4226 - COMPUTER INSTALLATION, MAINTENANCE & DIAGNOSIS

Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)						
					Theory		Practical Ex.		Total		
Lectures	Practical	Credit									
3	3	6	50	-	3 Hrs	100	50		200		
Pre-requisite		Source	Semester		Theory	Test	Total	TW	PR	Gr Total	4
Nil		COM			75	25	100	50	50	200	

Rationale: The main job of a computer technician is to successfully install and maintain computer systems. For this different techniques and procedures are to be followed. This course gives a student an in-depth exposure to the installation, maintenance & diagnostic procedures to be followed.

COURSE CONTENTS	Hrs	Mks
1. SITE PREPARATION Design of computer room considering factors like false flooring, false ceiling, disk tape library room, air conditioning requirements, temperature, humidity, need for dust free environment.	6	10
2. POWER REQUIREMENTS OF A COMPUTER CENTRE Specifications and different types of power supplies, Overload protection devices, Simple principles of UPS and its advantages over normal power supplies, Earthing and isolation techniques, Distribution boards, Fire detection and Prevention. Linear power supply V/S SMPS.	6	10

3. INSTALLATION Layout, Interpretation of installation and wiring diagrams, Installation procedures and documentation, Visual checks, Power cabling, System Integration.	4	10
Bios & CMOS Setup – Motherboard Bios, POST, Setup, Bios features, Bios ID String, AMI & Phoenix Bios, Bios error messages. CMOS Setup – Standard and Advanced, Plug and Play, Power Management.	2	5
Chipset & Motherboards – Intel 430 & 440 Chipset, SIS & Opti Chipsets. Main features to be known. Socket 6, Socket 8, slot 1 Motherboard.	2	5
4. MAINTENANCE Preventive and remedial maintenance. Intermittent and hard on faults. Customer provided information and its synthesis.	4	10
5. TROUBLESHOOTING TECHNIQUES Classical steps to successful troubleshooting, Understanding how components fail, Disk drives, Keyboard failure. Repair generated failures, Documentation, Localising failures, Safety precautions in trouble shooting. Equipment used in troubleshooting. Spare part management. Diagnostic software.	8	15
6. PC DIAGNOSIS PC start- up problems; PC display problems; Disk drive problems; Keyboard problems; Hard disk drive problems; Computer Virus.	10	20
7. INTERNET SETUP Modem installation & Setting, Dial up network, TCP IP Settings, Browers and e-mail setup.	2	5
8. UPGRADING Upgrading of computer systems (Important factors to be considered).	4	10
Total	48	100

PRACTICAL:

1. Prepare a detailed site preparation report & installation procedure for a computer centre whose configuration is given by the teacher.
2. Design a preventive maintenance schedule for the above installation
3. Troubleshooting & rectification of defective SMPS.
4. Troubleshooting & rectification of defective Monitors.
5. Use of diagnostic software for identifying faults.
6. Perform speed tests & alignment procedures on disk drives.

REFERENCE BOOKS:

1. IBM PC Advanced troubleshooting & repairs by Robert C. Brenner
2. Upgrading and repairing PC's by Scott Mueller
3. Microcomputer Servicing – Practical systems & Troubleshooting by Stuart M. Asser, R.F. Bahrenberg, Vincent J. Stigliano.