



CLUSTER UNIVERSITY SRINAGAR
SYLLABUS (FYUP UNDER NEP 2020)
Offered by the Department of Information Technology,
Batch 2026 and Onwards

UG- 1st Semester - Major- Fundamentals of Information Technology

Course Code: UGITJIT126

Credits: 6 (Theory: 4, Practical: 2)

Contact Hrs: 120 (Theory: 60, Practical: 60)

Max. Marks: 150

Theory External: 60; Min Marks: 24

Continuous Assessment: 40; Min Marks: 16

Practical Internal: 20; Min Marks: 8

Practical external: 30; Min Marks: 12

Course Objectives:

1. To introduce the basic concepts of computers and information technology.
2. To develop understanding of digital data representation and logic fundamentals.
3. To familiarize students with Internet technologies and digital services.
4. To provide awareness of emerging trends in information technology.
5. To understand the role of IT in modern society and digital transformation.

Syllabus

UNIT 1: Computer Fundamentals and Operating Systems

Introduction to Computers and Information Technology, History and Generations of Computers, Characteristics and Applications of Computers, Block Diagram of a Computer System, Hardware and software, different types of system software and application Software, Input and Output Devices, Memory, Auxiliary Storage Devices.

Operating System: Introduction, Functions, Types of Operating Systems and Basic Operating System Commands. Programming Languages and Language Translators, Productivity and Collaboration Tools: Microsoft Office (Word, Excel, PowerPoint) and Google Workspace (Docs, Sheets, Slides)

UNIT 2: Digital Electronics and Data Representation

Data and Information Concepts, Analog and Digital Signals, Number Systems: Decimal, Binary, Octal and Hexadecimal, Number System Conversions, Signed Binary Numbers and Binary Arithmetic. Binary Codes: BCD, EBCDIC, ASCII, Unicode, Gray Code and Excess-3 Code. Boolean Algebra and Logic Simplification, Logic Gates: AND, OR, NOT, NAND, NOR, XOR and XNOR Gates, Truth Tables and Logic Function Implementation. Universal Gates and their Applications. Combinational Logic Circuits: Half Adder, Full Adder, Multiplexer, Demultiplexer, Encoder and Decoder. Introduction to Sequential



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Circuits, Flip-Flops, Registers and Counters

UNIT 3: Internet Technologies and Digital Services

Internet and Web Technologies: Internet and Basic Terminology: Web Browsers and Browser Security, Internet Protocols and Web Standards, Internet Addresses, URLs, Domain Names and DNS, Search Engines and Intelligent Search Systems. Digital Content and Marketing: Digital Content Creation and Management, Digital Marketing Fundamentals, Search Engine Optimization (SEO), Search Engine Marketing (SEM), Online Advertising, Social Media Marketing and Influencer Marketing.

UNIT 4: Emerging Trends in Information Technology

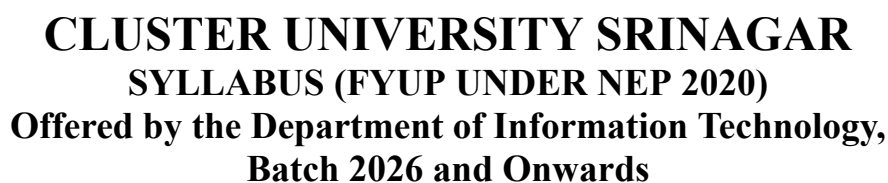
Artificial Intelligence and Machine Learning, Generative AI and Intelligent Systems, Cloud Computing and Cloud Services, Edge and Fog Computing, Internet of Things (IoT) and Smart Devices, Digital Twins and Smart Systems, Smart Cities and Intelligent Infrastructure, Smart Agriculture, Intelligent Transportation Systems. Cyber Security and Digital Privacy.

Course Learning Outcomes:

1. Understand the basic concepts and components of computer systems and information technology.
2. Apply fundamental concepts of data representation, number systems, and digital logic.
3. Use Internet technologies, digital communication tools, and online services effectively.
4. Identify and explain emerging technologies and their applications.
5. Recognize the role of information technology in business, education, healthcare, governance, and society

Practical / Laboratory Course

1. Study of computer hardware components and peripheral devices.
2. Installation and configuration of operating system.
3. Installation and management of software applications.
4. Creating and formatting documents using Microsoft Word and Google Docs.
5. Working with spreadsheets using Microsoft Excel and Google Sheets.
6. Creating presentations using Microsoft PowerPoint and Google Slides.
7. Creation and management of electronic mail accounts and use of cloud-based communication tools.
8. Use of Google Drive, OneDrive, Google Meet, Microsoft Teams, and Google Forms.
9. Exploring Internet services, web browsers, search engines, URLs, domain names, and browser security features.



- ### Recommended Books:

- ### References:

1. “Fundamentals of Information Technology” by Alexis Leon and Mathews Leon, Vikas Publishing House.
2. “Introduction to Information Technology” by ITL Education Solutions Limited, Pearson Education.
3. “Computer Fundamentals” by P. K. Sinha and Priti Sinha, BPB Publications.
4. “Fundamentals of Computers” by V. Rajaraman, PHI Learning.

CO/PL O	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO1 0	CO/ AVG
CO1	3	1	1	1	2	1	1	1	1	2	1.4
CO2	3	2	2	1	2	1	1	-	-	1	1.3
CO3	2	1	1	1	1	2	1	3	2	2	1.6
CO4	2	1	1	1	1	2	2	1	1	3	1.4
CO5	2	1	1	1	1	1	2	1	2	3	1.5
PLO AVG.	2.4	1.2	1.2	1.0	1.4	1.4	1.2	1.2	1.2	2.2	



