SEMESTER WISE CREDIT DISTRIBUTION: Semester wise credit distribution of proposed BCA [BCA (Honors) and BCA (Honors with research)] program:

Semester	Discipline Specific Courses (DSC)	Ability Enhancement Courses (AEC)	Multi-Disciplinary Elective Course (MDE)	Indian Knowledge System (IKS)	Value Education Courses (VEC)	Skill Enhancement courses (SEC)	Value Added Course (VAC)	Discipline Specific Elective (DSE)	Co-Curricular Course (CC)	On the Job Training (OJT)	Research Project (RP)	Total
I	7	2	-	2	2	5	-	-	2	-	-	20
II	10	-	-	-	2	8	-	-	-	-	-	20
III	13	-	-	-	-	7	-	-	-	-	-	20
IV	15	-	-	-	-	4	1	-	-	-	-	20
V	2	-	-	-	-	-	-	15	-	4	-	21
VI	4	1	-	-	-	-	-	10	-	-	4	19
BCA (Honors)												
VII	5	-	3	-	-	4	-	8	-	-	-	20
VIII	-	-	-	-	-	-	-	12	-	-	8	20
BCA (Honors with Research)												
VII	6	-	-	-	-	-	-	10	-	4	-	20
VIII	-	-	-	-	-	-	-	-	-	-	20	20

3 Years BCA Program	**Total Credits = 120**
4 Years BCA (Honors) and BCA (Honors with Research)	**Total Credits = 160**

Note: Students can take extra credit course from their own department or from other department/university as per the Admitting Body / University norms.

STUDENT INDUCTION PROGRAM (SIP)

Student Induction Program (Mandatory)	
Induction Program for students to be offered right at the start of the first year.	- Physical Activity - Creative Arts - Universal Human Values - Literary - Basic of Information and Communication Technology - Proficiency Modules - Lectures by Eminent People - Visits to Local Areas - Familiarization to Department/Branch & Innovations

Mandatory Visits/ Workshop/Expert Lectures:
1. It is mandatory to arrange the industrial visits.
2. It is mandatory to conduct a workshop during the winter break after fifth semester on professional/ industry/ entrepreneurial orientation.
3. It is mandatory to organize at least one expert lecture from domain specific industry.

For Summer Internship / Projects / Seminar etc.
1. Evaluation is based on work done, quality of report, performance in viva-voce, presentation etc.

Note: The internal assessment is based on the student's performance in mid semester tests (two best out of three), quizzes, assignments, class performance, attendance, viva-voce in practical, lab record etc.

Semester wise Structure and Curriculum for UG Course in BCA

Teaching and Examination Scheme

BCA Semester-I

SN	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme							
									Theory				Practical		
				(TH)	TU	P		Exam Hrs.	SEE	CIE	Min	SEE	CIE	Min
1	DSC	Mathematics Foundation to Computer Science	BCA1T01	3	-	-	3	3	80	20	40	-	-	-
2	SEC	Problem Solving Techniques with C	BCA1T02	3	-	-	3	3	80	20	40	-	-	-
3	SEC	Problem Solving Techniques with C- **LAB/Practical 1**	BCA1P01	-	-	4	2	-	-	-	-	25	25	25
4	DSC	Basics of Computer Architecture	BCA1T03	3	-	-	3	3	80	20	40	-	-	-
5	DSC	Basics of Computer Architecture **LAB/Practical 2**	BCA1P02	-	-	2	1	-	-	-	-	25	25	25
6	AEC	English Compulsory	BAE1T01	2	-	-	2	3	50	50	40	-	-	-
7	VEC	Environmental Science	BVE1T01	2	-	-	2	3	80	20	40	-	-	-
8	IKS	Vedic Mathematics	BIK1T01	2	-	-	2	3	80	20	40	-	-	-
9	CC	Co-Curricular Courses (CC)	BCC1P01	-	-	4	2	-	-	-	-	-	100	50
10	AEC	Additional Course - Indian or Foreign Language Other than Mother Tongue and English (1-1- 0)) [optional course] *	BAE1T02	1	1	0	0*	2	-	50	20	-	-	-
	Total			16	1	10	**20**		**450**	**200**		**50**	**150**	

Note 1: For Co-Curricular Courses (CC) - Refer Annexure – V (CC Basket)

2: Indian Languages: Sanskrit/Hindi/All Regional languages
Foreign Languages: (not limited to) Spanish/German/French/Korean/Mandarin etc.

(This is a non-credit course this course will not reflect in the marksheet of the student. If the student completes this course, then certificate for the same will be issued by the course conducting authority (College/Organization))

BCA Semester-II

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme							
				(TH)	TU	P		Theory				Practical			
								Exam Hrs.	SEE	CIE	Min	SEE	CIE	Min
1	DSC	Programming in C++	BCA2T04	3	-	-	3	3	80	20	40	-	-	-
2	DSC	Programming in C++ **LAB/Practical 1**	BCA2P03	-	-	4	2	-	-	-	-	25	25	25
3	DSC	Database Management System	BCA2T05	3	-	-	3	3	80	20	40	-	-	-
4	SEC	Data Structures	BCA2T06	3	-	-	3	3	80	20	40	-	-	-
5	SEC	Data Structures – **LAB/ Practical 2**	BCA2P04	-	-	4	2	-	-	-	-	25	25	25
6	DSC	Operating System and Linux	BCA2T07	2	-	-	2	3	80	20	40	-	-	-
7	SEC	Web Technologies	BCA2T08	2	-	-	2	3	80	20	40	-	-	-
8	SEC	Web Technologies – **LAB/ Practical 3**	BCA2P05			2	1	-	-	-	-	25	25	25
9	VEC	Constitution of India	BVE2T02	2	-	-	2	3	80	20	40	-	-	-
10	AEC	Additional Course - Indian or Foreign Language Other than Mother Tongue and English (1-1- 0)) [optional course] *	BAE2T03	1	1	0	0*	2	-	50	20	-	-	-
	Total			16	01	10	**20**		480	170		75	125	

Note: Indian Languages: Sanskrit/Hindi/All Regional languages
   Foreign Languages: (not limited to) Spanish/German/French/Korean/Mandarin etc

(This is a non-credit course this course will not reflect in the marksheet of the student. If the student completes this course, then certificate for the same will be issued by the course conducting authority (College/Organization))

After Year 1, Students are advised to take Social Responsibility & Community Engagement - encompassing Community Engagement with an NGO in the vacation time.

An UNDER GRADUATE CERTIFICATE IN COMPUTER APPLICATIONS will be awarded
If a student wishes to exit at the end of First year.

Exit Criteria after First Year of BCA Programme

Students will have the option to exit the Bachelor of Computer Applications (BCA) program after successfully completing the first year. Upon exit, they will be awarded a **UG Certificate in Computer Applications**. To be eligible for this certificate, students must complete an additional 04 credits in one of the following areas:

1. **Skill-Based Subject**: A course designed to enhance practical and technical skills in the field of computer applications.

2. **Work-Based Vocational Course**: A vocational course offered during the summer term that emphasizes hands-on training and workplace readiness.

3. **Internship/Apprenticeship**: A professional internship or apprenticeship program in a relevant field, with a minimum duration of 08 weeks, which will take place after the second semester.

4. **Social Responsibility & Community Engagement**: Active engagement with an NGO or community organization for a minimum duration of 08 weeks, focusing on real-world problem-solving, social responsibility, and community service.

The respective University/Admitting Body will determine the mode and specifics of these additional credits, and students will be required to complete the 08-week program during the summer term following their second semester.

The exiting students will clear the subject / submit the Internship Report as per the University schedule.

Re-entry Criteria in to Second Year (Third Semester)

The student who takes an exit after one year with an award of certificate may be allowed to re-enter in to Third Semester for completion of the BCA Program as per the respective University /Admitting Body schedule after earning requisite credits in the First year.

BCA Semester-III

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme							
									Theory				Practical		
				(TH)	TU	P		Exam Hrs.	SEE	CIE	Min	SEE	CIE	Min
1	DSC	Object Oriented Programming using JAVA	BCA3T09	3	-	-	3	3	80	20	40	-	-	-
2	DSC	Object Oriented Programming using JAVA-LAB/**Practical 1**	BCA3P06	-	-	4	2	-	-	-	-	25	25	25
3	DSC	Probability and Statistics	BCA3T10	2	-	-	2	3	80	20	40	-	-	-
4	SEC	Python Programming	BCA3T11	3	-	-	3	3	80	20	40	-	-	-
5	SEC	Python Programming-LAB/**Practical 2**	BCA3P07	-	-	4	2		-	-	-	25	25	25
6	DSC	Software Engineering	BCA3T12	2	-	-	2	3	80	20	40	-	-	-
7	DSC	Basics of Data Analytics using Spreadsheet	BCA3T13	2	-	-	2	3	80	20	40	-	-	-
8	DSC	Basics of Data Analytics using Spreadsheet- LAB/ **Practical 3**	BCA3P08	-	-	4	2	-	-	-	-	25	25	25
9	SEC	SQL and PL/SQL	BCA3P09	-	-	4	2		-	-	-		50	25
Total				12	-	16	**20**		**400**	**100**		**75**	**125**	

BCA Semester-IV

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme							
									Theory				Practical		
				(TH)	TU	P		Exam Hrs.	SEE	CIE	Min	SEE	CIE	Min
1	DSC	Artificial Intelligence	BCA4T14	3	-	-	3	3	80	20	40	-	-	-
2	DSC	Artificial Intelligence **LAB/Practical 1**	BCA4P10	-	-	4	2	-	-	-	-	25	25	25
3	DSC	Computer Networks	BCA4T15	2	-	-	2	3	80	20	40	-	-	-
4	DSC	PHP	BCA4T16	3	-	-	3	3	80	20	40	-	-	-
5	DSC	PHP **LAB/Practical 2**	BCA4P11	-	-	4	2	-	-	-	-	25	25	25
6	DSC	Design and Analysis of Algorithm	BCA4T17	3	-	-	3	3	80	20	40	-	-	-
7	SEC	Data Visualization	BCA4T18	2	-	-	2	3	80	20	40	-	-	-
8	SEC	Data Visualization- LAB/ **Practical 3**	BCA4P12			4	2					25	25	25
9	VAC	Design Thinking and Innovation	BCA4P13	-	-	2	1	-					50	25
	Total			13		14	**20**		**400**	**100**		**75**	**125**	

Note: For Design Thinking and Innovation –

• Students should choose the topic from the syllabus.
• Seminar will be conducted on chosen topic.
• Student will prepare short report.
• Marks will be allotted according to the performance of student.

Students can choose their specialization i.e. Stream with Discipline Specific Elective [DSE] from Third year onwards as indicated in Appendix – I.

Exit Criteria after Second Year of BCA Programme

Students will have the option to exit the Bachelor of Computer Applications (BCA) program after successfully completing the second year. Upon exit, they will be awarded a **UG Diploma in Computer Application**. To be eligible for this diploma, students must complete an additional 04 credits in one of the following areas:

1. **Skill-Based Subject**: A specialized course aimed at enhancing technical and practical expertise in computer applications.

2. **Work-Based Vocational Course**: A vocational course offered during the summer term, focused on building practical, industry-relevant skills.

3. **Internship/Apprenticeship**: A professional internship or apprenticeship with a minimum duration of 08 weeks, conducted after the fourth semester, offering hands- on experience in a relevant field.

4. **Social Responsibility & Community Engagement**: Involvement with an NGO or community-based organization for a minimum of 08 weeks, contributing to social initiatives and applying computer application knowledge to solve real-world challenges.

5. **Capstone Project**: Completion of a capstone project integrating the skills and knowledge gained during the first two years of the program, which can be an independent or group project.

   The respective University/Admitting Body will decide the specific mode of completing the additional credits, and students will be required to complete the 08-week program or project during the summer term following their fourth semester.

   Students opting for this exit will also be required to **submit an Internship/Apprenticeship Report** or complete the Capstone Project as per the schedule outlined by the University/Admitting Body before they are awarded the UG Diploma.

Re-entry Criteria in to Third Year (Fifth Semester)

The student who takes an exit after second year with an award of Diploma may be allowed to re-enter into fifth Semester for completion of the BCA Program as per the respective University / Admitting Body schedule after earning requisite credits in the Second year.

BCA Semester-V

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme							
				(TH)	TU	P		Theory				Practical		
								Exam Hrs.	SEE	CIE	Min	SEE	CIE	Min
1	DSE	Professional Elective – I	BCA5T19	3	-	-	3	3	80	20	40	-	-	-
2	DSE	Professional Elective – I **Lab/Practical-1**	BCA5P14	-	-	4	2	-	-	-	-	25	25	25
3	DSE	Professional Elective – II	BCA5T20	3	-	-	3	3	80	20	40	-	-	-
4	DSE	Professional Elective – II **Lab/Practical-2**	BCA5P15			4	2					25	25	25
5	DSE	Professional Elective – III	BCA5T21	3	-	-	3	3	80	20	40	-	-	-
6	DSE	Professional Elective – III **Lab/Practical-3**	BCA5P16	-	-	4	2	-	-	-	-	25	25	25
7	DSC	Quantitative Techniques	BCA5T22	-	2	-	2	-	-	-	-	-	50	25
8	OJT	Internship/Capstone Project	BOJ5P01	-	-	8	4	-	-	-	-	100	100	100
9	RP	Major Project [Evaluation in sixth Semester]	BRP5P01	-	-	-	-	-	-	-	-	-	-	-
Total				**09**	**2**	**20**	**21**	**-**	**240**	**60**	**-**	**175**	**225**	**-**

BCA Semester-VI

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme							
				(TH)	TU	P		Theory				Practical		
								Exam Hrs.	SEE	CIE	Min	SEE	CIE	Min
1	DSC	Generative AI	BCA6T23	2	-	-	2	3	80	20	40	-	-	-
2	DSC	Generative AI **Lab/Practical-1**	BCA6P17	-	-	4	2	-	-	-	-	25	25	25
3	DSE	Professional Elective -IV	BCA6T24	3	-	-	3	3	80	20	40	-	-	-
4	DSE	Professional Elective – IV **Lab/Practical-2**	BCA6P18	-	-	4	2	-	-	-	-	25	25	25
5	DSE	Professional Elective – V	BCA6T25	3	-	-	3	3	80	20	40	-	-	-
6	DSE	Professional Elective – V **Lab/Practical-3**	BCA6P19	-	-	4	2	-	-	-	-	25	25	25
7	AEC	Soft Skills	BAE6P04	-	1	-	1	-	-	-	-	-	50	25
8	RP	Major Project [Initiated in 5th Semester]	BRP6P02	-	-	8	4	-	-	-	-	100	100	100
		Total		8	1	20	**19**		**240**	**60**		**175**	**225**	

1. BACHELOR OF COMPUTER APPLICATIONS Degree will be awarded, if a student wishes to exit at the end of Third year.

Exit Criteria after Third Year of BCA Programme

The students shall have an option to exit after 3rd year of Computer Application Program and will be awarded with a Bachelor of Computer Applications (BCA).

Re-entry Criteria in to Fourth Year (Seventh Semester)

The student who takes an exit after third year with an award of BCA may be allowed to re-enter in to Seventh Semester for completion of the BCA (Honors) or BCA (Honors with Research) Program as per the respective University / Admitting Body schedule after earning requisite credits in the Third year.

Minimum Eligibility Criteria: Minimum eligibility criteria for opting the course in the fourth year will be as follows:

1. **BCA (Honors with Research):** Minimum 75% marks or equivalent CGPA in BCA Degree upto 6th Semester.
2. **For BCA (Honors)**: BCA Degree

SEMESTER VII - (BCA (Honors))

Specialization – AI & ML

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme						
									Theory				Practical	
				(TH)	TU	P		Exam Hrs.	SEE	CIE	Min	SEE	CIE	Min
1	MDE	Social Network Analysis	BMD7T01	3	-	-	3	3	80	20	40	-	-	-
2	DSC	Optimization of ML	BCA7T26	3	-	-	3	3	80	20	40	-	-	-
3	DSC	Optimization of ML **Lab/Practical-1**	BCA7P20	-	-	4	2	-	-	-	-	25	25	25
4	DSE	Professional Elective – VI	BCA7T27	3	-	-	3	3	80	20	40	-	-	-
5	DSE	Professional Elective – VI **Lab/Practical-2**	BCA7P21	-	-	4	2	-	-	-	-	25	25	25
6	DSE	Professional Elective– VII	BCA7T28	3	-	-	3	3	80	20	40	-	-	-
7	RP	Dissertation work [Evaluation in Eight Semester]	BRP7P03	-	-	-	-	-	-	-	-	-	-	-
8	OJT	Summer Internship II	BOJ7P02	-	-	8	4	-	-	-	-	100	100	100
Total				12	-	16	**20**		320	80		150	150	

SEMESTER VII - (BCA (Honors))
Specialization – Data Science

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme							
				(TH)	TU	P		Theory				Practical		
								Exam Hrs.	SEE	CIE	Min	SEE	CIE	Min
1	MDE	Advanced Statistical methods for Data Science	BMD7T02	3	-	-	3	3	80	20	40	-	-	-
2	DSC	Python for Data Science	BCA7T26	3	-	-	3	3	80	20	40	-	-	-
3	DSC	Python for Data Science **Lab/Practical-1**	BCA7P20	-	-	4	2	-	-	-	-	25	25	25
4	DSE	Professional Elective – VI	BCA7T27	3	-	-	3	3	80	20	40	-	-	-
5	DSE	Professional Elective – VI **Lab/Practical-2**	BCA7P21	-	-	4	2	-	-	-	-	25	25	25
6	DSE	Professional Elective – VII	BCA7T28	3	-	-	3	3	80	20	40	-	-	-
7	RP	Dissertation work [Evaluation in Eight Semester]	BRP7P03	-	-	-	-	-	-	-	-	-	-	-
8	OJT	Summer Internship II	BOJ7P02	-	-	8	4	-	-	-	-	100	100	100
	Total			12	-	16	**20**		**320**	**80**		**150**	**150**	

BCA SEMESTER VIII - (Honors)

(For Specialization AI-ML & Data Science)

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme						
								Theory				Practical		
				(TH)	TU	P		Exam Hrs.	SEE	CIE	Min	SEE	CIE	Min
1	DSE	Professional Elective – VIII	BCA8T29	3	-		3	3	80	20	40	-	-	-
2	DSE	Professional Elective – VIII **Lab/Practical 1**	BCA8P22	-	-	4	2	-	-	-	-	25	25	25
3	DSE	Professional Elective – IX	BCA8T30	3	-	-	3	3	80	20	40	-	-	-
4	DSE	Professional Elective – IX **Lab/Practical 2**	BCA8P23	-	-	4	2	-	-	-	-	25	25	25
5	DSE	Professional Elective – X	BCA8T31	2	-	-	2	3	80	20	40	-	-	-
6	RP	Dissertation work [Started in Seventh Semester]	BRP8P04	-	-	16	8	-	-	-	-	100	100	100
		Total		8	-	24	**20**		**240**	**60**		**150**	**150**	

BCA SEMESTER VII - (Honors with Research)

SN	Cours Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme						
									Theory				Practical	
				(TH)	TU	P		Exam Hrs.	SEE	CIE	Min	SEE	CIE	Min
1	DSC	Advanced Data Analysis Tools	BCA8T32	-	2	-	2	3	80	20	40	-	-	-
2	DSE	Advanced Data Analysis Tools **Lab/Practical 1**	BCA8P24	-	-	4	2	-	-	-	-	25	25	25
3	DSC	Research Methodology	BCA8T33	2	2	-	4	3	80	20	40	-	-	-
4	DSE	Professional Elective – VII	BCA8T28R	2	2	-	4	3	80	20	40	-	-	-
5	DSE	Professional Elective – VIII	BCA8T29R	2	-	-	2	3	80	20	40	-	-	-
6	DSE	Professional Elective – VIII **Lab/Practical 2**	BCA8P22R	-	-	4	2	-	-	-	-	25	25	25
7	OJT	Research Internship Report and Viva –Voce	BOJ8P03	-	-	8	4	-	-	-	-	100	100	100
	Total			6	6	16	**20**		320	80		150	150	

BCA SEMESTER VIII- (Honors with Research)

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme						
				(TH)	TU	P		Theory				Practical		
								Exam Hrs.	SEE	CIE	Min	SEE	CIE	Min
1	RP	Project Work Full Time	BRP8P04	-	-	-	16	-	-	-	-	200	200	200
2	RP	Seminar	BRP8P05	-	-	-	4	-	-	-	-	100	100	100
		Total					20					300	300	

*The Dissertation work will start from the beginning of fourth year of BCA (Honors with Research) Program. Students of Fourth Year shall be assessed for Project Work and Research Internship Report and Viva –Voce and Dissertation (For Research Track)