GUJARAT TECHNOLOGICAL UNIVERSITY

BRANCH NAME: B.E. (Environmental Engineering)
Subject Code: 3181301
Semester – VIII
Subject Name: Internship/ Project

Type of course: Project work or Internship in industry

Prerequisite: DE-1, DE-II

Rationale:
To enhance employability skills of the students, Industrial Training or Project work is required. It provides practical experience in a field of Environmental Engineering and help to reinforce theoretical and Practical knowledge gained in different core courses and elective courses to solve real life challenges.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
0	0	24	12	0	0	100	100	200

Content:
Final semester of Environmental Engineering is dedicated to Major project work or Industrial Internship.

The following guidelines are required to be followed for the Project.
General Guidelines for Project

1. It can be either UDP (User defined project) or IDP (Industry defined project).
2. Survey and study published in reputed literature related to project work are required to include as reference material.
3. Do patent search analysis and submit PSAR (Patent Search Analysis Report) if suggested by supervisor (Project guide).
4. The group size of the project team shall not be preferably between 4-6 . In case it is required to have less/ more students, it shall be approved by a department project committee.
5. The project work shall be carried out under the guidance of a supervisor (Internal faculty and Industry Person, If Industry base Project).
6. Design Methodology/System for the project and analyse/verify through available resources/references at Industry level or Institute Level/University level.
7. Improve/validate project work in terms of cost and feasibility for the benefit of society, and so on.
8. Compare results of projects with other similar projects and justify.
9. The team shall be encouraged to publish project work, if possible.
10. Conclude the project work and suggest future work.
11. A comprehensive report is required to be prepared and submit to the department at the end of the semester.
12. Intermediate and final Presentation/Demonstration in presence of department project committee for review of the work done. The internal evaluation/scrutiny shall be done at the start of the semester, at the mid of the semester (Progress done) and at the end of the semester (Final Presentation/Demonstration). The distribution of internal marks shall be decided by the department project committee.

13. A presentation by the team shall be made at the beginning of the semester to a committee formed by head of department. This presentation shall contain the detailed proposed plan of project proposal of the project, which includes title of the project, objectives, methodology, well defined problem and a plan of activities with appropriate timelines.
14. Considering the number of credits and the contact hours (Practical hours), substantial amount of work is required to be carried out by student team. It shall be monitored by the project guide and the department project committee.
15. The evaluation shall be done by internal examiner and external examiner accordingly with due consideration of the amount of work given by the (Internal faculty and Industry Person, If IDP Industry base Project).

The guidelines about the nature of project work are as following:

1. The project work can be a Design and development of the methodology, mechanisms, system, management plan or technological solutions depending upon the complexity of the environmental pollution of either in Industrial or societal based. .
2. The team is expected to know the various aspects of the mechanisms involved. The team shall be able to explain the results obtained in detail with all the aspects and different cases.
3. It can be a Case study, innovative Solution/Practices to real life problems, analysis, design, optimization, prototype, industry defined problem, development of new laboratory setup at the department etc.
4. If it is a case study, it shall be a real-life case and of high technical relevance and societal benefits.
5. If the team and guide find it appropriate, the overall work can be combination of different types of work above mentioned.

OR

Industry Internship

Minimum 12 weeks in an Industry to get exposure to the practical aspects of the Environmental Engineering. In addition, the student may also work on a specified task or project which may be assigned to him/her by industry mentor in coordination with Institute faculty. The outcome of the Industrial Training should be presented in the form of a report. The certificate of work at Industry is required to attach in the report.

Objectives:

1. To create competent professionals for the industry.
2. To provide possible opportunities to learn, understand and sharpen the real time technical / managerial skills required at the job
3. Exposure to the current technological developments relevant to the subject area of training.
4. Learn to apply the Technical knowledge in real industrial situations
5. Gain experience in writing Technical reports/projects.
6. Expose students to the engineers responsibilities and ethics.
7. To become Familiarize with various materials, processes, products and their applications along with relevant aspects of quality control.
8. Understand the social, economic and administrative considerations that influence the working environment of industrial organizations

9. Understand the psychology of the workers and their habits, attitudes and approach to problem solving
10. To strengthen industry-institute linkage and increase employability of the students

Guideline for Industry Internship:

1. A student may submit a brief proposal about the work to be carried out in the Internship, to a committee formed by head of department within 3 weeks, after starting the internship.
2. The internship shall be a full time for the whole duration.
3. A detailed daily diary (Project Work Book) is supposed to be maintained by student. It shall be signed duly by the concerned supervisor of industry. It shall be submitted to the department at the time of final presentation (Also as and when required by department).
4. A comprehensive report is required to be prepared and submit to the department at the end of the semester. A certificate shall be attached with this report duly signed by the competent authority of the industry for the successful completion of the internship. An attendance report shall also be attached with this report.
5. The internal evaluation shall be done at the start of the semester, at the mid of the semester and at the end of the semester (As per Project guideline). The internal marks shall be divided as decided by the head.
6. Signed Attendance report, Progress report shall be sent to/Presented to the department during the evaluation stages.
7. A plan for the whole internship duration shall be prepared after joining the industry in the consultation with the supervisor/mentor/guide of industry. It shall contain the activities/ visits etc with appropriate timelines.
8. The project report shall be submitted to the institute which may include the objective of Internship, about the Industry, manufacturing process, equipment/machineries involved, divisions/sections, Environmental Management system in the industry, any competitor, scope of some improvement in the Environmental Management system or manufacturing process, benefit by the training etc.
9. The industry supervisor may be invited at the time of external examination of the internship, if possible. It can be an online presence.
10. The evaluation by external examiner shall be made considering the all guidelines.

Distribution of Marks					
R Level	U Level	A Level	N Level	E Level	C Level
5	5	25	25	20	20

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Blooms Taxonomy)

Course Outcomes:

Sr. No.	CO statement	Marks % weightage

CO-1	Demonstrate a sound technical knowledge of their selected project topic	20%
CO-2	Undertake problem identification, formulation and solution	20%
CO-3	Design engineering solutions to complex problems utilising a systems approach and team work	30%
CO-4	Communicate with engineers and the community at large in written and oral forms	20%
CO-5	Demonstrate the knowledge and understanding of engineering and management principle and apply it to assigned project	10%

Reference:

- AICTE Model curriculum
- AICTE Internship Policy:

  https://www.aicte-india.org/sites/default/files/AICTE%20Internship%20Policy.pdf