

<b>Paper Code:</b> BCADSC 1.4	<b>Paper Title:</b> Computer Fundamentals	<b>Teaching Hours:</b> 5 Hrs / Week
<b>Total Teaching Hours:</b> 60Hrs	<b>Marks:</b> Th-80+IA-20	<b>Credits:</b> 3

### UNIT I

Introduction: Computer, data processing, characteristic features of computers, computer evolution to present form, computer generation. Basic computer organization: Basic operations performed by computers, basic organization of computer system, input units and its functions, output units and its functions, commonly used input output (IO) devices.

**12 Hrs**

### UNIT II

Number systems: non-positional number system, positional number system, decimal, binary, octal, and hexadecimal number systems. Conversion from decimal to binary and vice-versa. Computer Codes: Computer data, computer codes: representation of data in binary, commonly used computer codes, collating sequence. Computer arithmetic: Basic arithmetic operations using binary numbers.

**12 Hrs**

### UNIT III

Processor and memory: Internal structure of processor, memory structure, types of processors, main memory organization, random access memory, read only memory, cache memory. Secondary storage: secondary storage devices and their needs, commonly used secondary storage devices, sequential and direct access storage devices, basic principles of commonly used secondary storage devices (magnetic disk, optical disk, flash drives, memory card, disk array).

**12 Hrs**

### UNIT IV

Software: Software and its relationship with hardware, types of software, system software, application software, firmware, middleware and steps involved in software development. Overview of operating system: Definition, functions of operating system, concept of multiprogramming, multitasking, multithreading, multiprocessing, time-sharing, real time, single-user & multi-user operating system. Application software case study: MS-Word: editing, formatting documents, use of mail merge. MS-Excel: Basic features of spreadsheet such as entering text, menus, insert rows/columns, formatting, sort, and filter. Advanced features such as graphs, library functions (Arithmetic, Date and Time, Financial, Logical, text and statistical) with simple problems.

**12 Hrs**

### UNIT V

Windows OS: Basics of Windows, basic components of windows, icons, taskbar, activating windows, using desktop, title bar, running applications, exploring computer, managing files and folders. Control panel – display properties, adding and removing software and hardware. Linux OS: Basics of Linux OS, features and architecture of Linux. Introduction to bash shell, Basic Commands (cal, date, bc, echo, who, ls, pwd, cd, mkdir, rmdir), Commands to work with file (cat, cp, rm, mv, file, wc, head, tail), vi (or vim) editor. File permissions and ownerships. Basics of shell scripting.

**12 Hrs**

### References:

1. Computer Fundamentals, P. K. Sinha and Priti Sinha, Sixth Edition, BPB publications.
2. Reema Thareja, Fundamentals of Computers, Oxford Higher Education, Oxford University Press.
3. S. K. Basandra, Computers Today, Galgotia Publications.
4. E. Balaguruswamy, Fundamentals of Computers, McGraw Hill

### Additional Reading:

1. Peter Norton, Introduction to Computers, 6th Edition, Tata McGraw Hill
2. Xavier C., Introduction to Computers and Basic Programming, New Age International,
3. Rajaraman, V., Adabala, Neeharika, Fundamentals of Computers, PHI
4. Computer Concepts and Applications : <http://uwf.edu/clemley/cgs1570w/notes>,
5. [https://www.tutorialspoint.com/computer\\_fundamentals/index.htm](https://www.tutorialspoint.com/computer_fundamentals/index.htm)
6. Computers in education: <http://www.mhhe.com/peternorton>