Kurukshetra University, Kurukshetra

(Established by the State Legislature Act XII of 1956)

('A+' Grade, NAAC Accredited)

॥ योगस्थ: कुरु कर्माणि ॥

समबुद्धि व योग युक्त होकर कर्म करो

(Perform Actions while Stead fasting in the State of Yoga)

Scheme of Examination for Under-Graduate Programmes

Subject: Computer Applications

according to

Curriculum Framework for Under-Graduate Programmes

As per NEP-2020 (Multiple Entry-Exit, Internships and Choice Based Credit System)

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

(For the Batches Admitted from 2023-2024)

Kurukshetra University Kurukshetra
Scheme of Examination forUndergraduate programmes
Subject: Computer Applications
According to
Curriculum Framework for Undergraduate Programmes
as per NEP 2020 (Multiple Entry-Exit, Internships and Choice Based Credit System)

Sem	**Course Type**	**Course Code**	**Nomenclature of paper**	Credits	Contact hours	**Internal marks**	**End term Marks**	**Total Marks**	Duration of exam (Hrs) T + P
1	CC-1 MCC-1	B23-CAC-101	Programming with Python	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	MCC-2	B23-CAC-102	Operating Systems	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	CC-M1	B23-CAC-103	Basics of Computer Science	1	1	10	20	30	3
			Practical	1	2	5	15	20	3
	MDC 1	B23-CAC-104	Fundamentals of Computer Science	2	2	15	35	75	3
			Practical	1	2	5	20	25	3
2	CC-2 MCC-3	B23-CAC-201	Logical Organization of Computer	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	DSEC-1	B23-CAC-202	Data Base Management Systems	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	CC-M2	B23-CAC-203	Programming Methodologies	1	1	10	20	30	3
			Practical	1	2	5	15	20	3
	MDC 2	B23-CAC-204	Web Technologies Fundamentals	2	2	15	35	50	3
			Practical	1	2	5	20	25	3
3	CC-3 MCC-4	B23-CAC-301	Object-Oriented Programming using C++	3	3	20	50	70	3

			Practical	1	2	10	20	30	3
	MCC-5	B23-CAC-302	Foundations of Web Development	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	MDC 3	B23-CAC-304	Programming with C	2	2	15	35	50	3
			Practical	1	2	5	20	25	3
4	CC-4 MCC-6	B23-CAC-401	Computer Graphics	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	MCC-7	B23-CAC-402	Concepts of Data Structures	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	MCC-8	B23-CAC-403	Java Programming	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	DSE-1	B23-CAC-404	Front-end Development	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
		Or							
		B23-CAC-405	Linux and Shell Programming	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
5	CC-5 MCC-9	B23-CAC-501	Data Analytics using SpreadSheets	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	MCC-10	B23-CAC-502	Computer Networks	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	DSE-2	B23-CAC-503	Foundations of Server-Side Development	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
		Or							
		B23-CAC-504	Cloud Computing	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	DSE-3	B23-CAC-	Java Based Web App Development	3	3	20	50	70	3

		505	Practical	1	2	10	20	30	3
		Or							
		B23-CAC-506	Programming in R	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
6	CC-6 MCC-11	B23-CAC-601	Artificial Intelligence	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	MCC-12	B23-CAC-602	Advanced Web Development Techniques	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	DSE-4	B23-CAC-603	Developing Modern Web Applications using React	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
		Or							
		B23-CAC-604	Data Storage Technologies and Networks using AWS	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
	DSE-5	B23-CAC-606	Data Analytics using Python	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
		Or							
		B23-CAC-607	Data Analytics using R	3	3	20	50	70	3
			Practical	1	2	10	20	30	3
7	CC-H1	B23-CAC-701	Mobile Computing	4	4	30	70	100	3
	CC-H2	B23-CAC-702	Software Testing	4	4	30	70	100	3
	CC-H3	B23-CAC-703	Data Mining and Warehousing	4	4	30	70	100	3
	DSE-6	B23-	NoSQL Databases	4	4	30	70	100	3

		CAC-704							
		Or							
		B23-CAC-705	Block Chain Technologies	4	4	30	70	100	3
	PC-H1	B23-CAC-707	Practical	4	8	30	70	100	6
8	CC-H4	B23-CAC-801	Information Security	4	4	30	70	100	3
	CC-H5	B23-CAC-802	Internet of Things	4	4	30	70	100	3
	CC-H6	B23-CAC-803	Software Project Management	4	4	30	70	100	3
	DSE-7	B23-CAC-804	Big Data	4	4	30	70	100	3
		Or							
		B23-CAC-805	Machine Learning	4	4	30	70	100	3
	PC-H2	B23-CAC-806	Practical	4	8	30	70	100	6
	OR								
	CC-H4	B23-CAC-801	Information Security	4	4	30	70	100	3
	CC-H5	B23-CAC-802	Internet of Things	4	4	30	70	100	3
	Research	B23-CAC-807	Project/ Dissertation	12				300	

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समबुद्धि व योग युक्त होकर कर्म करो
(Perform Actions while Stead fasting in the State of Yoga)

Syllabus of Examination (1st Semester) for Under-Graduate Programmes
Subject: Computer Applications
according to
Curriculum Framework for Under-Graduate Programmes
As per NEP-2020 (Multiple Entry-Exit, Internships and Choice Based Credit System)
DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS
(For the Batches Admitted From 2023-2024)

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS
KURUKSHETRA UNIVERSITY, KURUKSHETRA

<table>
<tr><td colspan="4">Session: 2023-24</td></tr>
<tr><td colspan="4">Part A - Introduction</td></tr>
<tr><td>Subject</td><td colspan="3">COMPUTER APPLICATIONS</td></tr>
<tr><td>Semester</td><td colspan="3">I</td></tr>
<tr><td>Name of the Course</td><td colspan="3">Programming with Python</td></tr>
<tr><td>Course Code</td><td colspan="3">B23-CAC-101</td></tr>
<tr><td>Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/ VAC)</td><td colspan="3">CC</td></tr>
<tr><td>Level of the course (As per Annexure-I</td><td colspan="3">100-199</td></tr>
<tr><td>Pre-requisite for the course (if any)</td><td colspan="3">NA</td></tr>
<tr><td>Course Learning Outcomes(CLO):</td><td colspan="3">After completing this course, the learner will be able to:
1. Write simple programs using built-in data structures in Python.
2. Implement arrays and user defined functions in Python.
3. Solve problems in the respective domain using suitable programming constructs in Python.
4. Solve problems in the respective domain using the concepts of object oriented programming in Python.
_____
5*. to implement the programs based on various concepts of Python.</td></tr>
<tr><td rowspan="2">Credits</td><td>Theory</td><td>Practical</td><td>Total</td></tr>
<tr><td>3</td><td>1</td><td>4</td></tr>
<tr><td>Contact Hours</td><td>3</td><td>2</td><td>5</td></tr>
<tr><td colspan="2">Max. Marks:100(70(T)+30(P))
Internal Assessment Marks:30(20(T)+10(P))
End Term Exam Marks: 70(50(T)+20(P))</td><td colspan="2">Time: 3 Hrs.(T), 3Hrs.(P)</td></tr>
<tr><td colspan="4">Part B- Contents of the Course</td></tr>
<tr><td colspan="4"><u>Instructions for Paper- Setter</u>
Examiner will set a total of nine questions. Out of which first question will be compulsory. Remaining eight questions will be set from four unit selecting two questions from each unit. Examination will be of three-hour duration. All questions will carry equal marks. First question will comprise of short answer type questions covering entire syllabus.</td></tr>
</table>

Candidate will have to attempt five questions in all, selecting one question from each unit. First question will be compulsory.
Practicum will be evaluated by an external and an internal examiner. Examination will be of three-hour duration.

Unit	Topics	Contact Hours
I	Introduction to Programming: Problem solving strategies; Structure of a Python program; Syntax and semantics; Executing simple programs in Python.	5
II	Creating Python Programs: Identifiers and keywords; Literals, numbers, and strings; Operators; Expressions; Input/output statements; Defining functions; Control structures (conditional statements, loop control statements, break, continue and pass, exit function), default arguments.	13
III	Built-in data structures: Mutable and immutable objects; Strings, built-in functions for string, string traversal, string operators and operations; Lists creation, traversal, slicing and splitting operations, passing list to a function; Tuples, sets, dictionaries and their operations.	14
IV	File and exception handling: File handling through libraries; Errors and exception handling.	8
V*	Practicum: Students are advised to do laboratory/practical practice not limited to, but including the following types of problems: • WAP to find the roots of a quadratic equation. • WAP to accept a number ‘n’ and (a). Check if ’n’ is prime (b). Generate all prime numbers till ‘n’ (c). Generate first ‘n’ prime numbers (d). This program may be done using functions. • WAP that accepts a character and performs the following: (a). print whether the character is a letter or numeric digit or a special character (b). if the character is a letter, print whether the letter is uppercase or lowercase (c). if the character is a numeric digit, prints its name in text (e.g., if input is 9, output is NINE) • WAP to perform the following operations on a string (a). Find the frequency of a character in a string. (b). Replace a character by another character in a string. (c). Remove the first occurrence of a character from a string. (d). Remove all occurrences of a character from a string. • WAP to swap the first n characters of two strings. • Write a function that accepts two strings and returns the indices of all the occurrences of the second string in the first string as a list. If the second string is not present in the first string, then it should return -1. • WAP to create a list of the cubes of only the even integers appearing in the input list (may have elements of other types	25

	also) using the following: (a). 'for' loop (b). list comprehension • WAP to read a file and (a). Print the total number of characters, words and lines in the file. (b). Calculate the frequency of each character in the file. Use a variable of dictionary type to maintain the count. (c). Print the words in reverse order. (d). Copy even lines of the file to a file named 'File1' and odd lines to another file named 'File2'. • Write a function that prints a dictionary where the keys are numbers between 1 and 5 and the values are cubes of the keys. • Consider a tuple t1= (1, 2, 5, 7, 9, 2, 4, 6, 8, 10). WAP to perform following operations: (a). Print half the values of the tuple in one line and the other half in the next line. (b). Print another tuple whose values are even numbers in the given tuple. (c). Concatenate a tuple t2= (11,13,15) with t1. (d). Return maximum and minimum value from this tuple • WAP to accept a name from a user. Raise and handle appropriate exception(s) if the text entered by the user contains digits and/or special characters.	

Suggested Evaluation Methods

Internal Assessment: ➢ **Theory** • Class Participation: 5 • Seminar/presentation/assignment/quiz/class test etc.: 5 • Mid-Term Exam: 10 ➢ **Practicum** • Class Participation: 5 • Seminar/Demonstration/Viva-voce/Lab records etc.: 5 • Mid-Term Exam: NA	**End Term Examination:** A three hour exam for both theory and practicum.

Part C-Learning Resources

Recommended Books/e-resources/LMS:

- Taneja, S., Kumar, N., Python Programming- A Modular Approach, Pearson Education India, 2018.
- Balaguruswamy E., Introduction to Computing and Problem Solving using Python, 2nd edition, McGraw Hill Education, 2018.
- Brown, Martin C., Python: The Complete Reference, 2nd edition, McGraw Hill Education, 2018.
- Guttag, J.V. Introduction to computation and programming using Python, 2 nd edition, MIT Press, 2016

*Applicable for courses having practical component.

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS
KURUKSHETRA UNIVERSITY, KURUKSHETRA

<table>
<tr><td colspan="4">Session: 2023-24</td></tr>
<tr><td colspan="4">Part A - Introduction</td></tr>
<tr><td>Subject</td><td colspan="3">COMPUTER APPLICATIONS</td></tr>
<tr><td>Semester</td><td colspan="3">I</td></tr>
<tr><td>Name of the Course</td><td colspan="3">Operating Systems</td></tr>
<tr><td>Course Code</td><td colspan="3">B23-CAC-102 (Common with B23-CSE-301)</td></tr>
<tr><td>Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/ VAC)</td><td colspan="3">MCC</td></tr>
<tr><td>Level of the course (As per Annexure-I</td><td colspan="3">100-199</td></tr>
<tr><td>Pre-requisite for the course (if any)</td><td colspan="3"></td></tr>
<tr><td>Course Learning Outcomes(CLO):</td><td colspan="3">After completing this course, the learner will be able to:
1. understand the basic concepts of operating systems and its services along with process management.
2. understand concept of process scheduling and acquire knowledge of process synchronization.
3. learn about memory management and virtual memory concepts.
4. learn to work with directory structure and security aspects.
_____
5*. to implement the programs based on operating systems.</td></tr>
<tr><td rowspan="2">Credits</td><td>Theory</td><td>Practical</td><td>Total</td></tr>
<tr><td>3</td><td>1</td><td>4</td></tr>
<tr><td>Contact Hours</td><td>3</td><td>2</td><td>5</td></tr>
<tr><td colspan="2">Max. Marks:100(70(T)+30(P))
Internal Assessment Marks:30(20(T)+10(P))
End Term Exam Marks: 70(50(T)+20(P))</td><td colspan="2">Time: 3 Hrs.(T), 3Hrs.(P)</td></tr>
<tr><td colspan="4">Part B- Contents of the Course</td></tr>
<tr><td colspan="4"><u>Instructions for Paper- Setter</u>
Examiner will set a total of nine questions. Out of which first question will be compulsory. Remaining eight questions will be set from four unit selecting two questions from each unit. Examination will be of three-hour duration. All questions will carry equal marks. First question will comprise of short answer type questions covering entire syllabus.
Candidate will have to attempt five questions in all, selecting one question from each unit. First</td></tr>
</table>

question will be compulsory.
Practicum will be evaluated by an external and an internal examiner. Examination will be of three-hour duration.

Unit	Topics	Contact Hours
I	Introductory Concepts: Operating System, Functions and Characteristics, Historical Evolution of Operating Systems, Operating System Structure. Types of Operating System: Real time, Multiprogramming, Multiprocessing, Batch processing. Operating System Services, Operating System Interface, Service System Calls, System Programs. Process Management: Process Concepts, Operations on Processes, Process States and Process Control Block. Inter-Process Communication.	10
II	CPU Scheduling: Scheduling Criteria, Levels of Scheduling, Scheduling Algorithms, Multiple Processor Scheduling, Algorithm Evaluation. Synchronization: Critical Section Problem, Semaphores, Classical Problem of Synchronization, Monitors. Deadlocks: Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery.	10
III	Memory Management Strategies: Memory Management of Single-User and Multiuser Operating System, Partitioning, Swapping, Contiguous Memory Allocation, Paging and Segmentation; Virtual Memory Management: Demand Paging, Page Replacement Algorithms, Thrashing.	10
IV	Implementing File System: File System Structure, File System Implantation, file operations, Type of Files, Directory Implementation, Allocation Methods, and Free Space Management. Disk Scheduling algorithm- SSTF, Scan, C- Scan, Look, C-Look. SSD Management.	10
V*	Practicum: Students are advised to do laboratory/practical practice not limited to, but including the following types of problems: • Working with various operating systems, and performing different operations using operating system. • Write a program to print file details including owner access permissions, file access time, where file name is given as argument. • Write a program to copy files using system calls. • Write a program to implement FCFS scheduling algorithm. • Write a program to implement Round Robin scheduling algorithm. • Write a program to implement SJF scheduling algorithm. • Write a program to implement non-preemptive priority based	25

	scheduling algorithm. • Write a program to implement preemptive priority based scheduling algorithm. • Write a program to implement SRJF scheduling algorithm. • Write a program to calculate sum of n numbers using thread library. • Write a program to implement first-fit, best-fit and worst-fit allocation strategies.	

Suggested Evaluation Methods

Internal Assessment: ➢ **Theory** • Class Participation: 5 • Seminar/presentation/assignment/quiz/class test etc.: 5 • Mid-Term Exam: 10 ➢ **Practicum** • Class Participation: 5 • Seminar/Demonstration/Viva-voce/Lab records etc.: 5 • Mid-Term Exam: NA	**End Term Examination:** A three hour exam for both theory and practicum.

Part C-Learning Resources

Recommended Books/e-resources/LMS:

- Silberschatz A., Galvin P.B., and Gagne G., Operating System Concepts, John Wiley & Sons.
- Godbole, A.S., Operating Systems, Tata McGraw-Hill Publishing Company, New Delhi.
- Deitel, H.M., Operating Systems, Addison- Wesley Publishing Company, New York.
- Tanenbaum, A.S., Operating System- Design and Implementation, Prentice Hall of India, New Delhi.

*Applicable for courses having practical component.

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS
KURUKSHETRA UNIVERSITY, KURUKSHETRA

Session: 2023-24			
Part A - Introduction			
Subject	COMPUTER SCIENCE/ COMPUTER APPLICATIONS		
Semester	I		
Name of the Course	Basics of Computer Science		
Course Code	B23-CAC-103 (Common with B23-CSE-103)		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/ VAC)	CC-M		
Level of the course (As per Annexure-I	100-199		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO):	After learning this course student will be able: 1. To introduce to the students, the basic understanding of the working of a computer system. 2. To familiarize the students with the concept of algorithms and flowchart. 3. To familiarize the students with the various types of software. 4. To make the students familiar with the basic internet technology and concepts.		
Credits	Theory	Practical	Total
	1	1	2
Contact Hours	1	2	3
Max. Marks:50(30(T)+20(P)) **Internal Assessment Marks:15(10(T)+5(P))** **End Term Exam Marks:35(20(T)+15(P))**		**Time: 3 Hrs.(T), 3Hrs.(P)**	

PartB-Contentsofthe Course

Instructions for Paper- Setter

Unit	**Topics**	**Contact Hours**
I	Introduction to Computers: Definition of Computers, History and Generations of Computers, Characteristics of computer, Classification of Computers. Fundamental Block diagram of Computer: CPU, Input & Output Unit.	4

II	Software: Definition of Software, Types of Software-System software, Application software and Utility software. Types of Computer Languages, Assemblers, Interpreters, Compiler.	4
III	Introduction to Operating Systems: Types of Operating System, Functions of Operating System. Windows: Introduction to Windows, Starting Windows, Desk Top, Task Bar, Opening and closing applications, icons-creating, renaming and removing. Date and Time setting, Working with files and folders-creating, deleting, opening, finding, copying, moving, and renaming.	4
IV	Networking: Concept, Basic Elements of a Communication System, Data Transmission Media, LAN, MAN, WAN. Introduction of Internet and WWW, Basic working of a Web Browser, Introduction to popular web browsers.	4
V*	Practicum: Students are advised to do laboratory/practical practice not limited to, but including the following types of problems: • Dismantling the system unit, recognize all major components inside a PC, describe function of each component and define the relationship of internal components • Explore and describe some system utility like regedit, memory portioning, control panel, window tools. • Understanding control panel • Date and Time setting. • Working with files and folders-creating, deleting, opening, finding, copying, moving, and renaming.	25

Suggested Evaluation Methods

Internal Assessment: ➢ **Theory** • Class Participation: 4 • Seminar/presentation/assignment/quiz/class test etc.: NA • Mid-Term Exam: 6 ➢ **Practicum** • Class Participation: NA • Seminar/Demonstration/Viva-voce/Lab records etc.: 5 • Mid-Term Exam: NA	**End Term Examination:** **A three hour exam for both theory and practicum.**

Part C-Learning Resources

Text /Reference Books:

- Fundamentals of Computers, V. Rajaraman 6th edition PHI Learning Private Limited 2014
- Peter Norton: Computing Fundamentals. 6th Edition, McGraw Hill-Osborne,2007
- Alexis Leon and Marthews Leon: Introduction to Computers, Leon Vikas,1999.
- Internet Basics. E. Douglas Commer PHI.

*Applicable for courses having practical component.

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KURUKSHETRA UNIVERSITY, KURUKSHETRA

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<tr><td colspan="4">Session: 2023-24</td></tr>
<tr><td colspan="4">Part A - Introduction</td></tr>
<tr><td>Subject</td><td colspan="3">COMPUTER SCIENCE/ COMPUTER APPLICATIONS</td></tr>
<tr><td>Semester</td><td colspan="3">I</td></tr>
<tr><td>Name of the Course</td><td colspan="3">Fundamentals of Computer Science</td></tr>
<tr><td>Course Code</td><td colspan="3">B23-CAC-104 (Common with B23-CSE-104)</td></tr>
<tr><td>Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/ VAC)</td><td colspan="3">MDC</td></tr>
<tr><td>Level of the course (As per Annexure-I</td><td colspan="3">100-199</td></tr>
<tr><td>Pre-requisite for the course (if any)</td><td colspan="3"></td></tr>
<tr><td>Course Learning Outcomes(CLO):</td><td colspan="3">After completing this course, the learner will be able to:
1. understand the basic concepts of operating systems
2. do the basic editing and formatting in a document
3. create basic spread-sheets for different purposes
4. create basic presentations for different applications
5*. to understand the working of operating system and various office tools practically.</td></tr>
<tr><td rowspan="2">Credits</td><td>Theory</td><td>Practical</td><td>Total</td></tr>
<tr><td>2</td><td>1</td><td>3</td></tr>
<tr><td>Contact Hours</td><td>2</td><td>2</td><td>4</td></tr>
<tr><td colspan="2">Max. Marks:75(50(T)+25(P))
Internal Assessment Marks:20(15(T)+5(P))
End Term Exam Marks: 55(35(T)+20(P))</td><td colspan="2">Time: 3 Hrs.(T), 3Hrs.(P)</td></tr>
<tr><td colspan="4">Part B- Contents of the Course</td></tr>
<tr><td colspan="4"><u>Instructions for Paper- Setter</u>
Examiner will set a total of nine questions. Out of which first question will be compulsory. Remaining eight questions will be set from four unit selecting two questions from each unit. Examination will be of three-hour duration. All questions will carry equal marks. First question will comprise of short answer type questions covering entire syllabus.
Candidate will have to attempt five questions in all, selecting one question from each unit. First question will be compulsory.
Practicum will be evaluated by an external and an internal examiner. Examination will be of three-hour duration.</td></tr>
<tr><td>Unit</td><td colspan="2">Topics</td><td>Contact</td></tr>
</table>

		Hours
I	Computer Fundamentals: Evolution of Computers through generations, Characteristics of Computers, Strengths and Limitations of Computers, Classification of Computers, Functional Components of a Computer System, Applications of computers in Various Fields. Types of Software: System software, Application software, Utility Software.	7
II	Memory Systems: Concept of bit, byte, word, nibble, storage locations and addresses, measuring units of storage capacity, access time, concept of memory hierarchy. Primary Memory - RAM, ROM, PROM, EPROM. Secondary Memory - Types of storage devices, Magnetic Tape, Hard Disk, Optical Disk, Flash Memory. I/O Devices: I/O Ports of a Desk Top Computer, Device Controller, Device Driver. Input Devices: classification and use, keyboard, pointing devices - mouse, touch pad and track ball, joystick, magnetic stripes, scanner, digital camera, and microphone Output Devices: speaker, monitor, printers: classification, laser, ink jet, dot-matrix. Plotter.	7
III	Introduction to Operating System**:** Definition, Functions, Features of Operating System, Icon, Folder, File, Start Button, Task Bar, Status Buttons, Folders, Shortcuts, Recycle Bin, Desktop, My Computer, My Documents, Windows Explorer, Control Panel.	5
IV	The Internet: Introduction to networks and internet, history, Internet, Working of the Internet, Modes of Connecting to Internet. Electronic Mail: Introduction, advantages and disadvantages, User Ids, Passwords, e-mail addresses, message components, message composition, mailer features. Browsers and search engines.	6
V*	Operating System: • Starting with basics of Operating Systems and its functionalities Computer Basics: • Identify the various computer hardware • Understanding the working of computer • Understanding various types of software Internet and E-mail: • Using Internet for various tasks • Creating and using e-mail.	25
Suggested Evaluation Methods		
Internal Assessment: ➢ **Theory** • Class Participation: 4 • Seminar/presentation/assignment/quiz/class test etc.:4 • Mid-Term Exam: 7 ➢ **Practicum** • Class Participation: 2 • Seminar/Demonstration/Viva-voce/Lab records etc.:3		**End Term Examination:** A three hour exam for both theory and practicum.

• Mid-Term Exam: NA	

Part C-Learning Resources

Recommended Books/e-resources/LMS:

- Sinha, P.K. & Sinha, Priti, Computer Fundamentals, BPB.
- Dromey, R.G., How to Solve it By Computer, PHI.
- Norton, Peter, Introduction to Computer, McGraw-Hill.
- Leon, Alexis & Leon, Mathews, Introduction to Computers, Leon Tech World.
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*Applicable for courses having practical component.