

Progressive Education Society's

Modern College of Arts, Science and Commerce (Autonomous),
Shivajinagar, Pune5

(An Autonomous College Affiliated to Savitribai Phule Pune University)

Framework of Syllabus For

B. Sc. Blended (Bioscience)

Choice Based Credit System (CBCS) Syllabus under
National Education Policy (NEP)

To be implemented from Academic Year 2024-2025

Level: - 4.5 (First Year) Sem:I

| Course Type | Course Code | Course Title | Credits | | Teaching Scheme Hr/Week | | Evaluation Scheme and Max Marks | | |
|----------------------------------------|-------------------------------|------------------------------------------------------|---------|----|-------------------------|----|---------------------------------|-----|-------|
| | | | TH | PR | TH | PR | CE | ESE | Total |
| Subject 1 T(2)+(T/P) (2) or T(4) | 24ScBioU1101 | Biology I (The Diversity of Life) | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU1102 | Biology Practical-1 | | 2 | | 4 | 20 | 30 | 50 |
| Subject 2 T(2)+(T/P) (2) or T(4) | 24ScBioU1201 | Introductory and Organic Chemistry | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU1202 | Chemistry Practical 1 | | 2 | | 4 | 20 | 30 | 50 |
| Subject 3 T(2)+(T/P) (2) or (4) | 24ScBioU1301 | Introduction to Biochemistry | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU1302 | Lab Course on Biochemistry | | 2 | | 4 | 20 | 30 | 50 |
| IKST(2) | 24CpCopU1901 | Generic IKS | 2 | | 2 | | 20 | 30 | 50 |
| GE/OE (T/P) (2) | 24ScBioU1401 | Biology and Human welfare I | 2 | | 2 | | 20 | 30 | 50 |
| SEC (P)(2) | 24ScBioU1601 | English Communication and Critical Thinking | | 2 | | 2 | 20 | 30 | 50 |
| AECT(2) | 24CpCopU1701/ 24CpCopU1702 | MIL-I(Hindi)/MIL-I(Marathi) | 2 | | 2 | | 20 | 30 | 50 |
| VECT(2) | 24CpCopU1801 | Environmental Science | 2 | | 2 | | 20 | 30 | 50 |
| Total | | | 14 | 08 | 14 | 16 | | | 550 |
| Non CGPA credits | | Calculus | 4 | | 4 | | 40 | 60 | 100 |
| Non CGPA credits | | Introductory classical Physics + Physics Practical 1 | 2 | 2 | 2 | 4 | 40 | 60 | 100 |

Level:- 4.5 (First Year) Sem: II

| Course Type | Course Code | Course Title | Credits | | Teaching Scheme Hr/Week | | Evaluation Scheme and Max Marks | | |
|-------------------------------------|--------------|----------------------------------|---------|----|-------------------------|----|---------------------------------|-----|-------|
| | | | TH | PR | TH | PR | CE | ESE | Total |
| Subject 1 T(2)+T/P(2) or T(4) | 24ScBioU2101 | Biology 2 (Biology of Cells) | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU2102 | Biology Practical 2 | | 2 | | 4 | 20 | 30 | 50 |
| Subject 2 (2)+P(2) | 24ScBioU2201 | Inorganic and Physical Chemistry | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU2202 | Chemistry Practical 2 | | 2 | | 4 | 20 | 30 | 50 |
| Subject 3 | 24ScBioU2301 | Introduction to Microbiology | 2 | | 2 | | 20 | 30 | 50 |

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|---------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|-----|
| T(2)+P(2) | 24ScBioU2302 | Lab course on Microbiology | | 2 | | 4 | 20 | 30 | 50 |
| GE/OE (T/P)(2) | 24ScBioU2401 | Biology and Human welfare II | 2 | | 2 | | 20 | 30 | 50 |
| SECT(2) | 24ScBioU2601 | Immunology | 2 | | 2 | | 20 | 30 | 50 |
| AECT(2) | 24CpCopU2703 | English Communication Skills I | 2 | | 2 | | 20 | 30 | 50 |
| VECT(2) | 24CpCopU2801 | Democracy ,Election and Governance | 2 | | 2 | | 20 | 30 | 50 |
| CC(2) | 24CpCopU2001/2 4CpCopU2011/ 24CpCopU2021/ 24CpCopU2031/ 24CpCopU2041/ 24CpCopU2051/ 24CpCopU2061/ 24CpCopU2071 | Physical Education/ Cultural Activities/ NSS / NCC/ Fine Arts / Applied Arts / Visual Arts / Performing Arts | 2 | | 2 | | 20 | 30 | 50 |
| Total | | | 14 | 08 | 14 | 16 | | | 550 |
| Non CGPA credits | | Algebra | 4 | | 4 | | 40 | 60 | 100 |
| Non CGPA credits | | Modern Physics | 2 | 2 | 2 | 4 | 40 | 60 | 100 |

Level:- 5.0 (Second Year) Sem: III

| Course Type | Course Code | Course Title | Credits | | Teaching Scheme Hr/Week | | Evaluation Scheme and Max Marks | | |
|--------------------------------------|--------------|---------------------------------------------------------------|---------|----|-------------------------|----|---------------------------------|----|-------|
| | | | TH | PR | TH | PR | CE | EE | Total |
| Major Core T(2+2or4), (T/P)(2) | 24ScBioU3101 | Functional Biology of Organisms | 4 | | 4 | | 20 | 30 | 50 |
| | 24ScBioU3102 | Biology Practical-3 | 2 | | 2 | | 20 | 30 | 50 |
| VSCP(2) | 24ScBioU3501 | Introductory Scientific Computing and modelling for biology I | | 2 | | 4 | 20 | 30 | 50 |
| IKS(T/P)(2) | 24ScBioU3901 | Application of IKS in Biology | 2 | | 2 | | 20 | 30 | 50 |
| FPP(2) | 24ScBioU3002 | Field Project I | | 2 | | 4 | 20 | 30 | 50 |
| Minor (T/P) (2+2 or 4) | 24ScBioU3301 | Reactions and Synthesis | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU3302 | Chemistry Practical 3 | | 2 | | 4 | 20 | 30 | 50 |
| GE/OE(T/P) (2) | 24ScBioU3401 | Biology and Human Welfare III | | 2 | | 4 | 20 | 30 | 50 |
| AECT(2) | 24CpCopU3703 | English Communication Skills II | 2 | | 2 | | 20 | 30 | 50 |
| CCT(2) | 24CpCopU3001 | Online Course on Yoga | 2 | | 2 | | 20 | 30 | 50 |
| Total | | | 12 | 10 | 12 | 20 | | | 550 |

| | | | | | | | | | |
|------------------|--|-----------------------------------------------------------|---|---|---|---|----|----|-----|
| Non CGPA credits | | Vector calculus and Differential Equations | 4 | | 4 | | 40 | 60 | 100 |
| Non CGPA credits | | Quantum mechanics and thermodynamics (Theory+ Practical) | 2 | 2 | 2 | 4 | 40 | 60 | 100 |

Level:- 5.0 (Second Year)

Sem: IV

| Course Type | Course Code | Course Title | Credits | | Teaching Scheme Hr/Week | | Evaluation Scheme and Max Marks | | |
|--------------------------------|-----------------------------|----------------------------------------------------------------|---------|----|-------------------------|----|---------------------------------|----|-------|
| | | | TH | PR | TH | PR | CE | EE | Total |
| Major Core T(2+2or4), (T/P)(2) | 24ScBioU4101 | Genetics, Evolution and Ecology | 4 | | 4 | | 20 | 30 | 50 |
| | 24ScBioU4102 | Biology Practical 4 | | 2 | | 4 | 20 | 30 | 50 |
| VSCP(2) | 24ScBioU4501 | Introductory Scientific Computing and modelling for biology II | | 2 | | 4 | 20 | 30 | 50 |
| CEPP(2) | 24ScCopU4003 | Community Engagement Project | | 2 | | 4 | 20 | 30 | 50 |
| Minor (T/P) (2+2or 4) | 24ScBioU4301 | Structure and Properties | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU4302 | Chemistry Practical 4 | | 2 | | 4 | 20 | 30 | 50 |
| E/OE(T/P) (2) | 24ScBioU4401 | Biology and Human Welfare IV | 2 | | 2 | | 20 | 30 | 50 |
| SEC T(2) | 24ScBioU4601 | Introduction to Cyber security | | 2 | | 4 | 20 | 30 | 50 |
| AECT(2) | 24CpCopU4701 / 24CpCopU4702 | MIL-II(Hindi)/MIL-II(Marathi) | 2 | | 2 | | 20 | 30 | 50 |
| CCT(2) | 24CpCopU4001 | Health and Wellness | 2 | | 2 | | 20 | 30 | 50 |
| Total | | | 12 | 10 | 12 | 20 | | | 550 |
| Non CGPA credits | | Probability and Statistics | 4 | | 4 | | 40 | 60 | 100 |
| Non CGPA credits | | Electricity ,Magnetism , Special Relativity and Optics (T+P) | 2 | 2 | 2 | 4 | 40 | 60 | 100 |

Level:- 5.5 (Third Year) Sem:-V

| Course Type | Course Code | Course Title | Credits | | Teaching Scheme Hr/Week | | Evaluation Scheme and Max Marks | | |
|-------------------------------------------------------------|--------------|---------------------------------------------------------|---------|----|-------------------------|----|---------------------------------|----|-------|
| | | | TH | PR | TH | PR | CE | EE | Total |
| Major Core T(2+2+2+2 or 4+2+2or 4+4)P(2+2 or 4) | 24ScBioU5101 | Biochemistry | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU5102 | Molecular Biology | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU5103 | Genetic Engineering | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU5104 | Animal Sciences | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU5105 | Lab course on Animal Sciences and Biochemistry | | 2 | | 4 | 20 | 30 | 50 |
| | 24ScBioU5106 | Lab course on Molecular Biology and Genetic Engineering | | 2 | | 4 | 20 | 30 | 50 |
| Major Elective(T/P) (2+2 or 4) | 24ScBioU5201 | Plant Sciences | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU5202 | Lab course on plant sciences | | 2 | | 4 | 20 | 30 | 50 |
| | 24ScBioU5203 | Ecology and Environment | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU5204 | Lab course on Ecology and Environment | | 2 | | 4 | 20 | 30 | 50 |
| VSCP(2) | 24ScBioU5501 | Analysis of Biological Data | | 2 | | 4 | 20 | 30 | 50 |
| FP(2) | 24ScBioU5001 | Field Project I | | 2 | | 4 | 20 | 30 | 50 |
| Minor (T/P) (2) | 24ScBioU5302 | Methods in biology(T) | 2 | | | 4 | 20 | 30 | 50 |
| Total | | | 14 | 08 | 14 | 16 | | | 550 |

Level:- 5.5 (Third Year) Sem:-VI

| Course Type | Course Code | Course Title | Credits | | Teaching Scheme Hr/Week | | Evaluation Scheme and Max Marks | | |
|------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|---------|----|-------------------------|----|---------------------------------|----|-------|
| | | | TH | PR | TH | PR | CE | EE | Total |
| Major Core T(2+2+2+2 Or 4+2+2or 4+4)P(2+2or 4) | 24ScBioU6101 | Evolutionary Developmental Biology | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU6102 | Systematics and Evolution | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU6103 | Microorganisms and Diseases | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU6104 | Computational Biology | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU6105 | Lab course based on evolutionary developmental biology and systematic and evolution | | 2 | | 4 | 20 | 30 | 50 |
| | 24ScBioU6106 | Lab Course on microorganisms and diseases and computational biology | | 2 | | 4 | 20 | 30 | 50 |
| Major | 24ScBioU6201 | Scientific Writing | 2 | | 2 | | 20 | 30 | 50 |

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|-----------------------------|--------------|----------------------------------|----|----|----|----|----|----|-----|
| Elective(T/P) (2+2 or 4) | 24ScBioU6202 | Lab course on scientific writing | | 2 | | 4 | 20 | 30 | 50 |
| | | | | | | | | | |
| | 24ScBioU6203 | Biodiversity | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScBioU6204 | Lab course on Biodiversity | | 2 | | 4 | 20 | 30 | 50 |
| VSCP(2) | 24ScBioU6501 | Applied Biology | | 2 | | 4 | 20 | 30 | 50 |
| OJT (2) | 24ScBioU6004 | On Job Training | | 4 | | 8 | 40 | 60 | 100 |
| Total | | | 12 | 10 | 12 | 20 | | | 550 |