



Hemchandracharya North Gujarat University, Patan

PH.D. COURSE WORK SYLLABUS

SUBJECT : ENVIRONMENTAL SCIENCE

Scheme & Course

Sr.	Paper	Nomenclature	Credits	Marks
1.	Paper-I-ENV-CW-101	Research Methodology	04	70+30
2.	Paper-II-ENV-CW-102	Advance Course in Environmental Science	04	70+30
3.	Paper-III-ENV-CW-103	Computer Application to the subject	04	70+30
4.	Paper-IV-ENV-CW-104	Review of published research in the relevant field	04	70+30
5.	Paper-V-ENV-CW-105	Comprehensive Viva	04	100

Notes:

1. The candidate has to obtain a minimum of 55% of marks or its equivalent grade points in aggregate in the course work in order to be eligible to continue in the Ph.D. programme.
2. If candidate obtains 'F' or 'Ab.' grade in the course/ subject. He/ she will be treated to have failed in that course. He/ She has to reappear in the examination in the next semester.

Paper-I	ENV-CW-101	Research methodology	Credit-4	(70+30)
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Quantitative Techniques

- ⇒ Aims and objectives of Research work
- ⇒ Introduction and need of quantitative techniques.
- ⇒ Frequency distribution. Measures of Central value.
- ⇒ Normal and Binomial distortions.
- ⇒ Sampling techniques.
- ⇒ Testing of significance.
- ⇒ Experimental designs.
- ⇒ Correlation and Regression.

Paper-II	ENV-CW-102	Advance Course in Environmental Science	Credit-4	(70+30)
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- UNIT-1**
1. Water Pollution studies-Monitoring and Analysis of different qualitative and quantitative param
 2. Microbial and biological studies in water pollution. Media Preparation, Protocols for different structure, Sterilization methods. MPN techniques.
 3. Concept of Bio-remediation of waste water. Zero Effluent Discharge concept.
- UNIT-2**
1. Air Pollution studies-Monitoring and Analysis of different qualitative and quantitative paramete
 2. Air pollution control equipments-Principles and technology.
 3. Indoor air pollution-causes, effects and control.
- UNIT-3**
1. Soil Pollution studies-Monitoring and Analysis of different qualitative and quantitative paramet
 2. Soil remediation through microbes, Organic Farming, Vermi-composting.
 3. Solid and Hazardous waste management.



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- UNIT-4**
1. Remote Sensing and Geographical Information System-applications in the field of environment management.
 2. Basics of Environmental Impact Assessment (EIA) and Environmental Audit (EA).
 3. Integrated Resource Management-concept and utility in environment management.

- UNIT-5**
1. Principle of spectroscopy and its use in environmental field.
 2. Nano technology in the field of environment.
 3. LASER, LIDAR and SODAR based techniques in environmental studies.

Paper-III ENV-CW-103 Computer Applications to the subject Credit-4 (70+30)

- ⇒ Introduction to Computers.
- ⇒ Structural and functional aspects.
- ⇒ Commonly used programmes and packages.
- ⇒ Internet and its applications in research.
- ⇒ Important softwares used in environmental studies.

Paper-IV ENV-CW-104 Review of Published research in the relevant field Credit-4 (70+30)

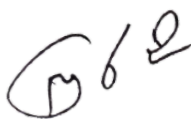
For this paper candidates will have to review literature in an area of research, prepare a research proposal and submit a report to the University at the end of the course work. The selection of the problem and preparation of the proposal will be in consultation with research guide.

Paper-V ENV-CW-105 Comprchensive viva voce Credit-4 (100)

Candidate will face a Comprehensive Viva-Voce of 4 credits on the subject of Research Methodology, Advance Course in Environmental Science and literature review report submitted to the university. The Presentation will have to be made by the candidate and it will need to be prepared in consultation with research guide.

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Vc. Registrar
Hemchandracharya
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