| **w.e.f. 2022-23** | | | | | | | | |
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| **Program:** B Tech Integrated (Computer Engineering) | | | | | | **Semester:** III | | |
| **Course:**  Computer Hardware and Maintenance | | | | | | **Module Code:** | | |
| **Teaching Scheme** | | | | | **Evaluation Scheme** | | | |
| **Lecture**  **(Hours per week)** | | **Practical**  **(Hours per week)** | **Tutorial**  **(Hours per week)** | **Credit** | **Internal Continuous**  **Assessment (ICA) (Marks -50)** | | **Term End Examinations**  **(TEE)** | |
| 0 | | 2 | 0 | 1 | Marks scaled to 50 | | NA | |
| **Prerequisite:**  Electrical and Computer workshop | | | | | | | | |
| **Course Objectives**  To impart the knowledge of computer hardware and its testing & troubleshooting. | | | | | | | | |
| **Course Outcomes**  After the successful completion of this course the students will be able to:   1. Identify the hardware components of computer system 2. Illustrate troubleshooting process for common computer problems 3. Identify power supply units and networking peripherals | | | | | | | | |
| **Detailed Syllabus** | | | | | | | | |
| **Unit** | **Description** | | | | | | | **Duration** |
| 1 | **PC Hardware and Components**  Introduction to computer hardware, components of motherboards, CPU, various ports, slots, connectors, addon cards Primary and secondary memory and their installation, Cabinet types | | | | | | | **06** |
| 2 | **Diagnose & repair problems of Desktop and Laptop**  General Troubleshooting rules, Preventive Maintenance. BIOS Features, BIOS & Boot Sequences, BIOS Shortcoming & Compatible Issues, BIOS Troubleshooting. POST, Error Code: Beep Code, Post Code, preventive maintenance of latest gadget | | | | | | | **06** |
| 3 | **Input-Output devices and their troubleshooting**  Troubleshoot Input-Output devices: keyboard, switches, mouse, scanners, webcam, monitors, printers, speaker and mike, LCD projector.  I/O Cables: specification of I/O Cables, types of I/O cables, types of I/O ports, internal and external modem | | | | | | | **06** |
| 4 | **Power Supply**  Switched Mode Power supply block diagram, working principles, testing and troubleshooting, power rating, requirement of SMPS wattage depending parameters like type of processors and HDDs | | | | | | | **06** |
| 5 | **Transmission Media and Networking Connectivity Hardware**  Network interface cards–Ethernet, Cabling Concepts (designing, installing, and maintaining modern communications infrastructures and electronic physical security systems. Fiber optics, wireless networks), various networking devices like routers, repeaters, switches, bridges | | | | | | | **06** |
|  | **Total** | | | | | | | **30** |
| **Text Books**   1. Craig Zacker,*PC Hardware: The Complete Reference*, 1st edition , McGraw-Hills, 2019. | | | | | | | | |
| **Reference Books**   1. James, K.L. *The computer hardware installation, interfacing troubleshooting and maintenance,* PHI Learning, New Delhi, 2014 | | | | | | | | |
| **Laboratory Work:**  8 to 10 experiments (and a practicum where applicable) based on the syllabus. | | | | | | | | |