



जम्मू केंद्रीय विश्वविद्यालय

Central University of Jammu

राया-सूचानी, बागला, जिला सांबा-181143 जम्मू, जम्मू एवं कश्मीर
Rahya- Suchani (Bagla), District Samba - 181143, Jammu (J&K)

No. 4-1/EVS/CUJ/Reg/2020/53

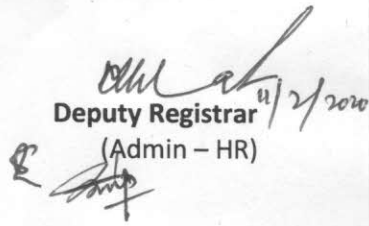
11 February, 2020

NOTIFICATION No. 11 / 2020

Sub: Course Matrix and Syllabus Notification of **Ph.D. in Environmental Sciences** w.e.f. Academic Session 2019-20 – Reg.

It is hereby notified for the information of all concerned that on the recommendation of the Board of Studies, Department of Environmental Sciences and School Board, School of Life Sciences, the Academic Council has approved following **Course Scheme** and **Syllabus** of Ph.D. in Environmental Sciences w.e.f. Academic Session **2019-20**.

Course Code	Course Title	Credit	ESE	Max. Marks
Compulsory Course				
PHEVS1C001T	Research Methodology	4	100	100
PHEVS1C002T	Advanced tools and techniques in Environmental Sciences	4	100	100
PHEVS1C003T	Current Environmental Issues and Challenges	4	100	100
Specialized Courses (Any One)				
PHEVS1E001T	Advanced Atmospheric Chemistry	4	100	100
PHEVS1E002T	Advances in Microbiology & Bioprocesses			
PHEVS1E003T	Advances in Geochemistry			
PHEVS1E004T	Atmospheric Processes & Climate Change			
PHEVS1E005T	Bioenergy and Nanomaterials			
Total		16	-	400


Deputy Registrar
(Admin - HR)

Encl: Syllabus of Ph.D.

To: Head, Department of Environmental Sciences

Copy to: OSD (Exam)

CENTRAL UNIVERSITY OF JAMMU
Syllabus for PhD in Environmental Sciences

Semester-I

Academic Year 2019-20

Subject course Code: PHEVS1C001T

Subject Course Title: Research Methodology

Duration of examination: 3 Hours

Credits:4

Maximum Marks: 100

Contact Hours/Week: 4

UNIT-I

Meaning, objectives, types and significance of Research; Research approaches, Research methods; Overview of Moral and Ethical questions in Scientific writing; Introduction to Intellectual Property Rights (IPR); Defining uncertainty of measurements, validation of method, calibration of method; QA/QC parameters in environmental sciences, use of CRMs, Inter-laboratory comparison exercise, participation in National and International round Robin tests; Citation analysis.

UNIT-II

Probability distribution and their properties, Normal, Poisson and Binomial distribution, sampling and test of significance, parametric and non-parametric test, correlation and regression, Error analysis.

UNIT-III

Introduction to philosophy: definition, nature and scope, concept, branches; Ethics: definition, moral philosophy, nature of moral judgements and reactions.

UNIT-IV

Ethics with respect to science and research; Intellectual honesty and research integrity; Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP); Redundant publications: duplicate and overlapping publications, salami slicing; Selective reporting and misrepresentation of data.

UNIT-V

Publication ethics: definition, introduction and importance; Best practices/ standards setting initiatives and guidelines: COPE, WAME etc.; Conflicts of interest; Publication misconduct: definition, concept, problems that lead to unethical behavior and vice versa, types; Violation of publication ethics, authorship and contributorship; Identification of publication misconduct, complaints and appeals; Predatory publishers and journals.

The bottom of the page features several handwritten signatures and initials in black ink. From left to right, there is a large, stylized signature, a smaller signature, a signature with a large 'A' or 'B' flourish, the name 'Dingle' written in cursive, another signature with a large 'A' or 'B' flourish, and finally, the initials 'ln'.

Suggested Readings

1. Principles of biometry by Charles M. Wolf
2. An Introduction to Geographical Information Systems, by Ian Heywood
3. Text book of quantitative chemical analysis by Vogel, I & Mendham, J. Vogel's
4. Practical Handbook of spectroscopy by James W. Robinson
5. Introduction to computers by P.K.Sinha
6. Quantifying Uncertainty in Analytical Measurement by Ellison and William
7. The Fitness for purpose of Analytical methods by Eurachem Guid

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CENTRAL UNIVERSITY OF JAMMU
Syllabus for PhD in Environmental Sciences

Semester-I

Academic Year 2019-20

Subject course Code: PHEVS1C00.3.T

Subject Course Title: Current Environmental Issues and Challenges

Duration of examination: 3 Hours

Credits:4

Maximum Marks: 100

Contact Hours/Week: 4

UNIT I

Global Environmental Issues: Biodiversity loss, Climate change, Ozone layer depletion, Sea level rise, International efforts for environmental protection, Carbon sequestration and carbon credits.

UNIT II

National Action Plan on Climate Change: Eight National missions – National Solar Mission, National Mission for Enhanced Energy Efficiency, National Mission on Sustainable Habitat, National Water Mission, National Mission for Sustaining the Himalayan Ecosystem, National Mission for a 'Green India', National Mission for Sustainable Agriculture, National Mission on Strategic Knowledge for Climate Change; Waste Management – Swachha Bharat Abhiyan; Green Building, GRIHA Rating Norms.

UNIT III

Environmental Conventions and Agreements: Stockholm Conference on Human Environment 1972, Montreal Protocol, 1987, Conference of Parties (COPs), Basel Convention (1989, 1992), Ramsar Convention on Wetlands (1971), Earth Summit at Rio de Janeiro, 1992, Agenda-21, Global Environmental Facility (GEF), Convention on Biodiversity (1992), UNFCCC, Kyoto Protocol, 1997, Clean Development Mechanism (CDM), Earth Summit at Johannesburg, 2002, RIO+20, UN Summit on Millennium Development Goals, 2000, Copenhagen Summit, 2009. IPCC, UNEP, IGBP.

UNIT IV

Environmental Disasters: Minamata Disaster, Love Canal Disaster, Bhopal Gas Disaster, 1984, Chernobyl Disaster, 1986, Fukushima Daiichi nuclear disaster, 2011; Australian Bush fire (2019)

UNIT V

Environmental policies and Laws (Indian): National Environment Policy, 2006; National Action Plan on Climate Change, 2008; National Green Tribunal Act, 2010; Environment Protection Act, 1986; The Water (Prevention and Control of Pollution) Act, 1974; The Air (Prevention and Control of Pollution) Act, 1981; Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008; Vehicular emission norms in India.

