BCA SCHEME JULY 24

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
BCA	TBC101	Computational Thinking and Fundamentals of IT	3	1	Theory	30	70
BCA	TBC102	Foundations of Computer Programming	4	1	Theory	30	70
BCA	TBC103	Mathematical Foundation of Computer Science	3	1	Theory	30	70
BCA	TBC104	Professional English Skills	2	1	Theory	30	70
		University Open Elective / General Elective – 1					
BCA	TBC111	Principles and Practices of Management	3	1	Theory	30	70
BCA	TBC112	Introduction to Business Accounting	3	1	Theory	30	70
BCA	TBC113	University-Approved or Certification course	3	1			
BCA	PBC101	Computer Programming Laboratory	2	1	Practical	30	70
BCA	PBC102	Digital Productivity Tools for Modern Workplaces Lab	2	1	Practical	30	70
BCA	SBC101	Seminar – 1	1	1			100
Total Credit			**20**				
		MNG Course					
BCA	**TEV101**	Environmental Science	2	1		30	70

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
BCA	TBC201	Introduction to Data Structures	3	2	Theory	30	70
BCA	TBC202	Introduction to Object-Oriented Programming	3	2	Theory	30	70
BCA	TBC203	Introduction to Operating Systems	3	2	Theory	30	70
BCA	TBC204	Probability and Statistics for Data Science	3	2	Theory	30	70
		Discipline-Specific Elective – 1					
BCA	TBC211	Fundamentals of Python Programming	3	2	Theory	30	70
BCA	TBC212	Discrete Mathematics	3	2	Theory	30	70
BCA	TBC213	Cyber Security Essentials	3	2	Theory	30	70
BCA	PBC201	Data Structures Laboratory	2	2	Practical	30	70
BCA	PBC202	Object-Oriented Programming Laboratory	2	2	Practical	30	70
BCA	GP 201	General Proficiency	1	2			100
Total Credit			**20**				
		Audit Course					
BCA	ABD209	Indian Constitution		2			
		MNG Course					
BCA		Indian Knowledge System	2	2		30	70

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
BCA	TBC301	Web Application Development	3	3	Theory	30	70
BCA	TBC302	Introductions to Database Management Systems	3	3	Theory	30	70
BCA	TBC303	Digital Logic Design	3	3	Theory	30	70
		Discipline-Specific Elective – 2					
BCA	TBC311	Foundations of Artificial Intelligence	3	3	Theory	30	70
BCA	TBC312	Fundamentals of IoT	3	3	Theory	30	70
BCA	TBC313	Fundamentals of Cloud Computing	3	3	Theory	30	70
BCA	TBC314	Operating System and Security	3	3	Theory	30	70
BCA	TBC304	Skills for Career Success – 1	2	3	Theory	30	70
BCA	UHV301	UHV-II	2	3	Theory	30	70
BCA	PBC301	Database Management Systems Laboratory	2	3	Practical	30	70
BCA	PBC302	Web Application Development Laboratory	2	3	Practical	30	70
BCA	BCP301	Mini Project – 1	1	3			100
Total Credit			**21**				

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
BCA	TBC401	Algorithm Design and Analysis Essentials	3	4	Theory	30	70
BCA	TBC402	Introduction to Software Engineering	3	4	Theory	30	70
BCA	TBC403	Computer Organization	3	4	Theory	30	70
BCA	TBC404	Data Communications and Computer Networks	3	4	Theory	30	70
		Discipline-Specific Elective – 3					
BCA	TBC411	Fundamentals of Data Analytics	3	4	Theory	30	70
BCA	TBC412	Introduction to Soft Computing	3	4	Theory	30	70
BCA	TBC413	Management Information Systems	3	4	Theory	30	70
BCA	TBC414	Programming with 'R'	3	4	Theory	30	70
BCA	TBC415	Virtualization and Cloud Computing	3	4	Theory	30	70
BCA	TBC405	Skills for Career Success – 2	1	4	Theory		100
BCA	PBC401	Algorithm Design and Analysis Essentials Laboratory	2	4	Practical	30	70
BCA	PBC402	Data Communications and Computer Networks Laboratory	2	4	Practical	30	70
BCA	BCP401	Mini Project – 2	1	4			100
BCA	GP401	General Proficiency	1	4			100
Total Credit			**22**				

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
BCA	TBC501	Introduction to Java Programming	3	5	Theory	30	70
BCA	TBC502	Introduction to Data Mining	3	5	Theory	30	70
BCA	TBC503	Introduction to Microcontrollers	3	5	Theory	30	70
		University Open Elective / General Elective – 2					
BCA	TBC511	Fostering Social Responsibility and Community Engagement	3	5	Theory	30	70
BCA	TBC512	Healthy living and fitness	3	5	Theory	30	70
BCA	TBC513	University-Approved Course	3	5		30	70
		Discipline-Specific Elective – 4					
BCA	TBC521	Cloud based Application Development and Management	3	5	Theory	30	70
BCA	TBC522	Introduction to Machine Learning	3	5	Theory	30	70
BCA	TBC523	Cryptography	3	5	Theory	30	70
BCA	TBC524	Object-Oriented Analysis and Design	3	5	Theory	30	70
BCA	TBC525	Introduction to .NET Programming	3	5	Theory	30	70
BCA	TBC504	Skills for Career Success – 3	2	5	Theory	30	70
BCA	PBC501	Data Mining Laboratory	2	5	Practical	30	70
BCA	PBC502	Java Programming Laboratory	2	5	Practical	30	70
BCA	BCP501	Mini Project – 3	1	5			100
Total Credit			**22**				

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
BCA	TBC601	Introduction to Mobile Application Development	3	6	Theory	30	70
BCA	TBC602	Operation Research	3	6	Theory	30	70
BCA	TBC603	Disaster Management	2	6	Theory	30	70
		Discipline-Specific Elective – 5					
BCA	TBC611	Computer Graphics	3	6	Theory	30	70
BCA	TBC612	Software Testing and Quality Assurance	3	6	Theory	30	70
BCA	TBC613	DevOps on Cloud	3	6	Theory	30	70
BCA	TBC614	Introduction to Cyber Forensics	3	6	Theory	30	70
BCA	TBC615	Ethics of AI	3	6	Theory	30	70
BCA	PBC601	Mobile Application Development Laboratory	2	6	Practical	30	70
BCA	BCP601	Capstone Project	6	6			100
BCA	GP601	General Proficiency	1	6			100
Total Credit			**20**				

BCA (Honors)

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
BCA	TBC701	Full Stack Development	3	7	Theory	30	70
BCA	TBC702	Computer Networks	3	7	Theory	30	70
BCA	TBC703	Advanced Operating Systems	3	7	Theory	30	70
		Discipline-Specific Elective – 6					
BCA	TBC711	Advanced Computer Organization	3	7	Theory	30	70
BCA	TBC712	Green Computing	3	7	Theory	30	70
BCA	TBC713	Social Media Data Analytics	3	7	Theory	30	70
		University Open Elective / General Elective -3					
BCA	TBC721	Research Methodology	3	7	Theory	30	70
BCA	TBC722	Entrepreneurship	3	7	Theory	30	70
BCA	PBC701	Full Stack Development Laboratory	2	7	Practical	30	70
BCA	PBC702	Operating Systems and Computer Networks Laboratory	2	7	Practical	30	70
BCA	BCP 701	Mini Project	2	7		100	
Total Credit			**20**				

BCA (Honors with Research)

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
BCA	TBC701	Full Stack Development	3	7	Theory	30	70
BCA	TBC702	Computer Networks	3	7	Theory	30	70
BCA	TBC703	Advanced Operating Systems	3	7	Theory	30	70
BCA	PBC701	Full Stack Development Laboratory	2	7	Practical	30	70
BCA	PBC702	Operating Systems and Computer Networks Laboratory	2	7	Practical	30	70
BCA	BCP 701	Research Project Phase-1	7	7		100	
Total Credit			**20**				

BCA (Honors)

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
BCA	TBC801	Advanced Java Programming	3	8	Theory	30	70
BCA	TBC802	Design and Analysis of Algorithms	3	8	Theory	30	70
		Discipline-Specific Elective – 8					
BCA	TBC811	Data Mining and Warehousing	3	8	Theory	30	70
BCA	TBC812	Python Programming for Data Science	3	8	Theory	30	70
BCA	TBC813	Software Project Management	3	8	Theory	30	70
		Discipline-Specific Elective – 9					
BCA	TBC821	Digital Marketing	3	8	Theory	30	70
BCA	TBC822	Human-Computer Interaction	3	8	Theory	30	70
BCA	TBC823	Information Security	3	8	Theory	30	70
BCA	PMC802	Advanced Java Programming Lab	2	8	Practical	30	70
BCA	PMC803	Design and Analysis of Algorithms Lab	2	8	Practical	30	70
BCA	BCP 801	Major Project	3	8		100	
BCA	GP 801	General Proficiency	1	8		100	
Total Credit			**20**				

BCA (Honors with Research)

Program	Course Code	Course Name	Credit	Sem	Theory/ Practical	Internal Marks	External Marks
BCA	TBC801	Advanced Java Programming	3	8	Theory	30	70
BCA	TBC802	Design and Analysis of Algorithms	3	8	Theory	30	70
BCA	PMC802	Advanced Java Programming Lab	2	8	Theory	30	70
BCA	PMC803	Design and Analysis of Algorithms Lab	2	8	Practical	30	70
BCA	BCP 801	Research Project Phase -2	9	8	Practical	30	70
BCA	GP 801	General Proficiency	1	8		100	
Total Credit			**20**				

First-Year Computer Applications: Building a Strong Foundation in Tech and Problem-Solving

The first year of a Computer Applications program is designed to equip students with essential technical, analytical, and professional skills. Through a blend of programming, mathematics, IT fundamentals, and business knowledge, students develop a problem-solving mindset and gain hands-on experience with modern technologies.

Students begin by exploring computational thinking and programming fundamentals, where they learn to break down complex problems and write efficient code. Hands-on practice in Python and object-oriented programming strengthens their coding abilities, preparing them for real-world software development. Data structures and operating systems introduce students to how computers manage data and execute programs efficiently.

A strong foundation in mathematics, discrete structures, and probability and statistics helps students develop analytical skills crucial for algorithms, data science, and computing logic. These courses enable students to approach software development and problem-solving with a structured mindset.

With cybersecurity becoming increasingly important, students are introduced to cybersecurity essentials, gaining knowledge about online threats, data protection, and secure computing practices.

Beyond technical knowledge, students develop business and communication skills that are essential for workplace success. They gain an understanding of management principles, business accounting, and professional English, which help them communicate effectively and understand financial and organizational dynamics in the IT industry.

Practical exposure is a key focus, with programming labs, digital productivity tools, and hands-on coding exercises ensuring students apply their learning in real-world scenarios.

Why This Matters?

This year lays the technical, analytical, and professional foundation needed for a successful career in technology. With hands-on coding, problem-solving, and industry-relevant skills, students gain the confidence to develop software, analyze data, manage systems, and communicate effectively. Whether pursuing careers in software development, data science, IT management, or cybersecurity, students emerge well-prepared to take on the challenges of the tech-driven world.

Second-Year Computer Applications: Advancing Skills for a Digital Future

The second year of a Computer Applications program expands students' technical expertise, problem-solving abilities, and real-world application skills. Covering web development, database management, artificial intelligence, cloud computing, cybersecurity, and data analytics, this year prepares students for careers in software development, IT infrastructure, and emerging technologies.

Students gain hands-on experience in web application development and database management, learning to build dynamic websites and efficiently store and manage data. They explore cloud computing and the Internet of Things (IoT), which are shaping modern IT infrastructure. Artificial intelligence foundations introduce students to intelligent systems, machine learning, and automation, critical for future technology trends.

A strong technical foundation is reinforced with courses in digital logic design, computer organization, and operating systems, providing insights into hardware-software interactions and system security. Data communications and computer networks help students understand the principles of modern networking, preparing them for roles in IT security and infrastructure management.

Software engineering and secure software development emphasize building scalable, reliable, and secure applications. Students also develop problem-solving expertise through design and analysis of algorithms, where they learn efficient computational techniques. Programming with R and data visualization equip students with skills to analyze and interpret complex data, essential for data science and business intelligence.

Practical experience is a key focus, with labs in web development, databases, networking, cloud computing, and algorithms ensuring students apply their learning in real-world projects. Mini projects encourage innovation and hands-on development, helping students build a strong portfolio.

Why This Matters?

This year strengthens students’ ability to develop software, manage databases, analyze data, secure systems, and optimize networks, making them job-ready for roles in software engineering, cloud computing, cybersecurity, and data analytics. With a focus on practical learning, industry-relevant technologies, and problem-solving, students gain the confidence to tackle real-world IT challenges and innovate in a tech-driven world.

Third-Year Computer Applications: Mastering Advanced Technologies for a Future-Ready Career

The third year of a Computer Applications program prepares students for the rapidly evolving tech industry by focusing on advanced programming, data analytics, cybersecurity, cloud computing, and software development. With a strong emphasis on hands-on learning, real-world applications, and career readiness, students gain the expertise needed to excel in various domains, from software engineering to AI and cybersecurity.

Students enhance their programming skills with Java, .NET, and mobile application development, learning to build robust and scalable software. They explore object-oriented analysis and design, mastering software architecture and design patterns. Cloud-based application development and DevOps introduce modern deployment and automation techniques, crucial for developing and managing cloud applications.

With data playing a central role in today's world, students learn data mining and machine learning, equipping them with skills to analyze large datasets and develop intelligent applications. Cryptography and cyber forensics provide essential knowledge in securing data, investigating digital crimes, and maintaining system integrity. Courses in software project management and operations research ensure students understand how to manage projects efficiently, optimize processes, and make data-driven decisions.

Beyond technical expertise, students develop soft skills and professional ethics through courses like career success skills, ethics of AI, and social responsibility engagement, preparing them for leadership roles and responsible technology development. Disaster management and healthy living emphasize well-rounded personal and professional growth.

Practical learning is reinforced through labs in Java, data mining, mobile applications, and cloud-based development, along with mini and capstone projects where students apply their knowledge to solve real-world problems. General proficiency assessments ensure students are industry-ready, with strong technical, analytical, and professional skills.

Why This Matters?

By the end of this year, students will have mastered programming, data analysis, cybersecurity, cloud technologies, and software management, making them highly employable in roles such as software developers, data analysts, cybersecurity specialists, and cloud engineers. With a focus on innovation, real-world application, and career preparation, students are ready to thrive in a competitive and technology-driven world.