

Faculty Course Assessment Report
North Dakota State University
Department of Construction Management and Engineering
CM&E 310, Construction Quality Control Management, 2 credits
Spring 2011 – D. Darshi De Saram

Catalog Description:

Inspection procedures and requirements; design and management of quality control/assurance programs for design and construction phases of a project. Includes statistical quality control methods and total quality management in construction. 2 lectures. Prereq: Junior standing. Coreq: STAT 330 or IME 460. S

Grade Distribution:

A	B	C	D	F	W	Total
54	0	0	0	0	2	56

Modifications Made to Course:

The main exercise in this course is a project where students propose applications of quality improvement tools to a construction process. In the previous offerings of this course, students were asked to go to a construction site, select a construction process, observe it, document it, and apply quality improvement tools. Many students found it difficult to select and focus on a process. I usually coordinated with industry personnel and got the students permission for access to a site. However, taking some 50 to 60 students together into a building site was neither practical nor safe nor welcomed by the industry people. Therefore, students had to be taken to the site in small groups outside the class time which involved lots of time coordination. I utilized the opportunity given to me by the ND DOT to work in the I-29 reconstruction site in the Summer 2010 to make video records of a process. That process became the subject for application of quality improvement tools. The video records, which I incorporated into a MS PowerPoint presentation, could be viewed in the class, and was uploaded to the Bb for students to view and reflect. The process specification and other details and instructions were also incorporated to the MS PowerPoint presentation.

A lesson on Ethics was added as explained below under the section on ‘Ethics Component’.

Having reflected on course material and exercises, continuous incremental improvements were made.

Course Outcomes Assessment ACCE: (matrix content)

- 1.1 Communication - Oral and Written
- 1.2 Ethics
- 5.66 Quality control philosophies and techniques

Communications Component:

Students in this course do a project on applying quality management tools to a construction process. Tool applications in this project are presented by way of building a webpage on Google sites. The webpage contains written communications accessible to anyone on the Internet worldwide. Thereby students were encouraged to make good quality communications that happen before the public eye worldwide.

Ethics Component:

When I said to the students that I am going to conduct a lesson on ethics, they expected that I will start explaining how they need to be ethical. Being a management program, I took a different approach by addressing the challenges pertaining to organizational dynamics of ethical behavior. Considering the U.S. Air Force Academy Honor Code:

“We will not lie, steal or cheat,

Nor tolerate among us anyone who does”

I asked “Which do you think is the harder part to practice: Line 1 or Line 2? Why?” Discussion was focused on skills in organizational dynamics that are required to either intervene to stop unethical conduct by others, or change an accepted practice to become more ethical. Students were also introduced to Kohlberg's Six Stages of Moral Development. An exercise was provided where students were described two unethical scenarios, and asked “If you were in that situation, how will you conduct yourself?” Answers had to comprise of “Action you may take” justified by theory of organizational dynamics. Also, each action they may take had to be ranked on the Kohlberg's Moral Development Matrix.

Student Feedback:

Main complaint was that students often cannot understand the philosophical concepts of managing for quality imparted in this course. Considering together with the matter expressed in the section ‘Reflection’ below, the proposed solution is discussed in the section ‘Proposed Actions for Course Improvement.’

Reflection:

I find that I do too much one-way lecturing to the class, and the class is not engaged. The classroom activity is to be changed by replacing lectures by student activities. See the section ‘Proposed Actions for Course Improvement’ below.

Proposed Actions for Course Improvement:

I have prepared very detailed MS PowerPoint files for the course, and for almost every such file, I have developed a companion MS Word file giving slide by slide explanations. In the future, students will be required to come prepared by studying the files, and the relevant pages of the textbook. At the class, a quiz will be given to check the understanding of the content (lower level learning outcome), followed by activities targeting higher level outcomes (application, analysis, synthesis and evaluation) such as applying various tools of managing for quality, and developing concept maps and mind maps of philosophical concepts; reflecting on the activity outcomes, comparing, contrasting and evaluating the results of such activities.