Course Title: Energy Economics and Policy **(Core course)**

Course Code ESE- 813

Course Objectives:

The course aims to provide a comprehensive understanding of the intricate relationship between the energy sector, global economics, environmental impacts, and the policy challenges associated with managing resource-rich economies. It should equip students to critically evaluate and analyze these complex issues and propose informed policy solutions.

- Understand the energy prices and their effects on major economies.
- Analyze the macroeconomic impact of energy prices on different economies, including economic models of resource-based economies and taxation regimes.
- Examine strategies for resource-based industrialization, the significance of national ownership of energy resources, and critically evaluate policies like local content participation.
- Analyze energy policy issues, including energy independence, environmental concerns like climate change, governance in extractive industries, and the exploration of alternative energy sources.

Learning Outcomes.

By the end of the course, students will be skilled in categorizing and evaluating the diverse effects of energy prices on global economies, particularly in developing nations reliant on oil imports. They will be able to compare and analyze economic models relevant to resource-based economies, understanding their strengths and limitations. Additionally, students will demonstrate the ability to assess the effectiveness of policy responses. Furthermore, they will critically evaluate energy policies such as taxation regimes and initiatives like the Extractive Industries Transparency Initiative (EITI). This knowledge will enable them to comprehend depletion concepts, energy dependence, and their implications for global energy security, while also examining the energy sector's impact on climate change. Ultimately, students will develop informed perspectives on sustainable energy options and the potential role of alternative sources in reducing reliance on fossil fuels.

Detailed Contents:

Connecting energy technologies to economics and global politics. Electricity markets and their component parts, wholesale and retail competitive pricing, transmission pricing and placement. Current and future approaches to regulation and associated political implications. supply of fuels, generation mixes and costing, and comparing developed to emerging nation systems. Utility regulation and restructuring occurring in developed and developing countries. How regulation and restructuring can affect technology and fuel choices and the environmental dimensions of electric power.

Energy Supply and the Economics of Depletable Resources. World Oil Markets and Energy Security. Oil prices and the Global Economy. Impact of oil price shocks major economies. Impact on oil importing developing countries. Classify and explain the types of oil price Issues and analyze the impact on different economies. Natural Gas Price Regulation, Deregulation and Markets. Fossil fuel and the Macro-economy Economic models of resource-based economies. Measuring Economic Impact. Oil and Gas Taxation Regimes. Analyze the impact on different economies. Challenges of Macroeconomic management in oil and gas exporting Countries. Concepts and Characteristics.

Policies and strategies affecting energy use: utility regulation and restructuring, multilateral interventions and agreements, and corporate strategic decision-making and investment. Examine the interplay between policy and fossil vs. renewable energy sources. Study the pros and cons of each.

Technology-based policies: Examine how policy can impact technological development in the energy use sector. Cover both end use technologies as well as energy production and transportation technologies.

Emissions-based policies. Cap and trade/Carbon tax. How emissions reduction policies for the energy sector affect fuel and technology choices and energy use. Clean air act, emissions limits and pollution control requirements, emissions allocation, and trading systems.

Comparisons between countries: compare and contrast different approaches applied around the world, in the context of the material presented thus far. The role of government and private investment firms in energy technologies and policy: Emerging trends, bridging the technology development gap for highly scaled new technologies.

Text/Ref Books:

- Crossing the Energy Divide: Moving from Fossil Fuel Dependence to a Clean-Energy Future. Reprint Edition by Robert Ayres (Author), Edward Ayres (Author)
- Investing in Energy 1st Edition by Gianna Bern
- Edison to Enron: Energy Markets and Political Strategies 1st Edition, by Robert L. Bradley (Author)