

Module No. 1: Energy Infrastructure
No. of weeks / credits 6

Week 1

- **Introduction Overview**
 - Introduction
 - Concept of Energy & Sustainability
 - Present Energy Resources
 - Renewable Energy Resources
 - World Primary Energy Consumption
 - Quantities of Energy
 - Primary, Delivered & Useful Energy
 - Forms of Energy
 - India Energy Sector Overview

Week 2

- **Coal**
 - About Fossil Fuels
 - Coal Combustion
 - Fires Furnaces & Boilers

Week 3

- **Oil & Gas**
 - Origin and geology of petroleum
 - Refining Products
 - Oil and Gas As Secondary Fuels
 - Non-conventional Sources of Petroleum

Week 4

- **Nuclear Power**
 - Introduction
 - Radioactivity
 - Nuclear fission
 - Reactors And Bombs
 - Nuclear Fuel Cycles
 - Fast Reactors
 - Power From Fusion

Week 5

- **Large Hydro**
 - Introduction
 - The Galloway hydros
 - Stored energy and available power
 - A brief history of water-power
 - Types of hydroelectric plant
 - The Francis turbine
 - Impulse turbines
 - Ranges of application
 - Environmental considerations

Week 6

- **Power Sector**
 - Introduction
 - Growth of Power Sector
 - Village Electrification
 - Power Supply Position
 - Transmission
 - Accelerated Power Development Programme (APDP)
 - Ultra-Mega Power Projects (UMPP)
 - Organization of Power Sector
 - Power Sector Reforms
 - Energy Conservation