Name of the Programme: M. Sc. Zoology

Course Code: ZOO-533 **Title of the Course:** Restoration Ecology

Number of Credits: 04

Effective from AY: 2023-24

Pre-requisites for the Course:	Basic knowledge on Zoology, Botany, Ecology.	
Course Objectives:	1. To provide knowledge regarding the fundamental concepts and theoretical development relating to ecological restoration in natural ecosystems. 2. To discuss the relationship of ecological restoration with conservation biology 3. To explore alternative objectives/ problems and restoration strategies by examining case studies.	
Content:	**Module 1** Introduction to ecosystem restoration, definition, importance, types and services. Difference between ecosystems and landscapes, Causes of ecosystem degradation, Concepts in Ecological Biodiversity and Eco-restoration.	15 hours
	Module 2 Ecological principles, ecosystem degradation, tools for spatial analysis, Attributes for reference models. Types of restoration, Challenges and opportunities, The Conceptual Community/Ecosystem Model, -Ecological Theory within restoration ecology, Nature of Communities: Concepts and Explanations from Community Ecology, Approaches and principles to restoration.	15 hours
	Module 3 Restoration planning, site inventory and analysis, design and planning - Assessing Institutional, Policy and Legal Frameworks, Environment Planning and Impact Assessment, cross boundary influences. Restoration opportunities assessment methodology (ROAM).	15 hours
	Module 4 Impacts of invasive alien species in ecological restoration (India specific with reference to invasive species)–	15 hours

	challenges in eradication of alien species in ecosystem restoration efforts; ecological and socioeconomic needs met by native and alien species; assessment of the risks involved in using alien species in restoration; incorporating indigenous knowledge in understanding the invasive alien species in ecological restoration.	
Pedagogy:	Lectures/ tutorials/ online teaching mode/self-study/Quizes/ Field Trips/ Case studies/ Assignments/ Mini-Projects	
References/ Readings:	1. J. van Andel, and J. Aronson, Eds., Restoration Ecology: The New Frontier, Oxford: Blackwell Publishing, 2012. 2. M. A. Palmer, J. B. Zedler, and D. A. Falk, Eds., Foundations of Restoration Ecology, WA: Island Press, 2016. 3. E. A. Howell, J. A. Harrington, S. B. Glass, Introduction to Restoration Ecology, WA: Island Press, 2011. 4. A. F. Clewell, J. Aronson, Ecological Restoration, Principles, Values, and Structure of an Emerging Profession, WA: Island Press, 2013. 5. S. Greipsson, Restoration ecology, Jones & Bartlett Learning, 2011. 6. S. A. Ballari, C. Roulier, E. A. Nielsen, C. Pizarro, and C. B. Anderson, A Review of Ecological Restoration Research in the Global South and North to Promote Knowledge Dialogue, Conservation & Society, vol. 18, no. 3, 2020.	
Course Outcomes:	The learner will 1. Analyze the basic concepts of ecological restoration. 2. Identify the major ecological principles underlying the successful restoration of ecosystems including the legal frameworks 3. Select and apply appropriate methods and tools for designing and conducting restoration projects taking the stakeholders into consideration 4. Design a restoration plan for a degraded ecosystem.	

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