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| Course title: Major Project | | | | |
| Course code: ENR 109 | No. of credits: 16 | L-T-P: 0-0-448 | Learning hours: 640* | |
| Pre-requisite course code and title (if any): NA | | | | |
| Department: Department of Energy and Environment | | | | |
| Course Coordinator: Project/ Placement coordinator | | Course Instructor: Assigned supervisor(s) | | |
| Contact details: email of assigned supervisors | | | | |
| Course type: Core | | Course offered in: Semester 4 | | |
| Course description | | | | |
| <p>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, assessing market potential of technologies and solutions or similar tasks assigned by the host organizations. The students shall implement their classroom learnings and specialization, test hypothesis through literature review, experiment or field survey, analyze and report the results/findings.</p> | | | | |
| Course objective | | | | |
| <ul style="list-style-type: none"> ▪ 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 | <ul style="list-style-type: none"> • 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 | 0 | 0 | 40 |
| 2 | <ul style="list-style-type: none"> • 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 | 0 | 0 | 40 |
| 3 | <ul style="list-style-type: none"> • 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. | 0 | 0 | 368 |
| | Total | 0 | 0 | 448 |
| * The remaining learning hours are allocated for self-learning, interaction with expert, training at the organization, dissertation writing etc. | | | | |

Evaluation criteria

- Dissertation (40%)
 - Presentation and viva (30%)
 - Timeline adherence (10%) [Consisting of: joining report (1%), synopsis and topic (1%), progress report (0.5% each), feedback form (1%), final dissertation (5%)]
 - Feedback from the Host Organization/Supervisor (20%)
- If plagiarism is detected using plagiarism checking software (e.g. Turnitin), it will be referred to the Major Project Committee (comprising of supervisors and faculty members), which would take a decision and penalty to be imposed/disciplinary action to be taken. The guidelines for the Major Project Committee are as follows:

| Levels of Plagiarism | Percentage of similarity | Maximum percentage marks to be deducted from dissertation/thesis |
|-----------------------------|---------------------------------|---|
| Level 3 | > 60% | Students registration to the program stands cancelled |
| Level 2 | > 40% ≤ 60% | Student repeats the course next year |
| Level 1 | > 10% ≤ 40% | The student is required to resubmit the report within a week |
| Level 0 | ≤ 10% | 0% |

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

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|--------|----|
| >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
- To gain requisite skills through on-job training on various aspects such as system design, modeling, scenario analysis, data analysis, experimental research, field survey etc.
- To develop ability to innovate for novel product/process development or to mitigate challenges in the fields/areas mentioned above.
- To effectively communicate and demonstrate the learning through structured thesis/dissertation and oral presentation

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, with other 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.