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**ENVIRONMENTAL SCIENCE SYLLABUS M.Phil (2015-2016)**  
**SCHEME OF PAPERS AND MARKS FOR M.PHIL. IN**  
**ENVIRONMENTAL SCIENCE**

**Session 2015-2016**

**Semester I:**

**Paper I: Biostatistics, computer and research methodology**

Theory :	80
Seminar + Internal test (10 + 10):	20
<b>Total</b>	<b>100</b>

**Paper II: Environmental conservation Pollution and Management**

Theory :	80
Seminar + Internal test (10 + 10):	20
<b>Total</b>	<b>100</b>

**Semester II**

The second semester shall consist of one compulsory theory paper and a dissertation as suggested by the concerned supervisor.

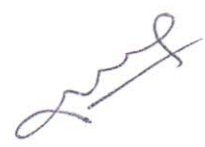
**Paper I: General Instrumentation. .**

Theory (Compulsory Paper I):	80
Seminar + Internal test (10 + 10):	20
<b>Total</b>	<b>100</b>

**Dissertation:** Dissertation can be in the form of a Review monograph/ or through presentation of experimental data and analysis Three copies of the dissertation have to be submitted through Head of the Department. Viva-voce will be conducted both by internal and external examiners. There shall be no marks awarded. The award for dissertation will be as either accepted or Rejected

Compulsory Paper I (I semester)	100
Compulsory Paper II (I semester)	100
Compulsory Paper I (II semester)	100
Dissertation (II semester)	

**Total** **300**



## M.Phil : ENVIRONMENTAL SCIENCE-- I SEMESTER

### PAPER I: BIOSTATISTICS, COMPUTER AND RESEARCH METHODOLOGY

#### Unit 1

1. Statistical analysis and applications in biology Mean, Mode, Median.
2. Variability: Standard deviation and Standard error.
3. Correlation techniques.
4. Analysis of Variance (ANOVA), Chi-square test.

#### Unit 2

1. Use of computers for preparing and presenting documents, statistical packages.
2. Internet use and search of literature,
3. Programmes of MS office.
4. Power point presentation.

#### Unit 3

1. Basic and applied research.
2. Objective formations.
3. Research design.
4. Literature collection for research.

#### Unit 4

1. Bibliography, Indexing and literature citation.
2. Publication of papers in Journal, Proceedings, chapters in books.
3. Preparation of Research reports.
4. Publication of research work in online journals.

#### Unit 5

1. Techniques for photography, diagram and graphic presentation.
2. IPR issues, Terminology of IPR issues.
3. Status of IPR with reference to India
4. Copy right issues.



## M.Phil : ENVIRONMENTAL SCIENCE -- I SEMESTER

### PAPER II: ENVIRONMENTAL CONSERVATION POLLUTION AND MANAGEMENT

#### Unit I

1. Natural resources and management
2. Climate change affecting natural resources
3. Indigenous methods of conservation of water
4. Biogeochemical cycles and its consequences

#### Unit II

1. Environmental pollution; water pollution, air pollution, soil pollution, noise pollution, land pollution
2. Health and air pollution
3. Drinking water disinfection
4. Conventional waste water treatment

#### Unit III

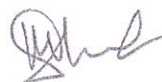
1. EIA and management
2. Basic principles of management
3. Environmental audit
4. Environmental management systems

#### Unit IV

1. General idea about Environmental engineering
2. Sludge disposal and treatment'
3. Advanced waste water and land treatment system
4. Solid waste management and hazardous waste treatment.

#### Unit V

1. Environmental tragedies and legislations
2. The Environment (protection and conservation) act 1986.
3. Biodiversity conservation act 2002.
4. Municipal solid waste management rules 2000.



# M.Phil : ENVIRONMENTAL SCIENCE II SEMESTER

## PAPER I: GENERAL INSTRUMENTATION

### Unit I

1. Definition, techniques and scope of Instrumentation
2. Microscopy: principles, types and application of TEM, SEM and fluorescence Microscopy
3. Principles, types and application of Centrifugation

### Unit II

1. General principle, application and types of chromatography.
2. HPLC: its role in qualitative and quantitative analysis
3. Electrophoresis principle, application and types; PCR and its application

### Unit III

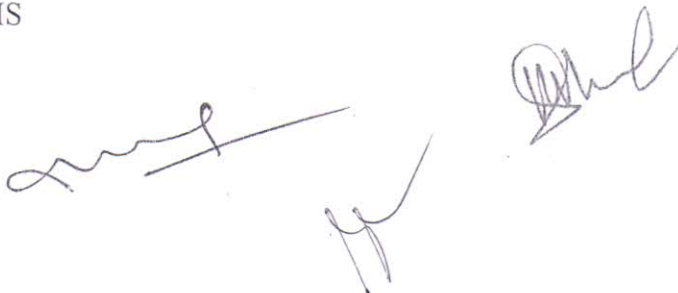
1. Flame Photometry
2. General idea about NMR (Nuclear magnetic resonance spectroscopy)
3. Spectroscopy and its types with reference to Atomic Absorption Spectrophotometer.

### Unit IV

1. Air samplers; Handy air sampler and High volume samplers.
2. Water samplers; BOD incubator, Nephelometer, water sampling kit,
3. Conductivity meter and pH meter.

### Unit V

1. Remote sensing and its application
2. Introduction to Geographic Information System (GIS)
3. Internet resources for GIS

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