

SANKALCHANDPATELUNIVERSITY, VISNAGAR

Faculty of Computer Science



Structure, Teaching Scheme and Syllabus of Bachelor of Computer Application (BCA)

Program Code: CS101

With effect from: 2023-24

Program Outcomes:

After completing this under graduate program, a learner:

[PO-1]Apply mathematics and computing fundamental and domain concepts to find out the solution of defined problems and requirements. (Computational Knowledge)

[PO-2] Use fundamental principle of Mathematics and Computing to identify, formulate research literature for solving complex problems, reaching appropriate solutions. (Problem Analysis)

[PO-3]Understand to design, analyze and develop solutions and evaluate system components or processes to meet specific need for local, regional and global public health, societal, cultural, and environmental systems. (Design/Development of Solutions)

[PO-4]Use expertise research-based knowledge and methods including skills for analysis and development of information to reach valid conclusions. (Conduct Investigations of Complex Computing Problems)

[PO-5]Use expertise research-based knowledge and methods including skills for analysis and development of information to reach valid conclusions. (Conduct Investigations of Complex Computing Problems)

[PO-6] Exhibiting ethics for regulations, responsibilities and norms in professional computing practices. (Professional Ethics)

[PO-7]Enlighten knowledge to enhance understanding and building research, strategies in independent learning for continual development as computer applications professional. (Life-long Learning)

[PO-8]Establishing strategies in developing and implementing ideas in multi-disciplinary environments using computing and management skills as a member or leader in a team. (Project Management and Finance)

[PO-9]Contribute to progressive community and society in comprehending computing activities by writing effective reports, designing documentation, making effective presentation, and understand instructions.(Communication Efficacy)

[PO-10] Apply mathematics and computing knowledge to access and solve issues relating to health, safety, societal, environmental, legal, and cultural issues within local, regional and global context. (Societal and Environmental Concern)

[PO-11] Gain confidence for self and continuous learning to improve knowledge and competence as a member or leader of a team. (Individual and Teamwork)

[PO-12] Demonstrate knowledge and understanding for computational applications level to build the project as team member / leader with analyzing all financial feasibility and commercial level (Project Management and finance)

Program Specification Outcomes:

[PSO-1] Understand their abilities in systematic planning, developing, testing and executing complex computing applications in field of Social Media and Analytics, Web Application Development and Data Interpretations.

[PSO-2] Analyze in-depth expertise and sustainable learning that contributes to multidisciplinary creativity, permutation, modernization and study to address global interest.

[PSO-3] Create their own self to be self-sustainable in the world of Information Technology and Computer applications as professional with corporate world as in MNCs (Multi-National Companies) or established themselves as an entrepreneur.

Credits and Course Type Distribution (Semester wise)

Semester	MJ	MN	MDC	SEC	AEC	VAC/ IKS	INT/ OJT	RP/ DESR T	TOTAL CREDITS
I	8	4	4	2	2	2	-	-	22
II	8	4	4	2	2	2	-	-	22
III	12	-	4	2	2	2	-	-	22
IV	12	4	-	2	2	2	-	-	22
V	12	8	-	2	-	-	-	-	22
VI	12	4	-	-	2	-	4	-	22
VII	12	4	-	-	-	-	-	6	22
VIII	12	4	-	-	-	-	-	6	22
TOTAL	88	32	12	10	10	8	4	12	176

BCA (HON.) LEVEL OF COURSE AND NUMBER OF SUBJECT DISTRIBUTION AS PER NEP-2020 FRAMEWORK

LEVEL OF COURSE	NO OF SUBJECTS
00-99	1
100-199	14
200-299	21
300-399	17
400-499	14
Total Numbers	67

Faculty of Computer Science

Program Name: Bachelor of Computer Applications

Abbreviation Name: (BCA)

Semester: I

Program Code: CS101

with effect from: 2023-24

Course Code	Course Name	Type of Course	Credit	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.	
11-CAM201-1C	Problem Solving Using C	MJ	4	2	-	4	6	09	25	09	25	09	25	09	25	100
11-CAM202-1C	Computer Organization and Architecture	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
11-CAE203-1C OR 11-CAE204-1C OR 11-CAE205-1C	Web Development using HTML and CSS OR Computer Network OR Cyber Security	MN	4	2	-	4	6	09	25	09	25	09	25	09	25	100
11-MDC206-1C	Fundamentals of Mathematics	MD	4	4	-	-	4	18	50	18	50	-	-	-	-	100
11-AEC103-1C	Developing Thinking	AEC	2	2	-	-	2	09	25	09	25	-	-	-	-	50
11-SEC101-1C	Computer Fundamental and PC software	SEC	2	-	-	4	4	-	-	-	-	09	25	09	25	50
11-IKS103-1C	Yoga and Meditation	IKS	2	-	-	4	4	-	-	-	-	09	25	09	25	50
11-UHV001-1C	Universal Human Value–I/Student Induction Program	Non Credit														
Total			22	13	-	18	31	-	175	-	150	-	100	-	125	550

	<u>MI</u>	<u>MN</u>	<u>MD</u>	<u>AEC</u>	<u>SEC</u>	<u>IKS</u>	<u>TOTAL</u>
No. of Subject	2	1	1	1	1	1	7
Total Credits	8	4	4	2	2	2	22

Program Name: Bachelor of Computer Applications

Abbreviation Name: BCA

Semester: II

Program Code: CS101

with effect from: 2023-24

Course Code	Course Name	Type of Course	Credit	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.	
12-CAM301-1C	Advanced Programming using C	MJ	4	2	-	4	6	09	25	09	25	09	25	09	25	100
12-CAM207-1C	Python Programming	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
12-CAE208-1C OR 12-CAE209-1C OR 12-CAE210-1C	Java Script & CSS Boot Strapping with HTML OR Basics of Windows Control panel security OR Cyber Law	MN	4	3	-	2	5	18	50	09	25	-	-	09	25	100
12-MDC211-1C	Statistical Computing	MD	4	3	-	2	5	18	50	09	25	-	-	09	25	100
12-AEC102-1C	Communication Skill–I	AEC	2	2	-	-	2	09	25	09	25	-	-	-	-	50
12-SEC103-1C	PC Assembling and Maintenance	SEC	2	-	-	4	4	-	-	-	-	09	25	09	25	50
12-VAC106-1C	Universal Human Value–II	VAC	2	2	-	-	2	09	25	09	25	-	-	-	-	50
Total			22	15	-	14	29	-	225	-	150	-	50	-	125	550

	<u>MI</u>	<u>MN</u>	<u>MD</u>	<u>AEC</u>	<u>SEC</u>	<u>VAC</u>	<u>TOTAL</u>
No. of Subject	2	1	1	1	1	1	7
Total Credits	8	4	4	2	2	2	22

Faculty of Computer Science

Program Name: Bachelor of Computer Applications
Abbreviation Name: BCA
Semester: III

Program Code: CS101
with effect from: 2023-24

Course Code	Course Name	Type of Course	Credit	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.	
13-CAM212-2C	Data Structure Using OOPS	MJ	4	2	-	4	6	09	25	09	25	09	25	09	25	100
13-CAM213-2C	Operating System	MJ	4	2	-	4	6	09	25	09	25	09	25	09	25	100
13-CAM214-2C	Database Management System	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
13-MDC215-2C	Project Management using Business Analytics	MD	4	4	-	-	4	18	50	18	50	-	-	-	-	100
13-AEC107-2C	Personality Development	AEC	2	2	-	-	2	09	25	09	25	-	-	-	-	50
13-SEC108-2C	Financial Accounting using Tally	SEC	2	-	-	4	4	-	-	-	-	09	25	09	25	50
13-IKS109-2C	Vedic Mathematics	IKS	2	2	-	-	2	09	25	09	25	-	-	-	-	50
Total			22	15	-	14	29	-	200	-	175	-	75	-	100	550

	<u>MI</u>	<u>MN</u>	<u>MD</u>	<u>AEC</u>	<u>SEC</u>	<u>IKS</u>	<u>TOTAL</u>
No. of Subject	3	-	1	1	1	1	7
Total Credits	12	-	4	2	2	2	22

Program Name: Bachelor of Computer Applications
Abbreviation Name: BCA
Semester: IV

Program Code: CS101
with effect from: 2023-24

Course Code	Course Name	Type of Course	Credit	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.	
14-CAM216-2C	Object Oriented Programming using Java	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
14-CAM217-2C	Advanced Database Management System	MJ	4	2	-	4	6	09	25	09	25	09	25	09	25	100
14-CAM218-2C	Desktop Application Development	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
14-CAE219-2C OR 14-CAE220-2C OR 14-CAE221-2C	Advanced JavaScript OR Principals of Cyber Security OR Server Administrator–I	MN	4	3	-	2	5	18	50	09	25	-	-	09	25	100
14-AEC110-2C	Digital Marketing	AEC	2	2	-	-	2	09	25	09	25	-	-	-	-	50
14-SEC115-2C	Graphic Design Tools	SEC	2	-	-	4	4	-	-	-	-	09	25	09	25	50
14-VAC112-2C	Integrated Personality Development Course	VAC	2	2	-	-	2	09	25	09	25	-	-	-	-	50
Total			22	15	-	14	29	-	225	-	150	-	50	-	125	550

	<u>MI</u>	<u>MN</u>	<u>MD</u>	<u>AEC</u>	<u>SEC</u>	<u>VAC</u>	<u>TOTAL</u>
<u>No. of Subject</u>	3	1	-	1	1	1	7
<u>Total Credits</u>	12	4	-	2	2	2	22

Program Name: Bachelor of Computer Applications

Abbreviation Name: BCA

Semester: V

Program Code: CS101

with effect from: 2023-24

Course Code	Course Name	Type of Course	Credit	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-CAM302-3C	Advanced Java Programming	MJ	4	2	-	4	6	09	25	09	25	09	25	09	25	100
15-CAM303-3C	System Analysis and Design	MJ	4	4	-	-	4	18	50	18	50	-	-	-	-	100
15-CAM304-3C	Software Project Management	MJ	4	2	-	4	6	09	25	09	25	09	25	09	25	100
15-CAE305-3C OR 15-CAE306-3C OR 15-CAE307-3C	Web Development using PHP OR Windows Server Security OR Cloud Administrator–I	MN	4	2	-	4	6	09	25	09	25	09	25	09	25	100
15-CAE308-3C OR 15-CAE309-3C OR 15-CAE310-3C	Web. NET with C# OR Linux Server Security OR Intranet Network Monitoring & Security	MN	4	2	-	4	6	09	25	09	25	09	25	09	25	100
15-SEC113-3C	Open Cart with Woo Commerce	SEC	2	-	-	4	4	-	-	-	-	09	25	09	25	50
Total			22	12	-	20	32	-	150	-	150	-	125	-	125	550

	<u>MI</u>	<u>MN</u>	<u>MD</u>	<u>AEC</u>	<u>SEC</u>	<u>IKS</u>	<u>TOTAL</u>
No. of Subject	3	2	-	-	1	-	6
Total Credits	12	8	-	-	2	-	22

Program Name: Bachelor of Computer Applications

Abbreviation Name: BCA

Semester: VI

Program Code: CS101

With effect from: 2023-24

Course Code	Course Name	Type of Course	Credit	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-CAM311-3C	Software Testing	MJ	4	4	-	-	4	18	50	18	50	-	-	-	-	100
16-CAM312-3C	Data Warehousing and Data Mining	MJ	4	4	-	-	4	18	50	18	50	-	-	-	-	100
16-CAM313-3C	E-Commerce	MJ	4	4	-	-	4	18	50	18	50	-	-	-	-	100
16-CAE314-3C OR 16-CAE315-3C OR 16-CAE316-3C	Web.NET with ADO OR Mobile Forensics OR Windows Server Administrator–II	MN	4	2	-	4	6	09	25	09	25	09	25	09	25	100
16-AEC118-3C	Professional Communication	AEC	2	-	-	4	4	-	-	-	-	09	25	09	25	50
16-CAM317-3C	Internship/OJT(On Job Training)	INT	4	-	-	8	8	-	-		-	18	50	18	50	100
Total			22	14	-	16	30	-	175	-	175	-	100	-	100	550

	<u>MJ</u>	<u>MN</u>	<u>MD</u>	<u>AEC</u>	<u>SEC</u>	<u>IKS</u>	<u>INT</u>	<u>TOTAL</u>
No. of Subject	3	1	-	1	-	-	1	6
Total Credits	12	4	-	2	-	-	4	22

Faculty of Computer Science

Program Name: Bachelor of Computer Applications (Honours With Research)

Abbreviation Name: BCA

Semester: VII

Program Code: CS101

With effect from: 2023-24

Course Code	Course Name	Type of Course	Credit	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.	
17-CAM401-4C	Research Methodology–I	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
17-CAM402-4C	Research Methodology–II	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
17-CAM403-4C	English for Writing Research Paper	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
17-CAE401-4C OR 17-CAE402-4C OR 17-CAE403-4C	Web Designing Node JS OR Penetrating and Autopsy (Crime Investigation) OR Cloud Administrator–II	MN	4	2	-	4	6	09	25	09	25	09	25	09	25	100
17-CAM404-4C	Research Project - I	RP	6	-	-	12	12	-	-	-	-	27	75	27	75	150
Total			22	11	-	22	33	-	175	-	100	-	100	-	175	550

	<u>MI</u>	<u>MN</u>	<u>MD</u>	<u>AEC</u>	<u>SEC</u>	<u>IKS</u>	<u>INT</u>	<u>RP</u>	<u>TOTAL</u>
No. of Subject	3	1	-	-	-	-	-	1	5
Total Credits	12	4	-	-	-	-	-	6	22

Note:

The course emphasizes independent research or case study work to enhance students' analytical, research, and practical application skills under faculty supervision.

Faculty of Computer Science

Program Name: Bachelor of Computer Applications (Honours)

Abbreviation Name: BCA

Semester: VII

Program Code: CS101

With effect from: 2023-24

(Specialization – Full Stack Development/ Cyber Security/ Computer Network)

Course Code	Course Name	Type of Course	Credit	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.	
17-CAM401-4C	Research Methodology–I	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
17-CAM402-4C	Research Methodology–II	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
17-CAM403-4C	English for Writing Research Paper	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
17-CAE401-4C OR 17-CAE402-4C OR 17-CAE403-4C	Web Designing Node JS OR Penetrating and Autopsy (Crime Investigation) OR Cloud Administrator – II	MN	4	2	-	4	6	09	25	09	25	09	25	09	25	100
17-CAM405-4C	On - the - Job Training - I	OJT	6	-	-	12	12	-	-	-	-	27	75	27	75	150
Total			22	11	-	22	33	-	175	-	100	-	100	-	175	550

	<u>MI</u>	<u>MN</u>	<u>MD</u>	<u>AEC</u>	<u>SEC</u>	<u>IKS</u>	<u>INT</u>	<u>OJT</u>	<u>TOTAL</u>
<u>No. of Subject</u>	3	1	-	-	-	-	-	1	5
<u>Total Credits</u>	12	4	-	-	-	-	-	6	22

Note: Research-oriented courses and On-the-Job Training emphasize applying theoretical knowledge to real-world or domain-specific problems. Students work under faculty and industry supervision to prepare structured reports showcasing methodology, analysis, and professional competencies.

Faculty of Computer Science

Program Name: Bachelor of Computer Applications (Honours With Research)

Abbreviation Name: BCA

Semester: VIII

Program Code: CS101

With effect from: 2023-24

Course Code	Course Name	Type of Course	Credit	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.	
18-CAM406-4C	Intellectual Property Rights as Technical Research	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
18-CAM407-4C	Plagiarism: Prevention and Cure	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
18-CAM408-4C	Grant-In-Aid For Research Publication & Monitoring	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
18-CAE404-4C OR 18-CAE405-4C OR 18-CAE406-4C	Web approach with J2EE OR Digital Forensic OR Implementing Cloud Security	MN	4	2	-	4	6	09	25	09	25	09	25	09	25	100
18-CAM409-4C	Research Project - II	RP	6	-	-	12	12	-	-	-	-	27	75	27	75	150
Total			22	11	-	22	33	-	175	-	100	-	100	-	175	550

	<u>MI</u>	<u>MN</u>	<u>MD</u>	<u>AEC</u>	<u>SEC</u>	<u>IKS</u>	<u>INT</u>	<u>RP</u>	<u>TOTAL</u>
<u>No. of Subject</u>	3	1	-	-	-	-	-	1	5
<u>Total Credits</u>	12	4	-	-	-	-	-	6	22

Note:

This course focuses on applying research methodologies and practical knowledge to real-world problems through independent project or case study work under faculty guidance.

Faculty of Computer Science

Program Name: Bachelor of Computer Applications (Honours)

Abbreviation Name: BCA

Semester: VIII

Program Code: CS101

With effect from: 2023-24

(Specialization – Full Stack Development/ Cyber Security/ Computer Network)

Course Code	Course Name	Type of Course	Credit	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.	
18-CAM406-4C	Intellectual Property Rights as Technical Research	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
18-CAM407-4C	Plagiarism: Prevention and Cure	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
18-CAM408-4C	Grant-In-Aid For Research Publication & Monitoring	MJ	4	3	-	2	5	18	50	09	25	-	-	09	25	100
18-CAE404-4C OR 18-CAE405-4C OR 18-CAE406-4C	Web approach with J2EE OR Digital Forensic OR Implementing Cloud Security	MN	4	2	-	4	6	09	25	09	25	09	25	09	25	100
18-CAM410-4C	On - the - Job Training - II	OJT	6	-	-	12	12	-	-	-	-	27	75	27	75	150
Total			22	11	-	22	33	-	175	-	100	-	100	-	175	550

	<u>MI</u>	<u>MN</u>	<u>MD</u>	<u>AEC</u>	<u>SEC</u>	<u>IKS</u>	<u>INT</u>	<u>OJT</u>	<u>TOTAL</u>
No. of Subject	3	1	-	-	-	-	-	1	5
Total Credits	12	4	-	-	-	-	-	6	22

Note: Research-oriented courses and On-the-Job Training emphasize applying theoretical knowledge to real-world or domain-specific problems. Students work under faculty and industry supervision to prepare structured reports showcasing methodology, analysis, and professional competencies.

Faculty of Computer Science

