COURSE TITLE   : MINI-PROJECT
COURSE CODE   : 4009
COURSE CATEGORY   : A
PERIODS/WEEK   : 2 Weeks
PERIODS/SEMESTER   : 70
CREDITS   : 5

General Outcome:

GO	On completion of the study of this course the students will be able:
1	To create an Industrial environment and culture within the institution.
2	To set up production lab utilizing the infrastructure of the institution.
3	To standardize laboratories to industrial standard, thereby giving exposure to industrial housekeeping standards.
4	To provide students hands on experience on, troubleshooting, maintenance, fabrication, innovation, record keeping, documentation etc thereby enhancing the skill and competency part of technical education.
5	To promote the concept of entrepreneurship.
6	To inculcate innovative thinking and thereby preparing students for main project.
7	To set up self maintenance cell within departments to ensure optimal usage of infrastructure facilities.

Guidelines:

The mini project can be organized into three phases based on the recommendations and evaluation criteria listed below.

Phase 1: Standardization of Laboratories/Identifying and solving real time issues (One week)

Standardization of Laboratories:

This phase of the mini project can be clubbed with laboratory hours of the semester. Before the commencement of cycle of experiments for the semester, the students should be given instructions on 5S method of industrial housekeeping. Video resources available in the internet can be utilized for the purpose. After the initial summarizing, students should be grouped into batches of 5 and should be entrusted with activities of implementing or maintaining 5S standardization of the laboratory. This ensures that all experiments of the laboratory are performed as per industrial standard.

The 5S Team works on the 5 Japanese principles of organization, which have been successfully implemented at various shop floors around the world. The 5 pillars of organization that we aim at are:

Sort (Seiri)

Sort means that you remove all items from the workplace that are not needed for current machine shop activities. This essentially involves segregating items of immediate use from items that are not needed.

Set in Order (Seiton)

Setting in order whatever has been "Sorted." Labeling and marking down required items of usage. Creating designated areas for frequently used tools and arranging them so that they are easy to find.

Shine (Seiso)

Cleaning up after the work is over. Putting tools and used materials back in their designated places, the way they were "Set in order." Cleaning and sweeping the workplaces, so as to avoid any hazardous materials spills and other accidents at the workplace.

Standardize (Seiketsu)

Standardize whatever has been achieved so far using the first three pillars. Making it a part of the daily routine and setting aside time to sort, set in order, and shine repeatedly.

Sustain (Shitsuke)

Sustaining is maintaining the clean and organized work environment over a long period of time to enhance productivity.

Once the first two pillars are implemented during the initial sessions of the laboratory, third to fifth pillars should be made a regular activity before commencement of any laboratory work and after concluding any days work and should be monitored. The same criteria can be adopted for any laboratory, irrespective of the programme.

Identifying and solving real time issues:

Here the students are encouraged to find out and propose solution to real time problems they observe within the institution or pertaining to the community. Here it is intended to give students exposure to real time problems that may occur in industry or in real life environments. Their ability to identify and solve problems based on the skills achieved so far is invoked here. It is recommended to identify and solve problems which demand effort that can be completed within the stipulated timing and does not involve complicated designing or programming. Mini projects can be a gate way to final academic projects and if any of the identified problem demands more time and effort, such cases may be carried over to as main project. All safety precautions mandate to the industry should be strictly followed during implementation of the mini project. Safety mentioned here includes both the safety of the student as well as safety of the user to the machine.

Case studies:

- Preparation of submission plans for building for real life situation.

- Leakage problems in buildings.

- Rain water harvesting.

- Sewage disposal and sanitary arrangements in residential buildings.

- Any other problems related to civil engineering field.

Evaluation of Phase 1

This part of the mini project carries 30% of the total marks. The evaluation should be made as group performance in implementing the standardization and individual contribution in setting work place clean and tidy. Evaluations by way of surprise visits made by the Head of Department and Guide at least twice the semester contribute to the part of total marks.

Phase 2: Survey camp (One week duration)

This part of the mini project contributes to 50% of the evaluation criteria. Here the students are encouraged to work with the real time situation they observe within the institution or pertaining to the community. It is intended to give students exposure to real time problems that may occur in industry or in real life environments. This enhances the student's ability to conduct the survey of a plot and to prepare the map showing the topographic features. Special interest should be taken to conduct the traversing using total station. Problems based on the skills achieved so far are invoked here.

It is also encouraged to run consulting centers within the campus for the benefit of the society.

Phase 3: Documentation

Documentation accounts for 20% of the total evaluation. Students are required to submit detailed project report of the entire semester work of mini project. They should be encouraged to make use of documentation tools like Latex for preparation of the report.

Innovative ideas of commercial values should be encouraged to be continued as main project for the forth coming semester.

Evaluation			
Standardization/ Identifying and solving real time issues (30%)		Survey camp (50%)	Documentation (20%)
Group (15%)	Individual (15%)		