Engaging Undergraduates in RESEARCH and INQUIRY:
A Scholarly Dialogue

Innovative project design competitions

Course Instructor/Project leader

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Project/Course Objectives

After completing this course, students are expected to be able to:

- Apply technology creatively in practical applications;
- Gain writing skills in proposal and technical report writing;
- Sharpen communication and presentation skills;
- Gain technical skills in designing and building prototypes;
- Learn and experience how to cooperate as a team to accomplish a competitive project.

Inquiry Based Learning Activities

- Workshops (if any): encourage student to attend workshops for preparing the proposal and/or presentation.
- Scheduled class time: encourage student to participate in class discussions.
- Written project proposal, project report: students have to address their design concepts in laymen terms.
- Two rehearsals of presentation: help the students to prepare their final presentation.
- Final presentation.
- A3 poster: Students provide a summary of their design project.
- A hardware prototype (if any): gain technical skills in designing and building prototypes.
- Students' Project Portfolio: Keep students' work in well-organized html file.

How did you assess the effectiveness of students' learning?

Students were assessed on their proposals, progress and final reports, presentations and holistic development by the instructor, self and peers using the grading rubrics.

What were the major outcomes of this project/course? Do they match with your objectives?

More than 80% the surveyed students of two courses agreed or strongly agreed that (1) the rubrics for the course project was clear to them, (2) the progress meeting report and final report helped them to track their progress and summarize their experience in the course project. These assessment methods are also applied in the Robotic Design Competitions

Students' awareness of the needy in the community was also aroused.

A more humanistic image / angle of engineering which social benefits layman can relate to was cultivated in students' minds.