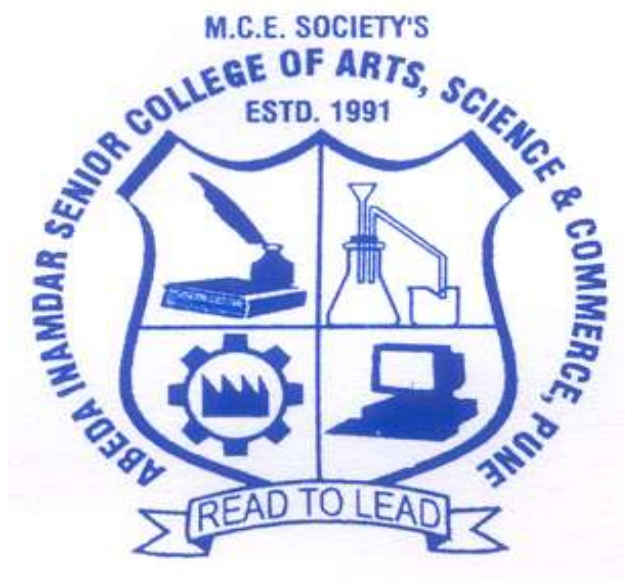M.C.E. Society's

ABEDA INAMDAR SENIOR COLLEGE OF ARTS, SCIENCE AND COMMERCE (AUTONOMOUS), PUNE

FACULTY OF SCIENCE

B.Sc. PROGRAM STRUCTURE

Under NEP 2020

Choice-Based Credit System (CBCS) Under Autonomy

(Semester Pattern)

Bachelor of Science (B.Sc.) Program (**2023 Pattern**)

With effect from June 2023

M.C.E. Society's

ABEDA INAMDAR SENIOR COLLEGE OF ARTS, SCIENCE

AND COMMERCE (AUTONOMOUS), PUNE

AZAM CAMPUS, CAMP, PUNE – 411001

For the Award of

Bachelor of Science (B.Sc.), B.Sc. Honours and B.Sc. Honours with Research

Applicable for the Autonomous College affiliated to

Savitribai Phule Pune University

B.Sc. Degree Course (Choice Based Credit System)

With effect from June 2023

B.Sc. PROGRAM STRUCTURE

FACULTY OF SCIENCE

1) INTRODUCTION:

The B.Sc. Degree Course (2023 pattern) will be introduced in the following order:

a.	First Year B.Sc.	**2023-2024**
b.	Second Year B.Sc.	**2024-2025**
c.	Third Year B.Sc. Degree	**2025-2026**
d.	Fourth Year B.Sc. Honours	**2026-2027**
e.	Fourth Year B.Sc. Honours with Research	**2026-2027**

B.Sc. Degree Course will consist of six/eight semesters divided into three/four Years. The first year (Semester I and II), Second Year (Semester III and IV), Third Year (Semester V and VI) and Fourth Year (Semester VII and VIII). The Choice Based Credit System will be followed and examination will be held at the end of each semester.

2) PROGRAM OBJECTIVES:

a) To empower students to take up the responsibilities in various functional areas in an organisation.

b) To impart experiential learning to provide practical exposure on the subjects.

c) To develop business skills among students that satisfies the requirements of business and industry.

d) To develop social and ethical values for good business practices and employability through entrepreneurial skills.

e) To prepare students to pursue higher education and build their professional qualification.

3) ELIGIBILITY:

a) Higher Secondary School Certificate (10+2) or its equivalent Examination with English with any three science subjects such as Physics, Chemistry, Biology, Mathematics, Geography, Geology, etc.

<div align="center">OR</div>

b) Three Years Diploma Course of Board of Technical Education conducted by Government of Maharashtra or its equivalent.

<div align="center">OR</div>

c) Three Years Diploma in Pharmacy Course of Board of Technical Education conducted by Government of Maharashtra or its equivalent.

<div align="center">OR</div>

d) Intermediate Science Examination with Compulsory English, Physics, Chemistry, Biology/Mathematics or any other three subjects from the Board of Secondary Education M.P. Bhopal, as a regular candidate.

<div align="center">OR</div>

e) The Students who have completed three years Semi English Krishi Tantra Niketan of Mahatma Phule Krishi Vidyapeeth, Rahuri are eligible; however such cases should be approved by equivalence committee of science faculty.

<div align="center">OR</div>

f) Higher Secondary School Certificate (10+2) Examination with English and any of the following vocational subjects of + 2 levels (MCVC).

g) Eligibility of B.Sc. (Computer Science): No Candidates shall be admitted to the First Year of the B.Sc. (Computer Science) Degree Course (2021 pattern) unless he/she has passed the Higher Secondary School Certificate Examination with Mathematics as a passing course.

4) SUBJECT COMBINATION and TYPES OF COURSES:

Courses offered as per NEP (2020) Guidelines

1. Major – 50% credits (Minimum)

The candidate will select one of the following as Major.

Chemistry, Microbiology, Environmental Science, Mathematics, Computer Science

2. Minor – 20 credits (Minimum)

The candidate will select one of the following as Minor.

Zoology, Microbiology, Botany, Physics, Mathematics, Statistics, Environmental Science, Chemistry, Biotechnology

3. Courses from Six Vertical to be selected from the basket of Courses offered by the college

- **VSC (Vocational Skill Course)** Hands on training/ skill based practical oriented course- Related to Major and/or Minor

- **SEC (Skill enhancement Course)** - Any science subject

- **CC (Co-curricular courses)** -Yoga/ Sports, Cultural, NSS/ NCC, Fine /Performing arts, Health & Wellness, Physical Education, Sports and Yoga.

- **VEC (Value education course)**-Understanding India,/EVS / Digital Technological solutions/courses

- **AEC (Ability Enhancement Course)** Languages-English compulsory in First year, second language choice- Hindi/Marathi/Urdu (MIL)
- **IKS (Indian Knowledge System)-** Subject Specific IKS related to Major + IKS General
- **FP (Field Projects)/CEP (Community Engagement Program) / Internships/ OJT (On Job Training)** Related to Major subject
- **OE (Open Electives)** – 2/4 Credit Courses from Arts/Commerce faculty.

5) **TEACHING HOURS:**

All courses under the faculty of science will be of 2 credits each. The theory courses will be taught for 30 hours and Practical courses for 60 hours. All the major and minor subjects will have Practical Courses. In addition VSC and SEC may also have practical modules.

6) **MEDIUM OF INSTRUCTION:**

The medium of instruction for B.Sc. Degree shall be English except for languages other than English.

7) **SCHEME OF CREDITS (Academic/CGPA) & ACADEMIC BANK OF CREDIT**

Total Credits for B.Sc. Course (2023 pattern)

SEM	Major		Minor	VSC	SEC	CC	VEC	AEC	IKS	INT/FP/ CEP/OJT	OE	TOTAL
	Core	Elective										
1	6	-	-	2	2	2	2	2	2	-	4	22
2	6	-	4	2	2	2	2	2	-	-	2	22
3	8	-	4	2		2	-	2	-	FP-2	2	22
4	8	-	4	-	2	2	-	2	-	CEP-2	2	22
5	10	4	4	2+2	-	-	-	-	-			22
6	10	4	4	-	-	-	-			INT /OJT- 4		22
3-Year Course	**48**	**8**	**20**	**10**	**06**	**08**	**04**	**08**	**02**	**08**	**10**	**132**
7	14	4	RM 4	-	-	-	-	-	-	-	-	22
8	14	4	-	-	-	-	-	-	-	INT/ OJT-4	-	22
4-Year Course UG Honours	**76**	**16**	**24**	**10**	**06**	**08**	**04**	**08**	**02**	**12**	**10**	**176**
7	10	4	RM4							RP 4		22
8	10	4								RP 8		22
4-Year Course UG Honours (Research)	**3**	**16**	**24**	**10**	**06**	**08**	**04**	**08**	**02**	**20**	**10**	**176**

Note: Each course (Theory/Practical/SEC/VEC/IKS/AEC/VSC/OE) will be of 2 credits except RM, OJT and RP which will be of 4/8 Credits as per the table.

Academic Bank Of Credits (ABC): The "Academic Bank of Credits" (ABC) is a notional level digital platform created to provide students with increased flexibility and mobility in their educational pursuits, allowing them to accumulate and transfer academic credits across different programs and institutions. The Academic Bank of Credits will facilitate multiple entries and multiple exits for students by storing student credits and transferring credit through a single window after approval of the source and destination academic institution. Students should register for a unique ABC ID through the ABC platform (https://www.abc.gov.in/). Through this platform students can log in to check their earned credits. Students are expected to follow the guidelines issued by the concerned authorities in this regard from time to time.

8) **DURATION:**

   a) With effect from Academic Year 2023-24, three years/four years Degree Program will be introduced. Thus, the Fourth year Honours/ Honours with Research program (Level 6.0) will begin with effect from Academic Year 2026-27.

   b) Under four-year UG Degree (Honours with Research), the students will work on a research project or dissertation of 12 credits in the fourth year in the respective Major Subject. The decision regarding the distribution of 12 credits in Semester VII and VIII of fourth year will be taken by Academic Authorities of University/ Autonomous Colleges.

   c) Minimum CGPA of 7.5 or minimum 75% at three year degree will be required for admission to the fourth year of four year Honours with Research Degree Programmes as per UGC guidelines.

9) **ATTENDANCE:**

   No candidate shall be allowed to appear for the semester end examinations (External Examination) unless he/she has minimum 75% of attendance in each semester.

10) **COLLEGE TERMS:**

   The dates for the commencement and conclusion of the first and the second terms shall be as defined by the College. Only duly admitted students can keep the terms. The relevant ordinances pertaining to grant of terms as per NEP 2020 guidelines issued by UGC/Maharashtra State Government/Savitribai Phule Pune University will be applicable. **(Reference: शासन निर्णय क्रमांक: एनईपी-2022/प्र.क्र.09/विशि -३/शिकाना)**

11) METHODS OF EVALUATION AND PASSING CRITERIA:

Each student will be assessed by 60:40 pattern as – ESE + CIE (30 + 20) per Semester for Major and Minor Theory and Practical courses, VSC, SEC, AEC and OE courses as follows:

For Continuous Internal Evaluation (CIE), Evaluation will be done continuously. Internal assessment will be of **20** marks for a paper of 50 Marks.

These 20 marks are divided as follows:

Sr. No.	Component of CIE for Theory	Marks	Reduced to
a	Online 2 MCQ Tests of 10 Marks each	20	5
b*	Two Assessments of 10 Marks Each	20	5
C	Compulsory Mid Sem Exam	20	10
The total of the above will be considered for Internal 20 marks			

Methods of Assessment for Category b*: The subject teacher needs to adopt anyone out of the following methods for assessment under category b. Written Exam, Presentations, Projects, Assignments, Tutorials, Quiz, Oral examination, Open Book Test and Others.

Sr. No.	Component of CIE for Practical	Marks	Reduced to
a	Attendance	5	-
b	Journal	5	-
c	Viva Voce	10	5
d	Mock Practical Examination	10	5
The total of the above will be considered for Internal 20 marks			

All the papers under General IKS and VEC will be assessed as CIE + ESE at the departmental level. The CC courses will be assessed as CIE Only.

Co-curricular Courses

- A 2 credit course from the basket of courses offered by the college.
- Workshop-based activities / Filed Visits/ Model and Poster Competitions/Poster and Paper Presentation: Events where students perform relevant activities assigned by teacher will earn 2 Credit for minimum of 30 hours engagement.
- Seminar/ Group Discussion: A minimum of 15 hours of participation in seminar/ Group Discussion activity per credit in a semester is required.

INT/FP/CEP/OJT

- On Job Training (OJT): Credits for Internship (INT)/ Apprentice shall be one credit per one week of internship (or 30 hours of engagement), subject to a maximum of four credits per Semester. The internship shall be monitored jointly by the faculty and Industry/Organisation Mentor.

- Field-based Learning/ Practices (FP): These are the courses requiring students to participate in field-based learning/projects generally under the supervision of faculty. A minimum of 30 hours of learning activities per credit in a semester is required.

- Community engagement and service (CEP): These are the courses requiring students to participate in field-based learning/projects generally under the supervision of faculty. The curricular component of 'community engagement and service' will involve activities that would expose students to the socio-economic issues in society so that the theoretical learnings can be supplemented by actual life experiences to generate solutions to real-life problems. 30 hours of contact time per credit in a semester along with 15 hours of activities such as preparation for community engagement and service, preparation of reports, etc., and independent reading and study. Thus, the total learner engaged time would be 90 hours for a 2-credit course.

12) **END SEMESTER EXAMINATION (FINAL):** Question papers will be set for Thirty Marks (One and Half Hour Duration) for Theory and Thirty Marks (Three and Half Hour) for Practical Examination.

Criteria for Paper Setting of CIE and End Semester Examination

Knowledge	Understanding	Applications, Analysis, Problem Solving	Total Marks
50%	25%	25%	100%

13) **STANDARD OF PASSING:**

   a) A student must obtain a minimum of 40% marks each in Continuous Internal Evaluation (CIE), End Semester Examination and Practical Examination.

   b) Passing separately in Internal Assessment, Practical Examination and End Semester Examination is compulsory.

   c) Students who are failed in Continuous Internal Evaluation (CIE) in a semester can reappear for the same in the next semester.

   Further, entry and exit options will be applicable as per NEP 2020 guidelines/notifications issued by UGC/Maharashtra State Government/Savitribai Phule Pune University. (Reference: शासन निर्णय क्रमांकः एनईपी-2022/प्र.क्र.09/विशि - ३/शिकाना)

14) A.T.K.T. RULES:

a) If a candidate fails in all the courses (subject heads) of Semester I, shall be allowed to proceed to semester II. The candidate has to earn minimum 22 credits (50% of total credits) in First Year to progress to Second Year.

b) Minimum number of credits required to take admission to third year of B.Sc.: 44 credits of Courses (100% Credits) of F.Y.B.Sc. and at least 22 Credits (50%) from Course from S.Y.B.Sc.

c) Minimum number of credits required to take admission to fourth year of B.Sc.: Total of 88 (100% Credits) credits of Courses of F.Y.B.Sc. and S.Y.B.Sc. and at least 22 Credits (50%) from Course from T.Y.B.Sc.

d) For admission to the fourth year of four year Honours with Research Degree Programmes as per UGC guidelines: Minimum CGPA of 7.5 or minimum 75% at three year degree.

15) VERIFICATION AND REVALUATION:

a) The candidate may apply for verification and revaluation of result through Principal of the College which will be done by the college as per the respective ordinances.

b) Verification or Revaluation will be done only for Semester End Examination and not for CIE and Practical Courses.

16) COURSEWISE COMPLETION OF CREDITS:

a. UG Certificate : 40- 44

b. UG Diploma : 80-88

c. UG Degree: 120-132

d. UG Honours Degree: 160- 176

e. UG Honours with Research Degree: 160- 176

17) GRADING AND STRUCTURE OF TRANSCRIPT:

Conversion of percentage into credit(s) and grade(s): The following illustrations could be taken as an example for computing SGPA and CGPA from percentage to credits for degree program courses in Science subjects.

Grades Points and Grade

Sr. No.	Numerical Grade	Grade Letter
1)	9.5 or more than 9.5	O (Outstanding)
2)	8.25 or more but less than 9.50	A+ (Excellent)
3)	6.75 or more but less than 8.25	A (Very Good)

4)	5.75 or more but less than 6.75	B+ (Good)
5)	5.25 or more but less than 5.75	B (Above Average)
6)	4.75 or more but less than 5.25	C (Average)
7)	4.00 or more but less than 4.75	D (Pass)
8)	Less than 4.00	F (Fail)
9)	Absent	Ab (Absent)

Conversion of Marks into GP and GL

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

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

18) PERFORMANCE INDICES:

a) The performance of every student in each semester will be indicated by a number up-to two decimal places.

b) This number will be called as Semester Grade Point Average (SGPA).

c) The Semester End Marksheet will be declared at the end of each semester and it will contain grade for all the courses of that semester along with course codes and titles and SGPA.

The SGPA will be calculated as follows:

$$SGPA = \frac{\sum_{i=1}^{p} C_i G_i}{\sum_{i=1}^{p} C_i}$$

$$SGPA = \frac{\sum Grade\ Points\ Earned\ x\ Credits\ for\ Each\ Course}{Total\ Credits}$$

The Final grade sheet and transcript will contain SGPA as well as Cumulative Grade Point Average (CGPA). CGPA is the weighted average of the entire course (Theory/Practical/Project) of first to six semesters.

19) GRADE IMPROVEMENT

Subject to change as per the NEP 2020 guidelines/notifications issued by UGC/Maharashtra State Government/Savitribai Phule Pune University. **(Reference:** शासन निर्णय क्रमांकः एनईपी-**2022/प्र.क्र.09/विशि -३/शिकाना)**

A Candidate will be allowed to re-appear for the examination for improvement of Class or grade within a period of 3 years from the date of his/her passing Bachelor Degree examination. Only 1 attempt for improvement will be allowed, according to the syllabus in existence.

a) A Candidate shall have to reappear for minimum $1/3^{rd}$ and /or maximum all the courses at a time on which the class is awarded. However, reattempted paper can not be chosen by the candidate for the purpose of class improvement.

b) 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.

c) A Candidate appearing for the improvement of Class grade shall not be entitled to be in the list of Rank holders/ Merit.

d) Improved Candidate 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, new certificate will be issued in due course of time as in usual process.

GLOSSARY:

- **Academic Year:** The duration of two consecutive (one odd and one even) semesters constitutes one academic year.

- **Choice Based Credit System (CBCS):** The CBCS provides choice for students to select from the prescribed courses (core courses, discipline specific electives, generic elective, ability enhancement compulsory courses, skill enhancement courses, mandatory non-CGPA courses etc.).

- **Program:** An educational program leading to award of a degree.

- **Course:** Usually referred to, as 'paper' is a component of a program. Each course should define learning objectives and learning outcomes. A course may be designed to comprise lectures, field work, outreach activities, project work, vocational training, viva, seminars, term papers, assignments, presentations, self-study etc. or a combination of some of these.

- **Credit(C):** A unit by which the course work is measured. It determines the number of hours of teaching/ instruction required per week.

- **To earn 1 credit, minimum 15 hours of teaching/ instruction is required.**

- A 2 credits theory course requires a minimum duration of 30 hours of teaching in a semester

- A 2 credits practical course requires a minimum duration of 60 hours of practical work in a semester.

- **Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B, C, P and F. The Letter Grades, Grade Points and scale of UGC are adopted. Grading is done using Letter Grades as qualitative measure of achievement in each Course like: O (Outstanding), A+ (Excellent), A (Very Good), B+ (Good), B (Above Average), C (Average), P (Pass), F (Fail) and Ab (Absent), based on the percentage (%) of marks scored in (CIE+SEE) of the Course and conversion to Grade.

- **Grade Point (GP):** It is a numerical weight allotted to each letter grade on a 10-point UGC scale viz. O=10, A+=09, A=08, B+=07, B=06, C=05, P=04, F=00 & Ab=00.

- **Credit Point (CP):** The numerical value obtained by multiplying the grade point (GP) by the no. of credit(C) of the respective course i.e. CP= GP X C.

- **Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit

points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

- **Semester Grade Point Average (SGPA):** It is a measure of performance of work done in a semester. It is ratio of total credit points (CPs) secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

- **Semester:** Each semester shall consist of 15-18 weeks of academic work equivalent to 90/100 actual teaching days. The odd semester may be scheduled from June to December and even semester from January to May.

- **Transcript:** Based on the grades earned, a transcript shall be issued to all the registered students after every semester. The transcript shall display the course details (code, title, no. of credits, grades secured) along with SGPA of that semester and CGPA earned till that semester at the end of each academic year. The students shall be issued transcript for each semester and a consolidated transcript indicating the performance in all the semesters at the completion of the program.

- **Absolute Grading:** Under the absolute grading, the marks are converted to grades based on pre-determined class intervals.

- **Continuous Internal Evaluation (CIE)** and **Semester End Examinations (SEE)** are two key assessment methods. For all theory courses/papers, the ratio of CIE & SEE is 40:60. Thus a course of 100 Marks shall have 40 CIE + 60 SEE which includes 20 marks for Practical Courses.

- **Program Span (PS):** The program's maximum time for completion shall be: Duration of Program plus additional two 2 years.