Course code: Course Title	Course Structure			Pre-Requisite
	L	T	P	
CS104:Fundamentals of Computers	3	0	2	NIL

Course Objective: Everyday, engineering students required to work with computer for problem solving in academia, research, and industry. Students will get knowledge about the evolution of computer, computer architecture, input devices, output devices, computer codes, computer software, operating system, computer arithmetic, and internet. Thus, students will be able to learn about the importance of data storage in the computer and computer security. With the help of this course, the student will be able to understand the functioning of computer units, and usage of computer to do everyday task.

S. NO	Course Outcomes (CO)
CO1	Describe the procedure of designing algorithm and drafting pseudocode for problem solving.
CO2	Describe the computer organization and architecture of central processing unit.
CO3	Describe the computer codes, computer arithmetic and number conversion system.
CO4	Describes the procedure of installing functionalities and installation of different operating system, software.
CO5	Describe the process of data storage and modelling using database management system.

S. NO	Contents	Contact Hours
UNIT 1	Introduction: Evolution of Computers, Generation of Computers, Classification of Computers, Computing Concepts, The Computer System, Applications of Computers. Computer Organization and Architecture: Central Processing Unit, Internal Communications, Machine Cycle, The Bus and Instruction Set.	8
UNIT 2	Memory and Storage Systems: Memory Representation, Random Access Memory, Read Only Memory, Storage System - Magnetic, Optical, Magneto, Solid State, Storage evaluation criteria. Input Devices. Output Devices	8
UNIT 3	Computer Codes: Decimal System, Binary System, Hexadecimal system, Octal System, 4-bit Binary Coded Decimal, 8-bit BCD System, 16-bit Unicode, Conversion of Numbers. Computer Arithmetic. Binary Systems, Boolean Algebra, and logic gates (AND, OR, NOR, and XOR), Simplification of Boolean functions, combinational logic, adders, subtractors, code conversions, synchronous and asynchronous sequential logic.	8
UNIT 4	Computer Software: Types of Computer Software, System Management Program, System Development Programs, Standard Application Programs. Operating System: History of Operating System, Functions of Operating System, Process Management, Memory Management, File Management, Device Management, Security Management, Types of Operating System.	8
UNIT 5	Database Management System: Database system, File System, Data Models, Data Independence, DBMS System Architecture, Components of DBMS, Relational Data Model, Relational Database Design, Data Storage, and Indexing.	10
	TOTAL	**42**

REFERENCES

S.No.	Name of Books/Authors/Publishers	Year of Publication / Reprint
1	Fundamentals of Computer Science, Balaguruswamy, McGraw Hill Education (India) Private Ltd.	2009
2	Fundamentals of Computers, V. Rajaraman, PHI	2014

3	Handbook of Computer Fundamentals, Nasib Singh, Khanna Books Publishing Co. (P) Ltd.	2016
4	Computer Fundamentals, P.K. Sinha, BPB Publication.	2004
5	Introduction to Computer, Norton Peter, McGraw-Hill.	2021

Syllabi of Discipline Specific Core Courses (DCC)

B. Tech. Biotechnology		