

Course title: Economics of Climate Change				
Course code: NRC 145	No. of credits: 3	L-T-P: 34-08-00	Learning hours: 42	
Pre-requisite course code and title (if any): Familiarity with the mathematics at CBSE/ISC +2 Level				
Department: Energy and Environment				
Course coordinator(s):		Course instructor(s): Dr Manish K Shrivastava		
Contact details: manish.shrivastava@terisas.ac.in				
Course type: Elective		Course offered in: Semester 3		
Course description				
<p>The course encompasses the fundamentals in economics of climate change. The focus is on the fact that many issues related to climate change problem environmental resources fall outside the purview of the market mechanisms. The course also aims to develop an understanding of the economic framework of decision-making in which policy issues related to climate change issues are currently being debated at various forums.</p> <p>The specific issues that students would be discussing in the course are as follows: How Economic System Affects and gets Affected by Climate Change? What policy instruments and institutional arrangements can we avail of–nationally and internationally–to bring about actions necessary to prevent atmospheric concentration of GHG emissions from reaching ‘dangerous levels’? What political and economic considerations are influencing the course of international negotiations?</p>				
Learning objectives				
The aim of the course is:				
<ul style="list-style-type: none"> • To introduce the students to economic analysis of climate change • To examine the economic instruments at global, regional and local levels for making policy choices related to climate change • To analyze the economic principles in work at Institutional Mechanisms devised to deal with climate change problems 				
Course content				
Module	Topic	L	T	P
1.	Analysing the Cause and Effect Relationship between Economic System and Climate Change Atmospheric commons; Stock and Flows of emissions; GHG emissions as externalities; Impacts of climate change over time and space; Uncertainty and Irreversibility	6	0	0
2.	Methods of Valuation of Ecosystem Services with Special Emphasis on Climate Change Market and non-market benefits, user benefits, non-user benefits and option value benefits Methods of valuation: physical linkage methods; hypothetical behavioural and stated preferences methods; observed behavioural or revealed preferences methods, Discounting	8	4	0

3.	Economic Policy Instruments in Addressing Climate Change Direct regulation; emission taxes and abatement subsidies; tradable permits: choice of instrument (trading vs. taxation, price vs. quantities, fiscal impacts, distributional considerations)	8	4	0
4.	Institutions for Addressing Climate Change By Application of Economic Principles Kyoto Protocol and its Mechanisms (CDM, JI): Trans-border Carbon Adjustments, REDD++, International Climate Change Agreements	12	0	0
Total		34	8	0
Evaluation criteria				
<ul style="list-style-type: none"> • Test 1- Term Paper (10% for presentation and 10% for report): 20% • Test 2 - Take Home Graded Assignments (3 in number): 30% • Test 3 - End Semester Exam: 50% 				
Learning outcomes				
After pursuing the course, the student will be able to:				
<ul style="list-style-type: none"> • appreciate the working of economic principles in terms of incentives behind any decision taken by different economic agents that affect the environment and climate change (Test 1 and Test 2) • understand the nuances behind the working of successful environmental and climate change policies and not so successful ones (Mapped with Test 3) 				
Pedagogical approach				
Classroom teaching will involve black board, discussion of examples, building up on basic concepts				
Materials				
<ol style="list-style-type: none"> 1. Barrett S. (2003) <i>Environment and Statecraft</i>, New York, Oxford University Press. 2. Bruce J., Lee H. and Haites E., (1995): <i>Climate Change: Economic and Social Dimensions of Climate Change</i>. Cambridge, Cambridge University Press. 3. Gaskins D. and Weyant J., (1993): <i>Reducing Global Carbon Dioxide Emissions: Costs and Policy Options</i>, Energy Modeling Forum, Stanford University 4. Griffin J., (2003): <i>Global Climate Change: The Science, Economics and Politics</i>. Cheltenham: Edward Elgar. 5. Kolstad C.D. (2002) <i>Environmental Economics</i>, Oxford University Press. 6. Nick H., Jason F.S. and Ben W. (1997) <i>Environmental Economics–In theory and Practice</i>, Macmillan Publishers India. 7. Nordhaus W. (1994) <i>Managing the Global Commons</i>, Cambridge, MA, MIT Press 				
Additional information (if any)				
Student responsibilities				
The nature of the course demands that the students shall attend all lectures. Discipline and attendance must be maintained in class.				

Course Reviewers

The course is reviewed by the following experts.

1. Dr. Sarthak Gaurav, Assistant Professor, SJMSOM, IIT Bombay, Powai, Mumbai 400 076, Maharashtra
2. Dr. Upasak Das, Post-Doctoral Fellow, University of Pennsylvania, Philadelphia, PA 19104, USA