



EMGT 5033—Introduction to Engineering Management

Term: Fall 2020 8W1, August 24, 2020 through October 13, 2020

Schedule: Online, asynchronous

Instructor:

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MSEM/MSOM Students:

Welcome to class! There are no specific pre-requisites for this course but be advised we meet the criteria for a Master's in Engineering degree.

Course Description:

Students will learn about engineering management topics including leadership, innovation, finance, project management, legal and ethical issues, systems thinking, systems engineering, research & development, production and quality management. It includes techniques for engineering management decision making including economic, decision and risk analysis. Students will practice oral and written communication skills.

Required Textbook:

Our textbook for EMGT 5033 is *The Engineering Management Handbook*, 2nd edition (2016), published by the American Society for Engineering Management (ASEM) and edited by John S. Farr, S. Jimmy Gandhi, and Donald N. Merino, Rolla, MO. ISBN 978-0-9975195-0-1 (paperback).

You have two options to acquire this book.

1. Join ASEM as a Student Member. The cost is \$30/year and included with your membership you will receive an electronic copy (PDF) of the textbook. You can find out more at <https://www.asem.org/Student-Membership>. To apply for Student Membership, scroll to the bottom of that page and enter your email address. This will be your login name. Once membership has been placed, you may access the member benefits through the member portal under the Membership / Claim Member Benefits tab.
2. Purchase a separate copy of the textbook without joining ASEM. The paper version of this book is currently available at Amazon.com at this link: <https://www.amazon.com/s?k=978-0997519501>.

This class does not require you to become an ASEM member.

Required Software:

Good news! Your enrollment here at the University of Arkansas entitles you to a free copy of Microsoft Office 365, which includes the entire suite of Microsoft products. You can download your copy of Office at <https://techarticles.uark.edu/microsoft/office/>.

You will also need:

- Microsoft Office 2016 suite, to include Word, PowerPoint, and Excel.
- Latest versions of Adobe PDF Reader, Adobe Flash Player, and Apple QuickTime to view certain files
- Latest version of Java to use required applications
- Google Chrome is the recommended browser

Course Goals / Objectives:

- CO1: Identify and explain the origins, functions, scope, and trends of Engineering Management
- CO2: Differentiate between common different leadership styles to motivate and manage technical employees
- CO3: Recognize the role of project management in Engineering Management
- CO4: Recognize legal, ethical, data governance and cybersecurity requirements in Engineering Management
- CO5: Describe the role of engineering managers in research and development for new products and services.
- CO6: Use systems thinking and system engineering concepts, tools, and techniques to inform the engineering system development process.
- CO7: Describe the role of the Engineering Management in the production and quality processes and use production planning and quality management tools
- CO8: Use financial and accounting analysis to understand the impact of technical engineering management decisions on the company's bottom line.
- CO9: Use engineering economic analysis to support project decision making.
- CO10: Quantify uncertainty with probability and perform probability calculations to inform engineering management decisions.
- CO11: Use single and multiple objective decision analysis to perform trade-off analysis and engineering management decisions.
- CO12: Communicate Engineering Management problems, analyses, and recommended solutions to stakeholders and senior managers orally and in writing
- CO13: Identify the importance of and methods for maintaining Engineering Management professional knowledge and skills

Course Requirements:

Description	Total Points	Percent of Grade
Individual Work	280	28%
Group Projects	120	12%
Midterm Exam	300	30%
Final Exam	300	30%
TOTAL	1000	100%

Evaluation Procedures:

Grade	Percentage
A	90 – 100%
B	80 – 89%
C	70 – 79%
D	60 – 69%
F	0 – 59%

Attendance Requirements:

This is an asynchronous online course, which means there are no specific attendance hours. You can structure your participation around your work and family obligations. Students are expected to submit weekly quizzes and homework assignments on time and take any proficiency exams within the time window.

If you need to make up work due to unforeseen absences, please contact the professor.

Course Units / Calendar:

Week	Dates	Topic
Week 0	Aug 24 – Aug 25, 2020	Weekly Objectives
Week 1	Aug 26 – Sep 1, 2020	<ul style="list-style-type: none"> Identify and explain the origins, functions, scope, and trends of Engineering Management (CO 1) Recognize legal, ethical, data governance and cybersecurity requirements in Engineering Management (CO 4) Use single-objective decision analysis (CO 11 first half)
Week 2	Sep 2 – Sep 8, 2020	<ul style="list-style-type: none"> Manage and motivate technical and knowledge workers (CO 2) Quantify uncertainty with probability and perform probability calculations to inform engineering management decisions (CO 10 (partial)) Use multiple-objective decision analysis (CO 11 (partial))
Week 3	Sep 9 – Sep 15, 2020	<ul style="list-style-type: none"> Recognize the role of project management in Engineering Management (CO 3) Use financial and accounting analysis to understand the impact of technical engineering management decisions on the company's bottom line. (CO 8 - first half)
Week 4	Sep 16 – Sep 22, 2020	<ul style="list-style-type: none"> Manage the multi-generational workforce (CO 2) Exam #1 - Midterm

Week 5	Sep 23 – Sep 29, 2020	<ul style="list-style-type: none"> • Use financial and accounting analysis to understand the impact of technical engineering management decisions on the company's bottom line. (CO 8 - second half) • Use systems thinking and system engineering concepts, tools, and techniques to inform the engineering system development process (CO 6).
Week 6	Sep 30 – Oct 6, 2020	<ul style="list-style-type: none"> • Use engineering economic analysis to support project decision making. (CO 9 - first half) • Identify and manage various sources of risk for engineering projects and use systems thinking and probability in this approach (CO 6, CO 10) • Describe the role of the Engineering Management in the production and quality processes and use production planning and quality management tools (CO 7)
Week 7/8	Oct 7 – Oct 13, 2020	<ul style="list-style-type: none"> • Use engineering economic analysis to support project decision making. (CO 9 - second half) • Understand the role of strategic management in engineering management and leadership (CO 2) • Apply innovation and entrepreneurship strategies to engineering management, especially in research and development for new products and services (CO 5) • Manage suppliers and supply chains to support engineering management • Exam #2: Final Exam

Caveat re: changes to syllabus

The above schedule and weekly objectives in this course are subject to change at the discretion of the instructor.

Class Procedures:

This course is fully asynchronous, which means there are no set class hours. Nevertheless, it will be a rigorous introduction to the techniques we cover, and you should expect to prepare for and participate in class. We will make extensive use of technology: Blackboard, videos, and email. With your participation, we will create a vibrant, active online learning environment. Class e-mails will be sent to your uark.edu e-mail address, so please check it regularly. Each week of instruction may offer some combination of instructional materials, quizzes, and homework assignments.

Late Submissions / Flexible Schedule / Time Management: If you keep me informed, I am very flexible on turning in assignments. I know many (if not all) of you are busy and sometimes you need a little extra time. With that said, I highly recommend you complete all the Week 1-4 work before the midterm and all the Week 1-7 work before the final exam assignments.

Team Activities

Since this is an asynchronous, distributed course, all team activities are asynchronous and distributed. **This means your team does not need to meet, in person or online, at the same time.** You can use technology to organize your team in a way which works best for team members' schedules each week.

A key skill for today's jobs is the ability to use technology to increase productivity when working remotely. The team assignments here will be excellent practice for that skill.

All members of the team will generally receive the same grade for a Team Assignment. If the peer evaluations show one team member did not participate equally, I will reduce his or her grade appropriately.

Office Hours & Help:

Office hours are available by appointment. I have weekend, evening, and daytime appointments available and generally try to accommodate your schedule.

Email is by far the best way to contact me – you can click on the “Email” link on the Blackboard menu and send me an email there. If that doesn't work, you can reach me at bpg001@uark.edu. If it's time-critical, please do call or text me on my cellphone at (540) 622-3365 anytime.

For technical assistance with Blackboard, contact the Blackboard Support at (479) 575-6804. Refer to the Software & Support tab in Blackboard for more support options.

The Student Development Center (479-575-3546) offers various workshops in test taking, time and stress management, as well as study skills. The Writing Center (479-575-6747) offers assistance in essay and report writing as well as grammar and sentence structure (available for students who have courses on campus). You may also contact the Enhanced Learning Center, which now offers online tutoring for some courses (available to students taking on courses on campus).

Academic Honesty Policy:

- As a core part of its mission, the University of Arkansas provides students with the opportunity to further their educational goals through programs of study and research in an environment that promotes freedom of inquiry and academic responsibility. Accomplishing this mission is only possible when intellectual honesty and individual integrity prevail. Each University of Arkansas student is required to be familiar with and abide by the University's '[Academic Integrity Policy](#)' at honesty.uark.edu. Students with questions about how these policies apply to a particular course or assignment should immediately contact their instructor.
- Plagiarism is often misunderstood. It can be defined as submitting someone else's work as your own. It is not permissible to “cut and paste” and then just cite another's work. In writing for homework or projects, you should read and learn, process through your mind, relate ideas, and then express what you learned **in your own words**. Cite the references where you found your information. If you do use someone else's words, you must use quotation marks **and** cite. You should not overuse quotes – save them for a rare occurrence.
- A complete statement of the U of A's Academic Honesty Policy is available in the UA Student Handbook and the UA Graduate Catalog.

Inclement Weather Policy:

Weather is unlikely to force cancellation of any online classes or activities. If a known weather event is approaching, it is good practice for students to turn in work early in case of local power outages.

Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act (FERPA) protects a student's academic and other educational records from unauthorized access. This protection extends to email correspondence between a student and the University of Arkansas faculty and staff.

To provide reasonable assurance that emails are from the student, all university or class related emails must be sent from the student's uark.edu email account. Additionally, university or class related emails must be sent to the student's uark.edu email account.

This means that I cannot acknowledge emails sent from your personal or work email accounts, and I cannot send emails to your personal or work email accounts.

University of Arkansas Academic Policy Series 1520.10

University of Arkansas Academic Policy Series 1520.10 requires that students with disabilities are provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact me privately at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through the Center for Educational Access (contact 479-575-3104 or visit <http://cea.uark.edu> for more information on registration procedures).

Academic Appeals

Academic appeals: Students are first encouraged to resolve academic conflicts and complaints informally with the instructor involved, through their department, or through the assistance of the University Ombuds Office, which can provide objective and confidential mediation. To assist students in identifying the appropriate contact person, please view this [List of Program, Department, and College Contacts](#). A [flow chart](#) is also available for viewing. If an informal resolution cannot be reached, there are procedures for students to pursue with complaints of an academic nature. Refer to either the [Undergraduate Catalog of Studies](#) or the [Graduate Catalog of Studies](#) for appeals structures and formal procedures for academic grievances.

Computer Access Policy

This course is offered as an online course and it is assumed that you have the minimum system requirements to participate (see the START HERE section of the course). It is your responsibility to ensure that you can access all course materials, participate in discussions and upload or download materials and software used for this course. In addition, care has been taken to ensure that the software that is used for this course does not require any out of the ordinary system set-ups. But, if your system does not meet the minimum requirements then it is your responsibility to maintain your system to meet the requirements so that you may participate in this course. Technical difficulties on your part will not excuse you from the timely completion of assignments. If you do experience technical difficulties please make sure that you contact me immediately so that proper assistance might be provided.

Netiquette

Netiquette is a set of rules for behaving properly online. It is important that all participants in online courses be aware of proper online behavior and respect each other.

Use appropriate language for an educational environment:

- Use complete sentences.
- Use proper spelling and grammar.
- Avoid idioms and slang.
- Do not use obscene or threatening language.

Remember that the university values diversity and encourages discourse. Be respectful of differences while engaging in online discussions. For more information about Netiquette, see [The Core Rules for Netiquette](#) by Virginia Shea.

CAPS

Academic problems are often related to the non-academic events in your lives. You are welcome to visit with the capable staff at the UA Counseling and Psychological Services (with offices in the North Quadrangle). You can telephone them at 479-575-CAPS. The fact that you telephone is also entirely confidential. Each semester they conduct a variety of support groups dealing with stressful issues.

Equal Treatment for All

The UA "Catalog of Studies" reports that the Campus Council supports equal treatment for all. It "does not condone discriminatory treatment of students or staff on the basis of age, disability, ethnic origin, marital status, race, religious commitment, sex, or sexual orientation in any of the activities conducted on this campus. Members of the faculty are requested to be sensitive to this issue when, for example, presenting lecture material, when assigning seating within the classroom, when selecting groups for laboratory experiments, and when assigning student work. The University faculty, administration, and staff are committed to provide an equal educational opportunity to all students."

Our class work will conform to the principle of equal treatment.