

Data polynomial $D(x) = 1101011011$
Generator polynomial $G(x) = x^4 + x + 1$
- 04 Write a program to simulate the operation of a token ring with no priorities. Take into account the walk time between stations and the time required to drain the ring before regenerating the token. Now change the simulator to allow stations to regenerate the token as soon as they are done transmitting, without waiting to drain the ring.
- 05 Configure a machine to assign an IP address to it and also put a suitable subnet mask.
- 06 Connect two machines to a hub and ping one machine from the other. Now change the subnet masks of the machines and see the effects.
- 07 Connect a client to a server via a hub and telnet to log in to the server.
- 08 Connect two machines to two different hubs and connect the hubs to a switch. Connect a server to the switch and telnet to the server from the machines.

INTERNET AND WEB TECHNOLOGY

Subject Code 18507	Practical			No of Period in one session : 60		
	No. of Periods Per Week			Full Marks		
	L	T	P/S	Annual Exam.	:	50
	-	-	06	Internal Exam.	:	40
						10

Rationale & Objective:

Internet is a great source of information and communication in present world. This course will allow student to explore basics of Internet. The students are expected to create web pages and to connect them, using features available in HTML and DHTML. This course allows students to study more about the web browsers present in present market and to compose them with this course the diploma student is expected to learn more about Internet and web technologies.

CONTENTS:

List of Experiments:

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
01	Introduction of basic commands of HTML.	(06)
02	To create a web page using basic feature of HTML.	(06)
03	To create two web pages and connect them using functions available in HTML.	(06)
04	To add pictures in a web page, changing in a web page, changing size and alignment of picture using HTML.	(04)
05	Using the internet- Studying the basic features of web pages.	(06)
06	To understand the differences and features available in different web browsers.	(04)
07	Using the telnet to access the resources from the server.	(08)
08	Creating web pages using Dynamic HTML and inter lanching them.	(08)
09	Using Basics of Internet-Google search, E-mail etc., downloading files from Internet.	(06)
10	Estimating Connection using dial up and troubleshooting the errors if any.	(06)
Total:-		(60)

Books Recommended:

- | | |
|--|-------------------------------|
| 1. Network Theory | - A. Tanaunbomb |
| 2. HTML-4 for world wide web, Wesley (Singapore) Pvt., New Delhi. | - Castro Addison |
| 3. Using the world wide web, Prentice Hall of India Pvt., New Delhi | - Wall |
| 4. Internet for everyone, Vikas Publishing House Pvt. Ltd., New Delhi. | - Alexis Leon and Mathew Leon |
| 5. HTML 4.0 Unlashed, Tech Media Publication | - Rick Dranell |
| 6. Teach yourself HTML 4.0 with XML, DHTML and Java Script, IDG Books India Pvt. Ltd., New Delhi | - Stephanie, Cottrell, Bryant |

SYSTEM MAINTENANCE LAB

Subject Code 18508	Practical			No of Period in one session : 60		
	No. of Periods Per Week			Full Marks	:	50
	L	T	P/S	Annual Exam.	:	40
	-	-	06	Internal Exam.	:	10

Rationale & Objective:

This course will allow the students with hand on experience on various components of the computer system. The student can explore the PC and can learn to troubleshoot the problems and errors of any. The diploma students are expected to learn the basic of various component and there interconnection and troubleshooting, through this course.

CONTENTS:

List of Experiments:

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
01	To identify various components, devices and section of PC	(04)
02	To study motherboard, Intel Pentium IV Processor (Introduction)	(06)
03	To interconnect the system with the video monitor, mouse, keyboard etc. and testing the operation of PC.	(04)
04	To interconnect hard disk, and to connect Input / Output devices such as printers and TV tuner card and to install them.	(06)
05	Study the bus system and various signal lines.	(04)
06	Study of peripherals and their speed and capacity	(08)
07	To install various operating systems such as Windows, Unix and Linux.	(12)
08	To study the protection required for Windows and Linux Operating System.	(06)
09	To study the various functions such as disk fragmentation and add/ remove hardware / software functions under Windows Operating System.	(06)
10	To study the Burning process of CD under the latest version of any CD writing CD. Study exiting multi session disk etc.	(04)
Total:-		(60)

Books Recommended:

1. IBM PC Technical Manual -
2. Computer maintenance and repair - Schott Muller
3. Computer Architecture - Raffiquzzaman
4. Hardware and Software of PC, Willey Eastern Ltd., New Delhi. - S. K. Bose
5. Computer Installation and Trouble shooting, I.S.T.E. - M. Radhakrishnan and D. Balasubramaniam

IN PLANT TRAINING AND VISIT TO WORKS

Subject Code 18509	Sessional			No of Period in one session :		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	60
	4 Weeks Continuous			Internal Exam.	:	40

Rationale:

A student is required to develop a skill to synthesize his knowledge, skill and attitudes gained while going through different courses. So, it is essential to expose the students to the world of work to be familiar with the real life situations and understand the problem there in.

Objective:

So, “In plant training and visit to work” is introduced to place the students in actual work situations for stipulated period with the objectives:-

- To understand and conceptualize the subject based knowledge given in class room in the context of its application at work places.
- To develop understanding regarding the nature of activities, size and scale of operations & environments in which they are going to work.
- To understand how the technical, managerial, quality control, safety & other principles are being applied in real life situations.
- To know how a supervisor / technician perform day to day work and co-ordinate shop floor activities.
- To develop confidence amongst them to use and apply institute based knowledge and skills to solve practical problems in world of work.
- Develop interpersonal relationship, communication skill and positive attitudes.

CONTENTS

The industries / organisations for industrial training / visit should be decided by institute faculty in consultation with respective industrial establishment. It is necessary that each organization is visited well in advance and activities to be performed by students are well defined. The chosen activities should be of curricular interest to students and of professional value to industrial / field organizations. Efforts should be made to provide opportunities of task oriented or problem solving oriented to students. Students are to prepare report of work done by them.

The report should include the followings:-

<u>S.No.</u>	<u>Topics</u>
01	Introduction.
02	Types of industries.
03	Location.
04	Organisation Structure
05	Technical Details.
06	Marketing & Marketing Details.
07	Man Power & its Management.
08	Performance Details

- 09 Future Programme
- 10 Conclusion-
- Observations
 - Typical Characteristics
 - Area of Weakness
 - Suggestions
- 11 Others-As introduced by faculty.

It is advisable that the students may be assured both by Industry & Institute faculty. The suggested performance criteria for continuous assessment is given below:-

Activity	-	Weightage in %
Punctuality & Regularity	-	10 %
Initiative in learning / working at site	-	05 %
Level / proficiency of practical skills acquired	-	20 %
Sense of responsibility	-	10 %
Self Expression / Communication Skill	-	10 %
Interpersonal Skills / Human relations	-	05 %
Report Writing Skills	-	25 %
Viva Voice	-	15 %