TECNIA INSTITUTE OF ADVANCED STUDIES

GRADE 'A' INSTITUTE

Department of Information Communication & Technology

COURSE PLAN

ACADEMIC SESSION 2024-25

As per Scheme & Syllabus (w.e.f. Academic Session 2024-2025 onwards); As per UGC Curriculum & Credit Framework for Undergraduate Programme (CCFUP) (Dec 2022) Guru Gobind Singh Indraprastha University, New Delhi.

PROGRAMME CODE:	020	PROGRAMME:	Bachelor of Computer Applications (BCA)	SHIFT:	1st			L	4	T/P	0	Credits	4
COURSE CODE :	BCA-103T	COURSE NAME:	Fundamental of Information Technology	SECTION:	A								
		COURSE TYPE:	Core Course Theory (CCT)	FACULTY:	Mr. Suresh Panchal								

LEARNING OBJECTIVES:
jectives of this course is to provide the learners:
1. Awareness of evolution of Computers, various types of computers its characteristics, usage, and limitations.
2. Identification of different categories of computers, their peripherals and memory.
3. Knowledge about operating system, their types, MS-Office various software.

PREREQUISITE: None

COURSE OUTCOME & MAPPING, COURSE ARTICULATION

		DISCIPLINARY KNOWLEDGE: Disciplinary Knowledge: Apply the knowledge of computer application concepts and domain knowledge to solve the problems in IT domain/IT industry	PROBLEM ANALYSIS: Identify, formulate, review research literature, and analyse complex computer application problem at their workplace and for the society.	DESIGN /DEVELOPMENT OF SOLUTIONS: Design and evaluate solutions for computer applications problems, and design the processes that meet specified needs with appropriate consideration for the public health, safety, cultural, societal, and environmental considerations.	MODERN TOOL USAGE: Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computer application activities, with an understanding of the limitations	PROFESSIONAL ETHICS: Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practices.	LIFE-LONG LEARNING: Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.	PROJECT MANAGEMENT AND FINANCE: Demonstrate knowledge and understanding of the computing and manage projects and in multidisciplinary environments.	COMMUNICATION EFFICACY WITH COOPERATION/TEAMWORK: Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions. Function effectively as an individual and as a member or a leader.	SOCIETAL AND ENVIRONMENTAL CONCERN: Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional	INNOVATION AND ENTREPRENEURSHIP: Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.
		DISCIPLINARY KNOWLEDGE	PROBLEM ANALYSIS	DESIGN /DEVELOPMENT OF SOLUTIONS	MODERN TOOL USAGE	PROFESSIONAL ETHICS	LIFE-LONG LEARNING	PROJECT MANAGEMENT AND FINANCE	COMMUNICATION EFFICACY WITH COOPERATION/TEAMWORK	SOCIETAL AND ENVIRONMENTAL CONCERN	INNOVATION AND ENTREPRENEURSHIP
	CO - PO MAPPING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	Describe computer with its characteristics, its usage, limitations and benefits, Computer Memories and its type, Software and its type	4	4	4	4	-	2	1	-	-	1
CO2	Acquire knowledge about Number Systems, various computer languages and operating system DOS	4	4	4	2	-	2	-	-	-	1
CO3	Attain skills in Application Software used for word processing, spreadsheet and presentation	4	4	4	4	-	2	2	-	-	3
CO4	Understand network fundamentals and various communication network, Advance trends in IT	4	4	4	4	-	2	2	-	-	2
	Course Articulation (Average)	4	4	4	3.5	-	2	1.666666667	-	-	1.75

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S. No.	Lecture No.	Unit No	Topic	Sessional Outcome / Students will able to :	Experiential Learning	Participative Learning	Problem Solving Methodologies	ICT Tools & E-Resources Utilization	Mapping with CO	Class Material (PPT Faculty+ Students)	Additional Material (Links/ Journals/ Articles/ NEWS)	Mode of Assessment	Status
1	L1	1	Computer Generation	Understand the Generations of Computer	Demonstration of loops	Discussion	Brainstorming	Youtube https://www.youtube.com/watch?v=UdXldV2IUK4	CO1	PPT	https://www.tutorialspoint.com/computer_concepts/computer_concepts_characteristics_of_computer_system.htm	Questions from Assignment	
2	L2	1	Computer Generation from First Generation to Fifth Generation	Understand the Generation from first to fifth computers		Lecture through PPT		Youtube https://www.youtube.com/watch?v=qa03mXCXQU	CO1	PPT	https://www.geeksforgeeks.org/generations-of-computers-computer-fundamentals/	Questions from Assignment	
3	L3	1	Fifth Generation	Understand the Generation from first to fifth computers		Lecture through PPT	Brainstorming	Youtube https://www.youtube.com/watch?v=qa03mXCXQU	CO1	PPT	https://www.geeksforgeeks.org/generations-of-computers-computer-fundamentals/	Questions from Assignment	
4	L4	1	Classifications of Computers: Micro, Mini, Mainframe and super computers.	Learn about classification of computers	Demonstration of loops			Youtube https://www.youtube.com/watch?v=qa03mXCXQU			https://www.geeksforgeeks.org/generations-of-computers-computer-fundamentals/		
5	L5	1	Mainframe and super computers.	understand about mainframes and Supercomputers		Flipped Classroom		Youtube (https://www.youtube.com/watch?v=7WZDE4KEOMc)	CO1	Student PPT	https://www.youtube.com/watch?v=t1bbQ-ergO4	PPT by Student	
6	L6	1	Computer Hardware	Unserstand the hardware part of the computer		Flipped Classroom		Youtube (https://www.youtube.com/watch?v=7WZDE4KEOMc)	CO1	Student PPT	https://www.youtube.com/watch?v=t1bbQ-ergO4	PPT by Student	
7	L7	1	Major Components of a digital computer, Block Diagram of a computer	Classify the Block Diagram of Computer		Flipped Classroom			CO1	Student PPT		PPT by Student	
8	L8	1	Computer Hardware: Block Diagram of a computer	Classify the Block Diagram of Computer	Demonstration of loops			(https://books.google.co.in/books?id=KVac69F1MOEC&printsec=copyright&redir_esc=y#v=onepage&q&f=false)	CO2		https://www.tutorialsmate.com/2020/04/block-diagram-of-computer.html		
9	L9	1	Input-output devices, Description of Computer Input	identify Input /Output Devices, CPU, ALU		Discussion		(https://books.google.co.in/books?id=KVac69F1MOEC&printsec=copyright&redir_esc=y#v=onepage&q&f=false)	CO1	PPT	https://www.tutorialsmate.com/2020/04/block-diagram-of-computer.html	Viva-1	
10	L10	1	Units, Output Units, CPU.	identify Input /Output Devices, CPU, ALU		Lecture through PPT		https://www.youtube.com/watch?v=5r0bdadm4	CO1	PPT	https://d2cyt36b7wnvti.cloudfront.net/insa/wp-content/uploads/2021/02/04185234/Class-1-Computer-Studies-Syllabus.pdf	Viva-1	
11	L11	1	Computer Memory: Memory Hierarchy	State Memory Hierarchy			Practical		CO1	PPT		Viva-1	
12	L12	1	Memory Strucutre	Understand the computer memory hierarchy	Demonstration of loops			Youtube https://www.youtube.com/watch?v=11BKkow5			https://www.tutorialspoint.com/what-is-memory-hierarchy#:~:text=Memory%20hierarchy%20is%20arranged%20different%20to%20arranged%20to.		
13	L13	1	Primary Memory	classify how many types of memory		Group Disussion	Practical		CO1	PPT		Questions from Assignment	
14	L14	1	RAM and its types, ROM and its types,	classify types of memory	Demonstration of loops		Practical	https://www.youtube.com/watch?v=WMuMA9ijzG	CO1	PPT	https://www.youtube.com/watch?v=tWtuA-90gG	Questions from Assignment	
15	L15	1	Secondary Memory, Cache memory	Understand the concept of Secondary & Cache memory		Flipped Classroom	Practical		CO1	Student PPT		PPT by Student	
16	L16	1	Secondary Storage	Classify the Hard Disk and its work				https://www.youtube.com/watch?v=2dSW8JORsk		PPT	https://www.youtube.com/watch?v=sVdtlrldC44		
17	L17	1	Secondary Storage Devices -	Classify the Hard Disk and its work	Demonstration			https://www.youtube.com/watch?v=tfRbHqzNEsU	CO2	PPT	https://www.youtube.com/watch?v=2vgNB-Y4a6U	Questions from Assignment	
18	L18	1	Hard Disk,	Classify the Hard Disk and its work	Demonstartion			https://www.youtube.com/watch?v=tfRbHqzNEsU	CO2	PPT	https://www.youtube.com/watch?v=2vgNB-Y4a6U	Questions from Assignment	
19	L19	1	DVD,	Understand the basic operation of DVD Memory			Practical		CO1,CO2	PPT		Questions from Assignment	

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20	L20	1	Flash Memroy,	Understand the basic operation of Flash Memory				https://www.youtube.co m/watch?v=DDatwY1280	CO1,CO3		https://www.lifewire.com/what-is-a-flash-drive-2625794	
21	L21	1	USB	Understand the basic of USB and its function		Disscussion			CO2	PPT		Viva-2
22	L22	1	Compact Disk,	Understand the basic of Hard Disk	Demonstration of operators	Lecture through PPT			CO2	PPT		Viva-2
23	L23	1	Storage Classes: automatic, external (global), static & registers	classify between different variable declaration		Flipped Classroom		https://www.cou rsera.org/lecture/ c-for-everyone/storage-	CO2	PPT	https://youtu.be/fsbe00eabfSj	Viva-2
24	L24	2	Interaction with Computers. Computer Software	classify about system software				https://www.you tube.com/watch? v=ZJTc1etqK0s	CO3	PPT		Viva-2
25	L25	2	System software:	Classify about translators and its work					CO1,CO2	PPT	https://www.youtube.com/w atch?v=X45pdR4ic3M	
26	L26	2	Assemblers, ,	Classify about translators and its work		Lecture through PPT		https://www.you tube.com/watch? v=4sPWotthksw	CO1,CO2	PPT	https://youtu.be/kM12yeyrAN U	Viva-3
27	L27	2	Compilers, Interpreters	classify the Application Software	Demonstration of operators	Lecture through PPT	Brainstorming		CO1,CO2	PPT	https://youtu.be/kM12yeyrAN U	Viva-3
28	L28	2	linkers, loaders	understand & apply MS Office				https://www.you tube.com/watch? v=xpYYIxIaFdg	CO1,CO3			Viva-3
29	L29	2	Introduction to MS Office (MS-Word, MS Power point, MS-Excel).	Understand the basic concept of Operating system	Demonstration	Flipped Classroom		https://www.you tube.com/watch? v=ZXAPCy2c33o	CO1,CO2	Student PPT	https://www.youtube.com/w atch?v=udfbq4M2Kfc	Student PPT
30	L30	2	Operating Systems:	Understand the basic concept of Operating system		Flipped Classroom		https://www.you tube.com/watch?	CO1,CO2	Student PPT	https://youtu.be/US42Z8AOc8 Y	Student PPT
31	L31	2	Elementary Operating System concepts	explain the types of an Operating System		Flipped Classroom	Brainstorming		CO1,CO2	Student PPT	https://youtu.be/US42Z8AOc8 Y	Student PPT
32	L32	2	Different types of Operating Systems.	Understand about booting sequence				https://www.you tube.com/watch? v=Ij71sDmmKpc	CO1,CO3	PPT		
33	L33	2	DOS: Booting sequence; Concepts of File and Directory,	Understand about DOS commands	Demonstration			https://www.you tube.com/watch? v=E-CRYBLTBSw	CO1,CO2	PPT	https://youtu.be/US42Z8AOc8 Y	Viva
34	L34	3	Computer Number System:	Apply the Concept of positional & Non Positional on number system	Demonstration				CO1,CO3	PPT	https://youtu.be/Bn7QCzJxIY4	Viva
35	L35	3	Positional and Non-positional number systems	Apply the Concept of positional & Non Positional on number system	Demonstration	Lecture through PPT		https://www.you tube.com/watch? v=suINIv7LQN0	CO1,CO3	PPT	https://youtu.be/Bn7QCzJxIY4	Viva
36	L36	3	Binary, Decimal	Use of conversion of Binary and Decimal	Demonstration			https://www.you tube.com/watch? v=k3Z322T3sjs	CO1,CO4		https://youtu.be/Bn7QCzJxIY4	
37	L37	3	Octal and Hexadecimal Number Systems and their inter-conversion.	Demonstrate the concept of octal & hexadecimal conversion	Demonstration	Lecture through PPT		https://www.you tube.com/watch? v=AE-27BSbkJ4	CO1,CO3	PPT	https://youtu.be/Bn7QCzJxIY4	Viva
38	L38	3	Binary Arithmetic:	Demonstrate the concept of Binary Addition & Subtraction	Demonstration	Discussion			CO1,CO3	PPT	https://youtu.be/Bn7QCzJxIY4	Viva
39	L39	3	Addition, subtraction,	Demonstrate the concept of Binary Addition & Subtraction	Demonstration	Lecture through PPT			CO1,CO3	PPT	https://youtu.be/Bn7QCzJxIY4	Viva

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No	L	Unit	Topic	Learning Outcome	Method 1	Method 2	Method 3	Resource Link	CO	Tool	YouTube Link	Assessment
40	L40	3	Binary Multiplication	Understand binary Addition and subtraction	Demonstration			https://www.youtube.com/watch?v=m5gYw37J8c4			https://youtu.be/Bn7QCzJxlY4	
41	L41	3	Binary Division.	Demonstrate the concept of multiplication & Division	Demonstration	Discussion		https://www.youtube.com/watch?v=sJXTo3EZoxM	CO1,CO3	PPT	https://youtu.be/Bn7QCzJxlY4	Viva
42	L42	3	Use of complement method to represent negative binary numbers,	Apply Binary Complement			Brainstorming	https://www.youtube.com/watch?v=S_fPMrriA30	CO1,CO3	PPT	https://youtu.be/Bn7QCzJxlY4	Viva
43	L43	3	1's complement, 2's complement	Use of 1's complement, 2's complement		Lecture through PPT		https://www.youtube.com/watch?v=S_fPMrriA30	CO1,CO3	PPT	https://youtu.be/Bn7QCzJxlY4	Viva
44	L44	3	subtraction using 1's complement and 2's complement.	Apply and Use of Substraction				https://www.youtube.com/watch?v=0rLiYpy2CqQ	CO1,CO4		https://youtu.be/Bn7QCzJxlY4	Viva
45	L45	3	Introduction to Binary Coded Decimal (BCD),ASCII Codes, EBCDIC codes.	solve BCD,ASCII, EBCDIC codes	Demonstration			https://www.youtube.com/watch?v=NUnrirmVIUc	CO1,CO3	PPT	https://youtu.be/Bn7QCzJxlY4	Viva
46	L46	3	Computer Network & Internet:Basic elements of a communication system, Data transmission modes	Understand the Basic concept of Computer Networks, Communication and Transmission modes	Demonstration	Lecture through PPT		https://www.youtube.com/watch?v=NUnrirmVIUc	CO1,CO3	PPT	https://youtu.be/Bn7QCzJxlY4	Viva
47	L47	3	Data Transmission speed, Data transmission media,Digital and Analog Transmission,	explain the Transmission Media, concept of Analog and Digital Transmission	Demonstration	Discussion		https://www.youtube.com/watch?v=nACnUiH7J6g	CO1,CO3	PPT	https://youtu.be/Bn7QCzJxlY4	Viva
48	L48	3	Network topologies, Network Types (LAN, WAN and MAN),Basics of Internet and Intranet,Internet Terminologies related to Internet:	Explain the concept of LAN,WAN & MAN, Internet & Intranet, Internet Terminologies	Demonstration			E-Research Paper https://royalsocietypublishing.org/doi/full/10.1098/rstb.2016.0083	CO1,CO4		https://youtu.be/Bn7QCzJxlY4	
49	L49	4	Protocol	Classify about Protocols, Internet connections,WWW,search engine VOIP	Demonstration	Flipped Classroom		https://www.youtube.com/watch?v=m5gYw37J8c4	CO4	Student PPT	https://youtu.be/Bn7QCzJxlY4	Student PPT
50	L50	4	Voice over Internet Protocol (VOIP)	Classify about VOIP	Demonstration	Flipped Classroom		https://www.youtube.com/watch?v=sJXTo3EZoxM	CO4	Student PPT	https://youtu.be/Bn7QCzJxlY4	Student PPT
51	L51	4	Domain name,	Classify about Domain name,	Demonstration	Flipped Classroom		https://www.you	CO4	Student PPT	https://youtu.be/Bn7QCzJxlY4	Student PPT
52	L52	4	Internet Connections,IP address,	Classify about Internet connections				https://www.youtube.com/watch?v=S_fPMrriA30			https://youtu.be/Bn7QCzJxlY4	Student PPT
53	L53	4	URL, World Wide Web,Introduction to Client-Server Model	Classify about URL, World Wide Web,Introduction to Client-Server Model		Flipped Classroom		https://www.youtube.com/watch?v=S_fPMrriA30	CO4	Student PPT	https://youtu.be/Bn7QCzJxlY4	Student PPT
54	L54	4	Search Engine, Voice over Internet Protocol (VOIP)	Classify about ,WWW,search engine VOIP		Flipped Classroom		https://www.youtube.com/watch?v=NUnrirmVIUc	CO4		https://youtu.be/Bn7QCzJxlY4	
55	L55	4	Search Engine, Voice over Internet Protocol (VOIP)	Classify about ,WWW,search engine VOIP		Flipped Classroom		https://www.tutorialspoint.com/	CO1	Student PPT	https://youtu.be/Bn7QCzJxlY4	Student PPT
56	L56	4	Standard library functions from process.h					https://www.tutorialspoint.com/	CO2		https://youtu.be/Bn7QCzJxlY4	

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57	L57	4	Usage of command line arguments	Apply command line arguments		Discussion		https://en.wikipedia.org/wiki/Process.h	CO4	PPT	https://youtu.be/Bn7QCzJxIY4	Viva	
58	L58	4	Usage of command line arguments	Apply command line arguments			Brainstorming	https://en.wikipedia.org/wiki/Process.h	CO4	PPT	https://youtu.be/Bn7QCzJxIY4	Viva	
59	L59	4	Previous Year QP	Revision of Previous year question Papers		Discussion & Doubt Clearing session	Brainstorming	https://en.wikipedia.org/wiki/Process.h	CO4	PPT	https://youtu.be/Bn7QCzJxIY4		
60	L60	4	Previous Year QP	Revision of Previous year question Papers		Discussion & Doubt Clearing session		https://en.wikipedia.org/wiki/Process.h	CO4		https://youtu.be/Bn7QCzJxIY4		

Note :   1 Credit (Theory) =15 Hrs. in a Semester; 1 Credit (Practical) =30 Hrs. in a Semester.

Suggested Readings :(Latest Edition)

TEXTBOOKS

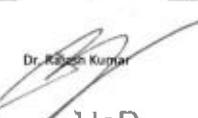| TB1 | 1.P. K. Sinha &Priti Sinha, "Computer Fundamentals", BPB Publications, 1992 | |
| TB2 | 2.Anita Goel "Computer Fundamentals", Pearson | |

REFERENCE BOOKS:

RB1	1.B.Ram Computer fundamentals Architecture and Organization, New Age Intl	
RB2	2.Alex Leon & Mathews Leon, "Introduction to Computers", Vikas Publishing.	
RB3	3.Norton Peter, "Introduction to computers", 4th Ed., TMII, 2001	
RB4	4.Vikas Gupta, "Comdex Computer Kit", Wiley Dreamtech, Delhi, 2004	

JOURNALS

| 1. International Journal of Information Technology . |
| 2.Journal of Information Technology. |
| 3. International Journal of Computer Science and Information Technology |
| 4.Journal of Information Technology Education: Research . |
| 5. Journal of Information and Communication Technology |
| 6. The Computer Journal - Oxford University Press |
| 7. Journal of Systems and Information Technology |
| 8. International Journal of Information and Communication Technology |

Name of Faculty :   Mr. Suresh Panchal

Head of Department :

Dr. Rajesh Kumar

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Date :