FUNDAMENTALS OF COMPUTER
(IMB – 105)

1. **Basic Computer Concepts** – Different generations of computer hardware; Modern taxonomy of computers; Hardware and software; Programming languages; Problem solving and algorithms; Basic computer applications; General idea of information and communication technologies; Information system development process.

2. **Computer Hardware** – Input and Output devices; Memory (or storage) devices; Central Processing Unit. Input / Output devices: keyboard, mouse, light pen, barcode readers, scanners, MICR, OCR, visual display terminals, printers, plotters etc. Storage devices: Primary storage – RAM, ROM, EEROM, PROM, EPROM; Secondary storage – direct access devices, serial access devices: hard disks, floppy disks, magnetic tape, CD-ROM, DVD; Cache memory and Virtual memory. Central Processing Unit – Control Unit; Arithmetic and Logic Unit; Decoders; Registers; Machine Instructions; Stored program concept; Program execution: Fetch-Decode-Execute cycle; Arithmetic, logical and shift operations.

3. **Computer Software** – Meaning of software; broad classification of software; system software and application software; utilities. Systems software – Operating systems: Basic idea of an OS; OS as a resource manager – memory management, input/output management, secondary storage management, processor management, program management, network management; Brief introduction to different types of operating systems like DOS, Windows, Unix, Linux etc. Application software – System development tools, Utilities, Application packages like voice recognition and handwriting recognition systems; User- written programs.

4. **Programming languages and Algorithms** – The concept of programming; pseudo code and flowcharts; structure of programs; program development guidelines; programming languages – machine language, assembly languages, high-level languages (procedural and object-oriented languages), fourth generation languages; object code and executable codes; compilers, translators, assemblers; editing tools such as vi. Algorithms – Basic concept;

5. **Computer networks and Internet** – Basic concepts of computer networks; local area networks and wide area networks; switches, hubs, routers, idea of distributed systems; the Internet and the World Wide Web.

6. **Computer Applications**: Essential features of computer systems and structures required for office automation, communications, control systems, data acquisition, interactive multimedia, networking, parallel processing and neural networks.

Books:

1. Computer Fundamentals, DP Nagpal; S.Chand
2. Computer Fundamentals, Anita Goyal, Pearson