

FACULTY OF COMPUTER APPLICATIONS

Programme	Master of Computer Applications					Branch/Spec.	Computer Application		
Semester	I – Bridge Course					Version	1.0.0.0		
Effective from Academic Year				2026-27		Effective for the batch Admitted in		July 2026	
Subject Code	P11E7CFN		Subject Name			Computer Fundamentals and Networking			
Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	-	-	-	-	-	Theory	40	-	40
Hours	20	-	-	-	20	Practical	-	-	-

Objective:

To impart fundamental knowledge of computer architecture, hardware components, system software, and operating systems.

Pre-requisites:

To build a comprehensive understanding of computer networking concepts, topologies, layer architectures, protocols, basic diagnostic utilities, and cybersecurity practices.

Course Outcomes:

Name of CO	Description
CO1	Explain core computer hardware architecture, modern storage components, and processor operations.
CO2	Differentiate between programming languages, translators, operating system features, and cloud computing models.
CO3	Identify computer networking topologies, layer architectures, protocols, and standard physical interconnects.
CO4	Apply basic CLI network diagnostics and fundamental cybersecurity practices to secure software environments.

Mapping of CO and PO

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	1	-	-	-	-	-	2
CO2	3	2	1	1	-	-	-	2
CO3	3	1	1	1	-	-	-	2
CO4	3	2	2	3	-	-	3	3

Content:		
Unit	SECTION – I	Hrs
1	Computer Architecture & Modern Hardware Fundamentals Computer Basics: Definition, data vs. information, functional block diagram (ALU, CU, Registers, I/O). Processor & Memory: CPU architecture, instruction execution cycle, cache memory (L1/L2/L3). Primary & Secondary Storage: RAM vs. ROM, HDD vs. SSD (SATA, NVMe), USB/Pen Drive. I/O Interfaces & Ports: Keyboards, touchscreens, scanners, modern display/data interfaces (USB-C, HDMI, DisplayPort).	05
2	Software Systems, Languages & Operating Systems Software Classification: System software vs. application software. Languages & Translators: Low-level vs. high-level languages, machine/assembly language, Compilers vs. Interpreters vs. Assemblers. OS Fundamentals: Core roles of an OS (process, memory, file systems), introduction to Command Line Interfaces (CLI/Terminal). Cloud & Virtualization: Basics of Virtual Machines (VMs) and cloud deployment models (IaaS, PaaS, SaaS).	05
SECTION – II		
3	Computer Networks & Infrastructure Networking Fundamentals: Uses, advantages, and categories (LAN, MAN, WAN, PAN). Topologies: Bus, Star, Ring, Mesh, and Hybrid topologies. Layered Architecture: Overview of OSI model and TCP/IP protocol suite. Hardware & Media: Cabling (UTP, Fiber Optic), Wi-Fi standards, switches, routers, and gateways.	05
4	Applied Networking Concepts & Cybersecurity Basics IP Addressing & Protocols: IPv4 vs. IPv6, public vs. private IP, DHCP, DNS, HTTP/HTTPS. Hands-on Terminal Commands: Practicing basic diagnostic utilities (ping, traceroute, ipconfig/ifconfig, nslookup). Cybersecurity Fundamentals: Threat landscape (malware, phishing), basic encryption, firewalls, VPNs, and secure password hygiene.	05
Practical Content:		
List of programs specified by the subject teacher based on above mentioned topics		
Text/Reference Books:		
1	Jain, M. Information Technology and Concepts, 2nd Edition, BPB Publications.	
2	Forouzan, B. A. Data Communication and Networking, 5th Edition, McGraw-Hill Education	
3	Sinha, P. K., & Sinha, P. <i>Computer Fundamentals</i> , 6th Edition, BPB Publications.	
4	Tanenbaum, A. S., & Wetherall, D. J. <i>Computer Networks</i> , 5th Edition, Pearson Education.	

Web References / Online Learning Resources	
1	GeeksforGeeks (Computer Fundamentals): https://www.geeksforgeeks.org/computer-fundamentals-tutorial/
2	TutorialsPoint (Computer Fundamentals): https://www.tutorialspoint.com/computer_fundamentals/index.htm
3	Javatpoint (Computer Fundamentals & Networking): https://www.javatpoint.com/computer-fundamentals-tutorial
4	Coursera (Bits and Bytes of Networking - Google): https://www.coursera.org/learn/technical-support-units