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## **ECON 904E: Environment and Resource Economics-I**

**(04 Credits)**

### **Unit-I: The Economy & Environment: Efficiency, Public Bad and Market Failure**

What is Environmental Economics; Interlinkage between Economy & Environment; Laws of Thermodynamics; Social Choice & Environmental Protection; Efficiency & Markets; Public Bad & Externalities: Market Failure

### **Unit-II: Regulation of Pollution & Marketable Permits**

Political Economy model of regulation & Basic regulatory instruments; Basic issues of environmental regulation; Emission fees & marketable permits, multiple pollutants, Implementing marketable permits; International Trade & Transboundary pollution; Transboundary pollution & Game Theory

### **Unit-III: Basic Issues of Resource Economics**

Capital Asset Model; Dynamic Optimization; Optimal Control; Dynamic Programming; Application of Optimal Control in Resource Economics; Application of Dynamic Programming in Resource Economics

### **Unit-IV: Issues of Environmental Valuation & Sustainable Development**

Concept of Total Economic Value; Objective Standard-based Valuation & Subjective Preference-based Valuation; Indirect methods & Direct methods of Valuation; Concepts & Indicators of Sustainable Development; Sustainable Accounting; Political Economy of Sustainable Development

### **Reading List:**

1. Environmental Economics – Kolstad – Chapters – 1, 3, 4, 5
2. Environmental Economics – R. N. Bhattacharya – Chapter-1
3. Environmental Economics: Theory & Practice – Hanley, Shogren & White
4. Dynamic Optimization – Alpha Chiang

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## **ECON 1004E: Environment and Resource Economics-II (04 Credits)**

### **Unit-1: Economics of Natural Resources**

A Resources Taxonomy; Managing Exhaustible Resources; Managing Renewable Resources; Property Rights: Polluter & Victim; Coase Theorem; CPR: Definition, Evolution of CPR Regime & Institution & Problem of Common Property

### **Unit-II: Economics of Non-Renewable Natural Resources**

Market Structure and Exploitation of Non-renewable Natural Resources; Production Technology and Extraction Costs; Application of the Theory; Government Policy towards non-renewable resource extraction; Uncertainty and the rate of Resource extraction

### **Unit-III: Economics of Non-Renewable Natural Resources**

Population Growth models; Static models of Fishery exploitation in continuous time; Static economic models of Fisheries; Comparative dynamic models of fishing; Fisheries Policy; Strategic behaviour in fishery management

### **Unit-IV: Economics of Climate Change**

The Science of Climate Change; Economics, ethics and climate change; Implications of climate change for development; Cost of climate change in developed countries; Macroeconomic models of costs; Policy responses for mitigation; International collective action

### **Reading List:**

1. Environmental Economics – Kolstad
2. Environmental Economics – R. N. Bhattacharya
3. Halting Degradation of Natural Resources – Baland & Platteau
4. Environmental Economics: Theory & Practice – Hanley, Shogren & White
5. Stern Review: The Economics of Climate Change
6. The Economics of Climate Change – Lawrence Goulder and William A Pizer, NBER Working Paper 11923