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**Code: ECON-410**

**Title: Environmental and Natural Resource Economics**

**Credit Hours: 03**

**Prerequisite: Intermediate Microeconomics, Intermediate Macroeconomics, Development Economics-I**

**Objectives:**

This course focuses on economic causes of environmental problems. In particular, economic principles are applied to environmental questions and their management through various economic organizations, economic incentives and other instruments and policies. Economic implications of environmental policy are also addressed as well as valuation of environmental quality, quantification of environmental damages, tools for evaluation of environmental projects such as cost-benefit analysis and environmental impact assessments. Selected topics on international environmental problems are also discussed.

**Course Contents**

**Introduction**

What is environmental economics; review of microeconomics and welfare economics.

**Limitation of Market**

Excludable and rival goods, common pool resources and public goods

**The Theory of Externalities**

Pareto optimality and market failure in the presence of externalities; property rights and the Coase theorem.

**Valuing the Environment: Methods**

Introduction: theoretical aspects, Economic valuation of the environment: Methodologies and Applications

**Cost-Benefit Analysis and Other Decision Making Metrics**

Framework of BCA and its applications, Divergence of Social and Private Discount Rates, Cost-Effectiveness Analysis, Impact Analysis

**The Design and Implementation of Environmental Policy**

Overview; Pigouvian taxes and effluent fees; tradable permits; choice between taxes and quotas under uncertainty; selection of environmental policy instruments; implementation of environmental policy.

**International Environmental Problems**

Trans-boundary environmental problems; global pollution; economic significance of biodiversity; economics of climate change; trade and environment, dispute resolutions.

### **Natural Resource Management**

Renewable resources, Non-renewable resources

### **Measuring the Benefits of Environmental Improvements**

Non-Market values and measurement methods; risk assessment and perception. Incentive based solutions

### **Contemporary Issues in Environmental Economics with Reference to Pakistan**

Energy crisis, Water footprints, Forests, Fisheries, Economics of Pollution

### **Sustainable Development**

Concepts; Sustainability of Development, The Growth-Development Relationship measurement (conventional and alternative)

### **Recommended Books:**

- David A. Anderson. (2014). Environmental Economics and Natural Resource Management", Routledge, 4th Edition.
- Tom Tietenberg and Lynne Lewis. (2012). Environmental & Natural Resource Economics Pearson Education, Inc., 9th Edition.
- Charles Kolstad. (2010). Intermediate Environmental Economics, Oxford University Press, 2nd edition.
- Robert N. Stavins. (2005) Economics of the Environment: Selected Readings, W. W. Norton, 5th edition.
- Ian Wills. (2007). Economics and Environment; A signaling and incentive approach, 2nd edition.
- Freeman, A. M. (2003). The measurement of Environment and resource Values; Theory and Methods, resource for the future, 2nd edition.
- Thomas Sterner. (2003). Policy Instruments for Environmental and Natural Resource Management, Resource for the future.