



University of Kerala

Discipline	ZOOLOGY					
Course Code	UK4VACZOO202					
Course Title	Bioeconomics and Ecotourism					
Type of Course	VAC					
Semester	IV					
Academic Level	200 - 299					
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours/Week	
	3	3 hours	-	0	3	
Pre-requisites	Pass of Class XII					
Course Summary	The course provides an interdisciplinary exploration of the intersections between biology, economics, and tourism and understanding their significance in promoting sustainable use of natural resources and conservation of biodiversity. Students learn about the economic principles underlying the management of biological resources, including concepts such as supply and demand, externalities, market failures, and resource allocation. Students explore the practices of ecotourism as a conservation tool, and analyze case studies and examples from the Indian and Kerala context. Course discuss the current challenges and issues in bioeconomics and ecotourism, such as climate change, invasive species, over tourism, and socio-economic inequalities, and explore potential solutions and future directions for research and practice.					

Detailed Syllabus

Module	Unit	Content	45 Hrs
I		Basics of Bioeconomics	10
	1.1	Bioeconomics-Definition, Concept and Scope, Economic theories applied to biodiversity conservation; Key principles of Bioeconomics- Optimal resource management, Ecosystem goods (Tangible), Services (Intangible) and Externalities. (Brief account)	3
	1.2	Bioresource economics- Types- Natural resource economics	3

		Fisheries Economics and Forestry Economics- basic concept only.	
	1.3	Ecosystem Services- Provisioning Services, supporting services Regulating Services and Cultural services – basic concept only	4
II	Trends in Bioeconomics and Policies		8
	2.1	Green Economy- Biotechnology based economics, Environmental economics and Ecological economics. (Definition and brief account only)	3
	2.2	Assessment of the economic value of biodiversity and ecosystem services- Basic concepts only.	3
	2.3	Green production and sustainable consumption, Ecological Foot print.	2
III	Ecotourism and Sustainable Development		14
	3.1	Definition, Scope and Principles of Ecotourism, Role of Ecotourism in conservation and sustainable development.	4
	3.2	Ecotourism planning and management strategies; Community-based ecotourism initiatives in Kerala.	4
	3.3	Major Ecotourism centres in Kerala - Kuruva, Thenmala, Gavi, Adavi and Ponmudi.	6
IV	Impacts of Ecotourism on Biodiversity and Communities		8
	4.1	Pros and Cons of ecotourism: Ecological, Socio-cultural, Economic and Environmental.	4
	4.2	Issues and Challenges- Invasive species, CO ₂ emissions, water pollution, Biodiversity loss.	2
	4.3	Strategies for mitigating negative impacts and enhancing the benefits of ecotourism in India.	2
V	Policies and Management for Sustainable Ecotourism		5
	5.1	National and international policies and regulations governing ecotourism.	2
	5.2	Role of government agencies, NGOs and local communities in ecotourism management.	1
	5.3	Marketing Ecotourism- Definition, concepts and features: Brief account.	2

References:

1. Ghate, R., and Ghate, P. (Eds.). (2017) Ecotourism in India: Experiences, Approaches, and Challenges. Springer.
2. John M Gowdy and Sabine O'Haro (1999) The Science of Managing Resources.

3. Karanth, K. K., and Madhusudan, M. D. (Eds.). (2002) Living with Wildlife: Wildlife Resource and Livelihoods in South Asia. Permanent Black.
4. Lars Ravensbeck, Niels Vestergaard and Jens Wustemann (2019) "Bioeconomic modelling and Valuation of Exploited Marine Ecosystem".
5. Nautiyal, S., Kaechele, H., & Rao, K. S. (Eds.). (2016) Transdisciplinary perspectives on Transitions to Sustainability. Springer.
6. Nyaupane, G. P., and Poudel, S. (Eds.). (2011) Community-Based Ecotourism: Perspectives and Case Studies. CABI.
7. World Tourism Organization (UNWTO) (2015) Global Report on Adventure Tourism. UNWTO.

Web Resources:

1. <https://cedindia.org/>
2. <https://rtsoi.org/>
3. <https://indiabiodiversity.org/>
4. <https://www.moef.gov.in/>
5. <https://www.tourism.gov.in/>

Related Activities

1. Visit to the Ecotourism centers of Kerala and submit a short report with photos.
2. Recording of Invasive species in the Ecotourist regions at the time of study visit.
3. Marketing of beneficial products from forest.

Course Outcomes

No.	Upon completion of the course the graduate will be able to	Cognitive Level	PSO addressed
CO-1	Define and apply the principles of bioeconomics and bioresource economics, evaluate ecosystem services and externalities, and analyze sustainable practices in biodiversity conservation and resource management.	R, U, An, Ap, E, C	PSO-1,2

CO-2	Summarize the principles of green, environmental, and ecological economics. apply methods for economic valuation of biodiversity and ecosystem services, and evaluate policy implications and property rights in the context of sustainable development and conservation	R, U, Ap, E, C	PSO-1,3
CO-3	Understand the scope and principles of ecotourism, apply planning and management strategies, and evaluate the role of ecotourism in conservation and sustainable development, with special reference to community-based initiatives in Kerala.	R, U, Ap, An, C, E	PSO-1,2
CO-4	Explain the ecological, socio-cultural, economic, and environmental impacts of ecotourism, and critically evaluate the issues and challenges such as biodiversity loss, pollution, and invasive species associated with ecotourism practices.	R, U, E, C, An, Ap	PSO-1
CO-5	Outline the national and international ecotourism policies, analyze the roles of stakeholders in ecotourism management, evaluate strategies to mitigate negative impacts, and explain the key concepts and features of ecotourism marketing.	R, U, An, E, C, Ap	PSO-.2

R-Remember, U-Understand, Ap-Apply, An-Analyse, E-Evaluate, C-Create

Name of the Course: Bioeconomics and Ecotourism

Credits: 3:0:0 (Lecture: Tutorial: Practical)

CO No.	CO	PO/PS O	Cognitive Level	Knowledge Category	Lecture (L)/Tutorial (T)	Practical (P)
1.	Develop a foundational understanding of bioeconomics as an interdisciplinary field that integrates principles from biology and economics and able to analyze bioresource markets, including those for renewable resources.	PO 1/ PSO-1, 2	U, An	F, C	L	-

2.	Understanding of the concept of ecosystem services, including provisioning, regulating, supporting, and cultural services and acquire skills in economic valuation methods.	PO 2/ PSO-1, PSO 3	U, E	P	L	-
3	Understanding of the latest trends and developments in bioeconomics and related policies and analyse the impact of globalization, trade liberalization, and international agreements on bioeconomic sectors and policies.	PO 1/ PSO-1, PSO 2	U, An	F, C	L	-
4.	Understand the principles and concepts of ecotourism.	PO1/ PSO-1	U	P	L	-
5	Engage in critical thinking exercises and problem-solving activities to analyse real-world ecotourism challenges, such as balancing conservation and economic development objectives, addressing social inequalities.	PO1/PS O-2	C, An	F, C	L	--
6	Identify positive impacts of ecotourism on biodiversity and communities and evaluate existing ecotourism policies, regulations, and management practices in addressing biodiversity and community impacts.	PO2/ PSO-1, PSO 2, PSO 3	R, U, E	P	L	-

F-Factual, C- Conceptual, P-Procedural, M-Metacognitive

Mapping of COs with PSOs and POs

	PSO 1	PSO 2	PSO 3	PSO 4	PS O5	PS O6	PO1	PO2	PO3	PO4	PO5	PO6	P O7	P O8
CO 1	1	2	-	-	-	-	2	-	-	-	-	-	-	-
CO 2	2	-	3	-	-	-	-	2	-	-	-	-	-	-
CO 3	3	2	1	-	-	-	3	-	-	-	-	-	-	-
CO 4	2	-	-	-	-	-	2	-	-	-	-	-	-	-
CO 5	2	-	-	-	-	-	2	-	-	-	-	-	-	-
CO 6	2	1	3	-	-	-	-	3	-	-	-	-	-	-

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

Assignments / Seminar topics/Field study reports

1. Principles of bioeconomics
2. Economic impact assessment of a major ecotourism event
3. Make sustainable tourism marketing plan for a destination area or ecotourism enterprise
4. Prepare a report on the study of a selected resource, including its ecological characteristics, biodiversity, productivity, and socio-economic importance.
5. Environmental management measures to minimize the ecological footprint of ecotourism activities.
6. Prepare a study report after visiting an ecotourism project nearby

Continuous and Comprehensive Assessment

1. Quiz / Debate
2. Assignment
3. Group Discussion
4. Seminar
5. Submission of report
6. Test

End Semester Assessment

1. Multiple Choice questions
2. Short answer questions
3. Essay questions

Mapping of COs to Assessment Rubrics:

	Internal Exam	Assignment	Project Evaluation	End Semester Examinations
CO 1	✓			✓
CO 2	✓			✓
CO 3	✓			✓
CO 4		✓		✓
CO 5		✓		✓
CO 6				