



TECNIA INSTITUTE OF ADVANCED STUDIES

NAAC GRADE "A" INSTITUTE (CYCLE-1)

Approved by AICTE, Ministry of Education Govt. of India,
Affiliated to G.G.S.I.P. University & Recognized Under Sec. 2(f) of UGC Act 1956.
INSTITUTIONAL AREA, MADHUBAN CHOWK, ROHINI, DELHI-110085

Department of Information, Communication & Technology

Bachelor of Computer Applications (BCA) 3Yrs.

As per Scheme of Examination & Syllabi for BCA Scheme and Syllabus
(w.e.f. Academic Session 2021-22) Affiliated Institutions of GGSIP University, Delhi.

COURSE OUTCOMES (COs)

FIRST SEMESTER (Theory)

C.CODE	COURSE	L	T/P	CREDITS	C.CODE	COURSE	L	T/P	CREDITS
BCA 101	Discrete Mathematics	3	1	4	BCA 107#	Web Technologies	3	1	4
BCA 103	Programming Using 'C' Language	3	1	4	BCA 109	Technical Communication	3	1	4
BCA 105#	Fundamentals of Computers & IT	3	1	4					

COURSE OUTCOMES (COs)

C.CODE: BCA 101 COURSE: Discrete Mathematics				C.CODE: BCA 107 COURSE: Web Technologies			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Understand the basics conceptual math and relations	BTL2	PO1,PO2,PO3,PO4	CO1	Develop static web pages through HTML, JavaScript, CSS and Bootstrap.	BTL6	PO4,PO5
CO2	Understand & apply partial order & recurrence relation and their operations.	BTL3	PO1,PO2	CO2	Implement different constructs and programming techniques provided by JavaScript.	BTL3	PO4,PO8
CO3	Compare and design, sorting and hashing techniques.	BTL4	PO1,PO2,PO3,PO4,PO5	CO3	Adapt HTML, Javascript, CSS and Bootstrap syntax and semantics to build web pages.	BTL1, BTL2	PO4
CO4	Appraise and determine the correct logic and solutions for any given real world problem.	BTL5	PO1,PO2,PO3,PO4,PO5	CO4	Develop Client-Side Scripts using JavaScript to display the contents dynamically	BTL3, BTL6	PO4,PO5

C.CODE: BCA 103 COURSE: Programming Using 'C' Language				C.CODE: BCA 109 COURSE: Technical Communication			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Develop programming skills by learning the fundamentals of structured programming using C Language.	BTL2	PO1,PO2,PO3	CO1	The student will become familiar with the basics of communication & its importance in the organizational world.	BTL1	PO9, PO11
CO2	Design & develop programs using arrays, storage classes, functions & to understand memory management through pointers	BTL3	PO1,PO2,PO3	CO2	To improve the business writing skills also will become well aware how to write effective resume to enter the global world.	BTL2, BTL3	PO9, PO11
CO3	Critically analyze real world problems using structures, unions & develop applications for handling text & binary files	BTL5	PO1,PO2,PO3,PO4,PO5	CO3	To improve the listening skills by knowing well how to negotiate and give effective presentations.	BTL5	PO9, PO11
CO4	Explore the use of command line arguments, string manipulation and standard libraries.	BTL5	PO1,PO2,PO4	CO4	To make use of effective business language and give a professional look to oneself.	BTL6	PO9, PO11

C.CODE: BCA 105 COURSE: Fundamentals of Computers and IT							
CO#	THE COURSE OUTCOMES	BTL	MAPPING				
CO1	Describe computer with its characteristics, its usage, limitations and benefits, Computer Memories and its type, Software and its type	BTL2	PO1,PO2,PO3				
CO2	Acquire knowledge about Number Systems, various computer languages and operating system DOS	BTL2	PO1,PO2,PO3				
CO3	Attain skills in Application Software used for word processing,spreadsheet and presentation	BTL4	PO1				
CO4	Understand network fundamentals & various communication network, Advance trends in IT	BTL3	PO1,PO2,PO3,PO4,PO5				

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COURSE OUTCOMES (COs)

SECOND SEMESTER (Theory)

C.CODE	COURSE	L	T/P	CREDITS	C.CODE	COURSE	L	T/P	CREDITS
BCA 102	Applied Mathematics	3	1	4	BCA 108#	Database Management System	3	1	4
BCA 104	Web based Programming	3	1	4	BCA 110	Environment Studies	2	0	2
BCA 106	Data Structure And Algorithm Using 'C'	3	1	4					

COURSE OUTCOMES (COs)

C.CODE: BCA 102 COURSE: Applied Mathematics				C.CODE: BCA 108 COURSE: Database Management System			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Understand the various approaches dealing the data using theory of Probability	BTL2	PO1,PO2,PO3, PO4	CO1	Understand the DBMS concepts with detailed architecture, characteristics.Describe different database languages and environment and learn various data models, along with the related terminologies	BTL1	PO1,PO2, PO3,PO7
CO2	Understand various numerical techniques and apply them to solve real life problems	BTL3	PO1,PO2				
CO3	Analyse & evaluate the accuracy of common Numerical Methods	BTL4, BTL5	PO1,PO2,PO3, PO4,PO5	CO2	Explore Structure Query Language, a brief on NOSQL, Query By Example.Also understand the overview of SQL, and try to implement DDL, DML and DCL along with operators, use of joins, nested query, use of views and Indexes Discuss Integrity Constraints	BTL3	PO1,PO2, PO3,PO7
CO4	Develop a mathematical model for real life situation and solving it Using Linear programming technique	BTL5	PO1,PO2,PO3, PO4,PO5				
				CO3	Describe Relational Data Model, explain Codd's Rules, Relational Algebra, Set theory operations and the concept of functional dependencies and normalization	BTL4	PO1,PO2, PO3,PO4
				CO3	Acquire Knowledge about Transaction Processing, concurrency problems, and its controlling techniques, Database backup and recovery and security.	BTL2	PO2,PO3, PO4,PO7, PO8

C.CODE: BCA 104 COURSE: Web Based Programming				C.CODE: BCA 110 COURSE: Environmental Studies			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Design & develop dynamic web pages with good aesthetic sense of designing and latest technical know-how's.	BTL3 BTL4	PO1,PO2,PO3, PO7	CO1	Gain in-depth knowledge on natural processes & resources that sustain life and govern economy.	BTL1, BTL2	PO10
CO2	Have a good understanding of Web Application Terminologies	BTL1 BTL2	PO1,PO2,PO3, PO7,PO10	CO2	Understand the consequences of human actions on the web of life, global economy, and quality of human life.	BTL3	PO10
CO3	Learn how to link and publish web sites	BTL1 BTL2	PO1,PO2,PO3, PO4,	CO3	Develop critical thinking for shaping strategies (scientific, social, economic, administrative, and legal) for environmental protection, conservation of biodiversity, environmental equity, and sustainable development.	BTL3	PO10
				CO4	Acquire values and attitudes towards understanding complex environmental economic-social challenges, and active participation in solving current environmental problems and preventing the future ones.	BTL4	PO10
				CO5	Adopt sustainability as a practice in life, society, and industry.	BTL5	PO10

C.CODE: BCA 106 COURSE: Data Structure and Algorithm Using C			
CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Familiarize the basics of data structures and algorithms.	BTL2	PO1,PO2,PO3, PO4
CO2	Understand and apply linear and nonlinear data structures and their operations.	BTL3	PO1,PO2,PO3, PO4,PO5
CO3	Compare and implement searching, sorting and hashing techniques.	BTL5	PO1,PO2,PO3, PO4,PO5
CO4	Appraise and determine the correct data structure for any given real world problem.	BTL5	PO1,PO2,PO3, PO4,PO5

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COURSE OUTCOMES (COs)

THIRD SEMESTER (Theory)

C.CODE	COURSE	L	T/P	CREDITS	C.CODE	COURSE	L	T/P	CREDITS
BCA 201	Computer Network	3	1	4	BCAT 213	Cyber Security	4	0	4
BCA 203	Computer Organization and Architecture	3	1	4	BCA 221	Principles of Management & Organizational Behaviour	3	1	4
BCA 205#	Object Oriented Programming with C++	3	1	4	BCA 239	Cyber Ethics	2	0	2
BCA-207	Human Values and Ethics	2	0	2					
BCAT211T#	Basics of Python Programming	4	0	4					

COURSE OUTCOMES (COs)

C.CODE: BCA 201 COURSE: Computer Networks				C.CODE: BCA 207 COURSE: Human Values and Ethics			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Utilize the fundamentals of data communication & networking to identify the topologies & connecting devices of networks.	BTL1, BTL2	PO1,PO2,PO3, PO7,PO8	CO1	Identify & evaluate personal ethical values & their implications in various social situations	BTL1	PO10
CO2	Understand and describe the layered protocol model (OSI and TCP/IP model)	BTL2	PO1,PO2,PO3, PO7	CO2	Recognize the multiple ethical interests at stake in a real-world situation	BTL2	PO10
CO3	Analyze the elements and protocols for peer – peer and communication between layers.	BTL3, BTL4	PO1,PO2,PO3, PO4,PO6,PO7	CO3	Demonstrate knowledge of ethical values in non-classroom activities, such as service learning, internships, and field work integrate, synthesize, & apply knowledge of ethical dilemmas and resolutions in academic settings, including focused and interdisciplinary research	BTL3	PO10
CO4	Evaluate and implement routing algorithms & Router basic configuration.	BTL3, BTL5	PO1,PO2,PO3, PO4,PO7,PO8	CO4	Instill Moral and Social Values and Loyalty and appreciate the rights of others	BTL4	PO10
CO5	Evaluate the protocols & Principles in computer networking	BTL5, BTL6	PO1,PO2,PO3, PO4,PO5,PO6, PO7	CO5	Comprehend the concept of harmony at all the levels of society and readiness to contribute towards harmony at all levels.	BTL5	PO10

C.CODE: BCA 203 COURSE: Computer Organization and Architecture				C.CODE: BCAT 211 COURSE: Basics of Python Programming			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Able to understand the fundamentals of digital principles & able to design digital circuits by simplifying the Boolean functions	BTL2 BTL3 BTL5	PO1,PO7, PO11	CO1	Demonstrate knowledge of basic programming constructs in python.	BTL2	PO1,PO2,PO3, PO7
CO2	Implement the combinational and sequential circuits for the given specifications	BTL3 6,1	PO1,PO4,PO7, PO11	CO2	Illustrates string handling methods and user-defined functions in python	BTL3	PO1,PO2,PO3, PO7,PO10
CO3	Able to trace the execution sequence of an instruction through the processor	BTL1, BTL2	PO1,PO7, PO11	CO3	Applying data structures primitives like List, Dictionary and tuples.	BTL2	PO1,PO2,PO3, PO4
CO4	Demonstrate computer architecture concepts related to design of modern processors, memories and I/Os.	BTL2, BTL4	PO1,PO4,PO7, PO11	CO4	Identify the commonly used operations involved in file handling	BTL3	PO1,PO2,PO3, PO4,PO7
CO5	Demonstrate the ability to classify the addressing modes, instructions set	BTL2, BTL5	PO1,PO4,PO7, PO11	CO5	To understand how python can be used for application development	BTL2	PO1,PO2,PO3, PO4,PO11

C.CODE: BCA 205 COURSE: Object Oriented Programming with C++			
CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Understand the basic principles of Object-Oriented Programming	BTL2	PO2,PO3
CO2	Apply OOPs principles using C++ constructs	BTL3	PO3
CO3	Develop expertise in classification hierarchies and polymorphism using C++	BTL3	PO3,PO4
CO4	Comprehend the working of files and generic programming	BTL5	PO3,PO4

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COURSE OUTCOMES (COs)

THIRD SEMESTER (Theory)

COURSE OUTCOMES (COs)

C.CODE: BCAT 213 COURSE: Cyber Security				C.CODE: BCA 239 COURSE: Cyber Ethics			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Define the basic concept of Cyber Security, Cybercrime & Cybercriminals. Identify & understand about Cyber Threats.	BTL1, BTL2	PO1,PO2,PO3, PO7	CO1	Define cyber ethics and recognize cyber ethic issues	BTL1	PO10
CO2	Describe briefly types of criminal attack and classification of Cybercrimes. Describe Steganography.	BTL2	PO1,PO3,PO7	CO2	Identify how security issues in cyberspace raise ethical concerns.	BTL3 BTL5	PO10
CO3	Identify and apply the Cybercrime Tools & Methods. Identify and apply the underlying concepts of Symmetric-key and Asymmetric-key Cryptography along with Digital Signature.	BTL1, BTL2 BTL3	PO1,PO3,PO6, PO8	CO3	Recognize various types of cybercrime and its impact	BTL3 BTL5	PO10
CO4	Implement security for HTTP applications, Emails. Apply Firewall in your system.	BTL4	PO1,PO3,PO5, PO7	CO4	Discuss ethical issues associated with the use of social networks and social media	BTL3 BTL5	PO10
CO5	Implement, evaluate Keyloggers. Implement and evaluate different cyber security algorithms with the help of program.	BTL3, BTL5	PO1,PO4,PO6, PO7,PO8	CO5	Discuss ethical issues associated with the use of social networks and social media	BTL3 BTL5	PO10
CO6	Design and create security mechanisms to protect computer systems.	BTL6	PO1,PO4,PO6, PO7,PO8				
C.CODE: BCA 221 COURSE: Principles of Management & Organizational Behaviour							
CO#	THE COURSE OUTCOMES	BTL	MAPPING				
CO1	Develop basic knowledge about management,management process, managerial roles, skills and functions and management theories.	BTL1, BTL2, BTL3	PO1,PO2				
CO2	To give knowledge about planning and decision making process. To describe about staffing and directing.	BTL2, BTL4	PO1,PO2				
CO3	To learn about the motivation theories & Leadership styles. To discuss about the Organizational behaviour and its application.	BTL4, BTL6	PO3				
CO4	To give basic knowledge people management, their personality and perception. To describe about the Organisational culture and its effects.	BTL5, BTL2	PO3				

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COURSE OUTCOMES (COs)

FOURTH SEMESTER (Theory)

C.CODE	COURSE	L	T/P	CREDITS	C.CODE	COURSE	L	T/P	CREDITS
BCA 202	Java Programming	3	1	4	BCAT 218	Web Development with Python and Django	4	0	4
BCA 204	Software Engineering	3	1	4	BCA 222	Digital Marketing	3	1	4
BCA 206	Introduction to Management & Entrepreneurship Development	3	1	4	BCA 224	Principles of Accounting	3	1	4
BCAT 212	Introduction to Data Science	4	0	4	BCA 232	Personality Development Skills	2	0	2
BCAT 214	Introduction to Artificial Intelligence	4	0	4					
BCAT 216	Network Security	4	0	4					

COURSE OUTCOMES (COs)

C.CODE: BCA 202 COURSE: Java Programming				C.CODE: BCAT 212 COURSE: Introduction to Data Science			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Illustrate the Object-Oriented paradigm and Java language constructs	BTL2	PO3	CO1	Basics of Data Science and Data Collection strategies	BTL2	PO1,PO2,PO3,PO7
CO2	To inculcate concepts of inheritance to create new classes from existing ones and design the Classes needed given a problem specification.	BTL3	PO3	CO2	Illustrating statistical analysis of data.	BTL3	PO1,PO2,PO3,PO7.
CO3	To familiarize the concepts of packages and interfaces.	BTL3	PO4	CO3	Working with the data structures of python like series and Data Frames	BTL3	PO1,PO2,PO3,PO4
CO4	To facilitate students in handling exceptions and defining their own exceptions.	BTL4	PO4	CO4	Statistical analysis of data with the help of python	BTL3	PO1,PO2,PO3
CO5	To manage input output using console and files	BTL4	PO4				
CO6	To apply the Java Thread model to develop multithreading applications.	BTL5	PO4				
CO7	To understand and apply the concepts of GUI programming using swings.	BTL6	PO5, PO6				

C.CODE: BCA 204 COURSE: Software Engineering				C.CODE: BCAT 214 COURSE: Introduction to Artificial Intelligence			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	To evaluate languages to code front end and back end of a software	BTL2	PO5	CO1	To understand elements constituting problems and learn to solve it by various uninformed & informed (heuristics based)	BTL1, 2,3	PO1,PO2,PO4
CO2	Instantiating into the process of designing, coding and testing a software module.	BTL2	PO4	CO2	To understand formal methods for representing the knowledge and the process of inference to derive new representations of the knowledge.	BTL2, BTL3	PO1,PO2,PO4
CO3	Organizing a software product along with its complete documentation.	BTL6	PO1				
CO4	Implementing Software Development Cycle to develop a software module.	BTL5	PO4	CO3	Analyze and apply the notion of uncertainty and some of probabilistic reasoning methods to deduce inferences under uncertainty	BTL3, BTL4	PO1,PO2,PO4
CO5	To analyze the use of techniques, skills and modern engineering tools necessary for software development.	BTL2	PO6	CO4	Apply some mechanisms to create and improve AI system.	BTL3, BTL5	PO4,PO6,PO8
CO6	Organizing a complete software module	BTL3	PO8				

C.CODE: BCA 206 COURSE: Introduction to Management and Entrepreneurship Development			
CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Gain in-depth knowledge on Entrepreneurial development in today's global scenario	BTL2	PO2,PO10,PO11
CO2	Understand the concept of entrepreneurs and to help the students to develop an entrepreneurial mind-set	BTL3	PO9,PO10,PO11
CO3	Develop critical thinking for shaping strategies and help them to become an successful entrepreneur	BTL3	PO3,PO5,PO11
CO4	Acquire values & attitudes towards understanding complex business problems, and active participation in solving current business problems.	BTL4	PO3,PO10,PO11
CO5	Understand the concept of the fundamentals of management	BTL5	PO2,PO5,PO10,PO11

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COURSE OUTCOMES (COs)

FOURTH SEMESTER (Theory)

COURSE OUTCOMES (COs)

C.CODE: BCAT 216 COURSE: Network Security				C.CODE: BCA 232 COURSE: Personality Development Skills			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Define & explain the issues and basic concepts of Network Security. To understand how to draw a network model.	BTL1, 2,4	PO7	CO1	Learn Social Etiquettes and social conversation.	BTL1, 2,3	PO9, PO11
CO2	To Explain, understand and summarize the concepts, types and features of Firewall.	BTL2	PO1, PO7	CO2	Learn Leadership, Decision making and Team-building skills	BTL2, 3,4	PO9, PO11
CO3	Explain & implement working of authentication, authorization, Packet security, IP Security, Firewall by using some suitable examples.	BTL3, BTL2	PO3,PO4,PO7	CO3	Improve confidence building skills	BTL2, 3,4	PO9, PO11
CO4	Classify and organize the architecture of network security management.	BTL2, BTL4	PO7	CO4	Able to manage Stress and Time Management	BTL2, 3,4	PO9, PO11
CO5	Evaluate different Network Security algorithms with the help of program.	BTL5	PO3,PO4,PO7				
CO6	Design and create a network security architecture for an organization.	BTL6	PO4,PO7,PO8				
C.CODE: BCAT 218 COURSE: Web Development with Python and Django				C.CODE: BCA 222 COURSE: Digital Marketing			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Install and Configure Python and Django in a development and production environment	BTL1, 2,3	PO4,PO5,PO6, PO8	CO1	Understanding the digital marketing concepts and its usefulness in business.	BTL2	PO2, PO4
CO2	Understands the security implications of Django using templates and develop secure websites with Django	BTL2 3,4,6	PO4,PO5,PO8	CO2	Planning steps for digital marketing strategy & successfully executing it.	BTL3	PO2, PO4
CO3	Utilize Django Models to build an interface with powerful relational databases	BTL3, BTL6	PO5,PO7,PO8	CO3	Understand the importance of Social Media Platforms and Social Media Marketing for online communication.	BTL2	PO2,PO4,PO6
CO4	Design and develop forms (both ad-hoc and from Models & Data Models) and automate the validation and verification of data in those forms	BTL3, 4,5,6	PO6,PO8	CO4	Applying Search Engine Optimization techniques (SEO) & Search Engine Marketing (SEM) to maximize reach and enhance engagement of users.	BTL3	PO2,PO4,PO6
				CO5	Analyzing web using analytics tools and gaining insights to various tools for Social Media Marketing.	BTL4	PO2,PO4,PO6

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COURSE OUTCOMES (COs)

FIFTH SEMESTER (Theory)

C.CODE	COURSE	L	T/P	CREDITS	C.CODE	COURSE	L	T/P	CREDITS
BCA 301	Operating System & Linux Programming	3	1	4	BCAT 311	Machine Learning with Python	4	0	4
BCA 303	Computer Graphics	3	1	4	BCAT 313	Web Security	4	0	4
BCA 305	Cloud Computing	3	1	4	BCAT 315	Web Development with Java & JSP	4	0	4

COURSE OUTCOMES (COs)

C.CODE: BCA 301 COURSE: Operating System & Linux Programming				C.CODE: BCAT 311 COURSE: Machine Learning with Python			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Understand the basic concept of Operating System with the help of Unix and Linux Architecture.	BTL2	PO1,PO4	CO1	Explain machine learning concepts on real world applications and problems	BTL2	PO1,PO2,PO8
CO2	Understand the concept of Processes, Process Scheduling, Process Synchronization & applying process commands in Linux environment.	BTL3	PO1,PO2,PO4,PO5	CO2	Analyze and Implement Regression techniques.	BTL2, BTL3	PO1,PO4,PO5,PO7
CO3	Understand the concept of memory management & deadlock.	BTL2	PO1,PO2,PO4,PO5	CO3	Solve and design solution of Classification problem	BTL3, BTL6	PO2,PO3,PO4,PO8
CO4	Understand the concept of file Systems, Types and Access Methods by using Linux commands	BTL3	PO1,PO2,PO4	CO4	Understand and implement Unsupervised learning algorithms	BTL2, BTL3	PO4,PO5,PO6,PO8
				CO5	Interpret various machine learning algorithms in a range of real world applications.	BTL3	PO2,PO6,PO7
C.CODE: BCA 303 COURSE: Computer Graphics				C.CODE: BCAT 313 COURSE: Web Security			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Develop basic knowledge of computer generated graphics, their applications, display devices and drawing of graphic objects on display devices.	BTL2	PO1,PO6	CO1	Define overall web security infrastructure, components, issues and basic concept etc.	BTL1	PO1,PO4,PO7
CO2	To develop knowledge of various graphics 2D transformation operation, their mathematical calculations.	BTL4	PO4,PO8	CO2	Describe briefly various types of security like social media security, email security, web application and web services security etc. Explain Web related services.	BTL2	PO1,PO2,PO4,PO5,PO7
CO3	To learn about the surfaces & curves, properties of curves and shading of surfaces	BTL2	PO4	CO3	Apply and implementing various vulnerabilities for Ethically hacking a websites / Web Applications.	BTL3	PO1,PO4,PO6,PO8
CO4	To give basic knowledge of 3D projection and identifying hidden surfaces to be removed.	BTL2	PO1	CO4	Focusing Penetration Testing, Computer Forensics.	BTL4	PO1,PO2,PO7
				CO5	Evaluate different web security algorithms with the help of program.	BTL5	PO1,PO3,PO4,PO6,PO7,PO8
				CO6	Design and implement XSS attacks, SQL Injection attack, password hashing and cracking.	BTL6	PO1,PO3,PO4,PO7,PO8
C.CODE: BCA 305 COURSE: Cloud Computing				C.CODE: BCAT 315 COURSE: Web Development with Java & JSP			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Overview of Cloud Computing	BTL1	PO1,PO2,PO3,PO7	CO1	Understand the concept of HTML, CSS and Java Script.	BTL2	PO3,PO4,PO5
CO2	Understanding Cloud Computing Architecture	BTL2	PO1,PO2,PO3,PO4,PO7	CO2	Understand J2EE architecture, web application structure and web architecture models.	BTL2	PO3,PO4,PO5,PO8
CO3	Working with Parallel and Distributed Computing	BTL3	PO1,PO2,PO3,PO4,PO5	CO3	Creating and configuring Servlets	BTL6	PO3,PO4,PO5
CO4	Understanding the Concept of Virtualization	BTL4	PO1,PO2,PO3,PO6,PO7	CO4	Understand JDBC architecture and design database applications using JDBC.	BTL2	PO3,PO4,PO5,PO8
				CO5	Design applications using JSP and JSF.	BTL3	PO3,PO4,PO5,PO8
				CO6	Elaborate the functional programming concepts of Hibernate, Struts and Springs.	BTL1	PO3,PO4,PO5,PO7,PO8

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TECNIA INSTITUTE OF ADVANCED STUDIES

NAAC GRADE "A" INSTITUTE (CYCLE-1)

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INSTITUTIONAL AREA, MADHUBAN CHOWK, ROHINI, DELHI-110085

Department of Information, Communication & Technology

Bachelor of Computer Applications (BCA) 3Yrs.

As per Scheme of Examination & Syllabi for BCA Scheme and Syllabus
(w.e.f. Academic Session 2021-22) Affiliated Institutions of GGSIP University, Delhi.

COURSE OUTCOMES (COs)

SIXTH SEMESTER (Theory)

C.CODE	COURSE	L	T/P	CREDITS	C.CODE	COURSE	L	T/P	CREDITS
BCA 302	Data Ware Housing & Data Mining	3	1	4	BCAT 312	Data Visualization & Analytics	4	0	4
BCA 304#	E- Commerce	3	1	4	BCAT 314	Deep Learning with Python	4	0	4
BCA 306	Internet of Things	3	1	4	BCA 316	IT Act and Cyber Laws	4	1	5
					BCAT 318	Mobile Application Development	4	0	4

COURSE OUTCOMES (COs)

C.CODE: BCA 302 COURSE: Data Ware Housing and Data Mining				C.CODE: BCAT 312 COURSE: Data Visualization & Analytics			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Understand the various component of Datawarehouse	BTL2	PO1,PO2,PO3, PO7,PO5	CO1	Illustrating the features of Multithreading in python.	BTL2	PO1,PO2, PO3,PO5
CO2	Appreciate the strengths and limitations of various data mining and data warehousing models	BTL3	PO1,PO2,PO3, PO7, PO10	CO2	Analyzing data using suitable python library.	BTL2	PO1,PO2, PO3,PO7,PO10
CO3	Critically evaluate data quality to advocate application of data preprocessing techniques.	BTL3	PO1,PO2,PO3, PO4	CO3	Visualizing data using Matplotlib, Seaborn library	BTL3	PO1,PO2, PO3,PO4
CO4	Describe different methodologies used in data mining and data ware housing.	BTL4	PO1,PO2,PO3, PO4,PO7	CO4	Develop python applications with database connectivity operations.	BTL3	PO1,PO2, PO3,PO4
CO5	Design a data mart or data warehouse for any organization	BTL5	PO1,PO2,PO3, PO4,PO11				
CO6	Test real data sets using popular data mining tools such as WEKA	BTL6	PO1,PO2,PO3, PO4,PO6,PO7, PO8				

C.CODE: BCA 304 COURSE: E-Commerce				C.CODE: BCAT 314 COURSE: Deep Learning with Python			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Understand the framework and business models of E-commerce.	BTL2	PO1,PO2,PO3, PO7	CO1	Understand the basic concepts of Deep Learning and differentiate between shallow learning and deep learning.	BTL2	PO1,PO2,PO6
CO2	Explain the concept of network infrastructure and gain knowledge about mobile commerce.	BTL2	PO1,PO2,PO3, PO7,PO10	CO2	Implement various Deep Learning Models	BTL3	PO2,PO3, PO4,PO8
CO3	Demonstrate the process of secure electronic transactions for E-commerce.	BTL3	PO1,PO2,PO3, PO4	CO3	Understand different Deep Learning architectures and training algorithms.	BTL3	PO1,PO2,PO3, PO5,PO8
CO4	Analyze various e-commerce secure payment gateway.	BTL4	PO1,PO2,PO3, PO4,PO7	CO4	Understanding Dimensionality Reduction and optimization in Deep Learning.	BTL4	PO1,PO2, PO3,PO4
CO5	Evaluate Internet banking platform to work with E-commerce infrastructure.	BTL5	PO1,PO2,PO3, PO4,PO11	CO5	Understanding and implementing Recurrent Neural Network (RNN).27	BTL3	PO1,PO2,PO3, PO8
CO6	Implement ecommerce website for online business.	BTL6	PO1,PO2,PO3, PO4,PO6,PO7, PO8	CO6	Applying Deep Learning techniques in real life applications such as object detection and analysis.	BTL6	PO2,PO3,PO4, PO5,PO6,PO8

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COURSE OUTCOMES (COs)

SIXTH SEMESTER (Theory)

COURSE OUTCOMES (COs)

C.CODE: BCA 306 COURSE: : Internet of Things				C.CODE: BCA 316 COURSE: IT Act and Cyber Laws			
CO#	THE COURSE OUTCOMES	BTL	MAPPING	CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Understand the architecture and the functional blocks of Internet of Things.	BTL2	PO1,PO2,PO3	CO1	Define various Cyber laws in the world, Classification of Cybercrime	BTL1	PO1,PO7
CO2	Explain the concepts of Internet of Things and gain knowledge to design IoT applications	BTL2	PO1,PO2,PO3, PO7,PO10	CO2	Describe and explain the ways in which certain cybercrimes are perpetrated.	BTL2	PO3
CO3	Demonstrate the process of capturing and analyzing data in Internet of Things.	BTL3	PO1,PO2,PO3, PO4	CO3	Explain and use the objectives of national cyber security strategies	BTL2 BTL3	PO3,PO7
CO4	Examine the various components involved in IoT design methodology.	BTL4	PO1,PO2,PO3, PO4,PO7	CO4	Discover IPR and E-commerce law.	BTL4	PO2
CO5	Evaluate an IoT device to work with a Cloud Computing infrastructure.	BTL5	PO1,PO2,PO3, PO4,PO11	CO5	Explain and Evaluate E-Commerce Issues and provisions in Indian Law	BTL5	PO3,PO4
CO6	Implement IoT protocols for communication.	BTL6	PO1,PO2,PO3, PO4,PO6,PO7, PO8	CO6	Design and create frameworks for international cooperation on cyber security Matters.	BTL6	PO4,PO6

C.CODE: BCAT 318 COURSE: Mobile Application Development			
CO#	THE COURSE OUTCOMES	BTL	MAPPING
CO1	Recognize the concept of application development for mobile devices.	BTL2	PO1,PO2
CO2	Understand the basic technologies used by the Android platform	BTL2	PO1,PO2
CO3	Recognize and use Android Environment Emulator and Application life cycle	BTL3	PO1,PO2,PO3, PO4
CO4	Develop mobile applications for the Android operating system that use basic and advanced phone features	BTL5	PO1,PO2,PO3, PO4,PO7
CO5	Deploy applications to the Android marketplace for distribution	BTL6	PO1,PO2,PO3, PO4,PO11

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