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Integrated Watershed Management

Semester -IV: January - June 2021

Coordinator	Prof. Prakash C. Tiwari
Credits	100 Marks [4 ECTS]* 75 Marks End Semester Examination and 25 Marks Assignment
Lecturers	Decided in Departmental Meeting
Level	M.A./M.Sc.
Host institution	Department of Geography, Faculty of Arts, Kumaun University, Nainital
Course duration	One Semester [January - June]

Summary

This one full semester course provides the Master level students of Geography the basic understanding of the significance and relevance Integrated Watershed Management in the management of natural resources in the mountain regions. It will present a comprehensive overview of the relevance and significance of Integrated Watershed Management approach for sustainable development of high mountain ecosystem in the era of global environmental changes, particularly climate change and environmental degradation with specific reference to Himalaya. It will also highlight the importance of watershed management in mainstreaming climate change adaptation and disaster risk reduction in mountain regions, particularly in developing countries. The course includes individual assignments.

Target Student Audiences

Semester - IV Students of M.A./M.Sc.

Prerequisites

Required Courses (or equivalents):

- Environmental Management
- Ecology
- Introduction to Computer Science or Information Technologies,
- Environmental Management

Aims and Objectives

This course has been designed with a view to help students in developing a comprehensive understanding and knowledge of the Integrated Watershed Management approach and its significance and rationale for sustainable mountain development in context of the Indian Himalayan Region. The main objectives of the revised course are: (i) to help students in understanding the significance of watershed approach in sustainable mountain development; (ii) to provide students with the state-of-art recent knowledge about the relevance of watershed approach in climate change adaptation and Disaster Risk Reduction mountains; (iii) to educate students about the rationale and importance of Trans-boundary Watershed Management in Himalaya; and (iv) to make students to understand upstream and downstream linkages in river-basin system

** Note: Kumaun University has Mark System at all Levels*

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General Learning Outcomes:

By the end of the course, successful students will:

- The students would be able to demonstrate the knowledge and understanding of watershed management in context of the mountain regions
- The students would be able to reflect upon critically and formulate judgements and rationale of watershed management in mountains
- The students would be able to make application of the acquired knowledge in formulating people and policy oriented integrated watershed management plans at local levels
- Would be able to understand and critically reflect upon need, importance and significance of trans-boundary watershed management under climate change
- The students would be able to communicate conclusions and the underpinning rationale about the approaches, tools and techniques of integrated watershed management to specialist as well as to non-specialist audiences
- Would be able to demonstrate the gained knowledge in integrating climate change adaptation into integrated watershed management in mountain ecosystems to policy and decision makers

Overview of Sessions and Teaching Methods

The course will make most of interactive and self-reflective methods of teaching and learning including mainly lectures and presentations. It will start with an overview of watershed management approaches and their significance in the sustainable development of mountain regions. Subsequent sessions will combine interactive lecturing on different course components divided up into 5 Units, and individual assignments. The third part of the course is built around supervised preparation of short interdisciplinary dissertation by students.

Course Workload

The table below summarizes course workload distribution:

Activities	Learning outcomes	Assessment	Estimated workload (hours)
In-class activities [3 Hours Lecture Per Week Per Paper]			
Lectures and Presentations	**Unit I - Concept of Watershed:** The students would be able to understand and demonstrate very clearly the fundamental concept of watershed management and its significance	End Semester Written Examination	09
Lectures and Presentations	**Unit II - Watershed Approach:** The students would be able to reflect upon critically the rationale and significance of watershed approach in sustainable mountain development	End Semester Written Examination	09
Lectures and	**Unit III - Climate Change Adaptation and**	End Semester	09

Presentations	**Disaster Management at Watershed Level**: The students would be able to reflect upon critically and formulate judgements for mainstreaming climate change adaptation and disaster risk reduction in integrated watershed management in mountain regions	Written Examination	
Lectures and Presentations	**Unit IV - Trans-boundary Watershed Management in Himalaya:** Would be able to understand and critically reflect upon need, importance and significance of trans-boundary watershed management under climate change	End Semester Written Examination	09
Lectures and Presentations	**Unit V - Integrated Watershed Management:** The students would be able to make application of the acquired knowledge in formulating people and policy oriented integrated watershed management plans at local levels	End Semester Written Examination	09
Independent work [5 Hours Per Week Per Paper Self Study Including Writing Assignments]			
Individual Assignments	Would be able to critically reflect upon their ability to interpret data, and to use the concepts, tools, and methods for communicating information and knowledge of integrated watershed management to both experts and non-experts	Individual Presentations	75
Total			***120***

Grading

The students' performance will be based on the following:

- Written performance at the end Semester Written Examination 75%
- 25% based on the evaluation of 2 individual Assignments and attendance in classroom lectures

Course Schedule: Semester -IV: January - June 2021

Course Assignments

The Structure of Course Assignments will be as follows:

- The Course Teacher will set 5 detailed answer Questions one each from 5 Units.
- Each of the students will have answer 2 questions of his/her choice before the commencement of the Semester End Examinations.

Literature

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