M.C.E Society's

Abeda Inamdar Senior College of Arts, Science and Commerce (Autonomous), Pune

FACULTY OF SCIENCE

B.C.A. (Science) PROGRAM STRUCTURE

Bachelor of Computer Application (Science)

Choice-Based Credit System (CBCS) Under Autonomy

(Semester Pattern)
Program (2021 Pattern)

With effect from June 2021

B.C.A. (Science) PROGRAMME STRUCTURE

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1) PROGRAMME OVERVIEW:

B.C.A. (Science) is a three year undergraduate degree programme spread over six semesters. This program is for candidates who wish to explore new emerging technologies using computer languages. The Programme will be able to develop the ability and skill to have a problem solving approach towards issues related to the society and the information technology world. The programme is designed to bridge the gap between IT industries and academic institutes by incorporating the latest development into the curriculum and to give students a complete understanding within a structured framework. The structure of this program is fully computer application oriented which helps the students to build up a successful career in computer applications and to pursue higher studies.

- **Programme Educational Objectives:**

B.C.A. (Science) program will prepare its students as:

PEO 1: To progress their career productively in software industry, academia, research, entrepreneurial pursuit, government, consulting firms and other Information Technology enabled services.
PEO 2: To achieve peer-recognition; as an individual or in a team; by adopting ethics and professionalism and communicate effectively to excel well in cross culture and interdisciplinary teams.
PEO 3: To continue a lifelong professional development in computing that contributes in self and societal growth.

- **Programme Outcomes:**

On completion of BCA (Science) degree, the students will be able to:

PO1: Analyze the requirements of a computing problem using appropriate algorithms and data structures.
PO2: Implement the solution of a computing problem using appropriate programming languages.
PO3: Use mathematical underpinnings of the discipline of computer science.
PO4: Recognize the ethical, legal and social implications of computing in a global society.
PO5: Use oral and written communication skills to convey technical information effectively and accurately.
PO6: Use their interpersonal skills when working in a team environment.
PO7: Recognize the need for and ability to engage in continuing professional development.
PO8: Ability to use appropriate techniques, skills, and tools necessary for computing practice

2) INTRODUCTION:

The B.C.A. (Science) degree programme (2021 pattern) will be introduced in the following order:-

a. First Year B.C.A. Science	2021-2022
b. Second Year B.C.A. Science	2022-2023
c. Third Year B.C.A. Science	2023-2024

- B.C.A. (Science) Degree programme will consist of three years divided into six semesters.
- The first year (Semester I and II), Second Year (Semester III and IV) and Third Year (Semester V and VI); Choice Based Credit System Examination will be held at the end of each semester.

3) ELIGIBILITY:

a. Any candidate who has passed higher secondary school certificate (10 + 2) in science stream(PCM /PCB/PCMB) from Maharashtra State Board of Secondary and Higher Secondary Education or equivalent Board of Examination, is eligible for admission to the first year of this program **(2021 Pattern)**

OR

b. Any candidate who has passed three year Diploma Course approved by the DTE, Maharashtra State or Equivalent authority.

OR

c. Higher Secondary school certificate (10 + 2) Examination with English and vocational subject of +2 level(MCVC)-Medical Lab Technician(Subject code=P1/P2/P3)

4) COURSES CARRYING PRACTICALS:

a. **F.Y.B.C.A. (Science):** Each practical course will be of **1.5 credits** and each practical session will be of **03 hour 15 minutes** duration.
b. **S.Y. /T.Y.B.C.A. (Science):** Each practical course will be of **2 credits** and each practical session will be of **04 hour 20 minutes** duration.
c. There will be a practical and viva-voce examination for all the semesters of the F.Y./S.Y./T.Y.BCA science for the practical course.

Table 1: Course having Practical Examination

Semester	Type of Course	Name of Practical Course	Course Code
I	Core Course Practical	MS Office and VBA	21SBCA115
I	Core Course Practical	Programming in C	21SBCA116
I	Core Course Practical	Statistics Practical using R	21SBCA117
I	Core Course Practical	Database Management System	21SBCA118
II	Core Course Practical	Data Structures using C	21SBCA125
II	Core Course Practical	Web Technology	21SBCA126
II	Core Course Practical	Advanced Database Management System	21SBCA127
II	Core Course Practical	Computer Organization	21SBCA128
III	Core Course Practical	Object Oriented C++ Programming	21SBCA234
III	Core Course Practical	Advanced Web Technology using PHP	21SBCA235
III	Core Course Practical	Software Testing Tools (Testing using open source tools)	21SBCA236
IV	Core Course Practical	Core JAVA	21SBCA244
IV	Core Course Practical	Programming in Python	21SBCA245
IV	Core Course Practical	Internet of Things	21SBCA246
V	Discipline Specific Core practical	Advanced Java	21SBCA354
V	Discipline Specific Core practical	Data Mining using open Source Tools	21SBCA355
V	Discipline Specific Core practical	Project	21SBCA356
VI	Discipline Specific Core practical	Data Science and Machine Learning with Python	21SBCA364
VI	Discipline Specific Core practical	Android Programming	21SBCA365
VI	Discipline Specific Core practical	Project	21SBCA366

5) MEDIUM OF INSTRUCTION:

The Medium of Instruction and Examination (Written and Viva) shall be English.

6) SCHEME OF CREDITS (Academic/CGPA):

Table 2: Total credits for three years B.C.A. (Science) Programme (2021 pattern)

Sr. No	Semester No	No of Theory Courses	No of Lectures per week	Total Lecture Hours per Course	Credit per Course	No. of practical Courses	Credit per practical Courses	Total Credits (Lectures + Practical)
1	I	4 Core	05 Hrs.	60	4	4	1.5	16+6=22
2	II	4 Core	05 Hrs.	60	4	4	1.5	16+6=22
3	III	3 Core	05 Hrs.	60	4	3	2	12+4+6=22
		2 AECC	03 Hrs.	30	2			
4	IV	3 Core	05 Hrs.	60	4	3	2	12+4+6=22
		2 AECC	03 Hrs.	30	2			
5	V	3 DSCT	05 Hrs.	60	4	3	2	12+4+6=22
		2 SEC	03 Hrs.	30	2			
6	VI	3 DSCT	05 Hrs.	60	4	3	2	12+4+6=22
		2 SEC	03 Hrs.	30	2			
							Total No. of Credits	**132**

Note: 1 Theory Lecture = 60 Minutes.

Table 3: Compulsory Ability Enhancement (CGPA) Course (2021 Pattern)

Sr. No.	Compulsory Ability Enhancement Courses	Class	Semester	Credit
1	Ability Enhancement Compulsory Course **(AECC)**	S.Y.B.C.A Science	III & IV	8
2	Skill Enhancement Courses **(SEC)**	T.Y.B.C.A Science	V & VI	8
			Total	**16**

7) COURSE WISE CLASSIFICATION OF CGPA/ACADEMIC CREDITS:

Table 4: Total credits for three years B.C.A Science Programme (2021 pattern)

Sr. No	Nature of Courses	Semesters (Credits)						Total (Credits)
		I	II	III	IV	V	VI	
1	Ability Enhancement Compulsory Courses	--	--	4	4	--	--	8
2	Skill Enhancement Courses	--	--	--	--	4	4	8
3	Core Courses	16	16	12	12	--	--	56
4	Core Course Practical	6	6	6	6	--	--	24
5	Discipline Special Core Theory	--	--	--	--	12	12	24
6	Discipline Special Core Practical	--	--	--	--	6	6	12
	Sub Total	22	22	22	22	22	22	132 (Grand Total)

8) SCHEME OF CREDITS (NON-CGPA):

In addition to the compulsory credits of 132, the student has to earn additional 08 credits from the following groups by taking/participating/conducting respective activities. These extra credits will not be considered for GPA calculation; however, these are mandatory for the completion and award of B.C.A. (Science) degree.

a. Courses in Group 1 and Group 2 are compulsory (02 Credits each).

b. The student has to earn the remaining 04 credits through participating in the various activities from Group 3 to Group 11.

Table 5: Description of Groups and Activities for Mandatory Non-CGPA Credits

Group	Activity	Credits
1	**DEMOCRACY, ELECTIONS AND GOOD GOVERNANCE(Sem-I)** Note: Group 2 is compulsory for all the students as stated above	02
2	**Physical Education (Sem-II)** Note: Group 1 is compulsory for all the students as stated above	02
3	**Departmental Certificate Course on Content Management System Using Word Press (Sem-III)** OR **Interdisciplinary Course designed by other department of college**	02
4	**Sports Representation**: At College Level State/ University/ National Level International Level	01 02 03
5	**NSS/ NCC related** NSS/ NCC – Participation in Annual Camp NCC (awarded B or C certificate) NSS/ NCC RD Parade participation	 01 02 04
6	**Avishkar Participation** College level University level/State level Winner at state level Participation in Extension activity of College Participation in Cultural activity of College	 01 02 04 01 01
7	**Research paper presentation** State/National level International level	 01 02
8	**Participation in** Short term course (minimum 30 hours)	Maximum 02
9	**Survey** : Scientific survey /Societal survey	02
10	**Internship** Internship of 1 Month Internship of 2 Month	 02 04
11	**Participation in** curricular competition/ co-curricular competition	01
12	**Online Certificate course**/ MOOCs (minimum 15 hours per credit) or Internship (60 hrs.)	Maximum 04

9) SCHEME OF NO. OF COURSES:

Table 6: Semester-Wise Number of CGPA Courses for Three Year B.C.A. Science Programme

Sr. No	Nature of Courses	Semesters						Total
		I	II	III	IV	V	VI	
1	Ability Enhancement Compulsory Course	--	--	2	2	--	--	4
2	Skill Enhancement Course	--	--	--	--	2	2	4
3	Core Course	4	4	3	3	--	--	14
4	Core Course Practical	4	4	3	3	--	--	14
5	Discipline Specific Core Theory	--	--	--	--	3	3	6
6	Discipline Special Core Practical	--	--	--	--	3	3	6
	Sub Total	8	8	8	8	8	8	48 (Grand Total)

10) DURATION:

The programme shall be a full-time of three years. The student has to complete the programme in 05 years, from the year of admission. In case a candidate fails to complete the programme in 05 years of period, then the candidate shall take new admission in F.Y.B.C.A. (Science) for obtaining the degree.

11) ATTENDANCE:

No candidate shall be admitted to the semester end examinations unless he / she has satisfactorily completed 75% of attendance in each course in each semester.

12) COLLEGE TERMS:

The dates for the commencement and conclusion of the first and the second terms shall be as determined by the college authorities. Only duly admitted students can keep the terms. The present relevant ordinances pertaining to grant of terms will be applicable.

13) METHODS OF EVALUATION AND PASSING CRITERIA:

a. The course carrying 100 marks shall be evaluated with continuous internal evaluation (CIE) and Semester End Examination mechanism. Continuous internal evaluation shall beof 40 marks and Semester End Examination shall be of 60 marks.

- To pass the theory course of 4 credits having 100 marks, a student has to secure minimum 40 marks provided that he /she should secure minimum 16 marks in CIE and minimum 24 marks in Semester End Examination.

b. The course carrying 50 marks shall be evaluated with continuous internal evaluation (CIE) and Semester End Examination mechanisms. Continuous internal evaluation shall be of 20 marks and Semester End Examination shall be of 30 marks.

- To pass the practical or project course of 1.5 or 2 credits having 50 marks, a student has to secure minimum 20 marks provided that he/she should secure minimum 8 marks in CIE and minimum 12 marks in Semester End Examination.

c. **Evaluation Criteria:** The evaluation of students will be based on three parameters:-

i. Continuous Internal Evaluation (CIE).
ii. Practical / Project Examination (List of courses having practical is given in sr.no 4).
iii. Semester End Examination.

i. For Continuous Internal Evaluation (CIE): Internal assessment will be as follows:

Table 7: CIE of Theory Examination

Credits :04 **Duration : 1Hr/Exam**			**Marks:40**	**Credits:02** **Duration:1Hr/Exam**		**Marks:20**	
10 Marks*	**10 Marks**	**10 Marks**	**10 Marks***	**05 Marks****	**05 Marks**	**05 Marks**	**05 Marks** **
Offline / Online objective type examination	Two Class Tests (Average of two test)	Two Assignments (Each of 5 marks)	Mid Semester Descriptive Type Examination	Computerized/Online objective type examination	One Class Tests	Two Assignments	Mid Semester Descriptive Type Examination

*20 Marks exam will be scaled down to 10 Marks ** 20 Marks exam will be scaled down to 5 Marks

ii. For Practical/Project Examination: Internal assessment will be as follows:

Table 8: CIE of Practical and Project Examination

Practical **Credits :1.5 or 2**		**Marks:20**	**Project** **Credits :2**		**Marks:20**
5 marks	**5 Marks**	**10 Marks**	**5 marks**	**5 Marks**	**10 Marks**
Attendance	Mock Practical	Lab Course Book / Journal	Synopsis and prerequisite	Analysis and Design	Two Demonstrations

iii. For Semester End Examination:

Criteria for Paper Setting of Internal Assessment and Semester End Examination are as follows:

- Knowledge: 50 %
- Understanding: 25 %
- Applications, Analysis, Problem Solving: 25%

- **For Theory Examination:** The Duration of the SEE will be as follows**:**
  - Theory Question papers will be set for Sixty Marks (Two and Half Hour Duration) for 04 credits course
  - Theory Question papers will be set for Thirty Marks (One and Half Hour Duration) for 02 credits course

Table 9: S.E.E. Structure of Theory Paper Course

Credits: 04 Duration : 2.5 Hours Marks : 60					**Credits :02 Duration 1.5 Hours Marks :30**		
Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3
12 Marks	12 Marks	12 Marks	12Marks	12Marks	10 Marks	10 Marks	10 Marks
Short answers (any 6) Each carry 2 marks	Descriptive (any 3) Each carry 4 marks	Program/case study/Problems/ Find output or Errors(any 3) Each carry 4 marks	Descriptive (any 3) Each carry 4 marks	Descriptive/ Program/ Problem (any 3) Each carry 4 marks	Short answers (any 5) Each carry 2 marks	Descriptive a)4 marks b) 4 marks c) 2 marks	Program/case study/Problem 1) 4 marks 2) 4 marks 3) 2 marks

- **For Practical/Project Examination:** Practical Question papers will be set for Thirty Marks (Three Hour Duration) for 1.5 or 02credits course. Project Examination will be of Three Hour duration

Table 10:S.E.E. Structure of Practical and Project Course

Practical Credits :1.5 or 2 Duration : 03 Hours Marks:30		**Project Credits :2 Duration : 03 Hours Marks :30**		
Q1	**Q2**	**Viva**	**Project Report**	**Demonstration**
15 Marks	15 Marks	05 Marks	05 Marks	20 Marks

14) REVISED MARKS STRUCTURE OF PROGRAMME

Table 11: First Year B.C.A. Science Semester – I w.e.f. 2021- 22

Course Code	Course / Title of Paper	Course	No. of lectures(Per Week)	No of Credits	Continuous Internal Evaluation		Semester End Examination		Total
					Theory	Practical	Theory	Practical	
21SBCA111	**Computer Fundamental**	Core Course	5	4	40	--	60	--	100
21SBCA112	**Problem Solving and C Programming**	Core Course	5	4	40	--	60	--	100
21SBCA113	**Applied Mathematics and Statistics**	Core Course	5	4	40	--	60	--	100
21SBCA114	**Database Management System**	Core Course	5	4	40	--	60	--	100
21SBCA115	**Lab I: MS Office and VBA**	Core Practical	3h 15 min	1.5	--	20	--	30	50
21SBCA116	**Lab II: Programming in C**	Core Practical	3h 15 min	1.5	--	20	--	30	50
21SBCA117	**Lab III: Statistics Practical using R**	Core Practical	3h 15 min	1.5	--	20	--	30	50
21SBCA118	**Lab -IV :Database Management System**	Core Practical	3h 15 min	1.5		20	--	30	50
				Total Credit :22	**Total CIE :240**		**Total SEE :360**		**600**

Note: Non CGPA course to be conducted in Semester I

21SDG11M2: DEMOCRACY, ELECTIONS AND GOOD GOVERNANCE DEMOCRACY (GROUP-II, SEM-I)

Table 12: First Year B.C.A. Science Semester – II w.e.f. 2021- 22

Course Code	Course / Title of Paper	Course	No. of lectures (Per Week)	No of Credits	Continuous Internal Evaluation		Semester End Examination		Total
					Theory	Practical	Theory	Practical	
21SBCA121	**Data Structures using C**	Core Course	5	4	40	--	60	--	100
21SBCA122	**Introduction to Web Technology**	Core Course	5	4	40	--	60	--	100
21SBCA123	**Advanced Database Management System**	Core Course	5	4	40	--	60	--	100
21SBCA124	**Introduction to Computer Organization**	Core Course	5	4	40	--	60	--	100
21SBCA125	**Lab I: Data Structures using C**	Core Practical	3h 15 min	1.5	--	20	--	30	50
21SBCA126	**Lab II: Web Technology**	Core Practical	3h 15 min	1.5	--	20	--	30	50
21SBCA127	**Lab III: Advanced Database Management System**	Core Practical	3h 15 min	1.5	--	20	--	30	50
21SBCA128	**Lab IV: Computer Organization**	Core Practical	3h 15 min	1.5		20	--	30	50
Total Credit :22					**Total CIE :240**		**Total SEE :360**		**600**

Note: Non CGPA course to be conducted in Semester II
21SPE12M2: PHYSICAL EDUCATION (GROUP-I, SEM-II)

Table 13: Second Year B.C.A. Science Semester – III w.e.f. 2022- 23

Course Code	Course / Title of Paper	Course	No. of lectures (Per Week)	No of Credits	Continuous Internal Evaluation		Semester End Examination		Total
					Theory	Practical	Theory	Practical	
21SBCA231	**Object Oriented Programming using C++**	Core Course	5	4	40	--	60	--	100
21SBCA232	**Advanced Web Technology using PHP**	Core Course	5	4	40	--	60	--	100
21SBCA233	**Software Engineering**	Core Course	5	4	40	--	60	--	100
21SBCA234	**Lab I: Object Oriented C++ Programming**	Core Practical	4h 20 min	2	--	20	--	30	50
21SBCA235	**Lab-II Advanced Web Technology using PHP**	Core Practical	4h 20 min	2	--	20	--	30	50
21SBCA236	**Lab III: Software Testing Tools (Testing using open source tools)**	Core Practical	4h 20 min	2	--	20	--	30	50
21SBHENT23	**Health and Nutrition**	AECC-1	3	2	20	--	30	--	50
21SBAEEL23	**Language –I**	AECC-2	3	2	20	--	30	--	50
Total Credit :22					**Total CIE :220**		**Total SEE :330**		**550**

Note: Non CGPA course to be conducted in Semester III

21SBCM23SD: Certificate Course on Content Management System using Word Press

Table 14: Second Year B.C.A. Science Semester – IV w.e.f. 2022- 23

Course Code	Course / Title of Paper	Course	No. of lectures (Per Week)	No of Credits	Continuous Internal Evaluation		Semester End Examination		Total
					Theory	Practical	Theory	Practical	
21SBCA241	**Core JAVA Programming**	Core Course	5	4	40	--	60	--	100
21SBCA242	**Programming in Python**	Core Course	5	4	40	--	60	--	100
21SBCA243	**Internet of Things**	Core Course	5	4	40	--	60	--	100
21SBCA244	**Lab I: Core JAVA**	Core Practical	4h 20 min	2	--	20	--	30	50
21SBCA245	**Lab II: Programming in Python**	Core Practical	4h 20 min	2	--	20	--	30	50
21SBCA246	**Lab-III: Internet of Things**	Core Practical	4h 20 min	2	--	20	--	30	50
21SBAEEV24	**Environmental Science Awareness Course -II**	AECC-1	3	2	20	--	30	--	50
21SBAEEL24	**Language –II**	AECC-2	3	2	20	--	30	--	50
Total Credit :22					**Total CIE :220**		**Total SEE :330**		**550**

Table 15: Third Year B.C.A. Science Semester – V w.e.f. 2023- 24

Course Code	Course / Title of Paper	Course	No. of lectures (Per Week)	No of Credits	Continuous Internal Evaluation		Semester End Examination		Total
					Theory	Practical	Theory	Practical	
21SBCA351	**Advanced Java Programming**	DSCT1	5	4	40	--	60	--	100
21SBCA352	**Data Mining**	DSCT2	5	4	40	--	60	--	100
21SBCA353	**Computer Networks & Security**	DSCT3	5	4	40	--	60	--	100
21SBCA354	**Lab I: Advanced Java**	DSCP1	4h 20 min	2	--	20	--	30	50
21SBCA355	**Lab II: Data Mining using open Source Tools**	DSCP2	4h 20 min	2	--	20	--	30	50
21SBCA356	**Project**	DSCP3	4h 20 min	2	--	20	--	30	50
21SBCA357A	**React JS**	SEC-1*	3 (1T+ 2P)	2	20	--	--	30	50
21SBCA357B	**Angular JS**	SEC-1*	3 (1T+ 2P)	2	20	--	--	30	50
21SBCA358A	**C# .Net**	SEC-2*	3 (1T+ 2P)	2	20	--	--	30	50
21SBCA358B	**Objective C**	SEC-2*	3 (1T+ 2P)	2	20	--	--	30	50
Total Credit :22					**Total CIE :220**		**Total SEE :330**		**550**

Note: * : Choose one course from SEC1 and SEC2

Table 16: Third Year B.C.A. Science Semester – VI w.e.f. 2023- 24

Course Code	Course / Title of Paper	Course	No. of lectures (Per Week)	No of Credits	Continuous Internal Evaluation		Semester End Examination		Total
					Theory	Practical	Theory	Practical	
21SBCA361	**Introduction to Data Science and Machine Learning**	DSCT1	5	4	40	--	60	--	100
21SBCA362	**Android Programming**	DSCT2	5	4	40	--	60	--	100
21SBCA363	**Operating System**	DSCT3	5	4	40	--	60	--	100
21SBCA364	**Lab I: Data Science and Machine Learning using Python**	DSCP1	4h 20 min	2	--	20	--	30	50
21SBCA365	**Lab II: Android Programming**	DSCP2	4h 20 min	2	--	20	--	30	50
21SBCA366	**Lab III: Project**	DSCP3	4h 20 min	2	--	20	--	30	50
21SBCA367A	**Node JS**	SEC-1*	3 (1T+ 2P)	2	20	--	--	30	50
21SBCA367B	**Laravel Framework**	SEC-1*	3 (1T+ 2P)	2	20	--	--	30	50
21SBCA368A	**ASP .Net**	SEC-2*	3 (1T+ 2P)	2	20	--	--	30	50
21SBCA368B	**Spring Framework**	SEC-2*	3 (1T+ 2P)	2	20	--	--	30	50
				Total Credit :22	**Total CIE :220**		**Total SEE :330**		**550**

Note: * : Choose one course from SEC1 and SEC2

15) STANDARD OF PASSING:

a. A student must obtain minimum 40% marks in Continuous Internal Evaluation (CIE) of theory and practical as well as semester end examination. It means that passing separately in the CIE and Semester End Examination is compulsory.

b. Students who have failed in Continuous Internal Evaluation (CIE) of any semester can reappear for the same subjects in the next upcoming semester only. E.g. students failed in 1st semester can reappear in 2nd semester only and students failed in 2nd semester can appear in 3rd semester only.

16) A.T.K.T. RULES:

a. If a student fails in all the courses of semester I, then that student will be allowed to proceed for semester II. Students who scores minimum **26 credits** can be admitted to S.Y.B.C.A. (Science).
b. If a student fails in all the courses of semester III, then that student will be allowed to proceed for semester IV. Students who score **44 credits (100% credits)** in F.Y.B.C.A. (Science) and minimum **26 credits** in S.Y.B.C.A. (Science) can be admitted to T.Y.B.C.A. (Science).
c. If a candidate fails in all the courses (subject heads) of the passing of semester V shall be allowed to proceed to semester VI.
d. A.T.K.T. rules are applicable for 2nd and 4th semester.

17) VERIFICATION AND REVALUATION:

a. The candidate may apply for verification and revaluation of result, which will be done by the **COLLEGE** as per ordinance framed on that behalf.
b. There shall be revaluation of answer sheets of semester end examination of theory papers only, but not of internal assessment papers as per ordinance defined by college
c. There shall be no revaluation of CIE and semester end practical examination.

18) STRUCTURE OF TRANSCRIPT:

- **Calculation of SGPA and CGPA:**

SGPA stands for Semester Grade Point Average. The performance of a student in a particular semester is given by SGPA. It can be calculated by the sum of total grade points divided by credit of total subject.

$$SGPA = \Sigma \frac{\text{Grade point earned X credits for each course}}{TotalCredits}$$

CGPA is the calculation of the cumulative grade point average value obtained by the student in all the subjects. The Grade Points obtained in all the subjects' are calculated along with the total number of credit hours the student has attempted.

$$CGPA = \Sigma \frac{\text{Grade point earned X credits for each course}}{TotalCredits}$$

- **Conversion of Marks into credit(s) and grade(s):**

The following illustrations could be taken as an example for computing SGPA and CGPA from percentage to credits in all disciplines, for the degree programme in B.C.A (Science). The following formula may be used to convert (%) into Grade Letter.

Table 17: Grades Points and Grade

Sr.No	Grade Letter	Grade Point	Marks
1	O(Outstanding)	10	90<= Marks <=100
2	A+(Excellent)	9	75<= Marks <=89
3	A(Very Good)	8	60<= Marks <=74
4	B+(Good)	7	55<= Marks <=59
5	B(Above Average)	6	50<= Marks <=54
6	C(Average)	5	45<= Marks <=49
7	D(Pass)	4	40<= Marks <=44
8	F(Fail)	0	Marks <40

Table 18: Conversion of CGPA into corresponding percentage

CGPA	Grade	Equation	Percentage
10	O	20*10-100	100
9.75	O	20*9.75-100	95
9.5	O	20*9.5-100	90
9.0	A+	12*9-24	84
8.25	A+	12*8.25-24	75
8.0	A	10*8-7.5	72.5
7.0	A	10*7-7.5	62.5
6.75	A	10*6.75-7.5	60
6.25	B+	5*6.25+26.25	57.5
5.75	B+	5*5.75+26.25	55
5.5	B	10*5.5-2.5	52.5
5.25	B	10*5.25-2.5	50
4.75	C	10*4.75-2.5	45
4.00	C	6.6x4.0+13.6	40

a. A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.
b. For non-credit courses shall be evaluated on grading system and this will not be counted for the computation of SGPA/CGPA.

19) COMPLETION OF DEGREE:

The students who earn 140 Credits (132 CGPA and 08 Non-CGPA), shall be considered to have completed the requirements of B.C.A. (Science) Programme and CGPA shall be calculated for such successful students. The degree will be awarded by Savitribai Phule Pune University.

20) IMPROVEMENT OF CLASS:

a. A Candidate will be allowed to re-appear for the examination for improvement of class or grade within a period of 2 years from the date of his/her passing bachelor's degree examination. Only 1 attempt for improvement will be allowed, according to the syllabus in existence at the time of improvement.
b. A Candidate shall have to reappear for minimum 1/3rd and /or maximum all the theory courses (except practical and project) at a time on which the class is awarded.
c. A Candidate who has appeared for improvement of class and fails to improve his/her - class, his/her performance at such reappearance shall be ignored.
d. A Candidate appearing for the improvement of class grade shall not be entitled to be in the list of Rank holders/ Merit holders.
e. Improved candidates will have to surrender the degree, statement of marks, passing certificate in original, after the declaration of their results of the concerned improved class. After surrendering the above documents in original, a new certificate will be issued in due course of time as in usual process.