

## Global Energy Scenario

**1.1 Course Number:** MT5203

**1.2 Contact Hours:** 40 Hours, **Credits:** 8

**1.3 Semester-offered:** 3<sup>rd</sup> Semester

**1.4 Prerequisite:** Basics of Energy

**1.5 Syllabus Committee Member:** Dr. Sanjay Kumar Kar and Dr. M.S. Balathanigaimani

### 2. Objective:

- To provide overview of the global energy industry including Petroleum and Natural Gas industry.
- The course intends to offer insights into the industry structure, business segments, major players, world energy market, sources of conventional and unconventional energy, energy trade, energy pricing, and challenges faced by the energy industry.
- To enable participants to develop a holistic perspective on emerging energy scenarios across the globe.

### 3. Course Content:

Unit-wise distribution of content and number of lectures

Unit	Topics	Sub-topic	Lectures
1	Introduction, Geopolitics & Energy Security	Introduction to Energy & Energy Security, Geopolitics and Global Energy Scenarios, Energy Security: Role of Conventional Energy –Oil & Coal	06
2	Natural Gas & Unconventional Gas	Global, region wise and country wise reserves, Global, region wise and country wise actual production, Global region wise and country wise actual consumption, Natural gas trade movement: Pipeline & LNG, Natural gas value Chain, Emergence of Unconventional Sources, Shale gas, Gas Hydrates, Coal Bed Methane	06
3	E&P Policy	E&P Policy Global Perspective, Global E&P policies & practices, Case studies from US, Europe, and Africa, E&P Policy Developments in India, Nomination Policy, New Exploration & Licensing Policy (NELP), Hydrocarbon Exploration Policy (HELP)	06
4	Petroleum Value Chain Analysis	Upstream, Midstream, and Downstream Exploration & Production Crude Pipelines, Petroleum Product Pipelines, Natural Gas Pipelines, Refining, Storages, Transportation, and Marketing, Refinery Industry, Refinery Economics, Product Ranges, Storage & Distribution, Pricing, Marketing & Retailing	06

5	Regulatory Developments in India	Downstream Regulatory Developments, Evolution of downstream Regulator, Petroleum & Natural Gas Regulatory Board Act (PNGRB), Role, responsibilities, and authorities of PNGRB	03
6	Renewable Energy	Potential, availability, actual production, and future targets, Policy initiatives and action plans, State level Renewable Energy Policies	03
7	Project Work	A group of students will be allocated a project relevant to the course, where they can apply their understanding. They will be collecting data through fieldwork, submit their research report and present their findings. Students will thus gain first-hand research experience. Project will be a part of course evaluation.	10
		<b>Total</b>	<b>40</b>

#### 4. Readings

##### 4.1 Reference Books:

- The Global Oil & Gas Industry: Management, Strategy and Finance by Andre Inkpen and Michael H. Moffett.
- Natural Gas Markets in India: Opportunities and challenges, edited by S. K. Kar and Ayush Gupta, springer 2017.

##### 5. Outcome of the Course:

On the completion of this course, the students are expected to:

- Develop understanding of energy industry in general and oil & gas in specific
- Understand dynamics of demand-supply and trade of oil & gas globally
- Understanding of changing dynamics of global energy industry