

Rayat Shikshan Sanstha's

# **SADGURU GADAGE MAHARAJ COLLEGE, KARAD.**

(An Autonomous College - Affiliated to Shivaji University, Kolhapur)

Accredited <sup>A+</sup> with CGPA 3.63 by NAAC; RUSA Beneficiary and NAAC Designated Mentor College

Website: [www.sgm.edu.in](http://www.sgm.edu.in)

Estd.: 1954





## **Bachelor of Computer Application (BCA)**

**Under the Faculty of Commerce & Management**

**Choice Based Credit System (CBCS)**

Regulations in accordance with National Education Policy to be implemented from

**Academic Year 2022-23**

 <p>Estd. 1962 "A++" Accredited by NAAC (2021) With CGPA 3.52</p>	<p><b>SHIVAJI UNIVERSITY, KOLHAPUR - 416 004, MAHARASHTRA</b></p> <p>PHONE : EPABX - 2609000, www.unishivaji.ac.in, bos@unishivaji.ac.in</p> <p><b>शिवाजी विद्यापीठ, कोल्हापूर - ४१६ ००४, महाराष्ट्र</b></p> <p>दूरध्वनी - ईपीएबीएक्स - २६०९०००, अभ्यासमंडळे विभाग - ०२३१-२६०९०९४</p>	
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जा.क्र./शिवाजी वि./अ.मं./

No 00169 दि. 12 SEP 2022

प्रति,

मा. प्राचार्य/संचालक,  
सर्व संलग्नित महाविद्यालये/संस्था,  
शिवाजी विद्यापीठ,  
कोल्हापूर

**विषय : नवीन राष्ट्रीय शैक्षणिक धोरण २०२० नुसारची शैक्षणिक नियमावली.**

महोदय/महोदया,

आपणास विदित आहे की, नवीन राष्ट्रीय शैक्षणिक धोरण २०२० या शैक्षणिक वर्षापासून लागू करण्यात आले आहे. विद्यापीठ अधिकार मंडळानी नवीन शैक्षणिक धोरणानुसार शैक्षणिक नियमावलीस मंजूरी दिली आहे. सदर नियमावली शैक्षणिक वर्ष २०२२-२३ पासून लागू केली आहे. सोबत सदर नियमावलीची प्रत जोडली आहे. तसेच सदरची नियमावली विद्यापीठाच्या [www.unishivaji.ac.in](http://www.unishivaji.ac.in) (Online Syllabus) या संकेतस्थळावर उपलब्ध आहे. सदर नियमावली सर्व संबंधितांच्या निदर्शनास आणावी.

नवीन शैक्षणिक धोरणात वेळोवेळी होणा-या बदलांच्या अनुशंगाने नियमावलीत आवश्यकते बदल करण्यात येतील. व ते आपल्या निदर्शनास आणले जातील.

कळावे,

आपला विश्वासू,



उपकुलसचिव

प्रत : माहितीसाठी.

१. स्वीय सहाय्यक, मा. कुलगुरु कार्यालय
२. स्वीय सहाय्यक, मा. प्र. कुलगुरु कार्यालय.
३. स्वीय सहाय्यक, मा. कुलसचिव कार्यालय.

माहितीसाठी व पुढील योग्यत्या कार्यवाहीसाठी

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| <ol style="list-style-type: none"> <li>१. मा. संचालक, परीक्षा व मुल्यमापन मंडळ, कार्यालय</li> <li>२. अधिष्ठाता, वाणिज्य व व्यवस्थापन विद्याशाखा.</li> <li>३. अधिष्ठाता, मानवविज्ञान विद्याशाखा.</li> <li>४. प्र. अधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा.</li> <li>५. प्र. अधिष्ठाता, आंतरविद्याशाखीय अभ्यास विद्याशाखा</li> <li>६. परीक्षक नियुक्ती विभाग.</li> <li>७. संलग्नता टी. १ व २ विभाग.</li> <li>८. पी.जी. आस्थापना विभाग.</li> </ol> | <ol style="list-style-type: none"> <li>९. पी. जी. प्रवेश विभाग.</li> <li>१०. दूरशिक्षण केंद्र.</li> <li>११. पात्रता विभाग.</li> <li>१२. संगणक केंद्र./आय. टी. सेल.</li> <li>१३. सभा विभाग.</li> <li>१४. पी. जी. बी. यु. टी. आर. विभाग.</li> <li>१५. सर्व ऑन परीक्षा विभाग.</li> </ol> |
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# **Bachelor of Computer Application (BCA)**

## **Under the Faculty of Commerce & Management**

### **Choice Based Credit System (CBCS)**

Regulations in accordance with National Education Policy to be implemented from  
Academic Year 2022-23

**1. Implementation of Revised guidelines and rules:** The revised guidelines and rules shall be implemented gradually as mentioned below:

<b>Level</b>	<b>Programme</b>	<b>Course</b>	<b>From Academic Year</b>
<b>Undergraduate Programme:</b>			
<b>Level 5</b>	Undergraduate Certificate (One year or two semesters)	BCA Part-I	2022-23
<b>Level 6</b>	Undergraduate Diploma (Two years or four semesters)	BCA Part-II	2023-24
<b>Level 7</b>	Bachelor's Degree (Three years or six semesters)	BCA Part-III	2024-25
<b>Level 8</b>	Bachelor's Degree with Honours/ Research (Four years or eight Semesters)	BCA Part-IV	2025-26

(If the candidate want to exit after a certain level, the Awards after completing specific level will be: Undergraduate Certificate in Computer Application, Undergraduate Diploma in Computer Application, BCA And BCA (Hon./Research) for Level-5, Level- 6, Level-7 and Level-8 respectively. Other provisions for multiple entry and exit as per the Institute's rules and regulations are applicable).

**2. Eligibility Criteria:** Candidate should have passed standard XII (10+2) in any stream or government approved equivalent diploma in Engineering/ Technology from any recognized Board or Vocational stream.

A candidate who has completed qualifying qualification from any Foreign Board /University must obtain an equivalence certificate from Association of

Indian Universities (AIU) or competent body in India.

**3. Pattern of BCA Programme:** (4years) program/degree is a specialized program in Computer Application. Combination of internal assessment and semester-end examination for BCA will be **80:20** pattern shall be applicable for each theory paper in each semester where in 80 marks shall be for Institutional (An Autonomous College- Affiliated Shivaji University, Kolhapur) Semester end examination and 20 marks for internal assessment except Environmental Studies. Only for Environmental Studies in Semester IV, 70 marks shall be for University examination for theory paper and 30 marks for project work.

**4. Weightage:** There shall be Four Year BCA Programme with 202 Credits. The candidate wish to exit with three years Degree Programme Bachelor of Computer Application (BCA) (with the completion of courses equal to minimum of **160 credits**)

The candidate wish to continue studies for **Four Year BCA** (Hon./Research) may opt for 4th year which will have **42 (20+6=26+16=42)** credits.

### **5. Structure of Course: BCA-I**

a. Semester I:

Theory: 05 Papers

Practical- 02 Lab Coerces

b. Semester II:

Theory: 05 Papers

Practical- 02 Lab Coerces

### **6. Examination Pattern:**

a) Internal Evaluation for Theory Paper – Each theory paper having **20 Marks**

i) **Home Assignments** /Unit test/ Project Work/Viva / Online /Offline Test

b) There shall be 5 theory papers each having **80 Marks**

c) Practical Examination will be Conducted Semester pattern – **50 Marks** for 1 lab course (**50x2=100**)

# Programme Structure for Bachelor of Computer Application (160 Credits)

## Major subject With Multiple Entry Multiple Exit Options

SEM	Discipline Specific Core Courses (DSC) (L+P) (Credits)	Discipline Specific Elective Courses (DSE)(L+P) (Credits)	Ability Enhancement Compulsory Courses (AECC)(L+P) (Credits)	Skill Enhancement Courses (SEC)		Total Credits
				Vocational Courses(L+P) (Credits) (Non CGPA)	Value Based Courses (P) (Credits) (Non-CGPA)	
<b>I</b>	<b>BCA</b> (3+2) = 5 4credits each Theory <b>(4x3=12)</b> 2 credits for practical <b>2x2=4</b> <b>Total=12+4=16</b>	---	AECC-I,AECC-II 4 credits each paper <b>(4x2=8)</b>	<b>SBC-1 (1)</b> Multidisciplinary (Skill Development-I)	<b>VBC (1)</b> NCC / NSS /Sports /Cultural, etc.	<b>26</b>
<b>II</b>	<b>BCA</b> (4+2) = 6 4credits each theory <b>(4x4=16)</b> 2 credits for practical <b>(2x2=4)</b> <b>Total=16+4=20</b>	---	AECC-III 4 credits each paper <b>(4x1=4)</b>	<b>SBC-2 (2)</b> Multidisciplinary (Skill Development-II)	----	<b>26</b>
<b>Total</b>						<b>52</b>
<b>Level 5 : Exit with Certificate in Computer Application (with the completion of courses equal to minimum of 52 credits)</b>						
<b>III</b>	<b>BCA</b> (4+2) = 6 4credits each theory <b>(4x4=16)</b> 2 credits for practical <b>(2x2=4)</b> <b>Total=16+4=20</b>	---	AECC-IV 4 credits each paper <b>(4x1=4)</b>	<b>SBC-3 (2)</b> Multidisciplin y (Skill Development- III)	---	<b>26</b>
<b>IV</b>	<b>BCA</b> (3+3) = 6 4credits each theory <b>(4x3=12)</b> 2 credits for practical <b>(2x3=6)</b> <b>Total=12+6=18</b>	--	AECC-V,AECC-VI 4 credits each paper <b>(4x2=8)</b>  AECC-4 (4) Env. Studies (Project)	---	-----	<b>30</b>
<b>Total</b>						<b>56</b>
<b>Level 6 : Exit with Diploma in Computer Application (with the completion of courses equal to minimum of 108 credits)</b>						

V	<b>BCA</b> <b>(3+2) = 5</b> 4credits each theory <b>(4x3=12)</b> 2 credits for each practical <b>2x2=4</b> <b>Total=12+4=16</b>	DSE-I,DSE-II 4 Credits each <b>(4x2=8)</b>	—	<b>SBC- 5 (2)</b> Multidisciplinr y (Skill Development-IV)	---	26
VI	<b>BCA</b> <b>(2+2) = 4</b> 4credits each theory <b>(4x2=8)</b> 2 credits for each practical <b>2x2=4</b> 4credits for project 4x1=4 <b>Total=8+8=16</b>	DSE-III,DSE-IV 4 Credits each <b>(4x2=8)</b>	---	<b>SBC- 6 (2)</b> Multidisciplinr y (Skill Development-V)	----	26

<b>Total</b>						<b>52</b>
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<b>106</b>	<b>16</b>	<b>28</b>	<b>09</b> (Non CGPA)	<b>01</b> (Non CGPA)	<b>160</b>
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**Level 7 : Exit with three years Bachelor of Computer Application BCA  
(with the completion of courses equal to minimum of 160 credits)**

VII	<b>BCA</b> (3+2) 4credits each <b>(4x3=12)</b> 2 credits for practical ( 2x2= 4) <b>Total=12+4= 16</b>	DSE-V,DSE-VI 4 credits each <b>(4x2 =8)</b>	--	<b>SBC- 7 (2)</b> Multidisciplinr y (Skill Development-VI)	----	26
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VIII	<b>BCA</b> <b>Major Project</b> <b>Credit=16</b>		---	---	---	16
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<b>Total</b>						<b>42</b>
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<b>138</b>	<b>24</b>	<b>28</b>	<b>11</b> (Non CGPA)	<b>01</b> (Non CGPA)	<b>202</b>
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**Note:**1. For first year Sem-I and Sem-II students have to select provided DSC and AECC courses.

2. For second year Sem-III and Sem-IV, students have to select provided five DSC and AECC courses.

3. For third year Sem –V and Sem-VI, students have to select DSC and DSE courses provided at respective semester.

4. The DSC courses from Sem-I to Sem-VI have 100 marks papers passing mini.40 marks

## BCA Program Structure:

### BCA-I (Sem-I)

Course Code	Title of Paper	Credit	Internal	External	Total
DSC CA A1	Fundamentals of Computer	4	20	80	100
DSC CA A2	Introduction to Programming Using C	4	20	80	100
DSC CA A3	Principles of Management	4	20	80	100
AEC A4	Business Communication	4	20	80	100
AEC A5	Office Automation	4	20	80	100
DSC L1	Lab Course-I Based on A2	2	-	50	50
DSC L2	Lab course-II Based on AEC A5	2	-	50	50
SBC-I	Skill Development I	2	50	-	50
VBC-I	Democracy & Good Governance	-	-	-	-
		26	150	500	650

### BCA-I (Sem-II)

Course Code	Title of Paper	Credit	Internal	External	Total
DSC CA B1	DBMS	4	20	80	100
DSC CA B2	Operating System	4	20	80	100
DSC CA B3	Web Technology I	4	20	80	100
DSC CA B4	Financial Accounting with Tally	4	20	80	100
AEC B5	Mathematical Foundations for Computer Applications	4	20	80	100
DSC L3	Lab Course-III Based on B1 and B4	2	-	50	50
DSC L4	Lab course-IV Based on B3	2	-	50	50
SBC-II	Skill Development II	2	50		50
		26	150	500	650

Exit option with Certificate in Computer Applications. (With the completion of courses equal to **52 credits**)

## BCA-II (Sem-III)

Course Code	Title of Paper	Credit	Internal	External	Total
DSC CA C1	RDBMS	4	20	80	100
DSC CA C2	Computer Network and Internet	4	20	80	100
DSC CA C3	Data Structure using C	4	20	80	100
AEC C4	Elements of Statistics	4	20	80	100
DSC CA C5	Human Resource Management and Materials Management	4	20	80	100
DSC L5	Lab Course-V Based on C1	2	-	50	50
DSC L6	Lab Course VI based on C3	2	-	50	50
SBC-III	Skill Development III	2	50		50
VBC-II	Indian Constitution	-	-	-	-
		26	150	500	650

## BCA-II(Sem-IV)

Course Code	Title of Paper	Credit	Internal	External	Total
DSC CA D1	Object Oriented Programming Using C++	4	20	80	100
DSC CA D2	Software Engineering	4	20	80	100
DSC CA D3	PHP	4	20	80	100
AEC D4	Entrepreneurship Development	4	20	80	100
AEC D5	ERP	4	20	80	100
DSC L7	Lab Course-VII Based on D1	2	-	50	50
DSC L8	Lab Course-VIII Based on D3	2	-	50	50
AEC D6	Mini Project	2		50	50
SBC-IV	Environmental Studies	4	20	80	100
		30	120	630	750

Exit option with Diploma in Computer Applications. (With the completion of courses equal to **108 credits**.)



### BCA-III (Sem-V)

Course Code	Title of Paper	Credit	Internal	External	Total
DSC CA E1	Java Programming	4	20	80	100
DSC CA E2	Data Warehousing and Data Mining	4	20	80	100
DSC CA E3	Dot NET Technology	4	20	80	100
DSE E4 –I	Elective-I 1. Web Content Management (WordPress/Joomla..) 2. Emerging Trends in Data Base 3. Linux	4	20	80	100
DSE E5-II	Elective-II 1. Digital Marketing 2. Management Information System 3. E-Commerce	4	20	80	100
SBC-IV	Skill Development IV	2	50		50
DSC L9	Lab Course-IX Based on E1	2	-	50	50
DSC L10	Lab Course-X Based on E4-I & E5-II	2	-	50	50
		26	150	500	650

### BCA-III (Sem-VI)

Course Code	Title of Paper	Credit	Internal	External	Total
DSC CA F1	Python	4	20	80	100
DSC CA F2	IT Security	4	20	80	100
DSE F3-I	Elective-I 1. Internet of Things(IoT) 2. Android Programming 3. R Programming	4	20	80	100
DSE F4-II	Elective-II 1. IT Management 2. Cloud Computing 3. Knowledge Management	4	20	80	100
SBC-V	Skill Development V	2	50	-	50
DSC L11	Lab Course XI Based on F1	2		50	50
DSC L12	Lab Course XII Based on DSE F3-I	2		50	50
DSC L13	Major Project	4	20	80	100
		26	150	500	650

Exit option with Bachelors in Computer Applications. (With the completion of courses equal to **160 credits**.)

### BCA-IV (Sem-VII)

Course Code	Title of Paper	Credit	Internal	External	Total
DSC CA G1	Data Science	4	20	80	100
DSC CA G2	Emerging Trends in IT	4	20	80	100
DSE G3-I	Elective-I 1. Advance Java 2. Ethical Hacking 3. Big Data Management	4	20	80	100
DSE G4-II	Elective-II 1. Block Chain Technology 2. Business Intelligence 3. Data Centre Management	4	20	80	100
AEC G5	Research Methodology	4	20	80	100
SBC-VI	Skill Development VI	2	50		50
DSC L13	Lab Course-XIII Based on G1 &G2	2	-	50	50
DSC L14	Lab Course-XIV Based on G3-1	2	-	50	50
		26	150	500	650

### BCA-III (Sem-VIII)

Course Code	Title of Paper	Credit	Internal	External	Total
DSC H1	Major Project	16	100	300	400

Structure of Program and Evaluation are as follows:

Rayat Shikshan Sanstha's																
SADGURU GADAGE MAHARAJ COLLEGE, KARAD.																
COURSE STRUCTURE UNDER AN AUTONOMY																
Bachelor of Computer Application(BCA)																
BCA-I SEMESTER- I (Duration – 6 Months)																
Sr. No.	SUBJECT CODE	TEACHING SCHEME						EXAMINATION SCHEME								
		THEORY			SUBJECT CODE	PRACTICAL		THEORY					PRACTICAL			
		Credits	No. of lectures	Hours		Credits	No. of lectures	Hours	Hours	Theory	Internal	Total Marks (Min.)	Total Marks	Hour	Min	Max
1	DSC CA A1	4	4	3.2	-	-	-	3	80	20	32+8=40	100	-	-	-	
2	DSC CA A2	4	4	3.2	-	-	-	3	80	20	32+8=40	100	-	-	-	
3	DSC CA A3	4	4	3.2	-	-	-	3	80	20	32+8=40	100	-	-	-	
4	AEC A4	4	4	3.2	-	-	-	3	80	20	32+8=40	100	-	-	-	
5	AEC A5	4	4	3.2	--	--	--	3	80	20	32+8=40	100	-	-	-	
6					DSC L1	2	2	3.2					3	20	50	
7					DSC L2	2	2	3.2					3	20	50	
8	SBC-I					1	3	2.4							25	
9	VBC-I					1	1.5	1.2							25	
<b>Total of SEM I</b>		<b>20</b>	<b>20</b>	<b>16</b>		<b>6</b>	<b>8.5</b>	<b>09</b>	<b>15</b>	<b>400 + 100 = 500</b>				<b>500+100=650</b>		
<b>TOTAL NO OF CREDITS FOR SEMESTER – I : 26</b>																
BCA I SEMESTER- II (Duration – 6 Months)																
Sr. No.	SUBJECT CODE	TEACHING SCHEME						EXAMINATION SCHEME								
		THEORY			SUBJECT CODE	PRACTICAL		THEORY					PRACTICAL			
		Credits	No. of lectures	Hours		Credits	No. of lectures	Hours	Hours	Theory	Internal	Total Marks (Min.)	Total Marks	hour	Max Marks	Min Marks
1	DSC CA B1	4	4	3.2	-	-	-	3	80	20	32+8=40	100				
2	DSC CA B2	4	4	3.2	-	-	-	3	80	20	32+8=40	100				
3	DSC CA B3	4	4	3.2	-	-	-	3	80	20	32+8=40	100				
4	DSC CA B4	4	4	3.2	-	-	-	3	80	20	32+8=40	100				
5	AEC B5	4	4	3.2	--	--	--	3	80	20	32+8=40	100				
6					DSC L3	2	2	3.2						20	50	
7					DSC L4	2	2	3.2						20	50	
8	SBC-II	--	--	--		2	3	2.4							50	
<b>Total of SEMII</b>		<b>20</b>	<b>20</b>	<b>16</b>		<b>6</b>	<b>8.5</b>	<b>09</b>	<b>15</b>	<b>400+100 = 500</b>				<b>500+100=650</b>		
<b>Grand Total</b>		<b>40</b>	<b>40</b>	<b>32</b>		<b>12</b>	<b>17</b>	<b>18</b>	<b>--</b>					<b>650+650=1300</b>		
<b>TOTAL NO OF CREDITS FOR SEMESTER - II: 26</b>																

<b>TOTAL NO OF CREDITS FOR SEMESTER - I + II: 52</b>	
• Student contact hours per week : 36.8Hours (Min.)	• Total Marks for BCA-I: <b>1300</b>
• Theory lectures and practical : 48 Minutes Each	• Total Credits for BCA-I (Semester I & II) : <b>52</b>
• <b>DSC - Discipline Specific Core Courses for BCA Theory:</b> for Semester- I (DSC A1,A2,A3) and for Semester- II (DSC B1,B2,B3,B4)	
• <b>AECC- Theory:</b> for Ability Enhancement Compulsory Course (AECC-A4,A5 and AECC-B5)	
• <b>DSC L - Discipline Specific Core Courses Lab for BCA Practical:</b> for (DSC L1,L2,L3,L4)	
• Practical Examination will be conducted as a semester pattern for 50 Marks per Lab course.	
• The examination of each DSC course will be of 100 marks. Minimum 40 marks ( <b>40%</b> ) <b>out of 100</b> are required for passing.	
• Students can exit after Level 5 with Certificate Course in Computer Application (with the completion of courses equal to minimum of <b>52 credits</b> ).	
• Students can exit after Level 6 with Diploma in Computer Application (with the completion of courses equal to minimum of <b>108 credits</b> ).	
• Students can exit after Level 7 with Bachelor of Computer Application (with the completion of courses equal to minimum of <b>160 credits</b> ).	
• <b>SBC:</b> Skill Based Courses (1 credit). Students have to select one for each semester from the pool of courses available at their respective colleges.	
• <b>VBC:</b> Value Based Courses (1Credit). Students have to select one for each semester from the pool of courses available at their respective colleges.	

## Gradation Chart:-

Marks obtained	Numerical Grade (Grade Point)	CGPA	Letter Grade
Absent	0(Zero)	---	---
<40	0 to 4	0.0 to 3.99	Fail
40-50	5	4.00 to 4.99	C
51-60	6	5.00 to 5.99	B
61-70	7	6.00 to 6.99	B+
71-80	8	7.00 to 7.99	A
81-90	9	8.00 to 8.99	A+
91-100	10	9.00 to 10.00	O(Outstanding)

### Note:

- i) Marks obtained  $\geq 0.5$  shall be rounded off to next higher digit.
- ii) The SGPA & CGPA shall be rounded off to 2 decimal points.

### Calculation of SGPA & CGPA:-

1. Semester Grade Point Average (SGPA)  $SGPA = \frac{\text{Course credits} \times \text{Grade Points obtained of a semester}}{\text{Course credits of respective semester}}$
2. Cumulative Grade Point Average (CGPA)  $CGPA = \frac{\text{Total credits of a semester} \times \text{SGPA of respective semester of all semesters}}{\text{Total course credits of all semesters}}$