Course Name: Understanding the Personal Computer
Course Code: PGDNA111

Objectives:
Students will learn
- Create an awareness of various components of Computer Systems
- Learn to maintain, upgrade, and troubleshoot your PC system.
- Provide experience in upgrading and repairing Personal Computers

Prerequisites:
Basic knowledge of Computer Science

1. **PC Components, Features, and System Design**: History of the PC, Birth of the Personal Computer, the IBM Personal Computer, the PC Industry 30 Years Late. PC components, Features, and System Design, Processor Types and Specifications: Microprocessor History, Processor Specifications, Processor Features, Processor Socket and Slot Types.

2. **Primary Memory**: Memory Basics, ROM ,DRAM ,Cache Memory, SRAM .Memory Standards Speed and Performance ,Fast Page Mode, Extended Data Out RAM, SDRAM .Memory Modules ,Determining a Memory Module’s Size and Features, Memory Banks ,Memory Module Speed, RAM Upgrades Purchasing Memory, Installing Memory Modules.


4. **Video and Audio Hardware**: Display Adapters and Monitors, Video Display Adapters, Video Adapter Types, Integrated Video/Motherboard ,Chipsets ,CPUs with Integrated Video Monitors ,Display specifications ,Monitors: LCD, LED, CRT, Plasma Display ,LCD and DLP Projectors.Early PC Sound Cards, Limitations of Sound Blaster Pro Compatibility ,Microsoft Windows and Audio Support

Main Reference Book(s):
1) Mueller Scott, “Upgrading and Repairing PCs”, Pearson India
4) Pyles James, “PC Upgrade and Repair Street Smarts”, Wiley India

Accomplishments of the student after completing the course:
At the end of the work student will be able to
- Appreciate the principles underlying the functioning of computer system and operating systems, describe the problems and challenges associated with it, and evaluate the effectiveness and shortcomings of their solutions
- Perform basic tasks of lab administrator / lab technician
- Setup and maintain computer labs
Course Name: Networking-1  
Course Code: PGDNA112  

Objectives:  
Students will learn  
• Introduce principles of Computer Networks  
• Hardware and Software components necessary for building a Network  
Build and trouble shooting a network.  

Prerequisites:  
Computer fundamentals.  


Main Reference Book(s):  
3) Paul Browning, CISCO CCNA simplified, Cisco Press  

Accomplishments of the student after completing the course:  
At the end of the work student will be able to  
• Understand and build networks using the components  
• Understand Network Topologies and learn to install Network Operating System  
• Understand network design concepts server administration.  

*****     *****     *****
Course Name: Wireless Communication and Mobile Phone Technology

Course Code: PGDNA113

Objectives:
Students will learn
- To introduce the principles of Wireless communication.
- To understand various types of Wireless networks, related services and protocols.
- To gain hands-on experience on configuring, managing, troubleshooting and securing Wireless networks.

Prerequisites:
Basics of Computer Science

Contents:

1. Introduction to Wireless transmission & Mobile Communication

2. Channel Access Methods
   MAC, SDMA, FDMA, TDMA, CDMA, GSM – Services and System Architecture.

3. Classification of Wireless Networks

4. Protocols and Security in Wireless Networks
   Infrastructure Services and Protocols, Securing Wireless Networks.

5. Configuration, Deployment and Troubleshooting

6. Mobile Ad-hoc and Sensor Networks
Gujarat University


Main Reference Book(s):
4) Soyinka Wale, “Wireless Network Administration”, TMH
5) Rappaport T.S., “Wireless communications, principles and practices”, Pearson Education
8) Fecher K., “Wireless Communications”, Wiley India
9) Schiller J., “Mobile Communications”, Pearson Education.

Accomplishments of the student after completing the course:
At the end of the work student will be able to
• Appreciate various technologies related to Wireless Networking.
• Ability to Plan and Deploy Wireless Networks.
• Configure, Secure and Troubleshoot Wireless Networking Devices.

*****     *****   *****
Course Name: Linux and Shell Scripting

Course Code: PGDNA114

Objectives:
Students will learn
- Appreciate the Linux & Unix Operating System
- Get acquainted with the Linux Commands
- Get an Insight of Shell scripting for Administrative Tasks.

Prerequisites:
Fundamentals of Operating Systems

Contents:

1. Overview of Linux & Unix:
   Introducing Linux and Unix as a Network Operating System, History of Unix & Linux, Distributions of Linux, Basic Commands, Files and File Organization, File Attributes and Permissions, Vi Editor

2. Standard I/O, Redirection Pipes and Filters:
   Standard I/O, Redirection, Pipes, Filters, Regular Expressions, Sed, Awk

3. Commands and Utilities:
   Environment Variables, Processes and related commands, Basic communication tools, Utilities for System Administration, Commands for File Systems

4. Shell Programming:
   Shell variables, Positional Parameters, Branching control structures, Loop-control structures, Continue and break statements, Arithmetic calculations in Shell Programs, Debugging Scripts

5. Scripting for Administration:
Main Reference Book(s):

1. Venkateshmurthy M.G. “Introduction to Unix & Shell Programming”, Pearson Education

Accomplishments of the student after completing the Course:

- Efficiently perform the tasks of a Network Administrator.
Course Name: Practicals-I

Course Code: PGDNA115

Objectives:
Students will learn
- To appreciate the use of Shell Scripting for Network Administration
- To learn to assemble and deassemble PC
- Learn to setup and administer LAN

Prerequisites:
Linux OS

Contents:

1. Hands on network building and network administration.
2. Linux Shell Scripting