Course title: Dissertation - II/Major project				
Course code: ENR 110	**No. of credits:** 16		**L-T-P:** 0-0-480	**Learning hours:** 480
Pre-requisite course code and title (if any): NA				
Department: Sustainable Engineering				
Course Coordinator: Prof. Naqui Anwer		**Course Instructor:**		
Contact details: naqui.anwer@terisas.ac.in				
Course type: Core		**Course offered in:** Semester 4		

Course description

The course offers a research driven learning approach, guided by realistic and challenging industry problems. The course includes a 16-20 weeks of on-job training on concurrent industry-relevant problem through supervised self-learning approach. Based on need of contemporary areas of power sector, RE industry, green energy projects, energy efficiency, energy audit & management and policy & regulations, the students shall work on specific thematic areas for development of design specification of a system, analysis of data, assessingmarket potential of technologies and solutions or similar tasks assigned by the host organizations. The studentsshall implement their classroom learnings and specialization, test hypothesis through literature review, experiment or field survey, analyze and report the results/findings.

Course objective

- To train students to use analytical skills and knowledge for addressing problems/challenges in contemporary areas of power sector, RE industry, green energy projects, energy efficiency, energy audit & management and policy & regulations
- To impart skills and training relevant to the specific fields as mentioned above.
- To enable the students to execute independent research work depending on the problem and demonstrate the findings thoroughly

Course contents

Module	Topic	L	T	P
1	• Broad problem identification on thematic area in consultation with the host industry/organization • Define overall aims and objective and relevant research questions and research objectives to be addressed • Writing synopsis	0	0	46
2	• Define methodology to be followed and identify materials/tools to be used for achieving each objective • Systematic review of literature, internal or external reports etc. relevant on the specific problem and create benchmark • Interaction with the industry experts • Identification of tools for analysis	0	0	52
3	• Data collection/ system design/modelling/field survey/experimental or other relevant work depending on the objectives • Optimization or parametric variation or scenario analysis depending on objectives • Analysis and interpretation of the findings/results/data • Developing overall conclusion based on inferences and findings and enlisting the limitations of the work. • Organizing and moderating findings/results for thesis preparation	0	0	382
	Total	**0**	**0**	**480**

Evaluation criteria

- Timeline adherence (10%) [Consisting of: joining report (1%), synopsis and topic (1%), progress report (0.5% each), feedback form (1%), final dissertation (5%)] [during Module 1-3]
- Test 1: Dissertation (40%) [after Module 3]
- Test 2: Presentation and viva (30%) [after Module 3]
- Feedback from the Host Organization/Supervisor (20%) [after Module 3]

- Plagiarism is unacceptable and the institute has a very strict policy to deal with it. If a student engages in plagiarism, it could attract serious penal actions. All reported cases of plagiarism would be dealt as per the process mandated by Departmental Academic Integrity Panel (DAIP) and Institutional Academic Integrity Panel (IAIP).

- The students scoring less than or equal to 40% (or ≤ 40%) overall marks in the evaluation would be consideredto have failed in this course. Grading of the Major Project will be absolute in nature and would be done as per thefollowing criteria:

>90	A+
>80≤90	A
>70≤80	B+
>60≤70	B
>50≤60	C+
>45≤50	C
>40≤45	D
≤40	F

Learning outcomes

- Develop an understanding of problems/challenges in contemporary areas of power sector, RE industry, green energy projects, energy efficiency, energy audit & management and policy & regulations [Test 1,2]
- Gain requisite skills through on-job training on various aspects such as system design, modeling, scenario analysis, data analysis, experimental research, field survey etc. [Test 1,2]
- Develop ability to innovate for novel product/process development or to mitigate challenges in the fields/areas mentioned above. [Test 1,2]
- Effectively communicate and demonstrate the learning through structured thesis/dissertation and oral presentation [Test 1,2]

Pedagogical approach

Self-learning; discussion with the supervisors; interaction with experts; field work; laboratory work, etc.

Materials

Peer-reviewed journal articles Reputed conference
proceedings Reports related to the specific project
Learning materials provided by the host organization

Additional information (if any)

A detailed guideline along with important dates and format will be notified by the department, in advance, withother relevant details.

If there is any change in evaluation criteria/policy, it will be updated in the guideline every year.
Dissertation submission and schedule of presentation will be coordinated by Project/Programme coordinators.

Student responsibilities
Attendance; Discipline; Research Ethics etc.

External reviewers:

1. Dr. Anish Modi, Assistant Professor, IIT Bombay
2. Mr. Mudit Jain, Head (Research), Tata Cleantech Capital Limited
3. Mr. Alok Kumar Jindal, GM (RE), Tractebel Engineering Pvt. Ltd.