

Progressive Education Society's
Modern College of Arts, Science and Commerce (Autonomous),
Shivajinagar, Pune 5

(An Autonomous College Affiliated to Savitribai Phule Pune University)

Framework of Syllabus

For

B. Sc. (Microbiology)

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) | 24ScCheU1101 | Physical & Inorganic Chemistry | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU1102 | Lab Course on 24ScCheU1101 | | 2 | | 4 | 20 | 30 | 50 |
| Subject 2 T(2)+ (T/P) (2) or T(4) | 24ScCheU1201 | <<Subject 2 Theory>> | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU1202 | <<Subject 2 Practical>> | | 2 | | 4 | 20 | 30 | 50 |
| Subject 3 T(2)+ (T/P)(2) or T(4) | 24ScCheU1301 | <<Subject 3 Theory>> | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU1302 | <<Subject 3 Practical>> | | 2 | | 4 | 20 | 30 | 50 |
| IKS T(2) | 24CpCopU1901 | Generic IKS | 2 | | 2 | | 20 | 30 | 50 |
| GE/OE (T/P) (2) | 24ScCheU1401 | General Chemistry -I | 2 | | 2 | | 20 | 30 | 50 |
| SEC (P) (2) | 24ScCheU1601 | Lab Course on Basic Analytical Skills-I | | 2 | | 4 | 20 | 30 | 50 |
| AEC T(2) | 24CpCopU1701 / 24CpCopU1702 | MIL-I (Hindi) / MIL-I (Marathi) | 2 | | 2 | | 20 | 30 | 50 |
| VEC T (2) | 24CpCopU1801 | Environmental Science | 2 | | 2 | | 20 | 30 | 50 |
| Total | | | 14 | 08 | 14 | 16 | | | 550 |

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) | 24ScCheU2101 | Physical & Organic Chemistry | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU2102 | Lab Course on 24ScCheU2101 | | 2 | | 4 | 20 | 30 | 50 |
| Subject 2 T(2)+ T/P(2) or T(4) | 24Sc***U2201 | <<Subject 2 Theory>> | 2 | | 2 | | 20 | 30 | 50 |
| | 24Sc***U2302 | <<Subject 2 Practical>> | | 2 | | 4 | 20 | 30 | 50 |
| Subject 3 T(2)+ T/P(2) or T(4) | 24Sc***U2301 | <<Subject 3 Theory>> | 2 | | 2 | | 20 | 30 | 50 |
| | 24Sc***U2302 | <<Subject 3 Practical>> | | 2 | | 4 | 20 | 30 | 50 |
| GE/OE (T/P)(2) | 24ScCheU2401 | General Chemistry- II | 2 | | 2 | | 20 | 30 | 50 |
| SEC P(2) | 24ScCheU2601 | Lab Course on Basic Instrumentation Skills | | 2 | | 4 | 20 | 30 | 50 |
| AEC T(2) | 24CpCopU2703 | English Communication Skills I | 2 | | 2 | | 20 | 30 | 50 |
| VEC T(2) | 24CpCopU2801 | Democracy, Election and Governance | 2 | | 2 | | 20 | 30 | 50 |

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|--------------|---|--|----|----|----|----|----|----|-----|
| CC(2) | 24CpCopU2001/ 24CpCopU2011 / 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 |

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+2 or 4), (T/P)(2) | 24ScCheU3101 | Physical, Inorganic & Organic Chemistry | 4 | | 4 | | 40 | 60 | 100 |
| | 24ScCheU3102 | Lab Course on 24ScCheU3101 | | 2 | | 4 | 20 | 30 | 50 |
| VSC P(2) | 24ScCheU3501 | Lab Course on Chemistry of Cosmetic Ingredients | | 2 | | 4 | 20 | 30 | 50 |
| IKS (T/P)(2) | 24ScCheU3901 | Ancient Metallurgy in India | 2 | | 2 | | 20 | 30 | 50 |
| FP P(2) | 24ScCheU3002 | Field Project I | | 2 | | 4 | 20 | 30 | 50 |
| Minor (T/P) (2+2 or 4) | 24ScCheU3301 | Fundamentals of Biochemistry | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU3302 | Lab Course on 24ScCheU3301 | | 2 | | 4 | 20 | 30 | 50 |
| GE/OE (T/P) (2) | 24ScCheU3401 | General Chemistry -III | 2 | | 2 | | 20 | 30 | 50 |
| AEC T(2) | 24CpCopU3703 | English Communication Skills II | 2 | | 2 | | 20 | 30 | 50 |
| CC T(2) | 24CpCopU3001 | Online Course on Yoga | 2 | | 2 | | 20 | 30 | 50 |
| Total | | | 14 | 08 | 14 | 16 | | | 550 |

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+2 or 4), (T/P)(2) | 24ScCheU4101 | Physical, Inorganic & Organic Chemistry | 4 | | 4 | | 40 | 60 | 100 |
| | 24ScCheU4102 | Lab Course on 24ScCheU4101 | | 2 | | 4 | 20 | 30 | 50 |
| VSC P(2) | 24ScCheU4501 | Lab Course on Drug Analysis | | 2 | | 4 | 20 | 30 | 50 |
| CEP P(2) | 24ScCopU4003 | Community Engagement Project | | 2 | | 4 | 20 | 30 | 50 |
| Minor (T/P)(2+2 or 4) | 24ScCheU4301 | Fundamentals of Bioinorganic Chemistry | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU4302 | Lab Course on 24ScCheU4301 | | 2 | | 4 | 20 | 30 | 50 |

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|--------------------|-----------------------------------|--|----|----|----|----|----|----|-----|
| GE/OE (T/P) (2) | 24ScCheU4401 | General Chemistry -IV | 2 | | 2 | | 20 | 30 | 50 |
| SEC P(2) | 24ScCheU4601 | Lab Course on Computer Applications in Chemistry | | 2 | | 4 | 20 | 30 | 50 |
| AEC T(2) | 24CpCopU4701 / 24CpCopU4702 | MIL-II (Hindi) / MIL-II (Marathi) | 2 | | 2 | | 20 | 30 | 50 |
| CC T(2) | 24CpCopU4001 | Health and Wellness | 2 | | 2 | | 20 | 30 | 50 |
| Total | | | 12 | 10 | 12 | 20 | | | 550 |

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+2 or 4 + 4) P(2+2 or 4) | 24ScCheU5101 | Organic Chemistry | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU5102 | Physical Chemistry | 4 | | 4 | | 40 | 60 | 100 |
| | 24ScCheU5103 | Introduction to Nanochemistry and Applications | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU5104 | Lab Course on 24ScCheU5101 | | 2 | | 4 | 20 | 30 | 50 |
| | 24ScCheU5105 | Lab Course on 24ScCheU5102 | | 2 | | 4 | 20 | 30 | 50 |
| Major Elective (T/P) (2+2 or 4) | 24ScCheU5201 | Advanced Analytical Techniques | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU5202 | Lab Course on 24ScCheU5201 | | 2 | | 4 | 20 | 30 | 50 |
| | 24ScCheU5203 | Instrumental Methods of Analysis | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU5204 | Lab Course on 24ScCheU5203 | | 2 | | 4 | 20 | 30 | 50 |
| VSC P(2) | 24ScCheU5501 | Lab Course on Raw material Analytical Methods | | 2 | | 4 | 20 | 30 | 50 |
| FP (2) | 24ScCheU5001 | Field Project II | | 2 | | 4 | 20 | 30 | 50 |
| Minor (T/P) (2) | 24ScCheU5302 | Fundamentals of Chromatographic Separations | 2 | | 2 | | 20 | 30 | 50 |
| Total | | | 12 | 10 | 12 | 20 | | | 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+2 or 4+4) P(2+2 or 4) | 24ScCheU6101 | Organic Chemistry | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU6102 | Inorganic Chemistry | 4 | | 4 | | 40 | 60 | 100 |
| | 24ScCheU6103 | Organic Spectroscopy | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU6104 | Lab Course on 24ScCheU6101 | | 2 | | 4 | 20 | 30 | 50 |
| | 24ScCheU6105 | Lab Course on 24ScCheU6102 | | 2 | | 4 | 20 | 30 | 50 |
| Major Elective (T/P) (2+2 or 4) | 24ScCheU6201 | Environmental and Green Chemistry | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU6202 | Lab Course on 24ScCheU6201 | | 2 | | 4 | 20 | 30 | 50 |

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|--------------|------------------------------|--------------------------------------|----|----|----|----|----|----|-----|
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| | 24ScCheU6203 | Industrial Chemicals and Environment | 2 | | 2 | | 20 | 30 | 50 |
| | 24ScCheU6204 | Lab Course on 24ScCheU6203 | | 2 | | 4 | 20 | 30 | 50 |
| VSC P(2) | 24ScCheU6501 | Lab Course in Paint and dyes | | 2 | | 4 | 20 | 30 | 50 |
| OJT (2) | 24ScCheU6004 | On Job Training | | 4 | | 8 | 40 | 60 | 100 |
| Total | | | 10 | 12 | 10 | 24 | | | 550 |