Course title: Energy Policy, Planning and Programmes			
Course code: DSE 105	**No. of credits:** 3	**L-T-P:** 45-00-00	**Learning hours:** 45
Pre-requisite course code and title (if any): N.A.			
Department: Sustainable Engineering			
Course coordinator: Dr. Sapan Thapar	**Course instructor(s):** Dr. Sapan Thapar		
Contact details: sapan.thapar@terisas.ac.in			
Course type: Programme Core	**Course offered in:** Semester 1		

Course description

The course is meant to impart knowledge on the energy sector, encompassing policies, regulations and legislative frameworks pertaining to India. Students would be sensitized about the institutional structure – governing entities/ agencies, public sector undertakings, research institutions, private companies, across the business value chain.

Prominent legislations, rules, policies and programs related to coal, oil & gas, hydro, nuclear, electricity and renewable sectors shall be discussed. These would include OALP, Coal Mining Policy, Electricity Act and RE-RPO Scheme. Special focus would be on policies pertaining to renewable energy sector, covering utility-scale and decentralized plants (both electric and non-electric formats). Students would be made aware about the new initiatives on EVs, Biofuels, Green Hydrogen. Discussions would include global practices.

Course objectives

- Impart knowledge on energy related policies, regulations, institutional framework and key stakeholders
- Provide understanding on key programmes pertaining to coal, oil & gas and electricity sectors
- Analyze efficacy of policy instruments on renewable energy sector
- Provide insights on emerging policies/ programs regarding EVs, GH2, CBM, Smart Grids, Biofuels

Course contents

Module	Topic	L	T	P
1	**Overview** Global Energy Sector Introduction to Indian energy sector Resources & Technologies (Coal, Oil, Gas, Hydro, Nuclear, Renewables) Resource Availability, Imports & Exports Energy Demand & Supply, Consumer Segments Energy Security, Energy Access Climate Change and Energy Transition	4	0	0
2	**Institutional Structure – Roles & Responsibilities (India)** Ministries – PNG, Coal, Power, NRE, State Government Bodies Regulators/ Agencies – Niti Aayog, CEA, CERC, APTEL, PNGRB, PPAC, BEE, Grid Controller, DGH PSUs - NTPC, NHPC, SJVN, Coal India, NLC, ONGC, IOCL, BPCL, NPC, PGCIL, NPCIL, SECI, Petronet LNG Energy Trading Platforms – IEX, PSIL, IGX International Agencies – IEA, IRENA, ISA, IBA Funding Agencies – PFC, REC, IREDA, IIFCL Research Agencies – CMPDI, NISE, NIWE Private Players	8	4	0

a	**Policies, Regulations, Programmes – Coal** Business Flow - Coal Mining, Excavation, Transportation; Coal Imports Legislations - Coal Mines (Nationalization); Captive Coal Mining Mineral Concession Rules MMDR Act; Coal Cess Coal Distribution & Marketing Policies	4		
b	**Policies, Regulations, Programmes – Oil & Gas** Business Flow - Exploration & Production, Refining, Transportation, Marketing Open Acreage Licensing Policy (OALP) Hydrocarbon Exploration and Licensing Policy (HELP) Discovered Small Field Policy Business Models - Production/ Revenue Sharing Contracts Refineries & Pipelines Guidelines - Domestic gas supply / City Gas Distribution Open General Licensing category and infrastructure Guidelines for Natural Gas Pricing & Pipeline Tariff Structure Role of LNG and Coal Bed Methane PMUY, Give-it-up Campaign Strategic Petroleum Reserves Pricing Policies Role of Regulator - PNGRB	8		
c	**Policies, Regulations, Programmes – Power Sector** Business Flow - Generation, Transmission, Distribution, Retail & Trading Legislations - Electricity Act-2003; Electricity Rules - 2005 National Electricity Plan; National Tariff Policy Role of CEA & CERC Policies on Thermal Power, Hydro Power, Nuclear Power Policies & Regulations on Transmission System Energy Efficiency Initiatives Key Schemes: Saubhagya, RDSS, UDAY, NSGM, IPDS, UJALA, R&M Key Court Judgements	8		
d	**Policies, Regulations, Programmes – Renewable Energy** National Action Plan on Climate Change National Solar Mission Programmes on Wind (On-shore, Repowering & Off-shore) Programmes on Biomass, Cogeneration, Small Hydro Policies– FiT, VGF, Bidding, REC-RPO Regulations on RE Tariff, Banking, Wheeling, AD, GBI Grid Code, Scheduling and Forecasting, Green Energy Corridors Green Energy Open Access, Captive / Group Captive & Corporate PPAs International Good Practices - Feed-in-Tariff (Germany), PV supply-chain Manufacturing (China), ITC/ PTC (United States)	8		

3	**Other Initiatives** International Solar Alliance Green Hydrogen Mission Global Biofuels Alliance Carbon/ Green Financing EV Policies & Schemes Schemes on decentralized energy systems Solar Rooftop - Policy framework, Programs Biofuels – Policies/ Schemes, Blending PM-KUSUM Scheme for Agriculture	5		
		45	**0**	**0**

Evaluation criteria:

- Minor exam 1: 35% (Sectoral Analysis – Coal, Oil and Gas Sector)
- Minor exam 2: 35% (Sectoral Analysis – Electricity Sector)
- Major exam: 30% (Sectoral Analysis – Renewable Energy Sector)

Learning outcomes:

- Enhanced understanding of energy policies, regulations and programs
- Role and responsibility of different entities

Pedagogical approach:

A combination of class-room interactions, tutorials and case studies/ group discussions

Materials:
Recommended readings/Reading Materials/Reference Documents:

Energy Statistics, MOSPI, GoI
Integrated Energy Policy
Reports by CEA, Niti Aayog, IEA & IRENA
Coal Mining Policy
Open Acreage Licensing Policy (Oil and gas)
Electricity Act, National Electricity Policy & Plan
Policies on Hydro & Thermal Power
Policies on Solar, Wind, Biomass
Policies on CBM, Green Hydrogen, Biofuel & EVs

Portals, Books, Journals and Magazines:
Portals - Ministries of Power, Oil & Gas, Coal, Renewable Energy, Niti Aayog, CERC, CEA, PNGRB, IEX Journals - Energy Policy, Renewable Energy

Books
Global Energy Shifts by Bruce Podobnik
Renewable Energy: Policies, Project Management and Economics by Sapan Thapar

Additional information (if any): NA

Student responsibilities:

Attendance, feedback, discipline: as per university rules.

Course Reviewers:

- Dr Marian Adela, Research Institute for Sustainability, Helmholtz Centre Potsdam, Germany
- Dr Maitreyee Mukherjee, Institute for Environment and Sustainability, National University of Singapore
- Prof. Atul Kumar, School of International Studies, JNU
- Mr DR Konda, Manager, ONGC
- Mr Avijeet Lala, Partner, Niti Niyaman (Law firm)