Symposium on Engaging Undergraduates in Research And Inquiry:

A scholarly Dialogue, May 20, 2011, HKUST

1. Project/Course title

Multi-disciplinary Group Project (MDP)

2. Project/Course team

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BEFORE

3. Project/Course objectives (Intended Learning Outcomes) *(Suggested number of words 30-40 words)*

What did you intend students to learn from this project/course?

Intended Learning Outcomes

1. To be able to work as a team on a common design project that encompasses electrical, electronic, mechanical, and manufacturing design features as well as marketing, advertising and distribution.
2. To be able to seek and obtain the required information necessary to find an answer to a problem, and to use that information to achieve a defined objective.
3. To be able to lead a design team and be responsible for the work that others (namely team members) do.
4. (i) To be able to professionally present material in a clear and succinct manner within a specified time frame, and to respond to questions and issues relating to such material.

   (ii) To be able to write a clear and understandable report to a professional level of competence.

4. Inquiry Based Learning Activities (*Suggested number of words: 75-85 words)*

What did students do (inquiry-based learning activities) during the course/project?

There are four members in a team. Each team member acts as Team Leader for one of the following tasks.

There are 27 different project specifications that student teams can select from

Project Tasks

- **Task 1** to decide on the potential market where, and in what volume a product will be sold. This involves market research and the development of a suitable marketing strategy.
- **Task 2** to design the product from a technical perspective so that it fulfills functional needs, and aesthetic requirements of the consumer.
- **Task 3** to determine how the product should be manufactured recognizing expected sales volume. In addition, organizing the required resources in terms of materials, equipment, and staff levels.
- **Task 4** to decide upon how the product should be advertised and promoted so that the agreed production volume will be compatible with sales volume. Thence, to design a distribution system to ensure that the finished product will reach the consumer in the required time, at an acceptable cost, and with a defined level of quality.

AFTER (*Suggested number of words for items 5 & 6: 50-60 words)*

5. How did you assess the effectiveness of students' learning?

Please give an account of the assessment methods and results.

Continuous Assessment: 100%

Specific Assessment Methods	% Weighting	Intended Learning Outcomes to be Assessed				
		1.	2.	3.	4(i)	4(ii)
1. Team Report (for the Team, segregated by Team Members if practicable)	40%	✓	✓			✓
2. Oral Presentation (Team Leader only)	20%				✓	
3. Team Leader's report (Team Leader only)	20%			✓		✓
4. Executive Summary (for the Team)	10%	✓	✓			✓
5. Peer and Self Assessment (see below)	10%			✓		
Total for the Task	100 %					

Peer and Self Assessment

Team Leader (TL): Team Leader assesses each team member. This is kept confidential between him/her and the Project Coordinators.

Team Leader also makes a self assessment of the performance of himself/herself.

Team Members (TM): Team members also carry out an assessment on the performance of their Team Leader This assessment will be kept confidential between him/her and the Project Coordinators.

Team members also make a self assessment of the performance of himself/herself.

Grades for all Peer and Self Assessment is accounted for 10% of the final grade which are entered onto a standardized criteria sheet. Four components (2.5% each): TL on TM, TL on TL, TM on TL, TM on TM.

6. What were the major outcomes of this project/course? Do they match with your Intended Learning Outcomes (objectives)?

Examples of outcomes include educational software, improvement in student learning or change in student attitude.

From students' feedback, approximately 90% of the student found the project interesting. The majority of them found the multi-disciplinary project (MDP) very useful as it emphasized teamwork and the need for cooperation among team members in a very real life like project, albeit simulated in a University. Moreover, they found that the experience of being a Team Leader extremely valuable to their future career. This project was very different (and much more useful) than the individual project that they had completed during prior studies.

Student comments:

"This project has allowed me to learn not only communication skills, but also leadership and team-working skills through actual practice rather than lectures. I strongly believe all these are beneficial for my future work and the MDP has provided me with a memorable learning experience…"

"This multi-disciplinary project has given me a basic understanding of the design of a complete product and the value and importance of team work. After completing it, I realized its importance. This project has provided me with a good opportunity to interact and communicate (with) other engineering students coming from other backgrounds."