

TEACHING PORTFOLIO



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1. Teaching responsibilities

I taught Chemical Reaction Engineering (SKC 4213) for the first time in last semester. This subject is one of core subjects in Chemical Engineering Degree Program. The primary goals for this subject are that students will develop a fundamental understanding of Reaction Engineering and also develop critical and creative thinking skills. As indicated, my major responsibilities in such a role are i) to clearly explain what the goal and expectation of the course to student, ii) to deliver the factual scientific information possibly in most easiest way for student to understand, iii) to be available and diligent in responding to students' question. These responsibilities involved revising the lecture contents, producing PowerPoint presentations or overhead slides for each lecture, preparing questions for quizzes, test or exam, devising study guides, writing and grading exams.

As part of my service as a Tutor, I have also taught a laboratory subject, that is Chemical Reaction Engineering Laboratory for several semesters. This laboratory emphasizing basis concept in chemical reaction engineering such as kinetic analysis of reaction, heat determination of reaction, electrolysis and operation of different types of chemical. All experiments need students to apply fundamental laboratory techniques and skills as well

as data analysis and report writing while in hands-on activity. I was involved in designing the experiments and laboratory set-up which made me become more expert in this subject. Though, I also have been given a responsibility as a Subject Coordinator when I had to manage about 200 students enrolled in a semester.

2. Teaching Philosophy

Since I have been assigned to teach, I strive to be an effective teacher who is able inspire student to love my subject that I teach. There are many ways to describe the characteristics of an effective teacher, but I believe the most important characteristic is that teacher can possess the ability to present information in a clear and understandable fashion. Another important characteristic is enthusiasm which is the ability to generate excitement about a topic.

As a beginner in teaching career, I shape my teaching style based on my own experiences as undergraduate and postgraduate student with addition of my reading of the educational literature (mostly adapted from Felder). I tried to identify several issues that should to be part of the education process to achieve excellence in scientific learning and teaching. I found that it is always when teachers look at their students, they often see the forest and not the trees, forgetting that the class is made up of many individuals, each bringing her or his own particular attributes. Thus, I realized that our students are individuals, with different abilities and potentials, and I should expect a wide range of performance and learning during lecturing or teaching. Therefore, I will do some surveys of my students in the very beginning of my class. Students will be asked to response the questions on their past performance, English proficiency, learning style and suggestion. This survey will help me to tailor my syllabus to cater to the individual needs of the students keeping in mind that different people learn differently

I set high goals for myself and my students at the very beginning. I state my expectations clearly, what they are going to do during the semester and what they are expected to have

learned by the end. I demonstrate to the students that I care about them and their success in my course. I keep inviting student to see me whenever they need extra explanation. This is an effective motivator and one of the ways to have a good relationship with students.

I also design activities in my class based on fact in the 'cone of learning'. The cone of learning says that we remember 10 percent of what we read, 20 percent of what we hear, 30 percent of what we see, 50 percent of what we see and hear, 75 percent of what we see, hear and talk about, and 90 percent what we see, hear, talk about and do. During each class I lecture but I also let student to apply, analyze and evaluate the material themselves by regularly do in-class exercises where I pose a problem for them to solve using the new concepts. Students can discuss with friends and encouraged to talk to each other, and I circulate around the class helping where requested. After some time, I will devote from 5 to 15 minutes for the class to work on the problem. I believe if the 'cone of learning' concept is well implemented, students will just not mastery of course material but at the same time helping them to develop broader, more important skills such as communication and critical thinking.

Finally, my philosophy will be constantly be evolving as I gain experience and knowledge. I feel that I can continually improve my teaching by keep on learning on various methods for effective teaching.

3. Goals and future direction

I believe the challenge as a lecturer at engineering faculty, is to facilitate students in their achievement to the goals of engineers profession. This facilitation includes assisting students to apply engineering knowledge and also to help them develop critical thinking skills, creativity, level of confidence and competencies. Having influence from Richard Felder's technique, I strive to uphold and enhance an active and cooperative learning in my teaching plan. I aim to promote the systematic active and cooperative learning

implementation by create a teaching environment that is friendly to discussion and questions, where students are encouraged to think critically and creatively when they are given various problem in class. I am also looking forward to implement “problem based learning” or PBL in my teaching which has been proved that able to facilitate both learning and a variety of personal and thinking skills. I believe that by employing a wide variety of teaching method, such as active, cooperative and problem base learning , seven attributes of UTM graduate (communication skills, adaptability, problem-solving, teamworking, ethics and integrity, self esteem and lifelong learning) can be achieved. Therefore, my direction is to dedicate myself in progress work for mastery the knowledge for those particular methods.

4. Teaching Strategies and Methods

I begin my class with an introduction session before the subject is presented. In the introduction class, I brief the course syllabus and structure, the objective of the course and method of assessment. I also explain why the subject is important to learn by providing relevance and practical examples to create a passion and interest for the subject. In my opinion, it is very important to let students know what is expected of them at the beginning of each course and to hold them to those expectations. My objectives and expectations will be stated verbally as well as in the course syllabus.

I lecture in my class by overhead slide to introduce the new theory and explain the important formula. My lectures have a similar outline; introduced the subject is, the details are explored and the subject is summarized again. From time to time, I explain relationship of each topic to other topic and also its application to industrial practice. When I have to provide the example and application of formula, I rather use white board to write down step-by-step solution. Most of students who are sequential learners will appreciate most on this method. However, the students seem prefer to memorize the solution instead of learning that will freeze their critical thinking. At times, I endeavor to

convince students to understand concepts so that they may apply concepts in a variety of situations, rather than memorize steps to solve a particular problem.

I promote active learning among students by providing problems for student to solve regarding the introduced concept. I often use in-class exercise, take home quiz and class discussions to assist student gaining deeper understanding of learned material and encourage an open learning environment in which students feel comfortable sharing their ideas and working collaboratively to make discoveries.

During my class, I expect student to ask me immediately when they did not understand the material. But the real situation is students remain silent when I ask around for queries even though they do not understand the material. To overcome this problem, I try to have a personal relationship with each of my students: I learn their names, I invite them to come to my office, and I try to meet everyone separately. I have seen that this is really useful for them, because then they feel comfortable in class, and do not hesitate to ask questions or make suggestions. Through good relationship, I also learn so much from the students.

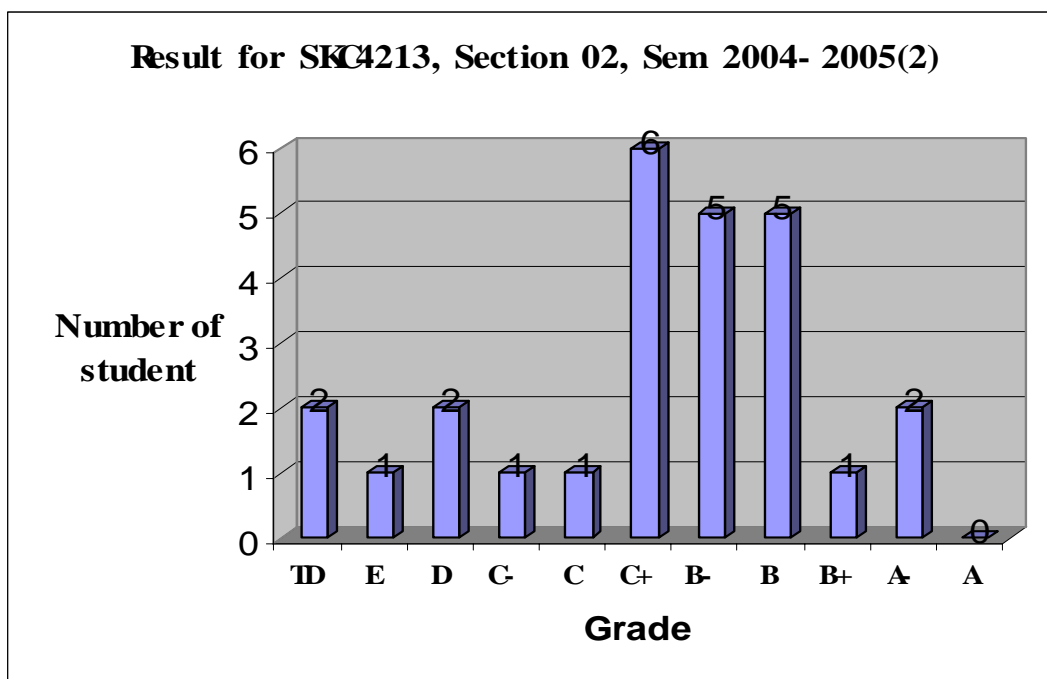
5. Efforts to Improve Teaching

I believe that for best teaching to occur, one has to update and modify the teaching strategy through experience. As a new educator, each day in the classroom is an opportunity for me to progress in my own teaching development where I can learn from mistake and implementing the feedback from students. The other ways to improve my teaching is by doing a discussion with faculty mentors, attending the seminar or short course associate with teaching and learning and also enhance personal knowledge through intensive reading.

My efforts at improving my teaching skills and method will continue as I fell responsible to provide students with skills to learn and apply for their future.

6. Result of teaching

The graph present below is the result for my student grade after one semester teaching. 50% of my students have got B- and above and 50% for C+ below. Only one student failed in this subject. A few feedback that I received are pleasant, some are not as I missed some important point for successful teaching. All the feedback are useful and crucial in my development in teaching career.



7. References

- Engineering Education Seminar Notes by Assoc. Prof Dr Duncan McKenzie Frase
- Felder R.M.(1989) “Meet Your Students”, ChE Division ASEE 1989.

- Felder, R.M and Brent, R. (1994) “Cooperative Learning in Technical Courses: Procedures, Pitfalls and Payoffs”, ERIC Document Service Report 1994

8. Appendices

- Learning outcomes for Chemical Reaction Engineering Subject
- Survey Form