Course Name: Computer Fundamentals and Information Technology **Course Code:** TBC 102

Program Name: Bachelor of Computer Applications (BCA)

1 Contact Hours: 42 **L** 2 **T** 1 **P** 2

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: Basic knowledge of Computers

7 Subject Area: Computer Applications

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

CO1: Bridge the fundamental concepts of computers with the present level of knowledge of the students.

CO2: Explain the needs of hardware and software required for a computation task.

CO3: Understand number systems and Implement various arithmetic operations on them.

CO4: Demonstrate the use of Operating system and its various components.

CO5: Develop working skills with productivity tools, graphics designing and Internet.

CO6: State typical provisions of cyber law that govern the proper usage of Internet and computing resources.

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 & Output devices) **Software with its types**, 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).	8

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. Introduction to Object Oriented Programming,4GL and 5GL languages with features and advantages.	8
	TOTAL	**42**

11 Suggested Books:

Sl. NO.	NAME OF AUTHERS/BOOKS/PUBLISHERS	YEAR OF PUBLICATION
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 PreetiSinha, "Computer Fundamentals",BPB.	2010
4	Rajaraman, V., "Fundamentals of Computers",PHI.	2011
5	ReemaThareja **, "**Computer Fundamentals and Programming in C"	2014