

**Department of Environmental Sciences
Faculty of Science & Humanities**

CURRICULUM & SYLLABUS



**CHOICE BASED CREDIT SYSTEM (CBCS)
FOR
MASTER OF SCIENCE (M.Sc.)
(2 Years Postgraduate Degree Programme)
IN
ENVIRONMENTAL SCIENCES
(2021-22)**

**FACULTY OF SCIENCE & HUMANITIES
SRM UNIVERSITY DELHI-NCR, SONEPAT
39, Rajiv Gandhi Education City,
Sonapat, Haryana-131029**

**Department of Environmental Sciences
Faculty of Science & Humanities**

Vision of the Department

The Department of Environmental Science committed to develop as a cutting edge advance centre for interdisciplinary education and research. The department program will provide transformative and novel research on challenging environmental issues through education, collaboration and engagement

Mission of the Department

- Disseminate quality teaching and knowledge on current environmental issues.
- Human resource development to tackle environmental challenges and to achieve sustainability.
- Promote cost effective technologies for agriculture and industries for nation building.
- Impart environmental awareness and education for healthy, pollution free and habitable environment.

M.Sc. ENVIRONMENTAL SCIENCES GRADUATE EMPLOYABILITY ATTRIBUTES

- Monitoring of different segments of environment using advanced analytical techniques.
- Development of holistic understanding of environment using fundamental knowledge of physical, chemical, biological and earth-atmospheric sciences.
- Capacity and skills development to solve complex environmental issues in natural ecosystems and industries
- Be an individual for the society and community as well

M.Sc. ENVIRONMENTAL SCIENCES PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- To disseminate knowledge of natural environment, natural resources, geosciences, natural ecosystems, pollution, remote sensing, hydrology, atmospheric sciences, toxicology, bioremediation, legislative aspects among the students.
- To inculcate advanced analytical skills among the students in order to monitor the natural ecosystems and complex environment as well.
- Students will perceive a holistic understanding about environment and must have problem solving skills with innovative ideas and design.
- Students will be able to apply the scientific knowledge to develop entrepreneurship abilities.

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M. Sc. ENVIRONMENTAL SCIENCES PROGRAM LEARNING OUTCOMES (PLOs)

- Students will develop the skills to carry out innovative research on the wide domains of natural environment and industries.
- Students will have holistic perceptions on the diverse and complex issues leant in natural environment.
- Students will attain the intent to work for the society as well establish entrepreneurship programs.
- Students will gain the ability to understand new problems and build the capacity to solve the same as individual or part of a team.

MAPPING MATRIX OF PEOs and PLOs

| Programing Educational Objectives (PEO's) | Program Learning Outcomes (PLO's) | | | |
|---|-----------------------------------|------|------|------|
| | PLO1 | PLO2 | PLO3 | PLO4 |
| PEO1 | ✓ | | | |
| PEO2 | | ✓ | ✓ | |
| PEO3 | | | ✓ | |
| PEO4 | | | | ✓ |

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**Course Structure
M.Sc. Environmental Sciences
Semester-I**

| S. No. | Course Type | Course Code | Course Name | L | T | P | C |
|--------|---------------------------------|-------------|---|----|---|----|----|
| 1 | CC | 21EVMS101 | Basics of Earth Environment & Natural Resource Management | 4 | 0 | 0 | 4 |
| 2 | CC | 21EVMS102 | Environmental Physics & Chemistry | 4 | 0 | 0 | 4 |
| 3 | CC | 21EVMS103 | Ecology, Ecosystem and Sustainable Development | 3 | 1 | 0 | 4 |
| 4 | CC | 21EVMS104 | Environmental Pollution | 4 | 0 | 0 | 4 |
| 5 | CC | 21EVMS155 | Lab-1 (Environmental Chemistry, Biology & Ecology) | 0 | 0 | 10 | 5 |
| 6 | Non Credit Course (Compulsory)* | - | Environmental Ethics | 0 | 0 | 0 | 0 |
| Total | | | | 15 | 1 | 10 | 21 |

L : Lecture , T; Tutorial , P: Practical , C: Credits

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**M.Sc. Environmental Sciences
Semester-II**

| S. No. | Course Type | Course Code | Course Name | L | T | P | C |
|---------------|------------------------------------|-------------------------|--|-----------|----------|-----------|-----------|
| 1 | CC | 21EVMS201 | Environmental Geosciences & Disaster Management | 4 | 0 | 0 | 4 |
| 2 | CC | 21EVMS202 | Elements of Environmental Engineering & Hydrology | 4 | 0 | 0 | 4 |
| 3 | CC | 21EVMS203 | Biodiversity and Conservation Biology | 4 | 0 | 0 | 4 |
| 4 | CC | 21EVMS204 | Eco-toxicology & Human Health | 4 | 0 | 0 | 4 |
| 5 | DSE | 21EVMS205/ 21EVMS206 | Microbial Ecology / Environmental Biotechnology | 3 | 0 | 0 | 3 |
| 6 | CC | 21EVMS257 | Lab-2 (Environmental Geosciences, Hydrology, Microbiology & Toxicology) | 0 | 0 | 10 | 5 |
| 7 | Non Credit Course (Compulsory)* | - | Environmental Sustainability | 0 | 0 | 0 | 0 |
| Total | | | | 19 | 0 | 10 | 24 |

*** May be taken up from MOOCs platform.**

CC- Core Course; DSE: Department specific Elective, L: Lecture; T: Tutorial; P: Practical; C: Credit

L : Lecture , T; Tutorial , P: Practical , C: Credits

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M.Sc. Environmental Sciences

Semester-III

| S. No. | Course Type | Course Code | Course Name | L | T | P | C |
|--------|-------------|-------------|--|----|---|---|----|
| 1 | CC | 21EVMS301 | Remote Sensing and Geoinformatics | 4 | 0 | 0 | 4 |
| 2 | CC | 21EVMS302 | Soil Science, Conservation & Management | 4 | 0 | 0 | 4 |
| 3 | CC | 21EVMS303 | Solid and Hazardous Wastes Management | 4 | 0 | 0 | 4 |
| 4 | CC | 21EVMS304 | Environmental Monitoring: Instrumentation & Techniques | 3 | 0 | 2 | 4 |
| 5 | CC | 21EVMS305 | Climatology and Global Climate Change | 4 | 0 | 0 | 4 |
| 6 | FW | 21EVMS356 | Field work/Excursion/Industrial Visit | 0 | 0 | 6 | 3 |
| Total | | | | 19 | 0 | 8 | 23 |

CC- Core Course; FW: Field Works; L: Lecture; T: Tutorial; P: Practical; C: Credit

L : Lecture , T; Tutorial , P: Practical , C: Credits

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**M.Sc. Environmental Sciences
Semester-IV**

| S. No. | Course Type | Course Code | Course Name | L | T | P | C |
|--------|-------------|-------------------------|--|----|---|---|----|
| 1 | CC | 21EVMS401 | Biostatistics and Data Analytics | 3 | 1 | 0 | 4 |
| 2 | CC | 21EVMS402 | Environmental Risk and Impact Assessment | 3 | 1 | 0 | 4 |
| 3 | CC | 21EVMS403 | Marine Environment & Management | 4 | 0 | 0 | 4 |
| 4 | DSE | 21EVMS404/ 21EVMS405 | Environmental Policy, Legislation and Society / Environmental Economics & Management | 3 | 0 | 0 | 3 |
| 5 | P/D | 21EVMS496 | Dissertation Work | 0 | 0 | 6 | 6 |
| 6 | S/V | 21EVMS477 | International/ National Seminar Presentation | 0 | 1 | 0 | 1 |
| Total | | | | 13 | 3 | 6 | 22 |

CC- Core Course; DSE: Department specific Elective, P/D: Project/ Dissertation; S/V: Seminar/Viva L: Lecture; T: Tutorial; P: Practical; C: Credit

L : Lecture , T; Tutorial , P: Practical , C: Credits