Course title: Theory of Environmental Policy

Course code: MPE 144	**No. of credits:** 4	**L-T-P:** 56-0-0	**Learning hours:**56

Pre-requisite course code and title (if any): None

Department: Department of Policy Studies

Course coordinator: Dr.Nandan Nawn	**Course instructor** Dr Nandan Nawn

Contact details: nandan.nawn@terisas.ac.in

Course type: Core	**Course offered in:** Semester 2

Course description:

Objective: This course familiarizes students with the theory and application of economics to environmental problems and prepares them for analyzing issues in environmental economics and policy. It will focus on the design of cost-effective environmental policies.

Format: The course consists of lectures, student led discussions, student presentations, and other assignments. To achieve the course objectives, active participation in class and timely completion of assignments are important. Each week students will be responsible to read a set of assigned papers and actively discuss them with the other students in class.

Requirements:

I. Oral presentations: Oral presentations of assigned topics by each student and discussions in the class about presentations form an important component of evaluation of students' performance.

II. Minor examinations: Two minor examinations are to be completed individually.

III. Major examination: the Final examination, the exam will be offered during May 7-15.

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Course objectives:

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Course contents

S.No	Topic	L	T	P
1	**1. Economics and the Environment** The nature of environmental goods and services, market failure and public policy: theory of Externalities and public goods/bads (including newly emerging concept of global public goods)	12		
2	**II. Environmental Policy Instruments** Introduction, property rights and transaction costs, quantitative regulations, price instruments to correct externalities: pollution taxes and abatement subsidies, transferable permits/pollution markets, economics of non-point pollution control, innovativeapproaches to control environmental pollution, enforcement and Regulation.	24		
3	**III. Environmental policy in Second best Situations** Introduction, uncertainties, imperfect competition, information asymmetry, hybrid instruments, intertemporal, multiple pollutants, adverse selection and moral hazard	14		
4	**IV. Environmental Policy and Technological Change**	6		
	Total	**56**		

Evaluation criteria:

1. Test 1:Class Test [after completion of module 1 and 2] : 25%

Assignments can be group or individual assignment to judge the clarity of the basic concepts

2. Test 2:Oral Presentations[after completion of module 3 and 4] : 25%

Presentation will be based through a group level activity involving a case study and applying any of the particular policy instruments and steps to be designed for implementing it.

3. Test 3:Final Major Examination[after completion of all the modules] : 50 %

Learning outcomes:

a. To appreciate the 'sink' function of environment, its impact on the economic system(Test 1)
b. To gain an understanding on a variety of policy instruments for addressing environmental problems (Test 2 and Test 3)
c. To be exposed to and learn in the process skills for making effective presentations (Test 2)

Materials:

Suggested readings

1. Baumol, W.J. and W.E. Oates. 1988. The Theory of Environmental Policy, 2nd Ed. Cambridge, University Press, Cambridge, England. [Denoted B&O]
2. Mas-Colell, A., M. Whinston and J Green. 1995. Mircroeconomic Theory, Oxford University Press [Denoted MWG]
3. Kolstad, C. D. 2000. Environmental Economics, Oxford University Press [Denoted Kolstad]
4. Hanley, N., J. Shogren and B. White. 1997. Environmental Economics in Theory and Practice, Oxford University Press [Denoted HSW]
5. Sterner, Thomas. Policy Instruments for Environmental and Natural Resource Management. Washington, DC: Resources for the Future Press.

I. Economics and the Environment

A. Introduction

- Kolstad, Chap. 1 to 4
- B&O, Chap. 2
- Stavins, R. 2004. "Environmental Economics" in The New Palgrave Dictionary of Economics, 2nd Edition

B. Theory of Externalities and Public Bads

- Kolstad, Chap 5
- B&O, Chap. 3
- MWG, Chap. 11
- Burrows, P. 1995. Nonconvexities and the Theory of External Costs. In D. Bromley (ed.) Handbook of Environmental Economics. Blackwell, Oxford,U.K. 243-250.

II. Environmental Policy Instruments

- Kolstad, Chap 7 to 9
- HSW, Chap 3, 4, 5
- Xepapadeas, A. 1997. Advanced Principles in Environmental Policy, Edward Elgar, Cheltenham, U.K. Chapter 2, 4-98.
- Chichilinsky, G and G. Heal. 1994. "Who Should Abate Carbon Emissions: An International Viewpoint," Economics Letters, 443-449.
- Calcott, P. and M. Walls. 2000. Can downstream waste disposal policies encourage upstream „design for environment"? American Economic Review, 90(2), 233-237
- Goulder, L H. and Ian W. H. Parry, 2008. Instrument Choice in Environmental Policy. Review of Environmental Economics and Policy, 2(2), 152-174.

A. Property Rights and Transaction Costs

- Coase, R.H. 1960. The Problem of Social Costs. Journal of Law and Economics 3:1-44.
- Chari, V. V. and L. Jones. 2000. A Reconsideration of the Problem of Social Cost: Free Riders and Monopolies. Economic Theory 16 (1), 1-22.
- Hoffman, E and M.L. Spitzer. 1982. The Coase Theorem: Some Experimental Tests. Journal of Law and Economics 25: 73-98.
- Crocker, T.D. 1971. Externalities, Property Rights, and Transactions Costs: An Empirical Study. Journal of Law and Economics 14:451-464.
- Demsetz, H. 1996. The core disagreement between Pigou, the profession, and Coase in the analysis of the externality question. European Journal of Political Economy 12(4), 656-579.

B. Quantity Regulation

- B&O Chap. 11
- Helfand, G.E. 1991. Standards versus Standards: The Effect of Different Pollution Restrictions. American Economic Review 81:622-634.

C. Price Instruments to Correct Externalities

1. Pollution Taxes and Abatement Subsidies

- B&O, Chaps. 4, 14
- Spulber, D.C. 1985. Effluent Regulation and Long Run Optimality. Journal of Environmental Economics and Management 12:103-116.
- Holterman, S., 1976, Alternative Tax Systems to Correct for Externalities and the

Efficiency of Paying Compensation, Economica, 1-16.

- Palmer, K, H. Sigman and M. Walls, 1997, The Cost of Reducing Municipal Solid Waste, Journal of Environmental Economics and Management, 33: 128-150.
- Fullerton, D and Thomas Kinnaman. 1996. Household Responses to Pricing Garbage by the Bag, American Economic Review 86: 971-84.
- Murty, M N and S. Kumar and K Dhavala. 2007. "Measuring Environmental Efficiency of Industry: A Case Study of Thermal Power Generation", Environmental and Resource Economics, vol. 38, pp. 31-50,

2. Transferable Permits/Pollution Markets

- B&O, Chap. 12.
- HSW, Chapter 5
- Montero, J. 2000. Optimal design of a phase-in emission trading program, Journal of Public Economics, 75, 273-291.
- Seskin, E.P., R.J. Anderson, Jr., and R.O. Reid. 1983. An Empirical Analysis of Economic Strategies for Controlling Air Pollution. Journal of Environmental Economics and Management 10:112-24.
- Carlson et al. 2000. Sulfur dioxide control by electric utilities: what are the gainsfrom trade? Journal of Political Economy, 108(6).
- Schmalensee, R. et al. 1998. An Interim Evaluation of the Sulfur Dioxide Emissions Trading, Journal of Economic Persepctives 3: 53-68.
- Stavins, R., 1998. What Can We Learn From the Grand Policy Experiment? Lessons from SO2 Allowance Trading. Journal of Economic Perspectives 3: 69-88.

D. The Economics of Nonpoint Pollution Control

- Braden, J.B., G.V. Johnson, A. Bouzaher, and D. Miltz. Optimal Spatial Management of
- Agricultural Pollution. American Journal of Agricultural Economics 71 (No. 2,1989): 404-413.
- Letson, D. 1992. Point/Nonpoint Source Pollution Reduction Trading: An Interpretative Survey, Natural Resource Journal, 32, 292-331.
- Shortle, J.S. and R.D. Horan. 2001. The Economics of Nonpoint Pollution Control. Journal of Economic Surveys, 15(3), 255-290.

E. Innovative Approaches to Environmental Protection

- Khanna, M. 2001. Non-mandatory Approaches to Environmental Protection. Journal of Economic Surveys, 15(3), 291-324. Tietenberg, T. 1998. Disclosure Strategies for Pollution Control. Environmental and Resource Economics 11 (34), 587-602.
- Maxwell, J., T Lyon and S Hackett. 2000. Self regulation and social welfare: the political economy of corporate environmentalism. Journal of Law and Economics, 43(2)
- Segerson, K. and T.J. Micelli 1998. Voluntary Environmental Agreements: Good or Bad News for Environmental Protection? Journal of Environmental Economics and Management, 36, 109-130.
- Khanna, M and L. Damon. 1999. EPA‟s Voluntary 33/50 Program: Impact on Toxic Releases and Economic Performance of Firms. Journal of Environmental Economics
- and Management, 37(1): 1-25.
- Murty, M N and S Kumar. 2003 "Win-Win Opportunities and Environmental Regulation: Testing the Porter Hypothesis for Indian Manufacturing Industries", Journal of Environmental Management, vol. 67(2), pp. 139-144,

F. Enforcement and Environmental Regulation

- Polinsky, A. M. and S. Shavell. 2000. The economic theory of public enforcement of laws. Journal of Economic Literature, 38, 45-76.
- Cohen, M. 1998. Monitoring and enforcement of environmental policy.

III. Environmental Policy in Second Best Situations

A. Uncertainty

- B&O, Chap. 5
- Weitzman, M. 1974. Prices and Quantities. Review of Economic Studies 41: 477-491.
- Roberts, M.J. and M. Spence. 1976. Effluent Charges and Licenses under Uncertainty. Journal of Environmental Economics and Management. 5: 193-208.
- Pindyck, R. S. 2007. Uncertainties in Environmental Economics, Review of Environmental Economics and Policy 1(1), 45-65

- Kolstad, C.D. 1986. Empirical Properties of Economic Incentives and Command and Control Regulations for Air Pollution Control. Land Economics: 62, 250-268.
- Pizer, W. 1997. Prices vs Quantities Revisited: the Case of Climate Change. Resource for the Future, Discussion Paper 98-02.

B. Imperfect Competition

- B&O, Chap. 6
- Besanko, D. 1987. Performance versus design standards in the regulation of pollution.
- Journal of Public Economics 34, 19-44
- Hahn, R. 1984. Market p

C. Other Distortions

- Bovenberg, A. L. and R. A. de Mooij. 1994. Environmental Levies and Distortionary Taxation. American Economic Review 84: 108-59.
- Goulder, L., I.W.H. Parry and D. Burtraw. 1997. Revenue Raising vs. Other Approaches to Environmental Protection: The Critical Significance of Pre Existing Distortions." RAND Journal of Economics 28(4), Winter, 708-731.
- Goulder, L. 1995. Effects of Carbon Taxes in an Economy with Prior Tax Distortions: An Intertemporal General Equilibrium Analysis. Journal of Environmental Economics and Management, 29: 271-297.

IV. Environmental Policies and Technological Change

- Milliman, S. and R. Prince, 1989. Firm Incentives to Promote Technological Change in Pollution Control, Journal of Environmental Economics and Management 17, 247-265.
- Caswell, M.F., E. Lichtenberg, and D. Zilberman, 1990. The Effects of Pricing Policies on Water Conservation and Drainage, American Journal of Agricultural Economics, 72(4): 883-90.
- Jaffe, A and K. Palmer. 1997. Environmental Regulation and Innovation: A Panel Data Study. Review of Economics and Statistics, 610-619.
- Khanna, M., M. Isik, and D. Zilberman. 2002 "Cost Effectiveness of AlternativeGreen
- Payment Policies for Conservation Technology Adoption with Heterogeneous Land Quality," Agricultural Economics, (21) 2, 157174.
- Kumar, S and S. Managi. 2009 "„Energy Price-Induced and Exogenous Technological Change: Assessing the Economic and Environmental Outcomes", Resource and Energy Economics 31(4), pp. 334-353,
- Kumar, S., and S. Managi. 2009 „Sulfur Dioxide Allowances: Trading andTechnological Progress", Ecological Economics (in press)

Additional information (if any):

Student responsibilities: Attendance, feedback, discipline: as per university rules.