

Value Added Course



University of Kerala

Discipline	ECONOMICS				
Course Code	UK3VACECO200				
Course Title	Environment and Climate Change				
Type of Course	VAC				
Semester	III				
Academic Level	200-299				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours/Week
	3	3 hours	-	-	3
Pre-requisites					
Course Summary	<p>The course titled "Environment and Climate Change" provides a thorough examination of the intricate interplay between human actions and the natural world, particularly focusing on climate change. Adopting a multidisciplinary approach, students delve into various aspects encompassing scientific, economic, social, and policy dimensions of environmental concerns. Key areas of study include the science behind climate change, its causative factors and consequences, strategies for both mitigating and adapting to its impacts, principles of sustainable development, and international accords about climate change. Additionally, the course addresses a range of environmental challenges including pollution, deforestation, biodiversity loss, and depletion of natural resources. Through engagement in case studies, collaborative discussions, and practical assignments, students acquire a profound comprehension of the complexities inherent in environmental issues, cultivating critical thinking abilities to propose solutions for fostering a sustainable future.</p>				



Detailed Syllabus:

Module	Unit	Content	Hrs
I		Fundamentals of Environmental Science & Climate change	12
	1	Environment and Ecology (Meaning and difference only)	
	2	Biodiversity, Conservation of ecology (Concepts only)	
	3	Environmental science (Meaning & Components): Environmental Pollution (Different types of Pollution), Environmental Impact Assessment (EIA) (Concept only)	
	4	Climate Change: Climate science (Greenhouse gas, climate modelling, climate variability) – Concepts only	
	5	Impacts of Climate Change (major five impacts)-Mitigation and Adaptation (meaning and concepts only)	
II		Global warming and Ozone Layer Depletion	12
	6	Greenhouse gases: role of CO ₂ & CH ₄ , Global warming potential, CO ₂ Emission (Meaning and overview)	
	7	Remedial measures to reduce global warming, Global cooling (Major remedies)	
	8	Vienna Convention on the Protection of Ozone Layer – 1985, Montreal Protocol, Protection and Maintenance of Ozone Layer (An overview of global initiatives)	
	9	Indian efforts for ozone layer protection	
	10	El-Nino and its effects, La-Nina, impact of climate change on India (An overview of the events)	
III		Impact of Climate Change and Global Warming	10
	11	Impact of Climate Change in India: Pattern change of Rainfall, Drought, Effects on water resources, Sea Level Rise (Analyse the past ten years changes)	
	12	Impacts on Agriculture, food security, Glacier, Health, (Major four points)	
	13	Impacts on energy security (Major four points)	
	14	United Nations Framework Convention on Climate Change (UNFCCC) – 1992, Kyoto Protocol – 1997, Paris Agreement – 2015	
	15	Climate change & disaster in India (An overview of events after 2000)	
	16	Urban flood, Cyclone, Forest fire (Recent events in India)	
17	Sendai Framework for Disaster Risk Reduction – 2015		
IV		Sustainable Development and Governance	6
	18	Sustainable Development – concepts	
	19	Brundtland Commission	
	20	UN Environmental Agenda & role of U	
	21	Strategies for Climate Mitigation and Adaptation	
	22	Environmental World Environment Organization	
	23	Sustainable Development Goals (Goals Only) agencies	
V		FIELD SURVEY	5



24	To conduct a survey and make a report regarding environmental issues of the locality in association with the Block/Village Disaster Management Committees
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Basic Readings

1. William Cunningham, Mary Cunningham and Catherine O'Reilly, 2021, Principles of Environmental Science: Inquiry & Applications, McGraw Hill Education
2. Hussain, M, Ahmed. 2000. Principles of Environmental Economics, Routledge, London and New York
3. Anil Shishodia and Katar Singh, 2007, Environmental Economics: Theory and Applications, Sage Publications
4. Charles Kolstad, Intermediate Environmental Economics, Oxford University Press, 2nd edition
5. Rabindra N Bhattacharya (ed) 2002, Environmental Economics: An Indian Perspective, Oxford University Press.

Additional Readings

1. Jonathan M Harris, 2006, Environmental and Natural Resource Economics : A Contemporary approach, Houghton Mifflin
2. Joy A. Palmer, 1998, Environmental Education in 21st century, Routledge, London.
3. Ramprasad Sengupta, 2002, ECOLOGY AND ECONOMICS (OIP): An Approach To Sustainable Development, OUP India
4. Mahesh Rangarajan, 2009, ENVIRONMENTAL ISSUES IN INDIA: A READER, Pearson Education India
5. Shagoon Tabin, 2008, Global Warming: The Effect Of Ozone Depletion, APH Publishing
6. Climate Change – An Indian Perspective, Sushil Kumar Dash, Cambridge University Press India Pvt. Ltd, 2007
7. William Nordhaus, 2015, The Climate Casino: Risk, Uncertainty, and Economics for a Warming World, Yale University Press. ISBN: 978-0300212648
8. Encyclopedia of Global Warming and Climate Change By George Philander, SAGE Publications Inc; First edition, 2008.
9. Global Warming: The Complete Briefing By John Houghton, Cambridge University Press; 4th edition 2009.
10. Gupta Anil K, Sreeja S. Nair. 2011 Environmental Knowledge for Disaster Risk Management, NIDM, New Delhi
11. Kapur, Anu & others, 2005: Disasters in India Studies of grim reality, Rawat Publishers, Jaipur



Course Outcomes

No.	Upon completion of the course, the graduate will be able to	Cognitive Level	PSO addressed
CO-1	Understand the concepts of environment and sustainable development	R, U	PSO-1
CO-2	Analyse the key issues of climate change and suggest adaptation and mitigation policies	R, U, Ap, An, E, C	PSO-2
CO-3	Evaluate the effectiveness of global initiatives on the issue of climate change.	R, U, Ap, An, E	PSO-4
CO-4	Build a different conceptual framework to solve the issues related to sustainable development	R, U, Ap, An, E, C	PSO-3,4
CO-5	Create a report based on an environmental issue in the locality	R, U, Ap, An, E, C	PSO-6

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

Name of the Course: Credits: 4:0:0 (Lecture:Tutorial:Practical)

CO No.	CO	PO/PSO	Cognitive Level	Knowledge Category	Lecture (L)/Tutorial (T)	Practical (P)
CO-1	Understand the concepts of environment and sustainable development	PO-1, PSO-1	R, U	C, F	L	-
CO-2	Analyze the key issues of climate change and suggest adaptation and mitigation policies	PO-2, PSO-2	R, U, Ap, An, E, C	P, M	L	-



CO-3	Evaluate the effectiveness of global initiatives on the issue of climate change.	PO-2 PSO-3	R, U, Ap, An, E	P,M	L	
CO-4	Build a different conceptual framework to solve the issues related to sustainable development	PO-3, PSO-4	R, U, Ap, An, E, C	P	L	-
CO-5	Create a report based on an environmental issue in the locality	PO-1, 2,7 PSO-3,4	R, U, Ap, An, E, C	P, M	L	-
CO-6	Evaluate and create a report based on a survey	PO-3 PSO-6	R, U, Ap, An, E, C	P,M	L	

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

Mapping of COs with PSOs and POs :

CO No.	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Average
CO-1	3	2	-	-	-	-	3	2	-	-	-	1	-	1	2
CO-2	-	3	-	2	-	-	2	3	2	1	-	2	2	2	2.11
CO-3	-	-	2	3	-	1	2	3	3	1	1	2	1	2	1.91
CO-4	-	-	3	3	-	1	2	3	3	2	1	3	3	3	2.45
CO-5	-	-	2	1	-	3	2	2	3	1	1	3	2	3	2.1
Average	0	3	2.33	2.25	0	1.67	2	2.7	2.7	1.2	1	2.5	2	2.5	

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low



2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Quiz/ Discussion / Seminar Midterm Exam
- Programming Assignments
- Final Exam

Mapping of COs to Assessment Rubrics :

CO No.	Internal Exam	Assignment	Project Evaluation	End Semester Exam
CO-1	✓	✓	-	✓
CO-2	✓	✓	✓	✓
CO-3	✓	✓	✓	✓
CO-4	-	✓	✓	✓
CO-5	-	✓	✓	✓



SEMESTER IV

Discipline Specific Core			
UK4DSCECO200	Macroeconomics -1	DSC	200-299
UK4DSCECO201	Mathematics for Economics-I	DSC	200-299
UK4DSCECO202	Economics of Migration	DSC	200-299
UK4DSCECO203	Monetary Economics	DSC	200-299
UK4DSCECO204	Economics of labour	DSC	200-299
Discipline-Specific Elective (can select one)			
UK4DSEECO200	Environmental Economics	DSE	200-299
UK4DSEECO201	Foundations of Data Science	DSE	200-299
Value Added Course			
UK4VACECO200	Public Policy, Value, and Ethics	VAC	200-299
UK4VACECO201	Women and Development	VAC	200-299
Skill Enhancement Course (can select one)			
UK4SECECO200	Securities Market Analysis	SEC	200-299
UK4SECECO201	Logistics and Transportation Economics	SEC	200-299

