

PRE-REQUISITES: F.Sc. or equivalent

LEARNING OUTCOMES

Upon completion of the course the students will be able to:

- Have an understanding of fundamental concepts of micro and macro economics
- Acquire knowledge base for understanding of environmental economics
- Understand the fundamental concepts of sustainability
- Address questions pertaining to the current development taking place in the country in land development, energy, and transportation sectors
- Frame appropriate questions to guide relevant study and research in development-oriented projects.

CONTENTS

This integrated course is designed specifically for students of Environmental Sciences to familiarize them with the basic concepts of economics as applied to solving environmental problems /issues. It will equip them with the knowledge of economic variables, economic laws and the relationship between micro and macro-economic. This course will form the basis for understanding environmental economics and practice of sustainable development.

Unit 1: Economics

- 1.1. Concept of scarcity and choice
- 1.2. Production possibilities frontier
- 1.3. Micro and Macroeconomics
- 1.4. Economic systems
- 1.5. Demand and supply
- 1.6. Market equilibrium
- 1.7. Price elasticity of demand and its determinants
- 1.8. Price elasticity of supply
- 1.9. Cross elasticity and income elasticity of demand

Unit 2: Environmental Economics

- 2.1. Economics versus environment
- 2.2. Basics of sustainable growth, measuring sustainable growth and costs problems
- 2.3. Externalities, market failure and the environment
- 2.4. Economic incentives to sustain the environment
- 2.5. Low cost of sustainability

Unit 3: Theory of production and consumer behavior

- 3.1. Indifference curves analysis
- 3.2. Concept of costs and revenues
- 3.3. Short run production relationships, short run production costs, long run production costs
- 3.4. ISO Cost line and ISO Quant curve, Producer's equilibrium
- 3.5. Pure competition; characteristics, equilibrium of a firm under short run and long run
- 3.6. Monopoly; characteristics, Equilibrium of a firm under short run and long run
- 3.7. Introduction to Macroeconomics, Macro-economic variables and functional relationships
- 3.8. Consumption, Investment, Savings
- 3.9. Concept of National Income and its measurement
- 3.10. Keynesian system of Macroeconomics
- 3.11. Aggregate demand and supply

Unit 4: Energy policy and Environment

- 6.1. Current global energy picture
- 6.2. Energy scenarios of the future
- 6.3. Technology options for electricity
- 6.4. Heat and transport (fuel efficiency and fuel switching)
- 6.5. Globalization and impact on sustainability
- 6.6. Population control and sustainability
- 6.7. Cleaner Technologies, Path to a sustainable future

TEACHING – LEARNING STRATEGIES

- Lecture based examination
- Presentation/seminars
- Class discussion
- Quizzes

ASSIGNMENTS – TYPE AND NUMBER WITH CALENDAR

It is continuous assessment. The weightage of Assignments will be 25% before and after midterm assessment. It includes:

- classroom participation,
- attendance, assignments and presentation,
- homework
- attitude and behavior,
- hands-on-activities,
- Short tests, quizzes etc.

ASSESSMENT AND EXAMINATIONS:

| Sr. No. | Elements | Weightage | Details |
|---------|----------------------|-----------|---|
| 1. | Mid Term Assessment | 35% | It takes place at the mid-point of the semester |
| 2. | Formative Assessment | 25% | It is continuous assessment. It includes: classroom participation, attendance, assignments and presentation, homework, attitude and behavior, hands-on-activities, short tests, quizzes etc. |
| 3. | Final Assessment | 40% | It takes place at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc. |

RECOMMENDED TEXT BOOKS / SUGGESTED READINGS

1. Pearce, D., Barbier, E., & Markandya, A. (2013). *Sustainable development: economics and environment in the Third World*. Routledge
2. Hussen, A. (2012). *Principles of environmental economics and sustainability: an integrated economic and ecological approach*. Routledge.
3. Chiras, D. D. (2009). *Environmental science*. Jones & Bartlett Publishers.
4. Perman, R., Ma, Y., McGilvray, J., & Common, M. (2003). *Natural resource and environmental economics*. Pearson Education.

Further Reading: As suggested by the instructor.