

Department of Environmental Science

SCHOOL OF EARTH AND ENVIRONMENTAL SCIENCE

University of Kashmir

Syllabus for Integrated M.Phil & P.hD

(Batch: 2020 and Onwards)

TITLE: PAPER I - RESEARCH METHODOLOGY

COURSE CODE: ENSPhD01

Credits:06

Maximum Marks: 100

Minimum Marks: 55

Note: Students will be required to attempt four questions carrying equal marks from four units having internal choice

Unit I: Scientific Conduct and Publication Ethics

- 1.1. Introduction to philosophy: definition, concept, branches and scope
- 1.2. Ethics in research, intellectual honesty and research integrity
- 1.3. Scientific misconducts: falsification, fabrication and plagiarism (FFP)
- 1.4. Violation of publications ethics, authorship, contributorship, conflict of interest
- 1.5. Plagiarism Software tools: Turnitin, Ithenticate, Urkund and other open source software's

Unit II: Research Tools and Database Metrics

- 2.1. Journal finder tools: Science Direct, Springer Link, Microsoft academic, Directory of Open Access Journals (DOAJ)
- 2.2. Citation database: Google Scholar, Web of Science, Scopus
- 2.3. Concept of UGC Care List Journals, predatory publishers and journals
- 2.4. Impact factor of journals as per Journal Citation Report (JCR), Source Normalized Impact per Paper (SNIP), SCImago Journal Rank (SJR), Impact per Publication (IPP), Cite Score
- 2.5. Metrics: h-index, i-10 index, citations, altmetrics

Unit III: Research Design and Writing

- 3.1. Research designs and methodology
- 3.2. Probability and non-probability sampling
- 3.3. Quality assurance and quality control
- 3.4. Project/Grant writing, Funding agencies and Research schemes
- 3.5. Manuscript/dissertation/thesis writing

Unit IV: Statistics and Computer Applications

- 4.1. Hypothesis testing, test of significance
- 4.2. Correlation and regression analysis
- 4.3. One and two way ANOVA(Analysis of Variance), factor analysis and PCA
- 4.4. Basics of microsoft office (Excel, Word, PowerPoint)
- 4.5. Statistical software's: SPSS, R, PAST

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University of Kashmir

Syllabus for Integrated PhD

(Batch: 2020 and Onwards)

TITLE: PAPER II –RECENT ADVANCES IN ENVIRONMENTAL SCIENCE

COURSE CODE: ENSPhD02

Credits: 05

Maximum Marks: 100

Minimum Marks: 55

Note: Students will be required to attempt four questions carrying equal marks from four units having internal choice

Unit I Recent trends in Environmental Pollution

- 1.1. Electrosmog (5G revolution)-environment and health hazards
- 1.2. Invasion of microplastics and consequences thereof
- 1.3. Emerging environmental contaminants(Pharmaceuticals/POPs)
- 1.4. Environmental footprints of digital world
- 1.5. Biological warfare agents-threat to humanity

Unit II Recent trends in Environmental Management

- 2.1. Economic evaluation of ecosystem services- a way towards sustainability
- 2.2. Artificial intelligence as a tool for management of pollution
- 2.3. Application of UAV(Unmanned Aerial Vehicle) in pollution monitoring and management
- 2.4. Sustainable waste treatment and management
- 2.5. Advances in ecological restoration- rising to the challenges of coming decades

Unit III Recent trends in Environmental Technologies

- 3.1 Bioremediation technologies – latest trends
- 3.2 Application of membrane technology in pollution control
- 3.3 Best available technology (BAT) for management of persistent organic pollutants
- 3.4 Sustainable green technologies (Green cities and Carbon sequestration)
- 3.5 Advanced application of remote sensing and GIS

Unit IV Recent Environmental Initiatives

- 4.1. National action plan on climate change, Paris agreement(IPCC Reports)
- 4.2. Sustainable development goals(SDG's)
- 4.3. Latest EIA notifications
- 4.4. Comprehensive environmental pollution index(CEPI)
- 4.5. UNEP's report-global environment outlook