

Course title: Energy Policy and Regulations				
Course code: ENR 138		No. of credits: 3	L-T-P: 14-10-36	Learning hours: 42
Pre-requisite course code and title (if any): NA				
Department: Department of Energy and Environment				
Course coordinator: Dr. Naqui Anwer			Course instructor: Dr. P C Maithani	
Contact details:				
Course type: Core			Course offered in: Semester 3	
<p>Course description:</p> <p>The policy and regulatory framework for renewable power generation plays very vital role in making it widely accepted and economically viable. Hence, the students should learn about the various policy aspects for these technologies. Also, the decentralized and distributed power generation for onsite power offers several advantages as compared to centralized, conventional models for power generation. The problems of high transmission and distribution (T&D) losses, frequent disruption in supply of grid power, practical problems and financial non viability of the transmission grids to remote areas make these technologies even more important ways of electrifying the rural and remote areas. While considering the technical aspects, the policy and regulatory framework is equally important to make these technologies economically viable and widespread.</p> <p>Hence, the emphasis of this course will be on the policy frameworks for various renewable energy sources including distributed and decentralized energy solutions also. The advantages and challenges associated with the deployment of these technologies will be emphasized in the course. The course will be oriented more towards the practicality of the problem, while discussing various case studies. Also, the software used for evaluating the economical and technical viability of renewable power generation will be explained in detailed. Students will be encouraged to simulate some case studies using these softwares.</p>				
<p>Course objectives</p> <ul style="list-style-type: none"> • To explore the effects of policy and regulations on acceptance of renewable energy. • To understand the influence of regulatory framework of the power system operation with special focus on renewable energy. • To study and simulate the economic viability of renewable energy sources. 				
Course contents				
Module	Topic	L	T	P
1	<p>Module 1:</p> <ul style="list-style-type: none"> ✓ Renewable energy credit schemes, statutory requirements, activities of various states in this regards, tariff determination 	4	0	0

	issue, National Solar Mission, Regulations regarding grid interconnections of renewable energy systems.			
2	Module 2: <ul style="list-style-type: none"> • Need and advantage of Decentralized energy solutions <ul style="list-style-type: none"> ✓ Emergence of policy and regulatory framework for decentralized electricity (Gokak Committee on DDG under MoP, REST Mission, Power for All, Electricity Act, 11th plan WG on DDG, RGGVY guidelines on DDG, and others, policy framework in other select countries e.g Sri Lanka, China, Thailand etc). • Status of grid connected and off grid distributed generation (national and International) <ul style="list-style-type: none"> ✓ Electrification and off grid status/scenario in India 	6	0	0
3	Module 3: <ul style="list-style-type: none"> • Scope and challenges in implementing off grid solutions • Policy & regulatory Framework for rural electrification • Relevant policies and frameworks in other countries • Recent off grid programs started by Govt. of India for enhancing the rural electrification through off-grid solutions <ul style="list-style-type: none"> ✓ DDG scheme under Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) ✓ Remote Village Electrification Program ✓ Village Energy Security Programme (VESP) ✓ Off grid programme under JNNISM 	4	0	0
4	Module 4: <ul style="list-style-type: none"> • Seminar <ul style="list-style-type: none"> ✓ For this part of the course the students can take up a case study and analysis its ✓ Policy framework, outcomes, advantages/disadvantages. Few of the case studies which students can take up are given in the reference list 		10	0
5	Module 5: <ul style="list-style-type: none"> • Simulation Lab <ul style="list-style-type: none"> ✓ In this, the students can learn various planning tools used for design and sizing of DDG systems (RETScreen, HOMER) 			36
	Total	14	10	36
Evaluation criteria:				
Assignment/Lab : 50%				
Minor test : 20%				
Major exam : 30%				

Learning outcomes:

To understand the basics of management principles and organization behaviour.

To understand the optimization of financial resource allocation and its use.

To understand the business perspective of the emerging sector of renewable energy.

Pedagogical approach:

A combination of class-room interactions, tutorials, assignments and projects.

Materials:**Recommended readings****Text Books:**

1. Distributed Power Generation Planning and Evaluation, H.Lee Willis, Walter G. Scott, IET Power Marcel Dekker, Inc. (2000)

References

1. Comparative Study on Rural Electrification Policies in Emerging Economies: Keys To Successful Policies; International Energy Agency
2. Best practices of the Alliance for Rural Electrification: what renewable energy can achieve in developing countries; Alliance for Rural Electrification
3. Gokak Committee Report on DDG & Report on the Working Group on Power for Eleventh Plan (2007-12)

Journals and Magazines

1. The Zambian ESCO project
2. Sunlight Power Maroc (Morocco)
3. Solar Energy Supplies in Zimbabwe
4. Off grid solutions applied in various parts of India (e.g. LaBL- SMU, NTPC DDG, VESP, DESI Power, Husk Power, etc)
5. Case study - Qualified Third Party Model of Philippines
6. SHP in Nepal and Sri Lanka
7. IDCOL/Grammen Shakti model in Bangladesh
8. Solar PV and SHP 'fee for service' model in Laos PDR
9. SHP/Pico hydro in China and Vietnam
10. Gansu Pilot project (China)

Additional information (if any): NA

Student responsibilities:
Attendance, feedback, discipline: as per university rules.

Course Reviewers

1. Mr. K Ramanathan, TERI Delhi
2. Dr. Sukumar Mishra, IIT, Delhi