Maharashtra Institute of Technology
Chhatrapati Sambhajinagar
(An Autonomous Institute)

G. S. Mandal's

Maharashtra Institute of Technology

Chhatrapati Sambhajinagar

An Autonomous Institute Affiliated to

Dr. Babasaheb Ambedkar Marathwada University,

Chhatrapati Sambhajinagar, Maharashtra (India)

Second Year B. Tech Bridge Course Syllabus

(Computer Science and Engineering)

(Offered by Computer Science and Engineering Department)

(NEP 2020 Based Curriculum)

WEF AY 2025-26

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(Faculty of Science & Technology)
Department of Emerging Science and Technology
Syllabus of S. Y. B. Tech. Computer Science and Engineering
(Bridge Course)

Course: Computer Fundamentals	
Objectives	• Develop programming logic and hands-on skills using C and Python. • Build interactive web interfaces using HTML, CSS, and JavaScript. • Introduce programming language concepts and paradigms.
Course Outcomes	CO1: Explain the fundamental concepts of programming logic, problem-solving techniques, and the working principles of compiled and interpreted languages. CO2: Develop basic programs in C and Python using appropriate syntax, control structures, functions, arrays, and data structures. CO3: Design static and interactive webpages using HTML, CSS, and JavaScript. CO4: Compare and contrast programming paradigms and language constructs across C and Python.
Unit-I	**Programming Logic and Fundamentals** Introduction to Programming Languages, Compilation v/s Interpretation Algorithms, Flowcharts, Pseudocode, Problem Solving Techniques, Flowcharts for login systems, billing programs, Pseudocode for decision-making problems. **(04 Hrs)**
Unit-II	**C Programming Basics** Syntax, Data Types, Variables, Operators, Control Structures: if, switch, loops, Functions, Arrays, Basic C programs, Menu-driven programs using switch-case. **(05 Hrs)**
Unit-III	**Python Programming Basics** Python basics - syntax, variables, data types, Python code using loops, conditionals, and functions, file handling (open, read, write) using Python, Working with data structures like lists, tuples, sets, and dictionaries. **(05 Hrs)**

Unit-IV	**Web Development – HTML, CSS** HTML Documents, Mark up Tags, Heading-Paragraphs, Line Breaks, HTML Tags, Elements of HTML, Working with Text, Working with Lists, Tables and Frames, Working with Hyperlinks, Images and Multimedia, Working with Forms and controls. CSS: Selectors, Box Model, Colors, Layout. **(05 Hrs)**
Unit-V	**Web Development – JavaScript** JavaScript: Syntax, Variables, Functions, Events, DOM Manipulation and Validation, Building a personal webpage with styling, Form validation, JS event to change content on button click. **(04 Hrs)**
Unit -VI	**Principles of Programming Languages** Procedural v/s Object-Oriented Programming, Language Levels: High-level v/s Low-level, Compilation, Interpretation, Tokens, Overview of Programming Paradigms, Comparison of Python and C syntax for same problem. **(03 Hrs)**

Textbooks / Reference Books

Sr. No.	Title	Author	Publication	Edition
1.	Let Us C	Yashavant Kanetkar	BPB	Seventeenth
2.	Python for Everybody: Exploring Data in Python 3	Dr. Charles R. Severance	CreateSpace Independent	First
3.	HTML and CSS: Design and Build Websites	Jon Duckett	Wiley	First
4.	Programming Language Concepts	Peter Sestoft	Springer	First