



Estd. 1962
"A++" Accredited by
NAAC(2021)
With CGPA 3.52

**SHIVAJI UNIVERSITY, KOLHAPUR - 416004,
MAHARASHTRA**

PHONE:EPABX-2609000, www.unishivaji.ac.in, bos@unishivaji.ac.in

शिवाजी विद्यापीठ, कोल्हापूर - ४१६००४, महाराष्ट्र

दूरध्वनी - ईपीएबीएक्स - २६०९०००, अभ्यासमंडळे विभाग दूरध्वनी विभाग ०२३१-२६०९०९३/९४



Ref../SU/BOS/Com & Mgmt./

No 00179

Date : 12/09/2022

To,

The Principal
All Affiliated (Commerce & Management) Colleges/Institutions,
Shivaji University, Kolhapur

**Subject : Regarding Syllabi of BCA Part-I (Sem-I/II) Choice Based Credit
System (CBCS) degree programme under the Faculty of Commerce &
Management as per National Education Policy, 2020**

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the university authorities have accepted and granted approval to the revised syllabi of **BCA Part-II (Sem-I/II) Choice Based Credit System (CBCS)** under the Faculty of Commerce & Management as per National Education Policy, 2020

This syllabi shall be implemented from the academic year **2022-2023** onwards. A soft copy containing the syllabus is attached herewith and it is also available on university website www.unishivaji.ac.in (Student - Online Syllabus).

You are therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

Yours faithfully,

Dy. Registrar

Encl : As above

Copy to,

1. Dean, Faculty of Commerce & Management
2. Chairman, Board of Studies

} for information

3. Director, BOEE
4. Appointment Section
5. P. G. Admission Section
6. B.Com and O. E. 1 Section
7. Affiliation Section (U.G./P.G.)
8. Computer Center/I.T.
9. Eligibility Section
10. Distance Education
11. P.G. Seminar Section

} for information and necessary action.

SHIVAJI UNIVERSITY

KOLHAPUR



Estd. 1962,

NAAC "A" Grade

Faculty of Commerce and Management

Syllabus for

BCA Part I (CBCS) Sem-I & II

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

(Subject to the modifications that will be made from time to time)

Shivaji University, Kolhapur
Bachelor of Computer Applications (BCA)
Draft CBCS Course Structure to be implemented from June 2022
Syllabus

1. Introduction:

Bachelor of Computer Application (4years) program / degree is a specialized program in Computer Applications. It builds the student on studies in applied use of computers and to become competent in the current race and development of new computational era.

The duration of the study is of eight semesters, which is completed in four years. The program is based on Choice-Based Credit System (CBCS) comprising 202 credit points and intake for one batch is not more than 80 students.

2. Objective:

BCA offers the prequalification for professionals heading for smart career in the IT field, which measures up to international standards. On completing this course one can do higher studies such as MCA, MBA etc., in any UGC recognized universities or in any other reputed institution in India or abroad.

3. Eligibility: 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.

4. PEO, PO and CO Mappings:

Program Educational Outcomes: After completion of this program, the graduates /students would:

PEO I	Technical Expertise	Implement fundamental domain knowledge of core courses for developing effective computing solutions by incorporating creativity and logical reasoning.
PEO II	Successful Career	Deliver professional services with updated technologies in Computer application based career.

PEO III	Interdisciplinary and Life Long Learning	Develop leadership skills and incorporate ethics, team work with effective communication & time management in the profession. Undergo higher studies, certifications and technology research as per market needs.
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Program Outcomes (PO's):- After completion of program Students / graduates will be able to:

PO1: Apply knowledge of ICT in solving business problems.

PO2: Learn various programming languages and custom software.

PO3: Design component, or processes to meet the needs within realistic constraints.

PO4: Identify, formulate, and solve problems using computational temperaments.

PO5: Comprehend professional and ethical responsibility in computing profession.

PO6: Express effective communication skills.

PO7: Recognize the need for interdisciplinary, and an ability to engage in life-long learning.

PO8: Knowledge of contemporary issues and emerging developments in computing profession.

PO9: Utilize the techniques, skills and modern tools, for actual development process.

Course Outcome(s): Every individual course under this program has course outcomes (CO). The course outcomes rationally match with program educational objectives. The mapping of PEO, PO and CO is as illustrated below:

Program Educational Objectives	Thrust Area	Program Outcome	Course Outcome
PEO I	Technical Expertise	PO1,PO2,PO3,PO9	All Core and Lab courses
PEO II	Successful Career	PO4,PO5,PO6	All AEC courses
PEO III	Interdisciplinary and Life Long Learning	PO7,PO8	All Electives

5. Workload (Period/Lectures for each Course): For every semester 60 periods (60 minutes per period) are allotted to complete the syllabus of each Course (Subject).

6. Standard of Passing:

- I. A candidate must obtain minimum 40% of the marks in each University, Internal examination paper, lab course as well as mini and major project.
- II. There shall be a separate head of passing in Theory, Internal, Lab Course and Project examination. However, ATKTK rules shall be made applicable in respect of theory and labcourses (University Examination) only.
- III. A candidate who fails in any number of subjects during semester – I & II shall admitted to B.C.A.-II (appear for semester –III & Semester IV examination).
- IV. However the candidate shall not be admitted to B.C.A- III (Semester-V) unless h/she passed in all the subjects at B.C.A.-I (Semester-I & Semester-II).
- V. A candidate who fails in any number of subjects during Semester-III & IV shall be admitted for B.C.A.-III & allowed to appear for Semester –V & VI examinations.
- VI. A candidate who fails in any number of subjects during Semester-V & VI shall be admitted for B.C.A.-IV & allowed to appear for Semester –VII & VIII examinations.
- VII. However the candidate shall not be admitted to B.C.A- IV (Semester-VII & VIII) unless h/she passed in all the subjects at B.C.A.-II (Semester-III & Semester-IV).
- VIII. For Skill development courses candidate must obtain minimum 40% of the allotted marks.
(However under the National Education Policy the rules extended by University regarding ATKTK will be applicable)

Gradation Chart:

Marks obtained	Numerical Grade (Grade Point)	CGP A	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 ≥ 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

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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) $CGPA = \frac{\text{Total credits of a semester} \times \text{SGPA of respective semester}}{\text{Total course credits of all semesters}}$

7. Nature of Theory Question paper: Nature of question paper is as follows for University end semester examination

QUESTION PAPER PATTERN FOR ALL SEMESTERS

Duration: 3 Hours

Total Marks – 80

Instructions: 1) Que.1 and Que. 8 are compulsory and attempt any three Questions from Que. No.2 to Que. No. 7.
2) Figures to the right indicate marks.

Qu.1) Multiple Choice Questions (12 questions for 1 mark each)	12
Qu.2) Broad answer question	16
Qu.3) Broad answer question	16
Qu.4) Broad answer question	16
Qu.5) Broad answer question	16
Qu.6) Broad answer question	16
Qu.7) Broad answer question	16
Qu.8) Write notes on (Any Four out of Six)	20

8. Nature of Practical Question Paper:

There will be three questions of 15 Marks each, out of which student have to attempt any two Questions and 10 marks for journal and 10 marks for oral for 2 credit lab course and time duration is two hours.

For four credit lab course there will be four questions of 25 Marks each, out of which student have to attempt three questions and 10 marks for journal and 15 marks for oral and time duration is three hours.

Practical Examination conducted by the University appointed examiner panel..
The panel members have more than five years' experience as full time teacher.

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

10. Teachers Qualification: As per rules and regulations of Shivaji University, Kolhapur and Govt. of Maharashtra.

11. Internal Marks Distribution:

- 1 Ten Marks for Mid Tests.
 - 2 Five Marks for presentation or activity based learning or Group exercise (Number of students in Group are not more than six).
 - 3 Five Marks for Assignments.
- (The record of internal submission by the students should be maintain by higher educational institute for the examination of university authority if required)

12. Mini- Project

The Objective of mini project is, to make aware student with current technology to be used in IT industry. The language/platform of the mini-project to be selected from the subject studied in previous and present semester. The Group size of maximum four students can undertake mini project. Project Viva-Voce Examination will be conducted by the University appointed examiner panel.. The panel members have more than five years' experience as full time teacher.

13. Major Software Development Project:

The Objective of major project is to design and develop the live application with current technology to be used in various industries. The Group size of maximum three students can undertake major project. Project Viva-Voce Examination will be conducted by the University appointed examiner panel. The panel members have more than five years' experience as full time teacher. The chairman for viva voce committee will be faculty having more than ten years experience as full time faculty.

14. Fee Structure: As per University norms.

15. Requirements:

i) Core Faculty:

For First Year Sem I & Sem II - 1 Full Time Faculty and 1 Lab Assistant.

For Second Year Sem III & Sem IV - 1 Full Time Faculty.

For Third Year Sem V & Sem VI - 1 Full Time Faculty and 1 Lab Assistant.

For Fourth year Sem VII and VIII – 1 Full Time Faculty and 1 Lab Assistant

Total – 4 Full Time Faculties and

Three Lab Assistants having qualification

BCA/BCS/Diploma in Computer

Engineering/PGDCA.

In addition there shall be visiting/CHB faculty drawn from academicians /professionals from different fields for AEC/DSE/GE Courses and AEC/DSE based lab courses.

- ii) Non-Teaching Staff: One Clerk and 2 Peons.
- iii) Computer Lab: Well-equipped networked Lab with backup facility, Application and system software's as per syllabi and LL internet facility. Student Computer ratio 4:1. (as per Intake sanctioned)
- iv) Library: The entire library fees collected from the students shall be invested on library.
- v) Class Room: Four classrooms of seating capacity 80 students with LCD and Digital Classroom- 1

16. Program Structure:

BCA-I (Sem-I)

Course Code	Title of Paper	Credit	Internal	External	Total
CC 101	Fundamentals of Computer	4	20	80	100
CC 102	Introduction to Programming Using C	4	20	80	100
AEC 103	Principles of Management	4	20	80	100
AEC 104	Business Communication	4	20	80	100
AEC 105	Office Automation	4	20	80	100
CCL 106	Lab Course-I Based on CC 102	2	-	50	50
CCL 107	Lab course-II Based on AEC 105	2	-	50	50
SEC-SB108	Skill Development I	2	50	-	50
SEC-VB108	Democracy & Good Governance	-	-	-	-
		26	150	500	650

BCA-I (Sem-II)

Course Code	Title of Paper	Credit	Internal	External	Total
CC 201	DBMS	4	20	80	100
CC 202	Operating System	4	20	80	100
CC 203	Web Technology I	4	20	80	100
AEC 204	Financial Accounting with Tally	4	20	80	100
AEC 205	Mathematical Foundations for Computer Applications	4	20	80	100
CCL206	Lab Course-III Based on CC201 and AEC 204	2	-	50	50
CCL207	Lab course-IV Based on CC 203	2	-	50	50
SEC-SB208	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
CC 301	RDBMS	4	20	80	100
CC 302	Computer Network and Internet	4	20	80	100
CC 303	Data Structure using C	4	20	80	100
AEC 304	Elements of Statistics	4	20	80	100
AEC305	Human Resource Management and Materials Management	4	20	80	100
CCL 306	Lab Course-V Based on CC301	2	-	50	50
CCL 307	Lab Course VI based on CC303	2	-	50	50
SECSB308	Skill Development III	2	50		50
SECVB309	Indian Constitution	-	-	-	-
		26	150	500	650

BCA-II(Sem-IV)

Course Code	Title of Paper	Credit	Internal	External	Total
CC 401	Object Oriented Programming Using C++	4	20	80	100
CC 402	Software Engineering	4	20	80	100
CC 403	PHP	4	20	80	100
AEC 404	Entrepreneurship Development	4	20	80	100
AEC 405	ERP	4	20	80	100
CCL 406	Lab Course-VII Based on CC401	2	-	50	50
CCL 407	Lab Course-VIII Based on CC403	2	-	50	50
AEC408	Mini Project	2		50	50
SECSB409	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
CC 501	Java Programming	4	20	80	100
CC 502	Data Warehousing and Data Mining	4	20	80	100
CC503	Dot NET Technology	4	20	80	100
DSE 504	Elective-I 1. Web Content Management (WordPress/Joomla..) 2. Emerging Trends in Data Base 3. Linux	4	20	80	100
GE 505	Elective-II 1. Digital Marketing 2. Management Information System 3. E-Commerce	4	20	80	100
SEC SB 506	Skill Development IV	2	50		50
CCL 507	Lab Course-IX Based on CC501	2	-	50	50
CCL 508	Lab Course-X Based on DSE504& 503	2	-	50	50
		26	150	500	650

BCA-III (Sem-VI)

Course Code	Title of Paper	Credit	Internal	External	Total
CC 601	Python	4	20	80	100
CC602	IT Security	4	20	80	100
DSE 603	Elective-I 1. Internet of Things(IoT) 2. Android Programming 3. R Programming	4	20	80	100
GE604	Elective-II 1. IT Management 2. Cloud Computing 3. Knowledge Management	4	20	80	100
SEC SB 605	Skill Development V	2	50	-	50
CCL 606	Lab Course XI Based on DSE 601	2		50	50
CCL 607	Lab Course XII Based on DSE 603	2		50	50
CCL608	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
CC 701	Data Science	4	20	80	100
CC 702	Emerging Trends in IT	4	20	80	100
DSE 703	Elective-I 1. Advance Java 2. Ethical Hacking 3. Big Data Management	4	20	80	100
DSE 704	Elective-II 1. Block Chain Technology 2. Business Intelligence 3. Data Centre Management	4	20	80	100
AEC 705	Research Methodology	4	20	80	100
SECSB706	Skill Development VI	2	50		50
CCL 707	Lab Course-XIII Based on CC701 and CC702	2	-	50	50
CCL 708	Lab Course-XIV Based on DSE703	2	-	50	50
		26	150	500	650

BCA-III (Sem-VIII)

Course Code	Title of Paper	Credit	Internal	External	Total
CC 801	Major Project	16	100	300	400

**** For Skill Development Courses follow the guidelines of Shivaji University**

17 Credit Distribution

Sr.No	Particulars	Number of Courses	Total Credit	Percentage
1	CC-Core Courses	19	88	43.56
2	CCL- Core Courses Lab	15	32	15.84
3	AEC- Ability Enhancement Courses	11	42	20.79
3	DSE-Discipline Specific Elective	4	16	7.92
4	GE-General Elective	2	8	3.96
5	SEC SB-Skill Based	7	16	7.93
	Total	57	202	100