

Karmaveer Bhaurao Patil University, Satara Yashavantrao Chavan Institute of Science, Satara (An Autonomous College)

B. Sc. (Computer Application)

Programme and Credit Structure as per NEP 2020

{Ref. Government of Maharashtra letter no.

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The degree shall be titled as 'Bachelor of Science (Computer Application) under the faculty of Science and Technology

- B. Sc. Sem. I & II from Academic Year 2024-25
- B. Sc. Sem. III & IV from Academic Year 2025-26

B. Sc. Sem. V & VI from Academic Year 2026-27

B. Sc. Sem. VII&VIII from Academic Year 2027-28

Programme Outcomes for B. Sc. (Computer Application)

	Programme Outcomes
PO. No.	After completing B. Sc. (Computer Application) Programme the students will be able
	to
PO-1	Apply mathematics and computing fundamental and domain concepts to find out the
10-1	solution of defined problems and requirements.
PO-2	Use fundamental principle of Mathematics and Computing to identify, formulate research
FO-2	literature for solving complex problems, reaching appropriate solutions.
	Understand to design, analyze and develop solutions and evaluate system components or
PO-3	processes to meet specific need for local, regional and global public health, societal,
	cultural, and environmental systems.
PO-4	Ability to select modern computing tools, skills and techniques necessary for innovative
10-4	software solutions.
PO-5	Ability to apply and commit professional ethics and cyber regulations in a global economic
10-5	environment.
PO-6	Recognize the need for and develop the ability to engage in continuous learning as a
10-0	Computing professional.
PO-7	Create, select, and apply appropriate techniques, resources, and modern IT tools including
10 /	database management, networking AI & ML with an understanding of their limitations.
	Demonstrate knowledge and understanding of the management principles and apply them
PO-8	to one own work, and as a member and a leader in a team, to manage projects in
	multidisciplinary environments.
PO-9	Design and conduct experiments, review the research-based knowledge, gather and
	interpret data to provide valid conclusions in the context of computer applications.
PO-10	Recognize the need for, and ability to engage in independent and life-long learning.
PSO. NO	Programme Specific Outcomes
	The student will be able to
PSO-1	Demonstrate competence in Programming Technologies.
	Analyze their abilities in systematic planning, developing, testing and executing complex
PSO-2	computing applications in field of social media and Analytics, Web Application
	Development and Data Interpretations.
PSO-3	Apprise in-depth expertise and sustainable learning that contributes to multi-disciplinary
	creativity, permutation, modernization and study to address global interest.
PSO-4	Explore technical comprehension in varied areas of Computer Applications and experience

	a conducive environment in cultivating skills for thriving career and higher studies.
	Comprehend, explore and build up computer programs in the allied areas like Algorithms,
PSO-5	System Software, Multimedia, Web Design and Data Analytics for efficient design of
	computer-based systems of varying complexity.
PSO-6	Proficient use of business software such as spreadsheets, databases, and programming
P30-0	languages.
PSO-7	Capability to analyze business needs and create information systems that are organized,
P30-7	secure, and aligned with organizational goals.
PSO-8	Skillful application of computer tools for analyzing business processes, extracting insights
P30-8	from data, and supporting informed decision-making.

Semester, Credit Framework, NSQF Level and Exit Points

Sr. No.	Semester	Year	Year	Credits	Level	Exit Points &Award
1	Sem. I & II	2024-25	1Year	44	4.5	UG Certificate in Computer
1	Sem. i & m	2024-23	1 I Cal	44	4.5	Application
2	Sem. III & IV	2025-26	2Year	88	5.0	UG Diploma in Computer Application
2	Sem. V &VI	2026-27	2Voor	132	5.5	B. Sc. in Computer Application (UG
5		2020-27	5 I eal	152	5.5	Three Year Degree)
						B. Sc. in Computer Application
4	Sem. VII & VIII	2027-28	4Year	176	6.0	[Honors/Research] (UG Four Year
						Degree)

Credit Distribution

Sr. No.	Sr. No. Course 3 Year Degree Programme			4 Year Ho Programm	nors Degree le	4 Year Honors with Research Degree Programme			h	
		Courses	Credits	%	Courses	Credits	%	Course s	Credit s	%
		(3 Yr)	(3 Yr)		(4 Yr)	(4 Yr)		(4 Yr)	(4 Yr)	
1	Major	26	52	39.39	34	80	45.45	32	72	40.9 1
2	Elective	04	08	6.06	08	16	9.09	08	16	9.09
3	IKS	02	04	3.03	02	04	2.27	02	04	2.27
4	VSC	04	08	6.06	04	08	4.55	04	08	4.55
5	FP	01	02	1.52	01	02	1.14	01	02	1.14
6	OJT	01	04	3.03	02	08	4.55	01	04	2.27
7	RP	00	00	0.00	00	00	00	02	12	6.82
8	SEC	03	06	4.55	03	06	3.41	03	06	3.41
9	CEP	01	02	1.52	01	02	1.14	01	02	1.14
Total (N	Major) (A)	42	86	65.15	55	126	71.59	54	126	71.5 9
1	Minor & RM	12	24	18.18	13	28	15.91	13	28	15.9 1
Total (M	finor) (B)	12	24	18.18	12	28	15.91	13	28	15.9 1
1	OE	04	08	6.06	04	08	4.55	04	08	4.55
2	AEC	04	08	6.06	04	08	4.55	04	08	4.55
3	VEC	02	04	3.03	02	04	2.27	02	04	2.27
4	CC	01	02	1.52	01	02	1.14	01	02	1.14
Total (C	Total (C)		22	16.67	11	22	12.50	11	22	12.5 0
Grand Total (A+B+C)		65	132	100	79	176	100	78	176	100

Duration:

- > The program shall be a full-time program.
- The duration of program shall be three years for Bachelor of Science and four years for Bachelor of Science with Honors or Bachelor of Science with Research.
- > Every year students will have exist option with:
- (1st Year: Certificate, 2nd Year: Diploma, 3rd Year: Degree, 4th Year: Honors / Research)
- These students are allowed to re-enter the degree program within three years and complete the degree program within the stipulated maximum period of Seven Years.

Eligibility: 12th Pass with Science, or equivalent.

Medium of Instruction: The medium of instructions shall be in English.

Scheme of Examination & Standard of Passing (CCE and ESE):

- > End Semester Exam (ESE): 30 Marks (Min 12 Marks for Passing)
- Continuous Comprehensive Evaluation (CCE): 20 Marks (Min 08 Marks for Passing)
- \blacktriangleright Total Marks = 50 Marks
- Minimum 40% Marks Required for Passing and there is separate head of Passing for End Semester Examination (ESE) and Continuous Comprehensive Evaluation (CCE).
- > As per the decision of the concern Board of Studies or Competent Authority.
- A candidate who acquire 32 credits or more during semester I & II shall be admitted to B. Sc. II (appear for semester III & IV examination).
- However the candidate shall not be admitted to B.Sc. III (Semester V) unless he/she passed in all the subjects at B.Sc. I (Semester - I & Semester - II) and acquire 32 credits or more during semester - III & IV.
- However, the candidate shall not be admitted to B. Sc. IV (Semester VII) unless he/she passed in all the subjects at B. Sc. I, B.Sc. II and B. Sc. III (Semester - I To Semester - VI).
- However under the National Education Policy the rules extended by KBP University, time to time regarding ATKT will be applicable.

Eligibility of the Core Faculty:

As per rules and regulations of Karmaveer Bhaurao Patil University, Satara and Govt. of Maharashtra.

Eligibility for Professor of Practice or Professional Trainer:

Any other eligibility as per the guidelines and regulations passed by concern board of studies, academic council of the autonomous college and rules & regulations of Karmaveer Bhaurao Patil University, Satara and Government of Maharashtra and UGC norms.



Karmaveer Bhaurao Patil University, Satara Yashavantrao Chavan Institute of Science, Satara

(An Autonomous College)

B. Sc. (Computer Application) Part-I

1Course-IBCAT 111 BCAT 112Computer Fundamental & Application BCAT 1122Course-IIBCAT 112Concept of Operating System BCAP 113Lab Based on BCAT 111 & BCAT 1122Course-IIIBCAT 114Fundamentals of Computational ElectronicsFundamentals of Computational Electronics3Course-IIIBCAT 115Computational Digital Electronics – I BCAP 116Lab Based on BCAT 114 & BCAT 1153Course-IIIBCAT 117Computational Mathematics – I BCAP 119Lab Based on BCAT 117 & BCAT 1184OEBCATOE 1Environmental Statistics – I5IKSBCATIKS 1Indian Knowledge SystemTotalSemester IISr. No.Course-II2Course-IIBCAT 121Computer Programming – I BCAT 122Database Management SystemBCAT 121Computer Programming – I BCAT 122BCAT 124Integrated Circuits for Computational ApplicationBCAT 124Integrated Circuits for Computational ApplicationBCAT 124Integrated Circuits for Computational ApplicationBCAT 124BCAT 125Computational Digital Electronics - IIBCAT 124Integrated Circuits for Computational ApplicationBCAT 125Computational Digi	Credits	Course Title	Course Code	Components	Sr. No.	
1Course-IBCAT 112Concept of Operating System2BCAP 113Lab Based on BCAT 111 & BCAT 1122Course-IIIBCAT 114Fundamentals of Computational Electronics3Course-IIIBCAT 115Computational Digital Electronics - I3Course-IIIBCAT 117Computational Mathematics - I3Course-IIIBCAT 118Computational Mathematics - I4OEBCAT 0E 1Environmental Studies - I5IKSBCAT 119Lab Based on BCAT 117 & BCAT 118Total4OEBCATOE 15IKSBCAT 121Computer Programming -IBCAT 121Course-IIIBCAT 121Course CodeCourse TitleOurse CodeCourse TitleBCAT 121Course TitleCourse-IIBCAT 121Course TitleCourse-IIBCAT 121Course-IIIBCAT 121Course-IIIBCAT 122Database Management SystemCourse-IIIBCAT 122Database don BCAT 121 & BCAT 122Parameter IIBCAT 122Database don BCAT 121 & BCAT 122Integrated Circuits for Computational Application <td c<="" td=""><td>2</td><td>Computer Fundamental & Application</td><td>BCAT 111</td><td></td><td></td></td>	<td>2</td> <td>Computer Fundamental & Application</td> <td>BCAT 111</td> <td></td> <td></td>	2	Computer Fundamental & Application	BCAT 111		
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BCAT 115Computational Digital Electronics - 1BCAP 116Lab Based on BCAT 114 & BCAT 115BCAP 116Lab Based on BCAT 114 & BCAT 115Course-IIIBCAT 117BCAT 118Computational Mathematics - IBCAP 119Lab Based on BCAT 117 & BCAT 118Course-IIIBCATOE 1BCATOE 1Environmental Studies - ISr.BCATIKS 1No.ComponentsCourse-IBCAT 121BCAT 122Database Management SystemBCAT 123Lab Based on BCAT 121 & BCAT 122BCAT 124BCAT 122BCAT 125Computational Digital Electronics - IIBCAT 126Lab Based on BCAT 124 & BCAT 125BCAT 127Computational Digital Electronics - IIBCAT 128Computational Digital Electronics - IIBCAT 129Lab Based on BCAT 124 & BCAT 125BCAT 126Lab Based on BCAT 124 & BCAT 125BCAT 127Computational Digital Electronics - IIBCAT 128Computational Mathematics - IIBCAT 129Lab Based on BCAT 127 & BCAT 1284OEBCATOE 25VECBCATOE 2BCATVEC 1Democracy, Good Governance and Constitution of India	2	-	BCAT 114	а. н	2	
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BCAP 119Lab Based on BCAT 117 & BCAT 1184OEBCATOE 1Environmental Studies – I5IKSBCATIKS 1Indian Knowledge SystemTotalSemester IISr. No.ComponentsCourse CodeCourse TitleC1Course-IBCAT 121Computer Programming – IC1Course-IBCAT 122Database Management SystemC2BCAT 123Lab Based on BCAT 121 & BCAT 122BCAT 1222Course-IIBCAT 124Integrated Circuits for Computational ApplicationApplication3Course-IIIBCAT 127Computational Digital Electronics - II BCAT 126Lab Based on BCAT 124 & BCAT 1253Course-IIIBCAT 127Computational Mathematics - IIE3Course-IIIBCAT 128Computational Statistics -IIE4OEBCATOE 2Environmental Studies – IIE5VECBCATVEC 1Democracy, Good Governance and Constitution of IndiaC	2	Computational Mathematics – I	BCAT 117			
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2Course-IIBCAT 124Application2Course-IIIBCAT 125Computational Digital Electronics - IIBCAT 125Lab Based on BCAT 124 & BCAT 1253Course-IIIBCAT 127Computational Mathematics - II3Course-IIIBCAT 128Computational Statistics -II4OEBCATOE 2Environmental Studies - II5VECBCATVEC 1Democracy, Good Governance and Constitution of India	2	BCAT 114 Fundamentals of Computational Electronics BCAT 115 Computational Digital Electronics – I BCAT 115 Computational Digital Electronics – I BCAT 117 Computational Mathematics – I BCAT 118 Computational Statistics – I BCAT 118 Computational Statistics – I BCAT 118 Computational Statistics – I BCAT 119 Lab Based on BCAT 117 & BCAT 118 BCATOE 1 Environmental Studies – I BCATIKS 1 Indian Knowledge System Total Total Mode the system BCAT 121 Computer Programming – I BCAT 122 Database Management System BCAT 124 BCAT 122 Database don BCAT 121 & BCAT 122 Integrated Circuits for Computational Application Application BCAT 125 Computational Digital Electronics - II BCAT 126 Lab Based on BCAT 124 & BCAT 125 BCAT 127 Computational Mathematics - II BCAT 128 Computational Statistics -II BCAT 129 Lab Based on BCAT 127 & BCAT 128				
BCAT 125Computational Digital Electronics - IIBCAP 126Lab Based on BCAT 124 & BCAT 125BCAT 127Computational Mathematics - IICourse-IIIBCAT 127BCAT 128Computational Statistics -IIBCAP 129Lab Based on BCAT 127 & BCAT 1284OEBCATOE 25VECBCATVEC 1Democracy, Good Governance and Constitution of India	2	e 1	BCAT 124		2	
ComponentsCourse CodeCourse Title1Course-IBCAT 111Computer Fundamental & Application2Course-IIBCAT 112Concept of Operating System2Course-IIBCAT 113Lab Based on BCAT 111 & BCAT 1122Course-IIBCAT 114Fundamentals of Computational Electronics3Course-IIIBCAT 115Computational Digital Electronics - I BCAP 1163Course-IIIBCAT 117Computational Mathematics - I BCAP 1194OEBCATOE 1Environmental Studies - I5IKSBCATOE 1Environmental Studies - I6IKSBCATOE 1Environmental Studies - I7BCAT 121Computer Programming - I8Course-IIBCAT 1229Course-IIBCAT 1229Course-IIIBCAT 1249Course-IIIBCAT 1249Course IIBCAT 1249Course-IIIBCAT 1249Course-IIIBCAT 1279Course-IIIBCAT 1249Course-IIIBCAT 1279Course-IIIBCAT 1289Course-IIIBCAT 1279Course-IIIBCAT 1289Course-III9BCAT 1209Lab Based on BCAT 124 & BCAT 1259Course-III9BCAT 1289Course-III9BCAT 1299Lab Based on BCAT 127 & BCAT 1289A9	2	Z				
3 Course-III BCAT 128 Computational Statistics -II BCAP 129 Lab Based on BCAT 127 & BCAT 128 4 OE BCATOE 2 Environmental Studies – II 5 VEC BCATVEC 1 Democracy, Good Governance and Constitution of India	2	Lab Based on BCAT 124 & BCAT 125	BCAP 126			
BCAP 129 Lab Based on BCAT 127 & BCAT 128 4 OE BCATOE 2 Environmental Studies – II 5 VEC BCATVEC 1 Democracy, Good Governance and Constitution of India	2	Computational Mathematics - II	BCAT 127			
4 OE BCATOE 2 Environmental Studies – II 5 VEC BCATVEC 1 Democracy, Good Governance and Constitution of India	2	Computational Statistics -II	BCAT 128	Course-III	3	
5 VEC BCATVEC 1 Democracy, Good Governance and Constitution of India	2	Lab Based on BCAT 127 & BCAT 128	BCAP 129			
5 VEC BCATVECT Constitution of India	2	Environmental Studies – II	BCATOE 2	OE	4	
	2		BCATVEC 1	VEC	5	
Total 2	2					

B. Sc. (Computer Application) Part-II

Semes	ter III			
Sr. No.	Components	Course Code	Course Title	Credits
		BCAT 231	Computer Programming – II	2
1	Major	BCAT 232	Web Designing	2
		BCAP 233	Lab Based on BCAT 231 & BCAT 232	2
		BCAT 234	Instrumentation Techniques for Computing	2
2	Minor	BCAT 235	Computer architecture & Microprocessor	2
		BCAT 231Computer Programming – IIBCAT 232Web DesigningBCAP 233Lab Based on BCAT 231 & BCAT 232BCAP 233Lab Based on BCAT 231 & BCAT 232BCAT 234Instrumentation Techniques for ComputingBCAT 235Computer architecture & MicroprocessorBCAT 236Lab Based on BCAT 234 & BCAT 235BCAT 237Computer architecture & MicroprocessorBCAT 236Lab Based on BCAT 234 & BCAT 235BCATOE 3Environmental Studies – IIIBCAPVSC 1WordPress Framework - IBCAPSEC 1Information SecurityBCATAEC 1English – IBCATIKS 2History of Computer in IndiaTotalTotalZBCAT 241RDBMSBCAT 242Web DevelopmentBCAT 243Lab Based on BCAT 241 & BCAT 242BCAT 244Electronic Communication for computingBCAT 245Embedded System and ApplicationsBCAP 246Lab Based on BCAT 244 & BCAT 245BCATOE 4Environmental Studies – IVBCAPVSC 2WordPress Framework - IIBCAPSEC 2Ethical SecurityBCATAEC 2English – II	2	
3	OE	BCATOE 3	Environmental Studies – III	2
4	VSC	BCAPVSC 1	WordPress Framework - I	2
5	SEC	BCAPSEC 1	Information Security	2
6	AEC	BCATAEC 1	English – I	2
7	IKS	BCATIKS 2	History of Computer in India	2
		•	Total	22
Semes	ter IV			
Sr. No.	Components	Course Code	Course Title	Credits
		BCAT 241	RDBMS	2
1	Major	BCAT 242	Web Development	2
		BCAP 243	Lab Based on BCAT 241 & BCAT 242	2
2	Miner	BCAT 244		2
2	Minor	BCAT 245	Embedded System and Applications	2
		BCAP 246	Lab Based on BCAT 244 & BCAT 245	2
3	OE	BCATOE 4	Environmental Studies – IV	2
4	VSC	BCAPVSC 2	WordPress Framework - II	2
5	SEC	BCAPSEC 2	Ethical Security	2
6	AEC	BCATAEC 2	English – II	2
7	VEC	BCATVEC 2	Environmental Studies	2
			Total	22
additio	nal 4 credits core	e NSQF Course/	Internship OR Continue with Major & Min	nor

B. Sc. (Computer Application) Part-III

ava Programming Python Programming Cloud Computing Manual Software Testing Artificial Intelligence Lab Based on BCAT 351, BCAT 352 & BCAT 353 Lab Based on BCAT 354 E- I Lab Based on BCAT 354 E- II Laravel Framework – I English P-III	02 02 02 02 02 02 02 02
Python Programming Cloud Computing Manual Software Testing Artificial Intelligence Lab Based on BCAT 351, BCAT 352 & BCAT 353 Lab Based on BCAT 354 E- I Lab Based on BCAT 354 E- II Laravel Framework – I	02 02 02 02 02
Cloud Computing Manual Software Testing Artificial Intelligence Lab Based on BCAT 351, BCAT 352 & BCAT 353 Lab Based on BCAT 354 E- I Lab Based on BCAT 354 E- II Laravel Framework – I	02 02 02
Manual Software Testing Artificial Intelligence Lab Based on BCAT 351, BCAT 352 & BCAT 353 Lab Based on BCAT 354 E- I Lab Based on BCAT 354 E- II Laravel Framework – I	02 02
Artificial Intelligence Lab Based on BCAT 351, BCAT 352 & BCAT 353 Lab Based on BCAT 354 E- I Lab Based on BCAT 354 E- II Laravel Framework – I	02
Lab Based on BCAT 351, BCAT 352 & BCAT 353 Lab Based on BCAT 354 E- I Lab Based on BCAT 354 E- II Laravel Framework – I	
ab Based on BCAT 354 E- II Laravel Framework – I	02
ab Based on BCAT 354 E- II Laravel Framework – I	02
Laravel Framework – I	
	02
	02
On Job Training in Computer Application - I	04
Community Engagement Programme in Computer Application	02
Total	22
I otur	
Course Title	Credits
Advanced Java Programming	02
ASP .Net with C#	02
Digital Image Processing	02
Automation Software Testing	
Aachine Learning	02
Lab Based on BCAT 361, BCAT 362 & BCAT 363	02
Lab Based on BCAT 364 E- I	
Lab Based on BCAT 364 E- II	02
.aravel Framework – II	02
Git and GitHub	02
Field Project in Computer Application	02
Co-curricular Course in Computer	02
Application	02
1	22
	pplication

B. Sc. (Computer Application) Part-IV Honors Degree Semester VII

Senio Sr. No.	ester VII Components	Course Code	Course Title	Credits
1	Major	BCAT 471	Database System & SQL	04
2	Major	BCAT 472	Information Security and Cyber Law	04
3	Major	BCAT 473	Advance Python Programming	04
4	Electives	BCAT 474 E - I BCAT 474 E - II	Block Chain Architecture Advanced Web Technology	02
5	Major Lab	BCAP 475	Lab Based on BCAT 471, BCAT 472 & BCAT 473	02
6	Elective Lab	BCAP 476 E- I BCAP 476 E- II	Lab Based on BCAT 474 E - I Lab Based on BCAT 474 E - II	02
7	Minor	BCAT 477	Research Methodology	04
			Total	22
Sem	ester VIII			
Sr.	Components	Course Code	Course Title	Credits
1	Major	BCAT 481	Advance Operating System	04
2	Major	BCAT 482	Android and Ios Application Development	04
3	Major	BCAT 483	Big Data Security	04
4	Electives	BCAT 484 E - I	Blockchain Technology and Application	02
		BCAT 484 E - II	ReactJS	
5	Major Lab	BCAP 485	Lab Based on BCAT 481, BCAT 482 & BCAT 483	02
				02
	Major Lab Elective Lab	BCAP 485	483	02
5 6 7		BCAP 485 BCAP 486 E- I	483 Lab Based on BCAT 484 E - I	

Sem	ester VII	- -				
Sr. No.	Components	Course Code	Course Title	Credits		
1	Major	BCAT 471	Database System & SQL	04		
2	Major	BCAT 472	Information Security and Cyber Law	04		
2	Electives	BCAT 474 E - I	Block Chain Architecture	04		
3	Electives	BCAT 474 E - II	Advanced Web Technology	04		
4	Major Lab	BCAP 475	Lab Based on BCAT 471 & BCAT 472	02		
5	Minor	BCAT 476	Research Methodology	02		
6	RP	BCATRP 1	Research Project in Computer Application – I	04		
			Total	22		
Semester VIII						
Sr.	Components	Course Code	Course Title	Credits		
1	Major	BCAT 481	Advance Operating System	04		
2	Major	BCAT 482	Android and Ios Application Development	04		
2		BCAT 484 E - I	Blockchain Technology and Application	0.4		
3	Electives	BCAT 484 E - II	ReactJS	04		
4	Major Lab	BCAP 485	Lab Based on BCAT 481 & BCAT 482	02		
5	RP	BCATRP 2	Research Project in Computer Application – II	08		
	-	-	Total	22		
Awa	rd of Four-year	UG Honors Degre	e in Major and Minor with 176 credits.			

B. Sc. (Computer Application) Part-IV Honors with Research Degree

Chairman BoS in Computer Application Secretary Academic Council

Chairman Academic Council