



Savitribai Phule Pune University, Pune (Formally Pune University)

3-Year / 4-Year UG Credit Framework For Faculty of Science and Technology (Science only)

Disclaimer

As per National Education Policy - 2020 (NEP-2020), this document provides

- 3-year / 4-year UG Structure,
- Credit Framework,
- Guidelines to the Stakeholders
- Selection of Courses,
- Credits Allocated,
- Assessment Procedure, etc.

With

- Major Courses,
- Minor Courses,
- Different Verticals Courses,
- Multiple-Entry / Exit,
- Multi-disciplinary Options, etc.

This credit framework is adopted by the **Savitribai Phule Pune University, Pune** as per Government of Maharashtra circulars dated 20th May, 2023 and 13th March, 2024, and has been approved by the **Faculty, Academic Council, and Management Council** of the S. P. Pune University.

Prof. (Dr.) Dhole Sanjay,
Co-ordinator, IQAC Cell, SPPU, Pune.

Prof. (Dr.) Patil Pramod,
Dean, Faculty of Science and Technology, SPPU, Pune.



Message from Hon'ble Vice Chancellor

Dear Stakeholders,

A warm welcome to the new applicant students, who are beginning on a new and exciting academic journey of higher education. The Savitribai Phule Pune University (SPPU), Pune should assiduously play its fundamental role in sculpting the future of youth of nation. The mission of university is to be a global, socially conscious center of excellence in the Conservation, Creation, Advancement and Dissemination of knowledge equipped to take up challenges of the enormous change taking place all around and committed to empower its faculty and students to contribute meaningfully to economic, technological and social development and progress. The university has been diligently pursuing the mission through its **18-schools** consisting of **58-departments** and **centers**. Referred to as the '**Oxford of the East**'. The University has been imparting quality education in an inclusive manner in assisting in the growth and development of students belonging to the various strata of the society at a reasonable cost. The University has been the leader in the field of education whilst implementing advanced technology or innovative ideas. The University has devoted resources to promote research and development culture and encourage innovation, new pedagogy and learning so as to create globally competent manpower. As a result, SPPU has become a preferred destination of higher education for the students from various parts of the country and abroad. The S. P. Pune University's name is the NIRF overall top 20 list of higher education institutes of India, and university receiving awards nationally and internationally. The SPPU should strive hard continuously to do better than its best and achieve greater heights in future.

In the present scenario, higher education plays an extremely important role in promoting human as well as societal wellbeing and in developing India as envisioned in its Constitution - a democratic, just, socially conscious, cultured, and humane nation upholding liberty, equality, fraternity, and justice for all. Higher education significantly contributes towards sustainable livelihoods and economic development of the nation. As India moves towards becoming a knowledge economy and society, more and younger Indians are likely to aspire for higher education. The National Education Policy-2020 (NEP-2020) has provided the university with another conduit to excel. It is obligatory for the higher education institutes (HEI's) to shake-up their curriculum and make it more of the learner-centric, and skill oriented. Such an opportunity is provided by the National Education Policy 2020 (NEP-2020) with aims at preparing students with knowledge, skills, values, leadership qualities; them for lifelong learning.

I am happy to present the Credit Framework developed by the SP Pune University for 3-year / 4-year UG programs as a part of the implementation of NEP-2020 from academic year 2024-25. This credit framework offers an undergraduate with certificate, diploma, and graduate with major and minor, research programs, and honors. The credit framework is learner-centric with wide range of academic diversity and flexibility for selection of courses of students' choice. Therefore, the students have options to choose different academic pathways of creative combinations of courses in cross-discipline and blended mode, with an opportunity of multiple-entry, and multiple-exit system. The students can develop critical, and innovative thinking with a major emphasis on acquiring skills, and holistic development along with a healthy blend of academics. The movement of the students through a path of learning, exposure and attitude to becoming job ready professionals with a interaction of skill, education, research, training, curricular, co-curricular, and extra-curricular activities, and they exposure to the work cultures in the leading industries through Internships, and On-Job-Training facilitates. The courses of different verticals such as Indian Knowledge System (IKS), Democracy and Constitution of India, NCC, NSS, Sports, Yoga, Health Fitness, Environmental Studies; are helps students to acquire democratic attitude, sense of social, and civic responsibilities. This the credit framework adopted by the University has been prepared after adopting suggestions from a series of meetings, and discussions by interactions with the members of management council, academicians, principals, professors, parents, and stakeholders.

I appreciate the sincere efforts developing this Framework made by the NEP Cell, and IQAC Cell of S.P. Pune University, Pune. I also acknowledge the contribution of the stakeholders, parents, Professors members of Board of Studies (BoS) in various subjects, Academic Council (AC), Management Council (MC), and Examination Section of the S.P. Pune University, Pune. I am sure that effective implementation of NEP-2020 certainly enable the learners from this region to join full human potential and develop well-rounded individuals.

As the Vice-Chancellor (VC), I wish you to hold this opportunity with interest and a sense of determination to make the most of it to learn and grow. I aspiration every success in future endeavors of the students.

Prof. (Dr.) Suresh Gosavi

Vice Chancellor,

S. P. Pune University, Pune.



Message from Hon'ble Pro-Vice Chancellor

Dear Stakeholders,

I am very happy to share that the Savitribai Phule Pune University, Pune believes that education and technology are excellent equalizers. As we all are aware, Maharashtra has a glorious legacy and tradition of educationists and social reformers. The thoughts and values propounded by them would continue to go a long way in order to inspire the University to excel in all her student-centric activities. The S. P. Pune University has interesting range of subjects available for the students ranging from Basic Sciences to Humanities, Commerce to Business Management, Education to Music, Nursing and Public Health Care to Cater to the needs of the rural and urban students in higher studies with the help of highly competent and dedicated faculty through multi-disciplinary streams. The S. P. Pune University is dedicated to impart quality and value based education in the true sense. The curriculum is updated regularly and rectified by the Industry experts and external experts from the leading regulatory authorities as well as national and international universities.

As a Pro-Vice Chancellor, I take this opportunity of welcoming students coming from all parts of the country and abroad, joining the S. P. Pune University in Undergraduate (UG), Postgraduate (PG) and Doctoral (PhD) programmes. As per NEP 2020, Students can have the subjects of their choice keeping in view of their interest in Research, Placement opportunities and continue for higher studies in their chosen field. Research on different subjects has been strengthened by establishing laboratories, and infrastructure through institutional, State and Central Government assistance. I am optimistic that the serenity of structure of curricular, co-curricular and extra-curricular activities will shape your physical, mental and intellectual growth. We are committed to attract the best students through motivation, merit scholarships, fellowships and tuition fee waivers and create conducive learning environment for value-based education in this university.

As a Pro-Vice Chancellor, I wish and assure you, on behalf of the University family, that we will help you pursue your objectives of life under the varied social, cultural and economic environment and make the university family proud of your attainments.

Prof. (Dr.) Parag Kalkar

Pro-Vice Chancellor,

S. P. Pune University, Pune.



Message from Hon'ble Dean of Science and Technology

Dear Students,

It is with great pleasure and enthusiasm that I welcome you to The Savitribai Phule Pune University, Pune. Science has always been at the forefront of innovation and progress, shaping the world we live in today. The basic purpose of science education is imparting knowledge and to make the students understand and discover themselves, realize their potential, and pursue their career in the specific subject of science. There is no compromise on the quality of science education. With this, the Savitribai Phule Pune University, Pune provide flexibility to science students with both horizontal and vertical integration of degrees by making our curriculum modular and flexible, resulting in a variety of convenient options to students with credit system as envisaged by NEP 2020. The affiliated Colleges/ Institutes and University campus has providing opportunities created for Co-curricular and extra-curricular activities along with excellence in academic performance. The University has offer a wide range of comprehensive and interdisciplinary B.Sc., M.Sc. and Ph.D. programs as per NEP-2020 in Physics, Statistics, Chemistry, Mathematics, Microbiology, Botany, Zoology, Material Science, Nanoscience, Biotechnology, and many more. University curriculum is designed to provide a strong foundation in fundamental principles while promoting hands-on learning, collaboration, and the application of knowledge in real-world contexts. University Board of Studies in subjects are constantly review and update our programs to ensure they align with the latest advancements and emerging trends in scientific research and industry. University and affiliated College/ Institutes faculties are encourage their students to actively participate in research projects, internships, and fieldwork opportunities, enabling them to gain practical experience and develop invaluable skills that will shape their future careers.

As the Dean, I am honored to lead a vibrant and dynamic community of scholars, researchers, and learners who are committed to the pursuit of knowledge and scientific excellence.

Prof. (Dr.) Pramod Patil

Dean, Faculty of Science and Technology,

S. P. Pune University, Pune.



Message from Hon'ble IQAC Co-ordinator

Dear Students,

I welcome you at the Savitribai Phule Pune University, Pune which is the fast growing and multidisciplinary university committed to provide quality education and research in the area of chosen discipline. To acquire that continuous learning, creativity, intellectualism, leadership and human values, co-curricular, extra-curricular, etc. tools are also provided. The S. P. Pune University has developed its systems to prepare students with right kind of knowledge and skills to success in their career and perform constructive roles in Nation building. The University has been implemented NEP-2020 from June 2024. Accordingly S. P. Pune University curricula pedagogy is designed and developed. Such curricula develop student a deep sense of respect towards the fundamental duties and constitutional values bonding with one's country, and also conscious awareness of one's roles and responsibilities in a changing world. The S. P. Pune University Science education is more than academics. Choosing science faculty in university is one of the important decisions in one's life. SPPU is offering UG, PG, and Ph.D. programs in science disciplines including Physics, Chemistry, Botany, Mathematics, Statistics, Zoology, Microbiology, Engineering and Technology, Pharmacy, Agriculture Science, Biotechnology, material Science, Nanoscience, and Vocational Studies. Hence, University vision about science faculty is to promote excellence in academics, provide education which is affordable and fulfilling students' aspirations. The Savitribai Phule Pune University curricula are most contemporary elevation updated as per UGC / Maharashtra Government regulatory norms and consisted of Choice Based Credit System (CBCS), which provides scope for interdisciplinary and multi-disciplinary learning, providing students freedom in choice of courses and credits. The Academic System of the S. P. Pune University is capable to promote skill oriented, quality based, holistic education, and industry integrated curricula to students through giving them a competitive edge at national and global levels.

As an IQAC Co-ordinator, I invite student to join S. P. Pune University, Pune and assure that your intellectual capabilities will be honed and you will be exposed to the most contemporary knowledge and emerge as the most successful career with graduates.

Prof. (Dr.) Sanjay Dhole

Co-ordinator, IQAC,

S. P. Pune University, Pune.

Salient Features of NEP-2020 for Higher Education

- ❖ Establishing national mission on foundational literacy and numeracy,
- ❖ Emphasis on promoting multilingualism and Indian languages (local/regional)
- ❖ No hard separation between arts and sciences,
- ❖ No hard separation between curricular and extra-curricular activities, (CC)
- ❖ No hard separation between vocational and academic streams,
- ❖ Setting up of new national assessment center PARAKH (Performance, Assessment, Review, Analysis of Knowledge for Holistic Development)
- ❖ Multidisciplinary and Holistic Education
- ❖ Flexible Curriculum Structure and Length of Programs
- ❖ Credit Recognition and Credit Transfer
- ❖ Multiple-Entry and Multiple-Exit
- ❖ Multi-disciplinary (Wide range of Elective Courses of multidisciplinary nature)
- ❖ Multi-institute
- ❖ Multi-mode (Education and Research)
- ❖ Credit Based System (CBS)
- ❖ Establishment of Academic Bank of Credits (ABC)
- ❖ Introducing vocationalization of courses (VEC)
- ❖ Access to Gender Equity
- ❖ Access to Persons with Disability (PwD) – Divyang Jan
- ❖ Setting up Technology-Enabled Teaching,
- ❖ Learning and Governance Online and Digital Education (ODL)
- ❖ Integrates research and internship with curriculum
- ❖ Setting up Industry – Institute partnership
- ❖ Setting up start-up incubation centers
- ❖ Setting up Internships - opportunities with local industry
- ❖ Promotion of Indian Knowledge Systems (IKS),
- ❖ Promotion of Culture and Values
- ❖ Integrating Culture and Arts, Seva / Service / Community Service programs
- ❖ Student Support - Mechanism for professional, academic, psychological and career counseling
- ❖ Setting up Research, Innovation and Rankings - National Research Foundation (NRF)
- ❖ All institutions will be held to similar standards of education
- ❖ Campuses of Indian HEIs abroad and vice-versa
- ❖ Global Outreach of Higher Education, etc.....

Background/Preamble

Education plays enormously significant role in building of a nation. There are quite a large number of educational institutions, engaged in imparting education in our country. Majority of them have entered recently into semester system to match with international educational pattern. However, our present education system is churning out youth who have to compete locally, regionally, nationally as well as globally. The present alarming situation necessitates transformation and/or redesigning of system, not only by introducing innovations but developing learner-centric approach. Majority of Indian higher education institutions have been following the system which obstructs the flexibility for the students to study the subjects/courses of their choice and their mobility to different institutions. There is need to allow the flexibility in education system, so that students depending upon their interests can choose inter-disciplinary, intradisciplinary and skill-based courses. This can only be possible when credit system (CS), an internationally acknowledged system, is adopted. The credit system not only offers opportunities and avenues to learn core subjects but also explore additional avenues of learning beyond the core subjects for holistic development of an individual. The CS will undoubtedly facilitate benchmarking of our courses with best international academic practices.

Preface :

In a bid to fine tune our scientific education system to the global standards and practices, the Credit-Grade based performance and assessment system will be implemented with effect from June 2024 onwards for all the Under Graduate Programmes (UG) under the Faculty of Science, Savitribai Phule Pune University, Pune, starting with First Year. With the advent of frontier science, technology and ever-changing expectations from the Industry and Society, it has become imperative to relook at the structure and subject contents of various UG courses to make it contemporary and relevant. As per the decision by the authorities of Savitribai Phule Pune University, the faculty of Science has prepared the choice based credit system and its structure. The revised course is of 132 credits (3 Years) / 176 credits (4 years) and 1 credit is equivalent to 15 hours.

Assessments in credit system consist of;

- a) In-semester continuous assessment, and
- b) End-semester assessment for the Theory head and Term Work/ Practical / Oral / Presentation at the end of the semester for Practical, Oral, Seminar and Project head.

The faculty of Science has shouldered the idea of incorporating latest advances in Science and technology and equip the subject/syllabus contents with latest and relevant topics and know-hows. Accordingly the new structure and syllabi are being introduced, to be implemented from the academic year 2024-25 from first year and it will continue for subsequent years.

1. All UG programmes, under Faculty of Science shall be offered with credit system.
2. All the B.Sc. programmes running under the Faculty of Science will be of Three years duration, and or Four years duration.
3. The total no. of credits required for the completion of the programme is 132 credits.
4. One credit is equivalent to 15 hours.

5. A student is required to earn 132 credits in a minimum period of six semesters to award degree with research or 176 credits in a minimum period of eight semesters to award honors degree.
6. There are other IKS, CC, VEC, etc. mandatory credits to be earned by the students for the award of degree.
7. Final CGPA will be calculated on the basis of 132 credits/176 credits.
8. There is 15 weeks of teacher-student interaction during the semester.
9. The 15 week is divided into 12 weeks teaching and 3 weeks for continuous assessment including preparation time to students during the semester.
10. The workload will be calculated on the basis of 12 weeks teaching only.

Advantages of the Credit System:

1. Shift in focus from the teacher-centric to student-centric education.
2. Student may undertake as many credits as they can cope with (without repeating all courses in a given semester if they fail in one/more courses).
3. Credit system (CS) allows students to choose inter-disciplinary, intra-disciplinary courses, skill oriented papers (even from other disciplines according to their learning needs, interests and aptitude) and more flexibility for students.
4. Credit system (CS) makes education broad-based and at par with global standards. One can take credits by combining unique combinations. For example, Physics with Economics, Microbiology with Chemistry or Environment Science etc.
5. Credit system (CS) offers flexibility for students to study at different times and at different institutions to complete one course (ease mobility of students). Credits earned at one institution can be transferred to another institution.

Implementation of UG course structure:

- 1) **For First year:** Student has to select 3 different subjects among the subjects offered by the College / Institute.
- 2) **For Second year:** Student has to select 2 subjects among 3 subjects chosen in first year (one is major and another is Minor). E.g. Physics is major and Chemistry is Minor, or Chemistry is Major and Botany is Minor.
- 3) **For Third year:** Major subject is main subject for third year. Degree should be awarded after 3 year is Major with Minor. E.g. Physics (Major) with Chemistry (Minor) or Chemistry (Major) and Botany (Minor).
- 4) **For Four year:** Major subject is main subject for four year. Degree should be awarded after 4 year is Major with Minor. E.g. Physics (Major) with Chemistry (Minor) or Chemistry (Major) and Botany (Minor).
- 5) CGPA will be calculated on the basis of core 132 credits/176 credits.
- 6) Each theory credit is equivalent to 15 clock hours of teaching and each practical credit is equivalent to 30 clock hours of teaching in a semester.
- 7) There is 15 weeks of teacher-student interaction during the semester.
- 8) The 15 week is divided into 12 weeks teaching and 3 weeks for continuous assessment including preparation time to students during the semester.

- 9) The workload will be calculated on the basis of 12 weeks teaching only.
- 10) For the purpose of computation of work-load the following mechanism may be adopted as per UGC guidelines.
- 11)
 - i) 1 Credit = 1 Theory period of one hour duration per week.
 - ii) 1 Credit = 1 Tutorial period of one hour duration per week.
 - iii) 1 Credit = 1 Practical period of two hour duration per week.
- 12) Each theory Lecture time for FY,SY,TY is of 60 min. (3 Lectures per week for 2 credit course)
- 13) Each practical session time for FY/ SY /TY is of 4 hour i.e. 240 min.
- 14) Exam pattern is 70-30 i.e. University assessment is of 70 % and continuous internal assessment is of 30 %.
- 15) For Internal examination, written test should be conducted of 15 marks for 2 credits.
- 16) Used assessment pattern for internal exams: Pattern is enclosed here.

General Guidelines for Selection of Courses

- 1) The Major subject is the course or discipline of main focus.
- 2) Bachelors' degree should be awarded in that Discipline / subject only.
- 3) Minor Subject(s) is/are the subjects from the same discipline / faculty and should act as supporting subjects to the Major.
- 4) At the entry level of the 3-year/4-year UG program, students should be required to choose **any-3** of the available subjects in a College / Institute as Major (subject-1), Major (subject-2) and Major (subject-3) subjects, respectively
- 5) Number of credits assigned to the Major (subject-1), Major (subject-2) and Major (subject-3) subjects should be same in Semester-I and II.
- 6) In the second year of the degree program, students should have to select **any-1** of the three subjects (subject-1, subject-2 and subject-3) as a Major Subject, and **any-1** as Minor Subject, while third subject should be discontinued.
- 7) Once they finalize their Major subject in the beginning of the second year of the programme, they should pursue their further education in that particular subject as the Major course. Therefore, from second year onwards curriculum of the Major and Minor subjects should be different.
- 8) Students are required to select Generic Elective (GE) /Open Elective (OE) compulsorily from the faculties different from their Major / Minor subjects.
- 9) The details of the Generic Elective (GE) /Open Elective (OE) are available in the document prepared by the respective Board of studies (BoS) in subject from which the student has chosen his/her GE/OE.
- 10) Students should be required to complete the Skill based courses of 06 credits in the first two years.
- 11) Vocational Skill Courses (VSEC or VSC) should be related to the Major course.
- 12) Ability Enhancement Courses (AEC):
 - a) English Communication Course (Language) is of 2 credits and should be offered in Semester-I and II.
 - b) Other Indian Languages is of 2 credits and should be offered in Semester-III and IV.
- 13) Courses marked as VEC, IKS (generic) and CC should be common for all the students irrespective of their faculties of studies.
- 14) Curriculum of VEC, IKS (generic) and CC should be provided by the University separately.

Eligibility for F.Y.B.Sc. Admission

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

OR

2. Three Years Diploma in Pharmacy (**D.Pharm.**) Course of Board of Technical Education conducted by Government of Maharashtra or its equivalent.

OR

3. Higher Secondary School Certificate (10+2) Examination with English and vocational subject of + 2 level (**MCVC**) / Medical Laboratory Technician (Subject Code P1 / P2 / P3)

Note :

- Admissions will be given as per the selection procedure / policies adopted by the respective college keeping in accordance with conditions laid down by the Savitribai Phule Pune University, Pune.
- Reservation and relaxation will be as per the Maharashtra Government rules.

Programme Duration and Exit Options

The minimum credit to be earned by a student per semester is 22-credits per semester. This provision is meant to provide students the comfort of the flexibility of semester-wise academic load and to learn at his/her own pace. However, the mandatory number of credits which have to be secured for the purpose of award of Undergraduate Certificate/Undergraduate Diploma/Appropriate Bachelor's Degree in subject are listed in the following table.

S. No.	Type of Award	Stage of Exit	Mandatory Credits to be Secured for the Award
1	Undergraduate Certificate in subject	After successful completion of Semester-II	44 and an additional 4 credits core NSQF Course/Internship
2	Undergraduate Diploma in subject	After successful completion of Semester-IV	88 and an additional 4 credits core NSQF Course/Internship
3	Bachelor of Science subject	After successful completion of Semester-VI	132
4	Bachelor of Science subject (Honors)	After successful completion of Semester-VIII	176
5	Bachelor of Science subject (Honors with Research)	After successful completion of Semester-VIII with minimum 28 GE credits in Discipline-2 (Minor)	176

MULTIPLE-EXIT Options:

1. Exit Option after First year:

Students may take exit after completion of first year with Certificate in major subject-1,2,3 on completion of minimum 44 credits and additional 4 credits of NSQF Skill/Vocational course in subject-1/subject-2/subject-3 **OR** Internship during summer vacation.

2. Exit Option after Second years:

Students may take exit after completion of second year of the programme with Diploma in Major (DSC) and Minor subject on completion of minimum 88 credits and additional 4 credits of NSQF Skill/Vocational course in subject-1/subject-2/subject-3 **OR** Internship during summer vacation.

3. Exit Option after Third years:

Students may take exit with a Degree as Bachelors of Science in Major (DSC) and Minor after earning minimum of 132 credits.

4. Exit Option after Fourth Years :

Students may take exit after completing 176 credits

- a) Bachelor of Science in Major (DSC) Honors and Minor.
- b) Bachelor of Science in Major (DSC) with Research and Minor.

Abbreviations Used

- PO : Programme Outcomes
- PS : Programme Structure
- TLP : Teaching-Learning Process
- AM : Assessment Method
- DSC : Discipline Specific Core
- DSE : Discipline Specific Elective
- OE : Generic Electives
- OP : Open Electives
- SEC : Skill Enhancement Courses
- VSC* : Vocational Skill Courses (Advanced course related to major subject)
- AEC : Ability Enhancement Courses
- IKS : Indian Knowledge System
- VEC : Value Education Courses
- OJT : On Job Training (Internship/ Apprenticeship)
- FP : Field projects
- CEP : Community engagement and service
- CC : Co-curricular Courses
- RM : Research Methodology
- RP : Research Project
- CGPA : Course Grade point Average
- SGPA : Semester Grade point Average

Baskets for different subjects

1. Major Courses (92 / 84 credits):

Basket-1

Each BOS should suggest major courses of 4 credits [2(T)+2(P)] for semester-I and semester-II. Every student have a freedom to choose 3-subjects of his choice from among the subjects made available by a particular College/Institute. The number of credits assigned to all the 3-Subjects are same. Student have a freedom to select any-1 subject of them as Major and any-1 as Minor course from second year onward.

2. Vocational Skill Courses (VSC) (08 credits) : Related to the Major Course:

Each BoS in subject should suggest 4-Vocational Skill Courses each of 02 credits to be offered in semester-III to semester-VI. These courses should be related to the Major subject.

3. Field Projects/ OJT/ Internship/Community engagement and service: Related to DSC major subjects:

The students should have to complete Field project (FP), On-Job-Training (OJT), Community engagement and service (CES), and Internship as per the credit framework in each semester.

- The students should have to complete Field project (FP) / On-Job-Training (OJT) / Community engagement and service (CES) / Internship of **10** credits in respective semester to award for 3-years degree.
- The students should have to complete Field project (FP) / On-Job-Training (OJT) / Community engagement and service (CES) / Internship of **22** credits in respective semester to award for 4-years degree with research.
- The students should have to complete Field project (FP) / On-Job-Training (OJT) / Community engagement and service (CES) / Internship of **14** credits in respective semester to award for 4-years honors degree.

4. Minor Courses (20 credits):

Basket-2

Total numbers of credits assigned to the Minor Courses are 20. A student of B.Sc. (Hons.) in major may be awarded Minor in a discipline, other than major, on completion of VIII Semester, if students earns minimum 28 credits from seven GE courses of that discipline.

5. Generic/Open Electives (08 credits): For students from faculties other than Science and Technology:

Basket-3

Generic/Open Electives (GE/OE) paper of 02 (T/P) credits to be offered in semester-I to semester-IV. GE/OE papers should be opted by the students from other faculties. Therefore, difficulty level of these courses should at beginners' level (4.0). Each BoS in subject should suggest a minimum of 1-GE/OE paper and a maximum of 4-GE/OE papers to be offered during semester-I to semester-VI. Students have freedom to choose 1-GE/OE paper from Basket-3 (common for all faculties) in each semester, provided these GE/OE courses are from other faculty.

6. Skill Enhancement Courses (SEC) (6 Credits):

Basket-4

Each BoS in subject should suggest 3-Skill Enhancement Courses each of 02 credits to be offered in semester-I, semester-II, and semester-IV. These courses should be related to the Major subject.

7. Indian Knowledge System (IKS) (Generic) (04 credits):

- It is common (Generic) for the students from all faculties to study Indian Knowledge System course of 02 credits for semester-I.
- Each BoS in subject should suggest Indian Knowledge System course of 02 credits to be offered in semester-III. These courses should be related to the Major subject.

8. Ability Enhancement Course (08 credits) : Common for all faculty students:

Basket-5

- One Language course each of 02 credits in the first four semesters.
- First English Language (02 credits) is compulsory for all disciplines each in semester-I and semester-II.
- Students have option to choose second language from the Language Basket-4 (02 credits) for all disciplines each in semester-III and semester-IV.

9. Value Education Courses (VEC) (04 credits) : Common and compulsory for all faculty students:

It is common and compulsory for all students of all faculties. Students have to complete 2-Value Added courses each of 02 credits during semester-I and semester-II.

- a. Constitution of India (02 credits) – Semester-I
- b. Environmental Studies (02 credits) – Semester-II

10. Co-curricular Courses (CC) (06 credits): Common for all faculty students:

Basket-6

Co-curricular courses are common across the faculty. Students need to complete **3 (three)** co-curricular courses like Health Education and Family Planning, Population Education, Sports, NCC, NSS each of 02 credits in semester-II, semester-III and semester-IV. Grades of Health Education and Family Planning, Population Education, Sports, NCC, NSS should be awarded to the students on the basis of their participation in University, Regional, National, International, Inter-University and Intra University level activities. Guidelines for the award of grades for various co-curricular courses e.g. Health Education and Family Planning, Population Education, Sports, NCC, NSS, etc. studies should be prepared by a Committee constituted by the University.

11. Discipline Specific Elective (DSE) Course (Major Elective):

Student can choose any subject which is chosen from a pool of major subject. This course may be very specific or specialized or advanced or supportive to the major subject of study. This subject provides an extended scope or enables an exposure to subject for the student proficiency/skill. Each BoS in subject should suggest major elective course of 02 credits to be offered in semester-V to semester-VIII. These courses should be related to the Major subject.

Programme Structure

The detailed Credit framework of undergraduate (UG) degree programme in subject for science faculty is provided in following table.

Level /Difficulty	Sem	Subject-1			Subject-2	Subject-3	GE/ OE	SEC	IKS	AEC	VEC	CC	Total	
4.5/100	I	2(T)+2(P)			2(T)+2(P)	2(T)+2(P)	2(T)	2(T/P)	2(T) Generic	2(T)	2	-	22	
	II	2(T)+2(P)			2(T)+2(P)	2(T)+2(P)	2(P)	2(T/P)	-	2(T)	2	2	22	
Exit Option: Award of UG Certificate in Major with 44 credits and an additional 4 credits core NSQF Course/Internship OR Continue with Major and Minor.														
Continue Option: Student will select one subject among the (Subject-1, Subject-2, and Subject-3) as major and another as minor and third subject will be dropped.														
Level /Difficulty	Sem	Credits related to major				Minor		GE/ OE	SEC	IKS	AEC	VEC	CC	Total
		Discipline Specific Core (DSC) Major Core	Discipline Specific Elective (DSE) Major Elective	VSC	FP/ OJT /CEP									
5.0/200	III	4(T)+2(P)	-	2(T/P)	2 (FP)	2(T)+2(P)	-	2(T)	-	2(T) Major Subject Specific	2(T)	-	2	22
	IV	4(T)+2(P)	-	2(T/P)	2(CEP)	2(T)+2(P)	-	2(P)	2(T/P)	-	2(T)	-	2	22
Exit Option: Award of UG Diploma in Major and Minor with 88 credits and an additional 4 credits core NSQF Course/Internship OR Continue with Major and Minor.														
5.5/300	V	8(T)+4(P)	2(T)+2(P)	2(T/P)	2 (FP/ CEP)	2(T)	-	-	-	-	-	-	-	22
	VI	8(T)+4(P)	2(T)+2(P)	2(T/P)	4(OJT)	-	-	-	-	-	-	-	-	22
Total 3 Years		44	8	8	10	18	8	8	6	4	8	4	6	132
Exit Option: Award of UG degree in Major with 132 credits OR Continue with Major and Minor.														
6.0/400	VII	6(T)+4(P)	2(T)+2(P)	-	4(RP)	4(T)(RM)	-	-	-	-	-	-	-	22
	VIII	6(T)+4(P)	2(T)+2(P)	-	8(RP)	-	-	-	-	-	-	-	-	22
Total 4 Years		64	16	8	22	22	8	8	6	4	8	4	6	132
Exit Option: Award of UG Honors with Research Degree in Major and Minor with 176 credits.														
-OR-														
6.0/400	VII	10(T)+4(P)	2(T)+2(P)	-	-	4(T)(RM)	-	-	-	-	-	-	-	22
	VIII	10(T)+4(P)	2(T)+2(P)	-	4(OJT)	-	-	-	-	-	-	-	-	22
Total 4 Years		72	16	8	14	22	8	8	6	4	8	4	6	132
Exit Option: Award of UG Honors Degree in Major and Minor with 176 credits.														

Assessment Methods

The primary objective of assessment will be to assess the learning outcomes of the course in tune with the broad outcomes of strengthening core theoretical knowledge base, practical laboratory skills, and research. Assessment will be based on continuous evaluation (MCQs, Short Questions (SQ), Class Test (CT), Seminar, Presentation (PPT), Group Discussion (GD), Quiz, Assignment, Tutorials, etc.) and end of semester examination of Savitribai Phule Pune University, Pune.

(i) Internal Assessment or Continuous Evaluation:

During a semester, students' mastery of the various learning outcomes as described in the syllabus will be assessed through MCQs, Short Questions (SQ), Class Test (CT), Seminar, Presentation (PPT), Group Discussion (GD), Quiz, Assignment, Tutorials, etc. Each theory paper and practical paper will have 15 marks for internal assessment. The critical analysis of internal assessment or continuous evaluation outcomes will provide opportunities to improve the teaching-learning process by focusing on the areas that need conceptual strengthening, laboratory exposure or design of new experiments, and research.

(ii) End of Semester University Examinations:

The summative end-semester university examinations will be conducted for both theory and practical courses. Besides internal assessment, each theory paper and each practical paper will be of 35 marks for end of semester examination of the university.

Scheme of Examination

The total marks for a 2-credits course is 50.

- Theory Paper of 02 Credits:
 - ❖ Internal Exam (15 M) + University Theory Exam (35 M) = Total 50 Marks.
 - ❖ Duration: For Internal exam = 40 Min. and for University Exam = 02 hours.
- Practical Paper of 2 Credits:
 - ❖ Internal Exam (15 M) + University Practical Exam (35 M) = Total 50 Marks.
 - ❖ Duration: For Internal exam = 40 Min. and for University Exam = More than 04 hours.

Internal exam will be conducted by particular college/institutes at the end of each semester.

External exam will be conducted by Savitribai Phule Pune University, Pune at the end of each semester.

Note:

- a) Each semester comprises of 15 weeks.
(12 weeks Actual Teaching + 3 weeks for Continuous Internal Evaluation).
- b) One Credit of the Theory is equal to 15 clock hours (Teaching 1 hour per week for each credit).
(12 hours Actual Teaching + 3 hours Continuous Internal Evaluation – Assignments, Tutorials, Practice, Problem solving sessions, Group discussion, Seminars and Unit Tests.)
- c) One Credit of Practical = 30 clock hours (2 Contact hours per credit per week)

(24 hours' Actual Table work + 6 hours for journal competition, and Continuous Internal Evaluation of each practical).

d) Practical for each course comprises of 02 Credits = 60 clock hours.

- Minimum 12 laboratory/ Filed sessions of 04 clock hours must be conducted in one semester.
- In case of short practical, two practical's should be conducted in one session.
- Each practical of 04 clock hours in the laboratory should consist of table performance for concerned practical, careful observations, calculation, writing results and conclusion, and submission of practical in written form.
- Pre-laboratory reading and post laboratory assignments should be given on each practical as a part of continuous internal evaluation.

Pattern for Internal Theory Assessment: (15 Marks)

Que-1: Choose correct option (MCQs) (10-MCQs with Multiple Options) – 5 marks

Que-2: Answer the following questions (Short answer questions) (any 5 out of 7) – 5 marks

Que-3: Answer the following questions (Short answer Definition/Problems/Diagram) (any 5 out of 7)–5 marks

Pattern for External Theory Assessment: (35 Marks)

Que-1: Answer the following questions (Short answer/Definition/Problems/Diagram, etc.) (Any 5 out of 7)–**5 marks**

Que-2: A) Answer the following questions (Long answer questions) – **6 marks**

i) -----

ii) -----

B) Answer the following questions (Long answer questions/Problems) – **4 marks**

i) -----

ii) -----

Que-3: A) Answer the following questions (Long answer questions) – **6 marks**

i) -----

ii) -----

B) Answer the following questions (Long answer questions/Problems) – **4 marks**

i) -----

ii) -----

Que-4: Write a short notes on following. (any 4 out of 6) –**10 marks**

a) -----

b) -----

c) -----

d) -----

e) -----

f) -----

Assessment of On-Job-Training (OJT) / Field Project (FP) / Project (PR) / CEP Course:

- a. Continuous assessment part (30% marks) (30 marks out of 100 **OR** 15 marks out of 50) of this course should be done by the mentor of the student, where student is supposed to complete his On-Job-Training. This should be based on the regularity, participation and performance of the students at the place of OJT/FP/CEP/PR.
- b. Semester End Assessment (70% marks) (70 marks out of 100 **OR** 35 marks out of 50) of this course should be done by a panel of examiners in two parts;
 - Based on the **work report submitted** by the student (50% marks), and
 - Remaining 50% marks should be based on his **presentation and viva-voce** on the work carried to be assessed by the panel of examiners.
 - This assessment shall be done along with **practical examinations** of respective courses / subjects.

Assessment of Co-Curricular Courses (CC):

- a. Assessment of the co-curricular course (CC) should be done by the respective course coordinator as a part of continuous assessment and be based on the regularity, performance of a student and his/her participation in various activities as prescribed in the regulations prepared in this regard.
- b. The End Semester Assessment of the co-curricular course (CC) should be done as per the regulations prepared in this regard. Assessment should be done on the basis of the write-up, presentation by the student on the activities that he/she has carried out in a semester.
- c. Students should have freedom to choose any one co-curricular course (CC). The score of the best performing co-curricular course (CC) should be considered for preparing his/her result.

Course Code, Course Number, and Vertical Code

1. Course Codes:

Subject Name	Subject Code	Subject Name	Subject Code
Physics	PHY	Zoology	ZOO
Mathematics	MTS	Biotechnology	BT
Statistics	STS	Nanotechnology	NT
Electronics	ELS	Industrial Microbiology	IM
Chemistry	CHE	Biodiversity	BD
Microbiology	MB	Marathi	MAR
Botany	BOT	English	ENG
		Hindi	HIN

2. Course Numbers:

Program	Year	Sem	Main subject	SEC	GE/OE	AEC	
UG	First Year	I	101 to 120	101 to 120	101 to 120	101 to 120	
		II	151 to 170	151 to 170	151 to 170	151 to 170	
	Major						
	Year	Sem	Major	Major Elective	VSC	FP /CEP /OJT /RP	Minor
	Second Year	III	201 to 219	-	221 to 229	231 to 239	241 to 249
		IV	251 to 269	-	271 to 279	281 to 289	291 to 299
	Third Year	V	301 to 309	310 to 319	321 to 329	331 to 339	341 to 349
		VI	351 to 359	360 to 369	371 to 379	381 to 389	391 to 399
	Fourth Year	VII	401 to 409	410 to 419	-	431 to 439	441 to 449
		VIII	451 to 459	460 to 469	-	481 to 489	-

3. Vertical Codes:

Vertical Name	Vertical Code	Vertical Name	Vertical Code
Major/Major Elective Theory	MJ	Skill Enhance Course	SEC
Major/Major Elective Practical	MJP	Indian Knowledge System	IKS
Minor	MN	Ability Enhance Course	AEC
Minor Practical	MNP	Value Education Course	VEC
Open Elective	OE	Field/Research Project	FP/RP
Generic Elective	GE	On-Job-Training	OJT
Vocational Skill Course	VSC	Community Engagement Services	CEP

Basket-1: List of Major subjects in Science (DSC)

Students willing to pursue their bachelors in the Faculty of Science and Technology should

- Choose **any-3** of the following as a subject-1, subject-2, subject-3, for first year.
- Choose **any-1** from the subject-1, subject-2, subject-3, as a Major course (DSC) for second year.
- Choose **any-1** from the subject-1, subject-2, subject-3, as a Minor course for second year **different than major which continue up to Third Year BSc** as per structure.
- For details of the course titles and contents, students are referred to syllabi prepared by respective Board of Studies available on the university website.

Subject Name	Subject Name
Physics	Botany
Mathematics	Zoology
Statistics	Biotechnology
Electronics	Microbiology
Chemistry	Industrial Microbiology
Nanotechnology	Biodiversity

Basket-2: List of Minor subjects in Science

Students willing to pursue their bachelors in the Faculty of Science and Technology should

- Choose **any-1** from the subject-1, subject-2, subject-3, as a Minor course for second year different than major.
- For details of the course titles and contents, students are referred to syllabi prepared by respective Board of Studies available on the university website.

Subject Name	Subject Name
Physics	Botany
Mathematics	Zoology
Statistics	Biotechnology
Electronics	Microbiology
Chemistry	Industrial Microbiology
Nanotechnology	Biodiversity
Wine Technology	Environmental Science
Geography	

Basket-3: List of Generic Elective/Open Elective in Science

Students willing to pursue their bachelors in the Faculty of Science and Technology should choose **any-1** GE/OE subject from the following subject **as per semester**. For details of the course titles and contents, students are referred to syllabi prepared by respective Board of Studies available on the university website. Students from faculties other than Science and Technology should select Generic Elective / Open Elective Courses as per semester.

Sr. No.	Faculty	Semester	Name of the Course	Code
1	B.A. (Mathematics)	I	1. Basic Mathematics- I 2. Applied Mathematics –I 1. Business Mathematics-I	OE-101 -MTS-T OE-102 -MTS-P OE-103 -MTS-T
		II	1. Basic Mathematics – II 2. Applied Mathematics – II 1. Business Mathematics-II	OE-151 -MTS-T OE-152 -MTS-P OE-153 -MTS-T
2	B.Sc. (Geology)	I	1. Minerals and Gems 2. Introduction to Earth Science 3. Introduction to Geohazards	OE-101- GL-P OE-102- GL-P OE-103- GL-T
		II	1. Introduction to Rocks 2. Study of Landforms	OE-151- GL-P OE-152- GL-T
3	B.Sc. (Mathematics)	I	1. Basic Mathematics- I 2. Applied Mathematics –I 3. Business Mathematics-I	OE-101 -MTS-T OE-102 -MTS-P OE-103 -MTS-T
		II	1. Basic Mathematics – II 2. Applied Mathematics – II 3. Business Mathematics-II	OE-151 -MTS-T OE-152 -MTS-P OE-153 -MTS-T
4	B.Sc. (Botany)	I	1. Agro-tourism 2. Plants and Human Welfare 3. Agriculture for Competitive Exams	OE-101-BOT-T OE-102-BOT-T OE-103-BOT-T
		II	1. Fruit Processing and Flower Arrangement 2. Mushroom technology 3. Vertical and Terrace Gardening	OE-151-BOT-P OE-152-BOT-P OE-153-BOT-P

5	B.Sc. (Electronics Science)	I	1. Basics of Computer Hardware	OE -101-ELS-T
		II	1. Basics of Compute Hardware	OE-151-ELS-P
6	B.Sc. (Environment al Science)	I	1. Environmental Pollution 2. Wildlife of India	OE-101-EVS T OE-102-EVS-T
		II	1. Practical in Environmental Pollution 2. Practical in Wildlife of India	OE-151-EVS-P OE-152-EVS-P
7	B.Sc. (Hospitality Studies)	I	1. Professional and Administrative Ethics	OE-101-HS-T
		II	1. Professional and Administrative Ethics	OE-151-HS-T
8	B.Sc. (Zoology)	I	1. Apiculture 2. Pet Breeding & Management	OE-101-ZOO-T OE-102-ZOO-T
		II	1. Apiculture 2. Wildlife Photography	OE-151-ZOO-P OE-152-ZOO-P
9	B.A. (Geography)	I	1. Geography of Tourism	OE-101-GEO-T
		II	1. Practical in Tourism Geography	OE-151-GEO-P
10	B.Sc. (Animation)	I	1. Basics of Digital Photography and Film Making	OE-101-ANM-T
		II	1. Basics of Image Editing and Video Editing (Lightroom + Filmora)	OE-151-ANM-P
11	B.Sc. (Fashion Design)	I	1. Psychology of Fashion	OE-101-FD-T
		II	1. Psychology of Fashion II	OE-151-FD-P
12	B.Sc. (Geography)	I	1. Geography of Rural Development 2. Agriculture Geography	OE-101-GEO-T OE-102-GEO-T
		II	1. Practicals in Rural Development 2. Practicals in Agriculture Geography	OE-151-GEO-P OE-152-GEO-P
13	B.Sc. (Physics)	I	1. Physics of Daily Life 2. Biological Physics	OE-101-PHY-T OE-102-PHY-T
		II	1. LED Light Repairing and Maintenance 2. Maintenance and Repairing of Physics Lab equipment	OE-151-PHY-P OE-152-PHY-P
14	B.Sc. (Home Science)	I	1. Nutrition for Health	OE-101-HSC-T
		II	1. Media Skill Development	OE-151-HSC-P
15	B.Sc. (Seed Technology)	I	1. Agro-tourism 2. Plants and Human Welfare 3. Agriculture for Competitive Exams	OE-101-ST-T OE-102-ST-T OE-103-ST-T

		II	1. Fruit Processing and Dehydration Technology 2. Mushroom technology 3. Vertical and Terrace Gardening	OE-151-ST-P OE-152-ST-P OE-153-ST-P
16	B.Sc. (Statistics)	I	1. Elementary Commercial Statistics 2. Elementary Statistics for Social Science	OE-101-STS-T OE-102-STS-T
		II	1. Practical on Elementary Commercial Statistics 2. Practical on Elementary Statistics for Social Sciences	OE-151-STS-P OE-152-STS-P
17	B.Sc. (Biotechnology)	I	1. Fundamentals of Environmental Biotechnology	OE- 101-BT-T
			2. Fundamentals of Food Biotechnology	OE- 102-BT-T
			3. Fundamentals of Agriculture Biotechnology	OE- 103-BT-T
		II	1. Practicals in environmental Biotechnology	OE- 151- BT-P
			2. Practicals in Food Biotechnology	OE-152- BT-P
			3. Practicals in agriculture Biotechnology	OE-153- BT-P
18	B.Sc. (Chemistry)	I	1. Kitchen and Daily Life Chemistry 2. Chemistry for Competitive Examination - I	OE-101-CHE-T OE-101-CHE-T
		II	1. Chemistry for Competitive Examination – II 2. General Chemistry Practical-I	OE-151-CHE-T OE-151-CHE-P
19	B.Sc. (Microbiology)	I	1. Microorganisms and Human Life	OE-101-MB-T
		II	1. Dealing With Microorganisms	OE -151-MB-P
20	B.Sc. (Wine, Brewing and Alcohol Technology)	I	1. Vine to wine	OE-101-WT-T
		II	1. Laboratory techniques in vine to wine	OE-151-WT-P
21	B.Sc. (Artificial Intelligence and Machine Learning)	I	1. Office Automation I 2. Introduction to Computers and Basics of Internet 3. Introduction to Google Apps I 4. Introduction to Computers I	OE-101-CS-T OE-102-CS-T OE-103-CS-T OE-104-CS-T
		II	1. Office Automation II 2. Computer Fundamentals 3. Introduction to Google Apps II 4. Introduction to Computers II	OE-151-CS-T OE-152-CS-T OE-153-CS-T OE-154-CS-T

22	B.Sc. (Data Science)	I	1. Office Automation I 2. Computer Fundamentals I 3. Introduction to Google Tools	OE-101-DS-T
		II	1. Office Automation II 2. Computer Fundamentals II 3. Introduction to Google Tools II	OE-151-DSP-P
23	B.Sc. (Information Technology)	I	1. MS Office Automation	OE-101-IT-T
		II	1. Tally Prime	OE-151-IT-P
24	B. Sc. (Cyber Science)	I	1. Office Automation 2. Introduction to Google Tools	OE-101-CYS-T
		II	1. Office Automation 2. Introduction to Google Tools	OE-152-CYS-P
25	B. Sc. (Computer Science)	I	1. Office Automation I 2. Introduction to Computers and Basics of Internet 3. Introduction to Google Apps I 4. Fundamentals of Computers I	OE-101-CS-T OE-102-CS-T OE-103-CS-T OE-104-CS-T
		II	1. Office Automation II 2. Computer Fundamentals 3. Introduction to Google Apps II 4. Fundamentals of Computers II	OE-151-CS-P OE-152-CS-P OE-153-CS-P OE-154-CS-T
26	B.C.A.	I	1. Introduction to Data Science	OE-101-CA-T
		II	1. Data Science Using Spreadsheet Software	OE-151-CA-P
27	B.Sc. (Computer Applications)	I	1. Introduction to Data Science	OE-101-CA-T
		II	1. Data Science Using Spreadsheet Software	OE-151-CA-P
28	B.A. (Statistics)	I	1. Elementary Commercial Statistics 2. Elementary Statistics for Social Science	OE-101-STS-T OEP-102-STS-T
		II	1. Practical on Elementary Commercial Statistics 2. Practical on Elementary Statistics for Social Sciences	OEP-151-STS-P OEP-152-STS-P
29	B. Sc. (Nanoscience and Nanotechnology)	I	1. Chemical and Biological technique for synthesis of nanomaterial	OE-101-NS-T
		II	1. Basic Characterization Techniques	OE-151-NS-T
30	F.Y.B.A. (Restructuring Pattern)	I	1. Foundation Course (Study of Indian and Global Concepts)	OE-101-RE-T
		II	1. Foundation Course-II	OE-151-RE-T

31	B.Sc. (Restructuring Pattern)	I	1. Foundation-I	OE-101-RE-T
		II	1. Foundation-II	OE-151-RE-P
32	B.Sc. (Aviation)	I	1. Physics of Aerodynamics	OE-101- BAV -T
		II	1. Engineering Graphics	OE-151- BAV -P
33	B. Sc. (Cyber and Digital Science)	I	1. Office Automation 2. Introduction to Google Tools	OE-101-CDS-T
		II	1. Office Automation 2. Introduction to Google Tools	OE-152-CDS-P

Basket-4: List of Skill Enhancement Courses (SEC)

Sr. No	Faculty	Semester	Name of the Course	Code
1	B.A. (Mathematics)	I	1. Python-I	SEC-101-MTS-P
		II	1. Python-II	SEC-151-MTS-P
2	B.Sc. (Geology)	I	1. Earth System Science	SEC-101-GL-T
		II	1. Gemmology	SEC-151-GL-P
3	B.Sc. (Mathematics)	I	1. Python-I	SEC-101-MTS-P
		II	1. Python-II	SEC-151-MTS-P
4	B.Sc. (Botany)	I	1. Flower Design Techniques 2. Post-Harvest Technology 3. Algal Technology	SEC-101-BOT-P SEC-102-BOT-P SEC-103-BOT-P
		II	1. Plant Preservation Techniques 2. Millets for Sustainable Agriculture Development 3. Plant Propagation Techniques	SEC-151-BOT-P SEC-152-BOT-P SEC-153-BOT-P
5	B.Sc. (Electronics Science)	I	1. Electronic Circuit Building and Testing	SEC-101- ELS-P
		II	2. PCB Designing and Fabrication	SEC-151- ELS-P
6	B.Sc. (Environmental Science)	I	1. Fundamentals of Environmental Geosciences	SEC-101-EVS-T
		II	2. Fundamentals of Environmental pollution	SEC-151-EVS-T
7	B.Sc. (Hospitality Studies)	I	1. Personality Development	SEC-101-HS-T
		II	2. Soft Skills for Hospitality Professionals	SEC-151-HS-T
8	B.Sc. (Zoology)	I	1. Vermiculture Management 2. Practicals in Advanced Vermitechnology	SEC-101-ZOO-T SEC-102-ZOO-P
		II	1. Dairy Production & Management 2. Practicals in Dairy Science	SEC-151-ZOO-T SEC-152-ZOO-P
9	B.A. (Geography)	I	1. Introduction to Water Analysis	SEC-101-GEO-T
		II	1. Practicals in water analysis	SEC-151-GEO-P
10	B.Sc. (Animation)	I	1. Character Design	SEC-101-ANM -P
		II	1. Digital Photography	SEC-151-ANM-P
11	B.Sc. (Fashion Design)	I	1. Basics of Embroideries	SEC-101-FD-T
		II	1. Basics of Embroideries II	SEC-151-FD-P
12	B.Sc. (Geography)	I	1. Introduction to Cartography 2. Introduction to Digital Mapping	SEC-101-GEO-T SEC 102-GEO-T
		II	1. Practicals in Cartographic Techniques 2. Practicals in Digital Mapping	SEC-151-GEO-P SEC-152-GEO-P

13	B.Sc. (Physics)	I	1. Experimental Skills in Physics 2. Physics of Water Filtration Systems 3. Renewable Energy and Energy Harvesting 4. Programming for Physical Applications (C++ / Python)	SEC-101-PHY-P SEC-102-PHY-P SEC-103-PHY-P SEC-104-PHY-P
		II	1. Numerical Techniques in Physics 2. Introduction to Laser and Fibre Optics 3. Radiation Safety 4. Basic Lab Electric devices and Circuits	SEC-151-PHY-P SEC-152-PHY-P SEC-153-PHY-P SEC-154-PHY-P
14	B.Sc. (Home Science)	I	1. Fabric Ornamentation	SEC-101-HSC-P
		II	1. Resource Management	SEC-151-HSC-P
15	B.Sc. (Seed Technology)	I	1. Flower Design Techniques 2. Post-Harvest Technology 3. Application of Pollen Biology in Bee	SEC-101-ST-P SEC-102-ST-P SEC-103-ST-P
		II	1. Plant Preservation Techniques 2. Millets for Sustainable Agriculture Development 3. Plant Propagation Techniques	SEC-151-ST-P SEC-152-ST-P SEC-153-ST-P
16	B.Sc. (Statistics)	I	1. MS-EXCEL for Data Analysis (Practical Course)	SEC-101-STS-P
		II	1. Computational Statistics using MSEXCEL (Practical Course)	SEC-151-STS-P
17	B.Sc. (Biotechnology)	I	1. Bioinstrumentation	SEC-101 BT-P
			2. Microscopic Techniques	SEC-102 BT-P
			3. Aseptic Techniques	SEC-103 BT-P
		II	1. Microbial culture techniques	SEC-151 BT-P
			2. Separation techniques	SEC-152 BT-P
			3. Computer in Biotechnology	SEC-153 BT-P
18	B.Sc. (Chemistry)	I	1. Chemistry Laboratory Skills - I 2. Chemistry Laboratory Skills – I	SEC-101-CHE(A)-T SEC-101-CHE(B)-P
		II	1. Chemistry Laboratory Skills –II 2. Basics in Computer for Chemistry	SEC-151-CHE(A)-T SEC-151 CHE (B)-P
19	B.Sc. (Microbiology)	I	1. Basic Skills in Microbiology Laboratory –I	SEC-101-MB-P
		II	1. Basic Skills in Microbiology Laboratory-II	SEC-151-MB-P
20	B.Sc. (Wine,	I	1. Handling and maintenance of equipment's in alcohol production	SEC-101-WT-P

	Brewing and Alcohol Technology)	II	1. Experiments in fruit processing	SEC-151-WT-P
21	B.Sc. (Artificial Intelligence and Machine Learning)	I	1. Basic Probability theory and Discrete Distributions	SEC-101-AIML-T
		II	1. Databases – I	SEC-151-AIML-T
22	B.Sc. (Data Science)	I	1. Computer Organization	SEC-101-DS-T
		II	1. Lab Course on Excel and Advanced Excel	SEC-151-DS-P
23	B.Sc. (Information Technology)	I	1. Database Management System	SEC-101-IT-T
		II	1. Practical based on Database Management System	SEC-151-IT-P
24	B. Sc. (Cyber Science)	I	1. Basics of Digital Communication	SEC-101-CYS-P
		II	1. Statistical Methods-I	SEC-151-CYS-P
25	B. Sc. (Computer Science)	I	1. Statistical Methods for Computer Science I	SEC-101-CS-P
		II	1. Statistical Methods for Computer Science II	SEC-151-CS-P
26	B.C.A.	I	1. HTML and Web Page Designing	SEC-101-CA-P
		II	1. Software Tools for Business Communications	SEC-151-CA-P
27	B.Sc. (Computer Applications)	I	1. HTML and Web Page Designing	SEC-101-CA-P
		II	1. Software Tools for Business Communications	SEC-151-CA-P
28	B.Sc. Statistics	I	1. MS-EXCEL for Data Analysis (Practical Course)	SEC-101-STS-P
		II	1. Computational Statistics using MSEXCEL (Practical Course)	SEC-151-STS-P
29	B. Sc. (Nanoscience and Nanotechnology)	I	1. C-Programming	SEC-101-NS-T
		II	1. Basic Instrumentation Skill	SEC-151-NS-T
30	B.A. (Restructuring Pattern)	I	1. Communication Skill in English –I 2. Communication Skill in Marathi-I 3. Preparation for Competitive Examinations-I 4. Nursery Development -I 5. Radio Repairing -I	SEC-101- RE-T SEC-102- RE-T SEC-103- RE-T SEC-104- RE-T SEC-105- RE-T
		II	1. Communication Skill in English -II 2. Communication Skill in Marathi - II 3. Nursery Development -II 4. Preparation for Competitive	SEC-151- RE-P SEC-152- RE-P SEC-153- RE-P SEC-154- RE-P SEC-155- RE-P

			Examinations -II 5. Radio Repairing -II	
31	B.Sc. (Restructuring Pattern)	I	1. Population Education – I 2. Family Planning and Health Education - I 3. National Service Scheme - I 4. National Cadet Corp –I 5. Sports – I	SEC-101- RE-T SEC-102- RE-T SEC-103- RE-T SEC-104- RE-T SEC-105- RE-T
		II	1. Population Education – II 2. Family Planning and Health Education -II 3. National Service Scheme - II 4. National Cadet Corp –II 5. Sports – II	SEC-151- RE-P SEC-152- RE-P SEC-153- RE-P SEC-154- RE-P SEC-155- RE-P
32	B.Sc. (Aviation)	I	1. Analog Electronics-I Lab	SEC-101- BAV-P
		II	1. Analog Electronics-II La	SEC-151- BAV-T
33	B. Sc. (Cyber and Digital Science)	I	1. Fundamentals of Digital Communication (Practical)	SEC-101-CDS-P
		II	1. Statistical techniques for Computer Science 2. Advance Excel	SEC-151-CDS-P

Basket-5: List of Ability Enhance Courses (AEC)

Students willing to pursue their bachelors in the Faculty of Science and Technology should;

- English language is compulsory AEC course for first year in both sem-I and sem-II.
- Choose **any-1** from the following language as an AEC course for second year.
- For details of the course titles and contents, students are referred to syllabi prepared by respective Board of Studies available on the university website.

Subject Name	Semester	Subject Code
English	1	AEC-101-ENG
	2	AEC-151-ENG
Marathi	3	AEC-232-MAR
	4	AEC-282-MAR
Hindi	3	AEC-231-HIN
	4	AEC-281-HIN

Basket-6: List of Co-curricular Courses (CC)

CC-151 : Co-Curricular Courses (Semester-II) (Credits : 02)

Co-curricular Course for Level 4.5, Semester-II (First Year) is of 2-credit course. Students are required to go through the list of following Co-curricular Courses and select any one of their interests. They will be allocated one course from the list. Experts from respective course will conduct classes on campus/Online through activities, discussions, presentations, and lecture methods. Students are required to submit a report on the activities performed related to topics of opted Co-curricular Course. Evaluation will be done based on the report of activities submitted by student. Faculty members will be allotted for mentoring the activities related to Co-curricular Course topic. Faculty members will frame the list activities to be performed by students with the help of experts in respective course.

Selecting co-curricular courses that align with your interests and goals can significantly enrich your educational journey. Remember to maintain a balance and choose courses that you are genuinely excited about. This approach will help you gain the most from your co-curricular activities.

Basket of Co-curricular Courses

- 1) Health and Wellness
- 2) Yoga education
- 3) Sports and Fitness
- 4) Cultural Activities
- 5) NSS
- 6) NCC
- 7) Fine Arts
- 8) Applied Arts
- 9) Visual Arts
- 10) Performing Arts: 04 credits
- 11) Dancing
- 12) Art of Short Film Making / Cinematography
- 13) Basics of Music Composition
- 14) Physical Fitness
- 15) Self Defense for Women
- 16) Jeevan Vidya (Work Life Balance)
- 17) Integrated Personality Development
- 18) Design Thinking
- 19) Innovation and Creativity
- 20) Principle Centered Leadership
- 21) Mentoring of School Children
- 22) Basics of Fire Safety

Here are some tips and ideas to help you choose the right courses:

1. Consider Your Interests and Hobbies :

Think about what you enjoy doing in your free time or what activities you have always wanted to try. Co-curricular courses can be a great opportunity to pursue passions outside your major.

2. Explore Different Fields :

Choosing courses from different areas can provide a well-rounded experience. For instance, you might pick one course related to arts, another in sports, and a third in community service.

3. Balance Your Schedule :

Ensure that the co-curricular courses fit well with your academic schedule and personal commitments. Avoid overloading yourself, as these courses should enhance your experience, not add undue stress.

4. Look at Course Benefits :

Some co-curricular courses offer skills that can be beneficial in your future career or personal development. For example, leadership training, public speaking, or project management.

5. Consult with Advisors or Seniors :

Talking to academic advisors, professors, or senior students can give you insights into which courses are popular, have good instructors, or offer valuable experiences.

Completion of Degree Courses :

- 1) A student who earn 44 credits at First year with additional 4 credits core NSQF Course/Internship shall be eligible for the award of UG **Certificate** in Major subject. **OR** May continue with Major and Minor.
- 2) A student who earn 88 credits at Second year with additional 4 credits core NSQF Course/Internship shall be eligible for the award of UG **Diploma** in Major subject with Minor (Selected at SY). **OR** May continue with Major and Minor.
- 3) A student who earn 132 credits at Third year shall be eligible for the award of UG **Degree** in Major subject with Minor (Selected at SY). **OR** May continue with Major and Minor.
- 4) A student who earn 176 credits at Four year shall be eligible for the award of UG **Honors** or **Honors with Research** in Major subject with Minor (Selected at SY).

For the award of degree, CGPA will be calculated for such students. On the basis of 132/176 credits, following grades are given in following table.

Sr. No.	Grade Letters	Grade Points	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
9	Ab (Absent)	0	-

Structure of Exam Marks Scheme :

Respective for example (e.g.) is given in following table.

Semester	Course name	Credits	Int Max marks	Ext Max marks	Total marks	Grade Letter	Grade Point	Credit Points (Credit x Grade Point)	
I (First) - Semester	Subject-1 (T)	2	15	35	50	O	10	20.00	
	Subject-1 (P)	2	15	35	50	A+	9	18.00	
	Subject-2 (T)	2	15	35	50	A	8	16.00	
	Subject-2 (P)	2	15	35	50	B+	7	14.00	
	Subject-3 (T)	2	15	35	50	B	6	12.00	
	Subject-3 (P)	2	15	35	50	C	5	10.00	
	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	
	Total	22	180	420	600	-	-	163.50	
SGPA					Total credit point / Total Credit for semester			7.43	
Similarly for II-Semester		22	180	420	600	-	-	160.50	
SGPA					Total credit point / Total Credit for semester			7.43	
Similarly for III-Semester		22	165	385	550	-	-	154.00	
SGPA					Total credit point / Total Credit for semester			7.00	
Similarly for IV-Semester		22	165	385	550	-	-	144.00	
SGPA					Total credit point / Total Credit for semester			6.55	
Similarly for V-Semester		22	165	385	550	-	-	126.00	
SGPA					Total credit point / Total Credit for semester			5.73	
Similarly for VI-Semester		22	165	385	550	-	-	126.00	
SGPA					Total credit point / Total Credit for semester			5.73	
Total		132	-	-	3400	-	-	873.50	
	CGPA					Total credit point / Total Credit for Course			6.62

Performance Indices:

The semester end grade sheet will contain grades for the courses along with titles and SGPA. Final grade sheet and transcript shall contain CGPA.

Semester Grade Point Average (SGPA):

The performance of a student in a semester is indicated by a number called the Semester Grade Point Average (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses, seminars and projects registered by the student during the semester.

$$SGPA = \frac{\sum \text{Grade Points Earned} \times \text{Credits for each course}}{\text{Total Credits}}$$

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

Course Grade Point Average (CGPA):

The CGPA is the weighted average of the grade points obtained in all the courses (Theory/term work/practical/oral/presentation) of first semester to sixth semester for the students admitted in the First year and third to sixth semester for the students directly admitted at Second year. It is calculated in the same manner as the SGPA.

In case of a student passing a failed course or in case of improvement, the earlier grade would be replaced by the new grade in calculation of the SGPA and CGPA.

Note : For More details use **Rules and regulation** for UG CBCS Pattern as laid down by Savitribai Phule Pune University, Pune with effect from **June 2019**.

Result:

Based on the performance of the student in the semester examinations, the Savitribai Phule Pune University will declare the results and issue the Semester Grade sheets. The class shall be awarded to a student on the CGPA calculated.

Table 1: CGPA distribution and corresponding class of the degree awarded.

Sr.	CGPA	Class of the degree awarded
1	9.50 or More than 9.50	Outstanding (O)
2	8.50 or more but less than 9.50	Excellent (A+)
3	7.50 or more but less than 8.50	Very Good (A)
4	6.25 or more but less than 7.50	Good (B+)
5	5.25 or more but less than 6.25	Above Average (B)
6	4.75 or more but less than 5.25	Average (C)
7	4.00 or more but less than 4.75	Pass (D)
8	Below 4.00	Fail (F)

The award of the class should be as per table and corresponding percentage calculation for the CGPA is given in Table-2 along with all details and examples.

Table-2: Percentage calculation of a corresponding CGPA.

For the calculation of Percentage from CGPA following equation can be used.

$$\% \text{ of Marks} = \begin{cases} \text{If O grade then } 20 \times \text{CGPA} - 100 \\ \text{If A+ grade then } 10 \times \text{CGPA} - 5 \\ \text{If A grade then } 10 \times \text{CGPA} - 5 \\ \text{If B+ grade then } 12 \times \text{CGPA} - 20 \\ \text{If B grade then } 5 \times \text{CGPA} + 23.75 \\ \text{If C grade then } 10 \times \text{CGPA} - 2.50 \\ \text{If D grade then } 6.6 \times \text{CGPA} + 13.6 \end{cases}$$

The factor considered in the above equations are evaluated from the grade point and marks distribution given in Table-3. The examples of the calculation of percentage are given in the Table 3.

Table-3 : Some examples of CGPA to percentage calculations.

Obtained CGPA	Evaluation	Percentage %	Grade
10	$20 \times 10 - 100$	100	O
9.75	$20 \times 9.75 - 100$	95	O
9.5	$20 \times 9.5 - 100$	90	O
9.0	$12 \times 9 - 24$	84	A ⁺
8.25	$12 \times 8.25 - 24$	75	A ⁺
8.0	$10 \times 8 - 7.5$	72.5	A
7.0	$10 \times 7 - 7.5$	62.5	A
6.75	$10 \times 6.75 - 7.5$	60	A
6.25	$5 \times 6.25 + 26.25$	57.5	B ⁺
5.75	$5 \times 5.75 + 26.25$	55	B ⁺
5.5	$10 \times 5.5 - 2.5$	52.5	B
5.25	$10 \times 5.25 - 2.5$	50	B
4.75	$10 \times 4.75 - 2.50$	45	C
4.0	$6.6 \times 4.0 + 13.6$	40	D

ATKT Rules:

- Minimum number of credits required to take admission to Second Year of BSc is 31 credits [70%].
- Minimum number of credits required to take admission to Third Year of BSc is 44 credits [100%] to be completed from FYBSc and at least 22 credits from SYBSc.

While declaring the result, the existing relevant ordinances are applicable. There is also a provision for verification and revaluation. In case of verification, the existing rules will be applicable. The revaluation result will be adopted if there is a change of at least 10% marks and in the grade of the course.

For grade improvement a student will have to take minimum 30% of the requisite number of credits for the concerned degree. These courses will be theory courses from the parent department. Grade improvement programme will be implemented at the end of the academic year. A student can opt for the grade improvement programme only after the declaration of the result for his/her final semester exam, i.e. at the end of the next academic year after passing the final examination and within two years of completion of the degree and only once.

This Handbook of 3/4-Year UG Credit Framework for Faculty of Science and Technology, Savitribai Phule Pune University, Pune is prepared by NEP Cell, SPPU, Pune.

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