

STATE BOARD OF TECHNICAL EDUCATION, BIHAR
Scheme of Teaching and Examinations for
V SEMESTER DIPLOMA IN COMPUTER SCIENCE & ENGINEERING
(Effective from Session 2016-17 Batch)

THEORY

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME	EXAMINATION – SCHEME							Credits
			Periods per Week	Hours of Exam.	Teacher's Assessment (TA) Marks (A)	Class Test(CT) Marks (B)	End Semester Exam. (ESE) Marks (C)	Total Marks (A+B+C)	Pass Marks ESE	Pass Marks in the Subject	
1.	System Maintenance	1618501	03	03	10	20	70	100	28	40	03
2.	Data Communication & Networking	1618502	03	03	10	20	70	100	28	40	03
3.	Internet & Web Technology	1618503	03	03	10	20	70	100	28	40	03
4.	Software Engineering	1618504	03	03	10	20	70	100	28	40	03
5.	JAVA	1618505	03	03	10	20	70	100	28	40	03
		Total:- 15					350	500			

PRACTICAL

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME	EXAMINATION – SCHEME					Credits
			Periods per Week	Hours of Exam.	Practical (ESE)		Total Marks (A+B)	Pass Marks in the Subject	
					Internal (A)	External (B)			
6.	Data Communication & Network Lab	1618506	06	03	15	35	50	20	02
7.	Internet & Web Technology Lab	1618507	06	03	15	35	50	20	02
8.	System Maintenance Lab	1618508	06	03	15	35	50	20	02
Total:-			18				150		

TERM WORK

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME	EXAMINATION – SCHEME				Credits
			Periods per week	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 Works -TW	1618509	4 weeks continuous	30	70	100	40	03
		Total:-				100		
		Total Periods per week Each of duration One Hours = 33				Total Marks = 750		24

SYSTEM MAINTENANCE

Subject Code 1618501	Theory			No of Period in one session : 60			Credits 03
	No. of Periods Per Week			Full Marks	:	100	
	L	T	P/S	ESE	:	70	
	03	—	—	TA	:	10	
				CT	:	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 : Theory		Hrs/week	Marks
Unit -1	<u>HARDWARE ORGANIZATION OF PC</u> 01.01 The Motherboard of PC 01.02 Memory Organization : BIOS, ROM, RAM etc.	[12]	
Unit -2	<u>BUS STANDARD AND ARCHITECTURE</u> 02.01 PC Bus-16 bit, 32 bit. 02.02 Slots-ISA, EIAS, PCI. 02.03 Ports-USB, Serial, Com	[08]	
Unit -3	<u>HDD</u> 03.01 Understanding types (IDE, SCSI, ESDI) 03.02 Connecting HDD.	[08]	
Unit -4	<u>MONITORS</u> 04.01 Type of monitors CCA, HGA, SVGA, PGA and their functions. 04.02 Troubleshooting.	[10]	
Unit -5	<u>PRINTERS</u> 05.01 Types of printers: Dot matrix, inkjet, Laserjet and their working.	[10]	
Unit--6	<u>PC INSTALLATION</u> 06.01 Installation of motherboard, peripheral devices and Operating System. 06.02 Troubleshooting : Diagnostic Software	[12]	
Total-		60	

Books Recommended:

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

DATA COMMUNICATION & NETWORK

Subject Code 1618502	Theory			No of Period in one session : 50			Credits
	No. of Periods Per Week			Full Marks	:	100	
	L	T	P/S	ESE	:	70	
	03	—	—	TA	:	10	
				CT	:	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 : Theory		Hrs/week	Marks
Unit -1	<u>FUNDAMENTALS OF DATA COMMUNICATIONS</u> Introduction, Communication Systems, Signal and data, Channel Characteristics, Transmission modes, Synchronous and asynchronous transmission.	[03]	
Unit -2	<u>TRANSMISSION MEDIA</u> Guided Media: <ul style="list-style-type: none"> - Twisted pair - Co-axial cable - Optical fibre Unguided Media <ul style="list-style-type: none"> - Radio, VHF, Microwave, Satellite Infrared Transmission	[05]	
Unit -3	<u>DATA MODEMS</u> Concept of Modulation, Pulse Code Modulation (PCM), Shift Keying (ASK, FSK, PSK)	[04]	
Unit -4	<u>MULTICHANNEL DATA COMMUNICATION</u> Circuits, channels and multi channeling, Multiplexing (FDM, TDM, WDM).	[04]	
Unit -5	<u>NETWORKING FUNDAMENTALS</u> An overview of networking Switching techniques: <ul style="list-style-type: none"> - Circuit Switching - Packet Switching - Message Switching Network Topologies: <ul style="list-style-type: none"> - Bus Topologies Ring Topologies: Star Topologies:	[04]	
Unit--6	<u>OSI MODEL AND TCP/IP SUITE</u> 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.	[08]	
Unit--7	<u>DATA LINK PROTOCOL</u> Protocol, Transmission Control Procedure: <ul style="list-style-type: none"> - 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)	[04]	
Unit--8	<u>LOCAL AREA NETWORK (LAN)</u> Baseband versus Broadband, Media Access Control, LAN hardware, LAN operating systems Extending LAN: Fibre Optic Extension, Repeaters, Bridges, Router, Gateways, Switches Hubs, Virtual LANs	[04]	
Unit--9	<u>WIDE AREA NETWORK (WAN)</u> Router Concepts: <ul style="list-style-type: none"> - Forwarding Function - Filtering Function Routing Method - Static and Dynamic routing	[05]	

Unit--10	<u>LOCAL AREA NETWORK (LAN)</u> Telephone Networks: <ul style="list-style-type: none"> - Dial up Telephone Networks - Leased Line - X.25 The Integrated Services Digital Network (ISDN): <ul style="list-style-type: none"> - Narrow band ISDN - Broadband ISDN Service Frame Relay, Cell Relay	[04]	
Unit--11	<u>WIRELESS COMMUNICATION</u> Cellular Radio, Telephony (GSM), VSAT	[03]	
Unit--12	<u>SECURITY AND PRIVACY</u> Network Security, Firewall, VPN	[02]	
Total		50	

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 1618503	Theory			No of Period in one session : 60			Credits 03
	No. of Periods Per Week			Full Marks	:	100	
	L	T	P/S	ESE	:	70	
	03	—	—	TA	:	10	
				CT	:	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 : Theory		Hrs/week	Marks
Unit -1	<u>REVIEW OF NETWORK CONCEPTS</u>	[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.		
Unit -2	<u>IP ADDRESSING</u>	[09]	
	02.01 Scheme.		
	02.02 Hierarchy Classes.		
	02.03 Division of Address space.		
	02.04 Special Address.		
Unit -3	<u>IP DATAGRAM</u>	[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		
Unit -4	<u>TCP</u>	[09]	
	04.01 Segment Format of TCP		
	04.02 Three way handshake		
	04.03 Congestion control.		
Unit -5	<u>DOMAIN NAME SYSTEM</u>	[07]	
	05.01 Structure		
	05.02 DNS client, server model		
	05.03 Hierarchy Multiple Server		
	05.04 Resolving a Name.		

Unit--6	<u>E-MAIL AND FILE TRANSFER</u> 06.01 SMTP 06.02 Mail Transfer 06.03 Dial up and POP 06.04 FTP general model and user interface. 06.05 File name translation and Network file system.	[10]	
Unit--7	<u>WORLD WIDE WEB (WWW):</u> 07.01 Interface. 07.02 Hypertext 07.03 Hypermedia. 07.04 HTML format and representation. 07.05 Embedding graphics and images. 07.06 HTTP.	[08]	
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 |

SOFTWARE ENGINEERING

Subject Code 1618504	Theory			No of Period in one session : 50			Credits 03
	No. of Periods Per Week			Full Marks	:	100	
	L	T	P/S	ESE	:	70	
	03	—	—	TA	:	10	
				CT	:	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 : Theory		Hrs/week	Marks
Unit -1	<u>SOFTWARE ENGINEERING CONCEPTS</u> 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	[04]	
Unit -2	<u>SOFTWARE LIFE CYCLE MODELS</u> 02.01 Classical life cycle, iterative waterfall model, spiral model, comparison of different models	[08]	
Unit -3	<u>SOFTWARE REQUIREMENTS ANALYSIS AND DESIGN</u> 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.	[10]	
Unit -4	<u>PROGRAMMING TOOLS AND STANDARDS</u> 04.01 Procedural and nonprocedural languages.. 04.02 Coding standards and guidelines.	[08]	
Unit -5	<u>TESTING AND MAINTENANCE</u> 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.	[10]	
Unit--6	<u>Software Project Management</u> 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	[10]	
Total		50	

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

JAVA

Subject Code 1618505	Theory			No of Period in one session : 60			Credits 03
	No. of Periods Per Week			Full Marks	:	100	
	L	T	P/S	ESE	:	70	
	03	—	—	TA	:	10	
				CT	:	20	

Rationale:

This course is designed to impart knowledge and skills required to solve the real world problems using object-oriented approach utilizing Java language constructs. This course covers the subject in two parts, viz, Java Language and Java Library.

Objective:

After completion of the course students is expected to understand the following:

- Java tokens for creating expressions and creating datatypes.
- The way various expression and data types are assembled in packages.
- Implementation of Inheritance, Exception handling and Multithreading in Java.
- Java I/O basics and Applets.
- Setting up GUI using AWT/ Swing.
- Network Programming in Java.
- Accessing relational databases from Java Programmes.

Contents : Theory			Hrs/week	Marks
UNIT-1	<u>THE JAVA LANGUAGE:</u>		[50]	
	01.01	Introduction to Java	[02]	
	01.01.01	An overview of JAVA, JAVA Applets and Applications.		
	01.01.02	Difference between Java Script and JAVA.		
	01.01.03	Object Oriented programming features.		
	01.02	Data types, Variable & Arrays	[04]	
	01.02.01	Java Token & Keywords		
	01.02.02	Integers types, Floating point types		
	01.02.03	The JAVA class libraries		
	01.02.04	Declaring a variable, Dynamic initialization		
	01.02.05	The scope and lifetime of variable		
	01.02.06	Type conversion and casting		
	01.02.07	Arrays: - One-dimensional arrays - Multi-dimensional arrays	[06]	
	01.02.08	Alternative array declaration syntax		
	01.03	Operators	[04]	
	01.03.01	Arithmetic operations		
	01.03.02	The Bitwise operators		
	01.03.03	Relational operators		
	01.03.04	Boolean logical operators		
	01.03.05	The assignment operator		
	01.03.06	The ? Operator		

	01.03.07	Operator precedence		
	01.04	Control Statements	[06]	
	01.04.01	Selection statements		
	01.04.02	Iteration statements		
	01.05	Introduction Classes and objects	[08]	
	01.05.01	Class fundamentals		
	01.05.02	Declaring objects, Assigning object reference variables		
	01.05.03	Introducing methods		
	01.05.04	Constructors		
	01.05.05	Garbage Collection		
	01.05.06	A stack class, overloading constructors		
	01.05.07	Using objects as parameters, argument passing		
	01.05.08	Returning objects, Recursion		
	01.06	Inheritance	[06]	
	01.06.01	Inheritance basics, member access and inheritance		
	01.06.02	Using class, creating a multilevel hierarchy		
	01.06.03	Method overriding, dynamic method dispatch		
	01.06.04	Using abstract classes, using final with inheritance, the object class		
	01.07	Packages and Interfaces	[04]	
	01.07.01	Packages: Defining a package, understanding class path, importing packages.		
	01.07.02	Interfaces: Defining an interface,		
	01.08	Exception handling	[04]	
	01.08.01	Exception handling fundamentals		
	01.08.02	Exception types, uncaught exceptions, using try and catch		
	01.09	Multithreaded Programming	[02]	
	01.09.01	The JAVA thread model, The main thread, creating a thread		
	01.09.02	Alive () and Joint (), Suspend () and Resume (), Thread priorities.		
	01.10	I/O, Applets and Other Topics	[04]	
	01.10.01	I/O Basics: Streams, The stream classes, The predefined streams, Reading console input, Writing console output, Reading and Writing files.		
	01.10.02	Applet fundamentals		
UNIT-2	<u>THE JAVA LIBRARY:</u>		[10]	
	02.01	String Handling	[02]	
	02.01.01	The string constructor, Special string operations		

	02.02	Exploring JAVA Lang	[02]	
	02.02.01	Simple type wrappers, Runtime memory management		
	02.02.02	Array Copy, Object, Clone () and the cloneable interface.		
	02.02.03	Class & class loader		
	02.03	The Utility Classes	[02]	
	02.03.01	The enumeration interface, Vector & Stack		
	02.03.02	Dictionary, Hash-table, string tokenizer		
	02.03.03	Bitset		
	02.03.04	Date: Date Comparison, String and time zones		
	02.03.05	Random, Observer interface		
	02.04	Input/ Output - Exploring JAVA I/O	[04]	
	02.04.01	The JAVA I/O classes and interface		
	02.04.02	File Namefilter & Directories		
	02.04.03	I/O stream classes: File input stream, file output stream, Byte array input stream, Byte array output stream, Filtered streams		
	02.04.04	Buffered streams: Buffered input stream, Buffered output stream, Pushback input stream, Sequence input stream		
Total			60	

Books Recommended:-

Text Books:-

1.	The Complete Reference - Java2, Fourth Edition, 2001	-	H. Schildt, Tata McGraw Hill
2.	Java: How to Program Java 2, Second Edition, 2001	-	Dietal and Dietel, Pearson Education

Reference Books:-

1.	Java Examples in a Nutshell, Third Edition, 2001	-	D. Hanagan 'O' Reilly
2.	A Programmers Guide to Java Certification, First Edition, 1999	-	K. Mughal and R.W. Rasmuessen Pearson Education Comprehensive Primer Publication
3.	Java Foundation Classes	-	M.T. Nelson, Tata McGraw Hill

DATA COMMUNICATION & NETWORK LAB

Subject Code 1618506	Practical			No of Period in one session :			Credits
	No. of Periods Per Week			Full Marks	:	50	02
	L	T	P/S	ESE	:	50	
	—	—	06	Internal	:	15	
				External	:	35	

Rationale & Objective:

List of Experiments:

	Contents : Practical	Hrs/week	Marks
Unit -1	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.		
Unit -2	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.		
Unit -3	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 $G(x) = x^4 + x + 1$		
Unit -4	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.		
Unit -5	Configure a machine to assign an IP address to it and also put a suitable subnet mask.		
Unit -6	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.		
Unit -7	Connect a client to a server via a hub and telnet to log in to the server.		
Unit -8	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 LAB

Subject Code 1618507	Practical			No of Period in one session : 60			Credits 02
	No. of Periods Per Week			Full Marks	:	50	
	L	T	P/S	ESE	:	50	
	—	—	06	Internal	:	15	
				External	:	35	

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.

List of Experiments:

Contents : Practical		Hrs/week	Marks
Unit -1	Introduction of basic commands of HTML.	(06)	
Unit -2	To create a web page using basic feature of HTML.	(06)	
Unit -3	To create two web pages and connect them using functions available in HTML.	(06)	
Unit -4	To add pictures in a web page, changing in a web page, changing size and alignment of picture using HTML.	(04)	
Unit -5	Using the internet- Studying the basic features of web pages.	(06)	
Unit -6	To understand the differences and features available in different web browsers.	(04)	
Unit -7	Using the telnet to access the resources from the server.	(08)	
Unit -8	Creating web pages using Dynamic HTML and inter lunching them.	(08)	
Unit -9	Using Basics of Internet-Google search, E-mail etc., downloading files from Internet.	(06)	
Unit -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 1618508	Practical			No of Period in one session : 60			Credits 02
	No. of Periods Per Week			Full Marks	:	50	
	L	T	P/S	ESE	:	50	
	—	—	06	TA	:	15	
				CT	:	35	

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.

List of Experiments:			
Contents : Practical		Hrs/week	Marks
Unit -1	To identify various components, devices and section of PC	(04)	
Unit -2	To study motherboard, Intel Pentium IV Processor (Introduction)	(06)	
Unit -3	To interconnect the system with the video monitor, mouse, keyboard etc. and testing the operation of PC.	(04)	
Unit -4	To interconnect hard disk, and to connect Input / Output devices such as printers and TV tuner card and to install them.	(06)	
Unit -5	Study the bus system and various signal lines.	(04)	
Unit -6	Study of peripherals and their speed and capacity	(08)	
Unit -7	To install various operating systems such as Windows, Unix and Linux.	(12)	
Unit -8	To study the protection required for Windows and Linux Operating System.	(06)	
Unit -9	To study the various functions such as disk fragmentation and add/ remove hardware / software functions under Windows Operating System.	(06)	
Unit -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

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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 - TW

Subject Code 1618509	Term Work			No of Period in one session :			Credits
	No. of Periods Per Week			Full Marks	:	100	
	L	T	P/S	Internal	:	30	
	—	—	4 week Continues	External	:	70	

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 st 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 will 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:-

Contents : Practical		Hrs/week	Marks
Unit -1	Introduction		
Unit -2	Types of industries.		
Unit -3	Location.		
Unit -4	Organisation Structure		
Unit -5	Technical Details.		
Unit -6	Marketing & Marketing Details.		
Unit -7	Man Power & its Management.		
Unit -8	Performance Details		

Unit -9	Future Programme		
Unit -10	Conclusion- <ul style="list-style-type: none"> - Observations - Typical Characteristics - Area of Weakness - Suggestions 		
	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 %