

COURSE OUTLINE

Course: ME 412 Mechanical Engineering Senior Project 3 Credits
Prerequisites: ME 400 ME Design

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Supporting Resources: *Exploring Engineering: An Introduction to Engineering and Design*,
by Kosky, Balmer, Keat and Wise, (3rd or 4th Editions acceptable)

Topics

Covered: Students will work in design teams to develop a professional solution to a design project. The course focus will be on the design, construction and testing of the project. Students will be expected to demonstrate all aspects of professional engineering practice:

1. Design implementation of capstone design project
2. Project Planning and Design Reviews
3. Update and Project Completion Presentations
4. Professional Documentation and Engineering Drawings
5. Peer Evaluations and Interactions with Colleagues

Course Goal: Successfully execute the design of a complex engineering system, including the development and testing of the technology involved. Continue developing the written, oral and graphical communication skills of the students, documenting the work performed in a professional manner at all times. Demonstrate the ability to explain and defend the design at multiple design reviews and at a final design presentation.

Course Outcomes: The students will be able to:

1. Use structured problem solving techniques, appraise client's needs, produce product/project definition documents, and propose appropriate engineering solutions.
2. Execute designs from inception to completion, and convey/document solutions in a wide variety of formats – including effective oral business presentations, and clear, concise project documentation that flows from general to specific.
3. Successfully manage projects using management tools such as timelines, responsibility charts, etc.
4. Participate effectively in multi-disciplinary teams, demonstrating that they are effective team members and evaluating the performance of team members.

Grading:

- Successful completion of project to FA/IC satisfaction by 12/1, and quality professional individual performance on project A
- Successful completion of project to FA/IC satisfaction after 12/1, and quality professional individual performance on project B
- Successful completion of project to FA/IC satisfaction by 12/1, but weak professional individual performance on project C
- Successful completion of project to FA/IC satisfaction after 12/1, and weak professional individual performance on project D
- Failure to complete project to FA/IC satisfaction, and/or unprofessional individual performance on project F

Ground Rules

1. Your team is expected to work with both the FA and IC to conduct the project. You will set the project deliverables (with approval by FA and IC), conduct decision-making activities, and guide the design/construction/testing of your project.
2. If your team does not deliver a finished project by the end of the spring semester, team members may be required to register for a 1 credit January term class (ME495).
3. The faculty advisors have selected the teams and projects but may after careful consideration, reallocate team members or elect to discontinue a project.
4. The faculty advisors will perform ongoing review of individual's performance on the team and project and may, after careful consideration remove a team member. This will only be done after written warning to a non-performing team member, and after the team member has the opportunity to alter performance and has failed to do so.
5. In compliance with University policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Student Accessibility Resource Center located in Downing Student Union, 1074. SARC can be reached by phone number at 270-745-5004 [270-745-3030 TTY] or via email at sarc.connect@wku.edu. Please do not request accommodations directly from the professor or instructor without a Faculty Notification Letter (FNL) from The Student Accessibility Resource Center.
6. As an engineering student of Western Kentucky University, you will be expected to refrain from any form of academic dishonesty or deception such as cheating, stealing, plagiarism or lying on assignments, homework, or project activity. Furthermore, you should understand and accept the potential consequences of punishable behavior as outlined in the WKU Undergraduate Catalog.

Title IX Misconduct/Assault Statement

Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding WKU's Title IX Sexual Misconduct/Assault Policy (#0.2070) at <https://wku.edu/eoo/documents/titleix/wkutitleixpolicyandgrievanceprocedure.pdf> and

Discrimination and Harassment Policy (#0.2040) at https://wku.edu/policies/hr_policies/2040_discrimination_harassment_policy.pdf.

Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Title IX Coordinator, Andrea Anderson, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121.

Please note that while you may report an incident of sex/gender based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are "Responsible Employees" of the University and **MUST** report what you share to WKU's Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU's Counseling and Testing Center at 270-745-3159.