

Bachelor in Computer Application
BCA (Graphics Animation and VFX)

**ALL INDIA COUNCIL FOR TECHNICAL
EDUCATION**

**SANKALCHAND PATEL UNIVERSITY,
VISNAGAR**

Faculty of Computer Science



Structure, Teaching Scheme and Syllabus

Program Code: CS102

In effect from: 2026-27

Programme Outcomes (PO):

1. Apply knowledge of computer science, mathematics, multimedia technologies, graphics, animation principles, and visual computing to solve real-world problems.
2. Identify, analyze, and formulate computing, multimedia, and animation problems using logical thinking, creativity, and analytical approaches.
3. Design, develop, and implement innovative software applications, graphics, animations, visual effects, and interactive multimedia solutions that satisfy user and industry requirements.
4. Select and effectively use modern software tools such as Adobe Photoshop, Illustrator, Premiere Pro, After Effects, Blender, and other emerging technologies for digital content creation.
5. Conduct investigations, experimentation, testing, and research using appropriate methodologies to improve digital media production and software solutions.
6. Understand professional ethics, intellectual property rights, cyber ethics, and social responsibilities while developing computing and multimedia solutions.
7. Develop environmentally responsible digital solutions by adopting sustainable computing practices and minimizing the environmental impact of technology.
8. Function effectively as an individual, team member, or team leader in multidisciplinary and multicultural environments.
9. Communicate technical and creative ideas effectively through reports, presentations, documentation, visual storytelling, and client interactions.
10. Apply project management principles, innovation, entrepreneurship, and business practices in multimedia production and software development projects.
11. Recognize the need for continuous learning and adapt to rapidly evolving technologies in computer applications, graphics, animation, artificial intelligence, and digital media.
12. Demonstrate professional competence, practical skills, creativity, and problem-solving abilities required for successful careers or higher studies in computer applications, graphics, animation, VFX, gaming, and related industries.

Program Educational Objectives (PEOs):

1. Graduates will establish successful careers in Computer Applications, Graphics Design, Animation, VFX, Gaming, Multimedia, Web Technologies, Digital Media, and related industries.
2. Graduates will apply technical knowledge, creativity, communication skills, ethical values, and teamwork to solve professional computing and multimedia challenges.

3. Graduates will pursue higher education, professional certifications, research, entrepreneurship, and continuous learning to enhance their career growth.
4. Graduates will contribute to society by developing innovative, user-centric, ethical, and sustainable digital solutions that address real-world needs.

Program Specific Outcomes (PSOs):

1. Apply principles of visual communication, graphic design, digital illustration, image editing, and multimedia production using industry-standard tools such as Adobe Photoshop and Adobe Illustrator.
2. Design and develop 2D/3D animations, motion graphics, visual effects, digital compositing, camera tracking, and production pipelines using tools such as Adobe After Effects, Premiere Pro, and Blender.
3. Develop software applications, web solutions, and multimedia projects by integrating programming knowledge, databases, software engineering, animation workflows, portfolio development, and industry internship experience to meet professional standards.

Faculty of Computer Science

Program Name: Bachelor of Computer Applications (Graphics Animation and VFX)

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Abbreviation Name: BCA

With Effect From: 2026-27

Semester: I

Course Code	Course Title	Type of Course	Credits	Hours Per Week				Theory(Marks)				Practical(Marks)				Total Marks
				L	T	P	Total	University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		
								Min	Max	Min	Max	Min	Max	Min	Max	
21-CAM101-1C	Mathematics Foundations	CC	3	3	0	0	3	18	50	09	25	-	-	-	-	75
21-SEC101-1C	Problem Solving Techniques- I	SEC	6	4	0	4	8	18	50	18	50	09	25	09	25	150
21-CAM102-1C	Computer Architecture	CC	5	4	0	2	6	18	50	18	50	-	-	09	25	125
21-AEC101-1C	General English	AEC	2	2	0	0	2	09	25	09	25	-	-	-	-	50
21-MDE101-1C	Indian Knowledge System	MDE	2	2	0	0	2	09	25	09	25	-	-	-	-	50
21-VAC101-1C	Environmental Science and sustainability	VAC	2	2	0	0	2	09	25	09	25	-	-	-	-	50
21-AEC102-1C	French Language - I	AEC	0	2	0	0	2	-	-	-	-	-	-	-	-	-
TOTAL			20	19	0	6	25		225		200		25		50	500

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Semester: II

Course Code	Course Title	Type of Course	Credits	Hours Per Week				Theory(Marks)				Practical(Marks)				Total Marks
				L	T	P	Total	University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		
								Min	Max	Min	Max	Min	Max	Min	Max	
22-CAM103-1C	Probability and Statistics	CC	3	3	0	0	3	18	50	09	25	-	-	-	-	75
22-CAM104-1C	Database Management System	CC	4	3	0	2	5	18	50	09	25	-	-	09	25	100
22-CAM105-1C	Operating Systems	CC	3	2	0	2	4	09	25	09	25	-	-	09	25	75
22-SEC102-1C	Problem Solving Techniques– II	SEC	6	4	0	4	8	18	50	18	50	09	25	09	25	150
22-SEC103-1C	Graphic Designing Tools	SEC	2	0	0	4	4	-	-	-	-	09	25	09	25	50
22-VAC102-1C	Indian Constitution	VAC	2	2	0	0	2	09	25	09	25	-	-	-	-	50
22-AEC103-1C	French Language - II	AEC	0	2	0	0	2	-	-	-	-	-	-	-	-	-
TOTAL			20	16	0	12	28		200		150		50		100	500

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Semester: III

Course Code	Course Title	Type of Course	Credits	Hours Per Week				Theory(Marks)				Practical(Marks)				Total Marks
				L	T	P	Total	University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		
								Min	Max	Min	Max	Min	Max	Min	Max	
23-CAM201-2C	Ecommerce	CC	3	3	0	0	3	18	50	09	25	-	-	-	-	75
23-CAM202-2C	Data Structure with oops	CC	5	3	0	4	7	18	50	09	25	09	25	09	25	125
23-SEC201-2C	Python Programming	SEC	4	2	0	4	6	09	25	09	25	09	25	09	25	100
23-CAM203-2C	System Analysis and Design	CC	3	2	0	2	4	09	25	09	25	-	-	09	25	75
23-DSE201-2C 23-DSE202-2C 23-DSE203-2C	Web Designing – I/ Basics of Data Analytics using Spreadsheet/ Feature Engineering	DSE	3	2	0	2	4	09	25	09	25	-	-	09	25	75
23-VAC201-2C	NSS	VAC	2	1	0	2	3	-	-	09	25	09	25	-	-	50
TOTAL			20	13	0	14	27		175		150		75		100	500

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Semester: IV

Course Code	Course Title	Type of Course	Credits	Hours Per Week				Theory(Marks)				Practical(Marks)				Total Marks
				L	T	P	Total	University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		
								Min	Max	Min	Max	Min	Max	Min	Max	
24-CAM204-2C	Entrepreneurship and Startup Ecosystem	CC	2	1	1	0	2	09	25	09	25	-	-	-	-	50
24-CAM205-2C	Advance Database Management System	CC	5	3	0	4	7	18	50	09	25	09	25	09	25	125
24-CAM206-2C	Software Engineering	CC	3	3	0	0	3	18	50	09	25	-	-	-	-	75
24-CAM207-2C	Java Programming	CC	5	3	0	4	7	18	50	09	25	09	25	09	25	125
24-DSE204-2C 24-DSE205-2C 24-DSE206-2C	Web Designing – II/ Data Visualization/ Introduction to ML	DSE	3	2	0	2	4	09	25	09	25	-	-	09	25	75
24-SEC202-2C	Design Thinking and Innovation	SEC	2	2	0	0	2	09	25	09	25	-	-	-	-	50
TOTAL			20	14	1	10	25		225		150		50		75	500

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Semester: V

Course Code	Course Title	Type of Course	Credits	Hours Per Week				Theory(Marks)				Practical(Marks)				Total Marks
				L	T	P	Total	University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		
								Min	Max	Min	Max	Min	Max	Min	Max	
15-CAM301-3C	Visual Design Communication (Adobe Photoshop)	CC	3	1	1	2	4	-	-	-	-	18	50	09	25	75
15-CAM302-3C	Vector Graphics & Illustration (Adobe Illustrator)	CC	2	1	0	2	3	-	-	-	-	09	25	09	25	50
15-CAM303-3C	Digital Video Editing (Adobe Premiere Pro)	CC	3	1	1	2	4	-	-	-	-	18	50	09	25	75
15-CAM304-3C	Motion Graphics & Visual Effects (Adobe After Effects)	CC	3	1	1	2	4	-	-	-	-	18	50	09	25	75
15-CAM305-3C	3D Modeling & Animation Foundation (Blender) – I	CC	2	0	0	4	4	-	-	-	-	09	25	09	25	50
15-CAM306-3C	3D Modeling & Animation Foundation (Blender) – II	CC	5	1	1	6	8	-	-	-	-	36	100	09	25	125
15-CAM307-3C	Match moving & Camera Tracking (PFTrack)	CC	3	3	0	0	3	18	50	09	25	-	-	-	-	75
TOTAL			21	8	4	18	30		50		25		300		150	525

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Semester: VI

Course Code	Course Title	Type of Course	Credits	Hours Per Week				Theory(Marks)				Practical(Marks)				Total Marks
				L	T	P	Total	University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		
								Min	Max	Min	Max	Min	Max	Min	Max	
16-CAM308-3C	Digital Compositing & Visual Effects (Nuke)	CC	2	1	1	0	2	09	25	09	25	-	-	-	-	50
16-CAM309-3C	Portfolio Development & Showreel Creation	CC	3	1	1	2	4	09	25	09	25	-	-	09	25	75
16-CAM310-3C	Practical on : 308	CC	4	0	0	8	8	-	-	-	-	18	50	18	50	100
16-CAM311-3C	Practical on : 309	CC	4	0	0	8	8	-	-	-	-	18	50	18	50	100
16-CAM312-3C	Industry Internship & Production Pipeline / OJT	CC	10	0	0	20	20	-	-	-	-	72	200	18	50	250
TOTAL			23	2	2	38	42		50		50		300		175	575