

COURSE DESCRIPTION			
Program	Computer Application & Business Management		
Course Title	Computer Applications in Management		
Course Code	1254	Semester	I
Type of Course	Practicum	Contact Hours	75
Teaching Scheme (L: T:P:R)	3:0:2:0	Credits	4
CIE Marks	40	ESE Marks	100

Introduction

This course introduces how technology, software, and systems drive modern business, covering essentials like hardware/software, data processing, and various networking technologies equipping managers to use tools for decision making, communication and competitive advantage in a globalised world.

Course Objectives

1	To provide the students with the theoretical and practical knowledge to deal with the basics of computer hardware and software.
2	To lay foundation in basic aspects like operating systems, data processing, data communication, computer networks, computer assembling, software installation etc. which is very well required in the management of an organization.
3	To explain the basic concepts of data communication and identify and describe network components in digital environments.
4	To identify different types of computer networks and compare network topologies for specific organisational and business requirements.

Course Pre-requisite

Topic	Course code	Course Title	Semester
Basic computer knowledge			Secondary Education

Course Outcome

CO	Course Outcome	Blooms Taxonomy Level
CO1	Explain the basics of computer system and identify the components	Apply
CO2	Understand the types and functions of the operating systems and apply the knowledge to install various system and application software.	Apply
CO3	Define Data processing, identify the communication elements and types of data transmission media.	Apply
CO4	Identify and illustrate various computer networks and topologies.	Apply

CO-PO mapping

COURSE ARTICULATION MATRIX											
Course Outcomes	PROGRAM OUTCOMES										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	-	-	2	-	-	-	-	-	-
CO2	3	2	2	-	3	-	-	-	-	-	-
CO3	3	2	-	2	2	-	-	-	-	-	-
CO4	3	2	-	2	2	-	-	-	-	-	-
Total	12	8	2	4	9	-	-	-	-	-	-
Correlation Level	3	2	2	2	2.25	-	-	-	-	-	-

Legends: 1 - Low; 2 - Medium; 3 - High; No Correlation - "-"

Teaching and Assessment Scheme

Teaching Scheme/Week				Self-learning (SS)/Week	Total Hours/Semester	Credits C	Examination Scheme						
							Theory			Practical			Total
L	T	P	R				CIE	ESE	Total	CIE	ESE	Total	
3	0	2	0	5.5	75	4	20	60	80	20	40	60	140

L: Lecture (One unit is of one-hour duration with one credit), T: Tutorial (One unit is of one-hour duration with one credit), P: Practical (One unit is of one-hour duration with 0.5 credit), S: Project (One unit is of one-hour duration with 0.5 credit) SS: Self-Learning, CIE: Continuous Internal Evaluation, ESE: End Semester Examination

Syllabus - Major Topics

Module	Title	Major Topics	Instructional Hours	
			L	P
Module I	Basics of computer system	Introduction to computers, Characteristics, Generations, Components of Computer Systems, Computer Memory and its types; Introduction to Computer Hardware & Software, Relation Between Hardware and Software; Types of Software, Free and open-source software Computer Languages, translators- Algorithm and Flow chart	12	0
Module I	Components identification & assembling	Components identification-Demonstration of computer components, mother board, memory, HDD, CMOS Battery, SMPS, power connector, keyboard connector, etc., Desktop & Laptop assembling, checking system configuration	0	6
Module II	Operating system	Definition of OS, Function of OS, layers of OS; Types of Operating Systems - Operating System Techniques, Popular Operating Systems, Mobile Operating systems	11	0
Module II	Installation of various OS and application software	Installation of windows and Linux operating systems. Installation of various Application Software	0	8
Module III	Data processing and Communication	Definition of Data Processing, File Management System, Database Management system, Data communication - Elements of a Communication System, Modes of data communication; Transmission Basics, Types of Data Transmission Media, Modems and basics of wireless data connection	11	0
Module III	Data processing & demonstration of cables	Performing data processing, identifying file types and operations, Demonstration of guided media, Internet Modems & wifi components, UTP cable crimping	0	8
Module IV	Computer Networks and Topologies.	Definition of computer communication networks; advantages of networks; types of networks; network topologies, network components; Internet Basics, Basics of Amazon Cloud Storage	11	0
Module IV	Computer Networks and Topologies. Basic network troubleshooting and demonstrating network components	Performing basic troubleshooting on networks, demonstrating network components and printer connection, checking network connectivity and using search engines	0	8

Detailed Syllabus

Subtopic	Student Learning Outcome	Mode of delivery (L/T)	Mapped CO	Taxonomy Level	Instructional Hours
Module I					
Introduction computer system	Define computers, Explain the characteristics of computers	L	CO1	Understand	2
Introduction computer system	Explain the generations of computers	L	CO1	Remember	1
Introduction computer system	Explain the Components of Computer Systems	L	CO1	Understand	2
Introduction computer system	Demonstrate computer components (mother board - identification of processor sockets and CPU support, power connector, keyboard connector, BIOS, bus slots, chipset, cache memory, co-processors, CMOS battery, etc)	P	CO1	Apply	2
Introduction computer system	Explain the Computer Memory and its types	L	CO1	Understand	2
Introduction computer system	Define Computer Hardware & Software, Explain the relation between Hardware and Software	L	CO1	Understand	2
Introduction computer system	Observe the booting process (POST screen & OS loading), check system configuration and note down the details Identify the parts of laptop - its assembling and disassembling	P	CO1	Apply	2
Introduction computer system	Explain the Types of Software - System Software, Application Software; Free and open-source software	L	CO1	Understand	1

Introduction computer system	Describe Computer Languages- Machine, assembly and High-level languages with examples	L	CO1	Understand	1
Introduction computer system	Explain translators - compiler, interpreter, difference between them, Illustrate Algorithm and Flow chart	L	CO1	Understand	1
Introduction computer system	Demonstrate system assembly – CPU – cooler fan, SMPs – memory monitor – keyboard – HDD	P	CO1	Apply	2
Module II					
Operating system-Layers, types and functions	Define Operating system, explain the functions of OS, Explain the layers of Operating System	L	CO2	Understand	3
Operating system-Layers, types and functions	Explain the types of Operating Systems - single user & multi user OS, batch processing OS, Time sharing OS, Real Time OS	L	CO2	Understand	2
Operating system-Layers, types and functions	Demonstrate the installation of windows operating system	P	CO2	Apply	2
Operating system-Layers, types and functions	Explain the Operating System Techniques - Multiprogramming, Multitasking, multiprocessing	L	CO2	Understand	2
Operating system-Layers, types and functions	Demonstrate the installation of Linux operating system	P	CO2	Apply	2
Operating system-Layers, types and functions	Identify the popular Operating Systems - Linux, Microsoft Windows and explain their features	L	CO2	Understand	2
Operating system-Layers, types and functions	Install various Application Software (egs: MS Office, printer software)	P	CO2	Apply	2
Operating system-Layers, types and functions	Define and explain various Mobile Operating systems(MOS)	L	CO2	Understand	1
Operating system-Layers, types and functions	Explain the key features of MOS and identify the future trends of MOS	L	CO2	Understand	1
	Series Exam - I	P	CO2	Apply	2
Module III					
Data processing and Communication system	Explain data processing and it types	I	CO3	Understand	1
Data processing and Communication system	Explain File Management System, describe the types of files and file operations	I	CO3	Understand	2
Data processing and Communication system	Perform data processing by collecting raw data and processing it. (e.g., daily sales of a shop for 5 days. Input in excel, perform processing (total, average, sorting) and generate output (formatted report)	P	CO3	Apply	4
Data processing and Communication system	Perform data processing by collecting raw data and processing it. (e.g., daily sales of a shop for 5 days. Input in excel, perform processing (total, average, sorting) and generate output (formatted report) Explain Database management system with its features and applications	I	CO3	Understand	1
Data processing and Communication system	Describe the elements of a data communication system	I	CO3	Understand	1
Data processing and Communication system	Explain the Modes of data communication, - simplex, half duplex and full duplex.	L	CO3	Understand	1
Data processing and Communication system	Explain Analog and Digital signals	L	CO3	Understand	1
Data processing and Communication system	Identify and classify files in a computer into: master file, transaction file, reference file and report file. Perform the file operations: create a file, rename, copy, move, delete, backup to pen drive/cloud	P	CO3	Understand	2
Data processing and Communication system	Describe the types of data transmission media-guided and unguided media	L	CO3	Understand	2
Data processing and Communication system	Explain Modems and their functions	L	CO3	Understand	1
Data processing and Communication system	Explain the basics of wireless data connectivity	L	CO3	Understand	1

Data processing and Communication system	Demonstrate guided media - twisted pair cable, coaxial cable, optical fiber cable, modem and wifi connectivity Perform UTP Cable Crimping	P	CO3	Apply	2
Module IV					
Computer Networks and Topologies.	Define Computer Communication Networks and explain the advantages of networks	L	CO4	Understand	1
Computer Networks and Topologies.	Explain the types of Networks - PAN, LAN, WAN MAN with examples. advantages and disadvantages	L	CO4	Understand	2
Computer Networks and Topologies.	Perform basic troubleshooting on networks Demonstrate printer connection, Internet Sharing - Network Printers	P	CO4	Apply	2
Computer Networks and Topologies.	Describe Network Topologies - bus, ring, mesh, and star topologies with diagrams.	L	CO4	Understand	2
Computer Networks and Topologies.	Describe Network Components - Switch, hub, router, gateway	L	CO4	Understand	1
Computer Networks and Topologies.	Explain the basics of Internet - ISP, web server, web browser, IP address, domain names, Intranet	L	CO4	Understand	2
Computer Networks and Topologies.	Demonstrate Network Components - Client computers, Switch / Hub, Router, Network cables Check network connectivity, find IP address, using commands (ipconfig, ping etc)	P	CO4	Apply	2
Computer Networks and Topologies.	Describe World Wide Web and its working, understand search engines, chatbots and online stores.	L	CO4	Understand	2
Computer Networks and Topologies.	Introduce Amazon Cloud Storage	L	CO4	Understand	1
Computer Networks and Topologies.	Use search engines effectively by using keywords, quotation marks (" "), site search (site:) etc Demonstrate the basics of Amazon Cloud Storage, GoDaddy, and chatbots	P	CO4	Apply	2
Computer Networks and Topologies.	Lab Series Exam - II	P	CO4	Apply	2

Suggested Student Activities for Self-Learning

Week	Self-Learning description	Hours
Module I		
1	Class summary preparation Draw a mind map showing characteristics of computers with real-life examples (speed → ATM, accuracy → billing) Write record books	5.5
2	Study the topics taught in class Prepare the class notes Prepare a table comparing RAM, ROM, Cache, Secondary Memory (speed, volatility, use).	5.5
3	Study the topics taught in class Prepare module notes with the help of video tutorials List all hardware devices available at home and classify them as input/output/storage. Classify software you use daily into system, application, utility.	5.5
4	Study the topics taught in class Compare Windows vs Linux or MS Office vs LibreOffice. Write algorithms and draw flow charts for some questions. Write record books	5.5
Module II		
5	Study the topics taught in class Prepare module notes with the help of video tutorials Match OS functions with real examples (process management → multitasking). Any other activity.	5.5
6	Prepare module notes with the help of video tutorials Prepare a chart showing batch, time-sharing, real-time OS. Study the topics taught in class Write record books	5.5
7	Study the topics taught in class Compare Android and iOS (features, openness, apps).	5.5

8	Previous class refresh Module summary preparation Study the topics taught in class Write record books	5.5
Module III		
9	Draw Input → Process → Output → Storage with examples. Class summary presentation Write record books	5.5
10	Study the topics taught in class Organize files on your computer into folders and note the benefits. Any other activity	5.5
11	Study the topics taught in class Identify where databases are used (bank, hospital, railway). Differentiate file system vs DBMS Writing record books	5.5
12	Prepare a table comparing simplex, half duplex, full duplex with examples. Compare twisted pair, coaxial, fiber, radio, microwave. Illustrate unguided media Any other activity	5.5
Module IV		
13	Prepare a chart showing LAN, MAN, WAN with examples. Write record books	5.5
14	Study the topics taught in class Prepare module notes with the help of video tutorials Identify router, switch, modem at home or institution..	5.5
15	List 5 educational uses of the internet and 5 services (email, WWW, cloud). Prepare module summary Write record books	5.5
Total Self-Learning hours		82.5

Learning Resources

TEXT BOOK			
Sl. No.	Title	Author	Publication
1	Fundamentals of Computers	Rajaraman	Prentice Hall of India, 2003
2	Computer Fundamentals	P.K Sinha, Priti Sinha	Kalyani Publishers, 2nd Edition
3	Business Data Communication	Shelly	Thomson Learning, Bombay, 2003
4	Data Communication & Computer Network	White	Thomson Learning, Bombay, 2012

REFERENCE			
Sl. No.	Title	Author	Publication
1	Computer Fundamentals	B. Ram	New Age International, 2000
2	Data Communications And Networking	Behrouz A. Forouzan	McGraw Hill Education 2017

WEB RESOURCES		
Sl. No.	URL	Modules Covered
1	https://www.fortinet.com/resources/cyberglossary/wireless-network	III
2	https://www.lenovo.com/in/en/glossary/what-is-modem/index.html?	III
3	https://www.computernetworkingnotes.com/networking-tutorials/network-cable-crimping-and-testing-tools.html	IV

Major Equipment/Instruments/Components required for a batch of 30 students

Sl. No.	Particulars	Specifications	Quantity
1	Computers	Latest	30

2	Computer Components		6
3	NIC,hub,router,switch,repeater etc.		6
4	RJ45(Crimper and Connectors)Ethernet cable cable cutter and cable tester		15
5	Guided media cable samples		

Major Software required for a batch of 30 students

Sl. No.	Particulars	Specifications	Quantity
1	Windows OS	Latest	2
2	Linux OS	Latest	2
3	Softwares:-Office automation software etc	All	

Assessment Methodology - Practicum

Mode	Attendance	CA1	CE	CA2	CA3	CA4	CA5	ESE	
		Average of Self learning activities from each module	Continuous evaluation	Practical test (first half of experiments)	Practical test (second half of experiments)	Series Exam (2 modules)	Series Exam (2 modules)	Written Exam (theory)	Lab Examination (internal)
Duration				3 hours	3 hours	2 hours	2 hours	2.5 hours	3 hours
Exam mark		15	50	40	40	50	50	60	40
Converted to		5	10	10	10	10	10		
Marks	5	5	10	10		10		60	40
Total	40							100	
Tentative schedule	End of semester	By 4th week	By 7th week	By 11th week	By 14th week	8th week	15th week	End of semester	

Scheme of Evaluation - Practical (Continuous Internal Evaluation)

Sl. No.	Criteria	Description	Marks
1	Preparation & Punctuality	Attendance, timely submission of record, pre-lab preparation, understanding of experiment objectives and theory.	10
2	Experimental Setup & Procedure	Ability to identify components/equipment, correct circuit connections/setup, systematic and safe execution of the procedure.	10
3	Observation & Data Recording	Accuracy and neatness of readings, correct use of units, tabulation, and systematic recording of results.	5
4	Analysis & Result Interpretation	Proper calculations, graphical representation, result verification, discussion, and logical conclusion.	10
5	Viva Voce / Concept Understanding	Clarity of theoretical concepts, explanation of procedure, ability to answer questions related to the experiment.	10
6	Workmanship, Discipline & Teamwork	Laboratory discipline, care of instruments, teamwork, attitude, and safety practices.	5
Total			50

Scheme of Evaluation - Practical Test

Category	Things to evaluate	Marks
Write-up / Procedure (before experiment)	Aim, circuit diagram/flowchart, stepwise procedure.	10
Experiment Setup & Execution	Correct circuit connections / coding / setup. Handling of instruments/software. Accuracy of execution.	10
Observation & Result / Output	Proper tabulation of readings. Calculations/graphs/program output. Correctness of result / expected outcome.	8
Viva Voce	Conceptual understanding of experiment. Related theoretical knowledge.	8

Record	Completion & neatness of practical record. Proper certification by faculty.	4
Total		40

Series Examination Pattern- Theory

Time	Module	Part A	Marks	Part B	Marks	Part C (With choice)	Marks	Total
2 hours	Any one module	2	1	3	3	2	7	25
	Any one module	2	1	3	3	2	7	25
	Number	4		6		4		50

End Semester Examination Pattern of Question Paper - Theory

Duration	Module	TYPE OF QUESTIONS						Total Marks
		Part A (2 Questions from each module)		Part B 2 out of 3 questions from each module)		Part C (1 set questions with choice from each module)		
		No. of Questions	Marks (1 mark each)	No. of Questions	Marks (3 marks each)	No. of Questions	Marks (7 marks each)	
2.5 hours	1	2	2	3	6	1 set	7	15
	2	2	2	3	6	1 set	7	15
	3	2	2	3	6	1 set	7	15
	4	2	2	3	6	1 set	7	15
		8	8	12	24	4 sets	28	60

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