

**Fall 2009**

## **ENGR 401: Professional Practice & Management in Engineering**

***Instructor: Mohan M. Venigalla, Ph.D., P.E.***

Department of Civil, Environmental and Infrastructure Engineering  
*Science and Technology Building II, Room 309, MSN 6C1*

Office hours: Wednesday 9:00 – 12:00 PM

Phone: (703) 993-1630; mailto: [mvenigal@gmu.edu](mailto:mvenigal@gmu.edu)

Course Web Site: <http://mason.gmu.edu/~mvenigal>

### **Catalog description:**

**ENGR 401 –Professional Practice and Management in Engineering (1:1:0).** This course instills professional ethics and management principles, and prepares students for leadership roles in practice. Topics include introduction to professional and technical societies; canons; code of ethics related to the public, clients, contractors, suppliers, employers, agreements, contracts, competitive bidding, the engineering profession, conflict of interest, legal responsibilities and case law; case studies in professional ethics; professional licensure; engineering vs. engineering management; personal development: managing culture shock, time management, career vs. grad school, continuing education; public policy considerations in engineering practice; practical considerations in project management; effectively communicating with employees, contractors and clients; marketing, competitive bidding and project selection; conflict resolution; and managing small business. f and s

### **Motivation:**

The motivation for this course came from the following major considerations related to the BS CIE program.

1. To revise BS CIE curriculum in accordance with the new ABET criteria.
2. To prepare engineering graduates to fare better at the Fundamentals of Engineering (FE) examination in general and in the computing subject in particular

### **The Need:**

Effective 2008-2009 accreditation cycle, the new ABET criteria<sup>1</sup> for evaluating the curricula of civil engineering programs requires the following:

*The program must demonstrate that graduates can apply knowledge of mathematics though differential equations, calculus-based physics, chemistry, and at least one additional area of science, consistent with the program educational objectives; can apply knowledge of four technical areas appropriate to civil engineering; can conduct civil engineering experiments and analyze and interpret the resulting data; can design a system, component, or process in more than one civil engineering context; can explain basic concepts in management, business, public policy and leadership; and can explain the importance of professional licensure.*

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<sup>1</sup> Criteria for Accrediting Engineering Programs. American Society of Civil Engineers. 2007

The new addition in the abovementioned criteria pertains to management concepts, public policy, leadership and professional licensure. Previously the BS CIE curriculum didn't meet these requirements.

The goal of this course is to improve professionalism among CEIE student body. Specific objectives of the course are to:

1. Inculcate professional ethics;
2. Foster team work;
3. Improve communication skills;
4. Examine the interrelationship between public policy and engineering practice
5. Obtain basic knowledge of management (self management
6. Season inter-personal skills; and
7. Enrich knowledge about the practice of civil engineering

### **Tentative Schedule:**

The class will meet once a week for 50 minutes. Topics will be discussed by the faculty and invited guests in a seminar format. CEIE faculty members and industry veterans will provide guest lecturers in this class. A lot depends on the personal schedule of these guest speakers and hence it is difficult to provide an advanced outline indicating topics and guest by week. Topics to be covered during the semester will include.

- Ethics in professional practice of engineering (Topics: cannons; code of ethics related to the public, clients, contractors, suppliers, employers, agreements, contracts, competitive bidding, the engineering profession, conflict of interest, legal responsibilities and case law)
- Case studies in ethics
- Personal development (Topics: introduction to professional licensure, self management, managing culture shock, time management, career vs. grad school, continuing education)
- Engineers as managers: (Topics: differentiating between engineering and management, decision economics, importance of commutation, conflict resolution, and personnel management)
- Case studies in engineering project management
- Developing effective communication skills (Topics: technical writing, planning for and preparing professional presentations, making effective presentations)
- Public policy and the practice of engineering (Topics: introduction to public participation, preparing for hearings and engineering. Could include field trip to a public hearing)

### **Grading Policy:**

Attendance	50%
Class Participation	20%
Up to 5 pop quizzes	30%