

**Course Name** : Computer Engineering Group

**Course Code:** CM/CO/IF/CD

**Semester** : Fourth

**Subject Title** : Computer Architecture And  
Maintenance

**Subject Code:** 9069

**Teaching and Examination Scheme:**

Teaching Scheme			Examination Scheme						
TH	TU	PR	Paper Hrs.	TH	Test	PR	OR	TW	Total
03	--	02	03	80	20	-	25#	25@	150

**Rationale :**

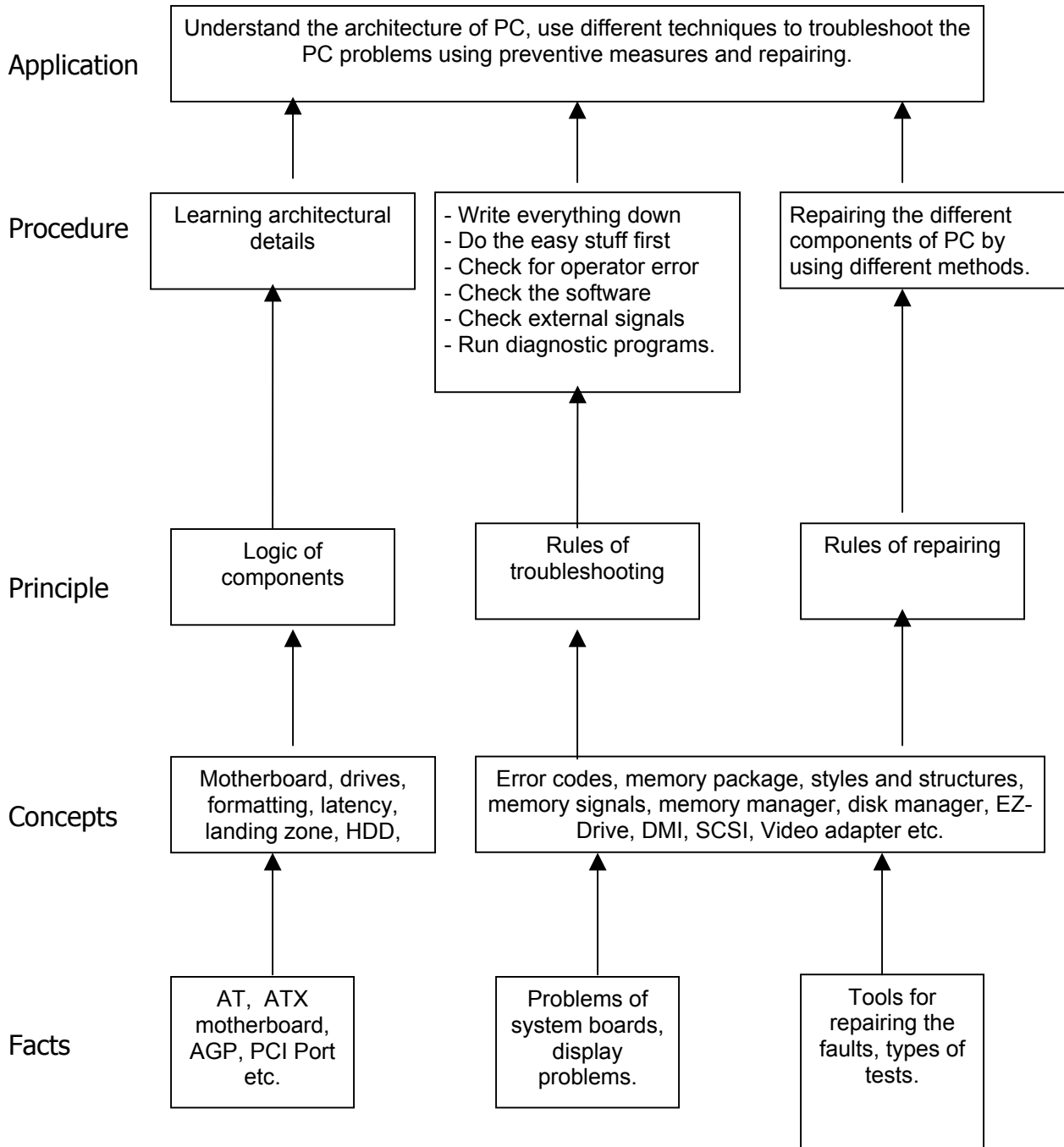
The aim of the subject is to teach the basic working of the computer motherboard, peripherals and add-on cards. The subject helps the students to do the maintenance of the Computer, peripherals and its add-on cards. The students will be able to select the proper peripheral as per their specification and requirement. This is the core subject. The pre-requisite of the subject is Microprocessor. The subject is practical oriented and will develop the debugging skills in the students.

**Objectives :**

The student will be able to:

1. Debug and repair the faults in system.
2. Assemble the system.
3. Load the operating system and device drivers in the system.

## Learning Structure:



## Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	<b>Motherboard And Its Components:</b> 1.1 Specifications of motherboards : 1.1.1 Form Factor. 1.1.2 CPU slots related to Pentium IV. 1.1.3 Chipsets on motherboards of Pentium IV.. 1.1.4 Buses on motherboards of Pentium IV.. 1.1.5 RAMs and its types: Static and Dynamic RAMs, SIMM, DIMM.	08	08
02	<b>Storage Devices And Its Interfacing:</b> 2.1 Hard disk construction Hard disk controller, Recording techniques. 2.2 USB Drive (Thumb Drive) : Construction, Recording. 2.3 CDROM drive : Construction, Recording. 2.4 DVD : Construction, Recording.	08	16
03	<b>Display Devices &amp; Interfacing:</b> 3.1 Colour monitor : Block diagram and function of each block. 3.2 LCD monitor : working principle, advantages and disadvantages. 3.3 Display controllers (VGA, SVGA) and adapters.	05	12
04	<b>Input &amp; Output Devices:</b> Construction, working & Installation of : 4.1 Keyboard. 4.1 Mouse : Mechanical, Optomechanical. 4.2 Scanner : Flat bed, Sheetfed, Hand held : Block diagram and specifications. 4.3 Modem : Internal and External : Block diagram and specifications. 4.4 Printer : Inkjet, Laser.	08	16
05	<b>Power Supplies:</b> 5.1 Block diagram & working of Linear power supplies. 5.2 Block diagram and working of SMPS. 5.3 Power supply form factor, ATX. 5.4 UPS : Block diagram, Working and types.	04	08
06	<b>Interfaces:</b> 6.1 SCSI, SCSI cables and connectors, SCSI drive configuration. 6.2 IDE 6.3 USB. 6.4 RS232 : (Voltages & Signal description) 6.5 Centronics. 6.6 Fire wire.	05	08
07	<b>Pc Diagnostic, Testing And Maintenance &amp; Tools</b> 7.1 POST of Pentium. 7.2 Beep codes	10	12

	7.3 Diagnostic Softwares : Norton's Utilities, QAPLus, PC Tools 7.4 Preventive Maintenance of peripherals of PCs. 7.5 Fault finding and Troubleshooting of the above peripherals. 7.6 Circuit diagram and working of Logic probe, Logic Analyzer, Logic pulser and CRO.		
	Total	48	80

**PRACTICAL:**

Skills to be developed:

Intellectual skills:

- Understanding basic hardware of computer
- Fault finding of input/output devices
- Troubleshooting of input/output devices
- Proper connection of input / output devices

Motor skills:

- Proper handling of Computer System hardware.

**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 Softwares. (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.

## Learning Resources:

### Books:

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