|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NAME OF DEPARTMENT:** | | | | | | | | | | | | | | | | | | Computer Applications | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Subject Name:** | | | | | | | | Computer Fundamentals and Information Technology | | | | | | | | | | | | | | | | | | | | | | | | | **Subject Code:** | | | | | | | TBI 101 | | | |
|  | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | |  | | | |
| **Course Name:** | | | | | | | | BSc IT | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | |  | | | |
|  | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | |  | | | | | |
| **1** | **Contact Hours:** | | | | | | | | | | 48 | | | |  | | | | | | | | | | | | | | | | | | | **L** | | 3 | | | **T** | | 0 | **P** | 0 | |
|  |  | | | | | | | | | |  | | | |  | | | | | | | | | | | | | | | | | | |  | |  | | |  | |  |  |  | |
| **2** | **Examination Duration (Hrs):** | | | | | | | | | | | | | | | | | | | |  | **Theory** | | | | | 0 | 3 |  | **Practical** | | | | | 0 | | 0 | |  | | | | |
|  |  | | | | | | | | | | | | | | | | | | | |  |  | | | | |  |  |  |  | | | | |  | |  | |  | | | | |
| **3** | **Relative Weightage:** | | | | | | | | | | | |  | | | | | **CWE:** | | | | | | | 25 | | **MTE:** | | | 25 | | **ETE:** | | | | 50 | |  | | | | | |
|  |  | | | | | | | | | | | |  | | | | |  | | | | | |  | | |  | | |  | |  | | | |  | |  | | | | | |
| **4** | **Credits:** | | | | | 0 | | | 3 | |  | | | | | | | | | | | | |  | | |  | | |  | |  | | | |  | |  | | | | | |
|  |  | | | | |  | | |  | |  | | | | | | | | | | | | |  | | |  | | |  | |  | | | |  | |  | | | | | |
| **5** | **Semester:** | | | | | | **🗸** | | | |  | | |  | | |  | | |  | | |  | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | **Autumn** | | | | | | | **Spring** | | | | | | | **Both** | | | | | | |  | | | | | | | | | | | | | | | | | |
|  |  | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | | | | | | | | | | | | | | |
| **6** | **Pre-Requisite:** | | | | | | | | | | **Knowledge of Computers** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **7** | **Subject Area:** | | | | | | | | | | **Computer Application** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **8** | **Objective:** | | | | | | | | | To familiarize the students with the basics of computer and information technology. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **9** | **Course Outcome:** | | | | | | | | | | | | | A student who successfully fulfills the course requirements will be able to   1. Define the appropriately use of information technology; 2. Identify computer hardware components and describe their functions; 3. Describe the essential elements of the computer's architecture and discuss how this architecture functions; 4. Describe the characteristics and representations of data, and interpret and compare this data in different representations; 5. Compare the roles of different sectors of the information technology industry. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **10** | | **Details of the Course:** | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Unit No.** | | | | **CONTENT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **CONTACT HOURS** | | | | |
| **1** | | | | **Evolution of Computers**:  **Introduction to computer and information technology:** Introduction to information technology, Computer definition, functions, characteristics, capabilities and limitations, changed scenario of computing, applications in today’s world.  **Components of Computer:** **Hardware-(**Input devices : keyboard, Mouse, Trackball, Joystick, Digitizing Tablet, Scanners, Digital Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition, Light Pen, Touch Screen etc. & Output devices : Printer, Projector, speaker, monitors, plotters etc.) **Software**: System software and application software, Humanware; Functional Block diagram of a computer.  **Categories of Computers:** Analog, digital, hybrid, general purpose and special purpose computers, microcomputers, mini computers and super computers.  **Generation of Computers:** First, Second, Third, Fourth and Fifth with advantages and disadvantages of each generation.  **Hardware Organization of a Computer:** Central Processing Unit (CPU); CPU Subunits- Arithmetic Logic Unit(ALU),Registers, Control Unit (CU). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 | | | | |
| **2** | | | | **Number Systems:** Decimal, Binary, Octal and Hexadecimal; r’s, (r-1)’s complements, Conversions of One number system to another, BCD numbers, GRAY code, Conversion from binary to grey code.  **Data Representation:** Integer Representation: Signed Magnitude Representation, Signed 1’s Compliment Representation, Signed 2’s compliment, Floating Point representation.  **Main Memories:** Cache, RAM - Static, Dynamic; ROM – PROM, EPROM and EEPROM with its uses, capacity and features.  **Secondary Storage Devices:** Introduction to Magnetic Tapes; Magnetic Disks - Hard Disk Drives, Floppy Disks; Optical Disks - CD, DVD, Magneto-Optical Disks, Zip Drive and Flash drives. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 08 | | | | |
| **3** | | | | **Basic Operating System Concepts**: MS-DOS with its basic Commands (internal and external), Managing File and Directories in various operating Systems,, WINDOWS, Functional knowledge of these operating systems, role and function of operating system, Types of Operating Systems (general Purpose, Single user, Multi – User, Multi-tasking, Multi-Threading, Batch operating, Time Sharing, Real Time)  **DOS Kingdom OF DOS**- ROM Software, ROM Startup routines, ROM-BIOS Routines, BOOT TIME process. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | |
| **4** | | | | **Introduction to Internet**: Introduction, History of internet with its uses, advantages and applications; How to Connect to Internet (Dial Up, BroadBand, Lease Line, wi-fi, hot-spot) Devices: Modems, Repeater, Computer network : LAN, WAN, MAN, Network Connecting Devices: Bridges, Routers, Gateways;  **Internet Services:** World Wide Web, EMAIL, USENET, WAIS etc.  **Concept of Security:** Introduction to Firewalls, Cyber Laws, Cookies, Hackers and Crackers, Terms of security (Secrecy, Privacy, Authentication, Authorization, Password protection, File Permissions) only Introduction | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | |
| **5** | | | | **Programming Models:**  Computer Languages, Classification of Computer Languages: Machine Level, Assembly Language, High Level Language, Advantages and Disadvantages of Procedural programming languages.  Object Oriented Programming – ADT – classes, objects,4GL – features and advantages. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | |
|  | | | | **TOTAL** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **48** | | | | |
|  | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | |
| **11** | | **Suggested Books:** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | |
| **Sl. NO.** | | | **NAME OF AUTHERS/BOOKS/PUBLISHERS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **YEAR OF PUBLICATION/REPRINT** | | | | |
| **1** | | | Norton, Peter, “Introduction to Computers”, McGraw-Hill. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2011 | | | | |
| **2** | | | \Leon, Alexis & Leon, Mathews, “Introduction to Computers”, Leon Tech World. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2012 | | | | |
| **3** | | | P.K.Sinha and Preeti Sinha, “Computer Fundamentals”,BPB. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2010 | | | | |
| **4** | | | Rajaraman, V., “Fundamentals of Computers”,PHI. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2011 | | | | |