

MSYM 462/862 – Equipment Systems

Spring Semester, 2022

General course information:

Lecture: T R 9:00 – 9:50 a.m. 262 Keim Hall
Recitation: R 10:00 – 11:50 a.m. 110 Chase Hall
Credit hours: 3 credits

Course description:

Capstone course (ACE 10). Team-based activities to evaluate equipment systems, make technical and economic recommendations, develop professional written and oral reports. Topics include equipment system performance and management, project scheduling and planning, cost estimation, reliability analysis, and risk assessment.

Prereq: Senior standing in MYSM.

Learning outcomes:

Learning outcomes of the course are for students to:

- 1) Complete an equipment systems management project, wherein students build upon knowledge acquired from previous courses and apply relevant concepts toward achieving more productive, efficient, and profitable performance from equipment systems.
- 2) Learn and practice applying essential elements of project planning, including time budgets, scheduling, economic evaluation, and risk assessment.
- 3) Produce written and oral reports that effectively convey ideas and information. Upon completion of the course, students will be able to develop a project plan, evaluate an equipment system, and make recommendations to improve/optimize the system.
- 4) Experience and develop skills for working within a team-based learning environment.

ACE Outcome:

This course achieves ACE certification for Outcome 10 – “Generate a creative or scholarly product that requires broad knowledge, appropriate technical proficiency, information collection, synthesis, interpretation, presentation, and reflection.” In documenting and evaluating student achievement of this ACE outcome, the instructors may utilize a sample of project reports.

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Office hours: By appointment (Starfish/MyPlan) By appointment

M: 10 – noon
T: 1:00 – 3:00 p.m.
W: 9:00 – 11:30 a.m.

Course text and reference materials:

Required: Material placed in ‘Assigned reading material’ within the ‘Files’ section on Canvas (canvas.unl.edu).

Key source: *Machinery Management*. John Deere Publishing, East Moline, IL, 1999.

Grading policy

Final course grades will be assigned based upon student performance on individual and team assignments. Points will be assigned and weighted by category as shown in Table 1:

Table 1. Weighting of points toward final grades.

Element	Individual share	Team share	Total share
Class preparation	5%	5%	10%
Homework assignments	20%	10%	30%
Class project	20%	30%	50%
Class participation	5%	5%	10%
Total	50%	50%	100%

Minimum grades, based upon the percentage of weighted points counting toward the total, will be:

A+	98-100%	B+	88-90%	C+	78-80%	D+	68-70%
A	93-97%	B	83-87%	C	73-77%	D	63-67%
A-	90-92%	B-	80-82%	C-	70-72%	D-	60-62%
						F	below 60%

Graduate students: Each student enrolled in MSYM 862 will also develop a research paper on a topic related to their team project [or another topic with the agreement of the instructor]. This report will count as a third of the team project points, making it worth 10% of the total points. The report needs to be 3-5 pages @ 1½ line spacing and is due on or before the due date for the team project reports.

Assigned readings:

Each student is responsible for reading assigned course material each week. Assigned readings may be associated with a Readiness Test (RT), which will include an individual score and a 'class team' score. No make-up readiness tests will be given. The low individual (not team) RT score for each student will be dropped in calculation of final grades. If a student misses a readiness test, a score of zero is received, which becomes the student's low individual RT score.

Homework assignments:

The course will include four in-depth homework assignments. Each homework assignment will have individual and team components.

Each student will perform calculations, make evaluations, and submit completed work for a subset of the scenarios assigned to their 'class team'. The individual write-ups will be graded based upon completing all requested work, with typical expectations for setting up problems, using appropriate methods, showing work and all essential steps, carrying units, and producing correct/reasonable answers.

Prior to submitting the individual write-ups, each class team will prepare a team write-up that provides a clear and informative summary of key results produced by individual team members, discussion of results, descriptive assessment of alternatives that were considered, and the team's recommendation. Timely completion of individual work is essential to developing the team report, so keep up on these assignments.

Projects:

Each student will contribute toward completion of a comprehensive project as a member of a small team. The project will encompass technical and economic evaluations of a real or realistic situation involving one or more mechanized systems. Each project team will produce professional written and oral reports, with points assigned to each report. Project teams will submit progress reports at specified times throughout the semester. Additional details and specifics will be provided separately.

Due dates and late work:

Homework assignments and project write-ups will be due on the date noted – typically one week and two weeks, respectively, from the date they are originally assigned.

Individual homework write-ups must be completed by the beginning of class on the date due, since teams need the results from individual team members to complete the team write-ups. A student's first obligation is to get results for assigned work to his/her team, which means that communication with teammates is important in the event that you will be absent from class or are otherwise unable to deliver expected information to your team in person. When a student is not able to meet the due date in submitting a write-up, he/she needs to also communicate with one of the instructors – before the assignment is due whenever that is possible.

Team homework write-ups are to be completed during the recitation period on the due date and turned in by the end of recitation. Approximately 1½ hour will be made available during the recitation period for each team to work on their write-up. Teams are encouraged to plan ahead and even compile some information prior to class to make the in-class time more effective.

Instructors may deduct 20% of full value for work that is turned in late, but prior to the assignment being graded and returned. Barring extenuating circumstances, no credit will be given for work submitted after an assignment has been returned.

Exams:

No exams are scheduled. The instructors reserve the right to give a final exam, however, if students demonstrate that they are not engaged in the class and regularly fail to complete the assigned readings prior to coming to class. If a final exam is given, it will replace Class Preparation (RT) points.

Participation:

The instructors will use discretionary points to reward students for regular attendance, responding to questions, interaction with class teams, and active involvement in class activities.

Attendance:

Attendance and class participation are important for successful achievement of class learning outcomes and in establishing your grade. ***Do not come to class, though, if you are not feeling well.*** Notify one of the instructors promptly (preferably before class and in writing when possible) in the event of an illness or other excused absence to cover yourself in case multiple readiness tests [or other assignments] are missed due to excused absences. The instructors are committed to maintaining a healthy campus community and limiting the spread of infectious diseases. If you do miss multiple class periods due to illness, we will work with you on an individual basis to accommodate a plan appropriate to your recovery situation.

Academic dishonesty:

Students are expected to adhere to guidelines concerning academic dishonesty outlined in Section 4.2 of the University's Student Code of Conduct (<http://stuafs.unl.edu/ja/code/>). The BSE Department process for grade and academic dishonesty appeals can be found at https://engineering.unl.edu/downloads/files/AcademicDishonesty_Appeals_1.pdf. Students are encouraged to contact the instructor for clarification of these guidelines if they have questions or concerns.

As a student at UNL, you enjoy rights and protections under the code and need to conduct yourself in compliance with the code. As the Student Code of Conduct indicates, academic sanctions for misconduct are at the discretion of the instructor and may include giving the student a failing grade for the course. Students occasionally have some confusion regarding plagiarism, which is misrepresenting the work of another as one's own. In the past, students in this course have turned in assignments in which multiple sentences were worded the same or the same graph was presented, which is simply not acceptable. When such situations occur, the instructor reserves the right to penalize all parties involved – in lieu of determining who copied who – with the penalty based upon the frequency and extent of the misrepresentation.

ADA Statement:

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can discuss options privately. To establish reasonable accommodations, I may request that you register with Services for Students with Disabilities (SSD). If you are eligible for services and register with their office, make arrangements with me as soon as possible to discuss your accommodations so they can be implemented in a timely manner. SSD contact information: 117 Louise Pound Hall Bldg.; [402-472-3787](tel:402-472-3787).

Mental Health and Wellbeing Resources:

UNL offers a variety of options to students to aid them in dealing with stress and adversity. Counseling and Psychological & Services (CAPS) is a multidisciplinary team of psychologists and counselors that works collaboratively with Nebraska students to help them explore their feelings and thoughts and learn helpful ways to improve their mental, psychological and emotional well-being when issues arise. CAPS can be reached by calling [402-472-7450](tel:402-472-7450). Big Red Resilience & Well-Being provides one-on-one well-being coaching to any student who wants to enhance their well-being. Trained well-being coaches help students create and be grateful for positive experiences, practice resilience and self-compassion, and find support as they need it. BRRWB can be reached by calling [402-472-8770](tel:402-472-8770).

Emergency procedures:

Consult UNL emergency planning site for current emergency procedures: <https://emergency.unl.edu/>

Face Coverings Syllabus Statement:

All University of Nebraska–Lincoln (UNL) faculty, staff, students, and visitors (including contractors, service providers, and others) are required to use a facial covering at all times when indoors on the UNL campus. Students are encouraged to refer to the COVID 19 face covering policy found at: <https://covid19.unl.edu/face-covering-policy>, for details and information on rationale, exemptions and alternatives.

Covid-19 testing:

Re-entry testing for Covid-19 is required and random mitigation testing will occur. Refer to UNL's Covid website, <https://covid19.unl.edu/spring-2022-campus>, for up-to-date information.