

IE 563 – Engineering and Systems Management

Course Syllabus

Fall 2016

Instructor: Dr. Mike Helwig
E-mail: mhelwig@iastate.edu
Office: 3032 Black Engineering Building
Phone: W: 515-294-4789 C: 410-212-0351
Office Hours: By appointment

Class Time: On-campus students, Thursdays, 6:00-9:00p.m.
Off-campus students as arranged

Location: 3300 Marston

Course Assistant: TBD

Text. "Developing Managerial Skills in Engineers and Scientists" -- Second Edition -- by Michael K. Badawy.

Course content.

This course will focus heavily on practical aspects of engineering management. We will cover a significant portion of the text, but will draw from other sources as well, including selected case studies.

Topics. Course topics will include the following:

- Decision trees
- Basic probability distributions/examples
- Bayes' Theorem and applications
- Expected value applications
- Basic financial calculations
- Earned Value Management
- Managing people: human interactions, leadership styles
- Managing management, managing personnel and managing the client
- Project planning and tracking
- Workplace challenges and opportunities
- Statements of Work
- Stuff and things: a summary of lessons learned and nice to know information for the engineering manager
- A Group Project/Presentation relevant to Engineering Management

Learning outcomes and course objectives.

Learning outcomes and course objectives are closely related to the course topics.

- The student will become proficient in diagramming basic decision trees, and calculating probabilities associated with those trees including applying Bayes' Theorem and expected value theory.
- The student will demonstrate an understanding of basic financial calculations.
- The student will demonstrate a basic understanding of Earned Value Management concepts.
- The student will be able to identify his/her personality traits and associated strengths and weaknesses of that trait. He/she will understand the typical engineer's personality as well as exceptions to the norm.
- The student will be able to identify challenges and opportunities associated with "managing" three distinct groups: management, the client, and team members.
- The student will be able to identify basic methodologies of planning projects and tracking project progression.
- The student will understand and be able to articulate the importance of developing and adhering to a Statement of Work; describe pitfalls associated with Statements of Work that are sub-standard or not detailed; and explain the importance of providing high-quality deliverables to the client while identifying techniques to do so.
- The student will be able to analyze and reflect on "lessons learned" in engineering management by participating in and listening to classroom discussions involving management case studies. "Participating" refers to providing written feedback to the instructor, and is required of all students.
- The student will hone his/her leadership and management skills by assuming a leadership role in group project development and presentation efforts, and by providing professional critiques and comments throughout the course.

Grading Distribution

Midterm exam	25%
Group project	25%
Participation/homework	25%
Final exam	25%

Grading Scale

Letter Grade	Range	Letter Grade	Range
A	93-100	C	74-76
A-	90-92	C-	70-73
B+	87-89	D+	67-69
B	83-86	D	64-66
B-	80-82	D-	60-63

C+	77-79	F	59 and below
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Group project.

Groups of 2-4 students will be formed in the first week or two of the course. These groups are responsible for proposing, developing and delivering a presentation to the class on a topic relative to engineering management. The group project will include a proposal, presentation of significant duration and content, and leading a follow-on question and answer session relative to the presentation. **Team composition and informal (e-mail) project proposals are due September 8th. Formal proposal (Concept Paper) due by September 15th.** More details of the group project will be provided during the first day of class.

A successful group project will require significant effort outside of class. Your efforts will entail collaborating with group project team members in determining a group project topic and submitting a proposal for the topic, conducting appropriate background research relative to the approved topic, and putting together the group project presentation. Group project work should be shared equitably. Failure to do so is considered academic dishonesty for all group members. At least 50% of each group should be composed of off-campus students.

Participation/Homework/Case Studies

The on-campus scheduled class will be recorded so that off-campus students may review the class at their convenience during the following week. While verbal participation during classroom discussion periods is strongly encouraged to enhance everybody's learning experience, there is no penalty for lack of participation or reward for such participation. Off-campus students choosing to watch a recorded class are unable to participate verbally, so this policy ensures equity for all.

Students are required to participate at a minimum in the following:

- As a facilitator for a "question and answer" session immediately following their group project presentation
- Most every week as an individual written class homework assignment commenting on the previous week's presentations and discussions
- As requested by the instructor due to insightful comments and input on the weekly individual homework assignment
- Homework will be due by the time specified in class and via Blackboard. If Blackboard determines the homework submission is late, it will not be accepted and the student will receive a grade of 0. Homework that is not submitted in the correct format and/or uses the wrong data or approach will not receive full credit. **Do not ask for exceptions to this policy.**

Do not ask the instructor to "pre-grade" your homework. If you have a specific question, then the instructor and/or TAs will be happy to work with you. But the instructor or TA

cannot check your answers for accuracy before the homework due date, since this would not be fair to other students.

Exams

The midterm exam is tentatively scheduled for October 13th; and the final exam will be scheduled in accordance with university policy.

Exam times/locations will be promulgated in class, and tentative exam times are also in this syllabus for your convenience. There will be no exception for time or location. Do not ask for an exception to time or location.

Off campus students: will be provided a limited window in which to take exams.

Proctoring: Off campus students are **responsible for obtaining exam proctors** consistent with ISU policy, and should do so **within the first 3 weeks of the course**. For more information, go to: <http://www.testcenter.iastate.edu/need-a-proctor/>

Course Policies

There is no extra credit for this course. **Do not ask for an extra credit opportunity.**

Address any grading concerns directly with the TA or instructor within 2 weeks of receiving the grade in question. **Do not ask for any regrading or any other evaluation review more than 2 weeks after you receive the grade in question.**

Act like a professional. Be respectful of others; don't be late; don't use your electronic devices during class.

Students are expected to turn in original work (your own or that of a team) for every part of every deliverable in this course. Please add the full reference of any sources (text, image or audio), if any.

Only emergency situations qualify for a potential exception to homework and/or exam policies.

1. The instructor must be notified ahead of time (before due date) that there is an emergency situation. Advising the instructor after the fact ("I missed the homework deadline because...") is unacceptable.
2. Do not be insulted if you are asked for documentation of your emergency situation.

Exam times/locations will be promulgated in class, and tentative exam times are also in this syllabus for your convenience. The Final Exam will be held as scheduled by ISU. **Do not ask for an exception to exam time or location unless there is a documented emergency or a direct conflict with another class exam.**

If exam scores are curved, the maximum score a student can obtain is a 100. **Do not ask for more points than the maximum of 100.**

Homework will be due by the time specified in class and via Blackboard. Do not ask for an extension. If Blackboard determines the homework submission is late, it's late. All late homework submissions will receive a grade of 0. Homework that is not submitted in the correct format and/or uses the wrong data or approach will not receive full credit.

Do not ask the instructor to "pre-grade" your homework. If you have a specific question, then the instructor and/or TAs will be happy to work with you. But the instructor or TA cannot check your answers for accuracy before the homework due date, since this would not be fair to other students.

Group project work should be shared equitably. If there is evidence that a student is not contributing their "fair share" to the Group Project, individual grades may be adversely affected.

Academic Honesty, Exceptions and Professionalism

Individuals suspected of committing academic dishonesty will be addressed according to Iowa State University policy. Any student suspected of academic dishonesty will be referred to ISU's Judicial Affairs office. If it is determined there was academic dishonesty committed, the student will receive a grade of "0" for the assignment(s) where dishonesty occurred, and will have their final course grade reduced by a full letter grade. A second case of academic dishonesty -- no matter how trivial -- will result in a grade of "F" for the course.

Special Accommodations

If you have special considerations (including a disability) then let me know and we'll make every effort to accommodate you. There will be no special considerations without appropriate documentation, e.g. Student Academic Accommodation Request (SAAR) form.

Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. All students requesting accommodations are required to meet with staff in Student Disability Resources (SDR) to establish eligibility. A Student Academic Accommodation Request (SAAR) form will be provided to eligible students. The provision of reasonable accommodations in this course will be arranged after timely delivery of the SAAR form to the instructor. Students are encouraged to deliver completed SAAR forms as early in the semester as possible. SDR, a unit in the Dean of Students Office, is located in room 1076, Student Services Building or online at www.dso.iastate.edu/dr/. Contact SDR by e-mail at disabilityresources@iastate.edu or by phone at 515-294-7220 for additional information.

Blackboard Assistance

For help with your username and password for Blackboard Learn, contact the Solution Center at 515-294-4000 or solution@iastate.edu

For lecture video technical support using Echo360, WebEx, or Cybox, contact ELO at elotech@iastate.edu.