

Fundamentals of Engineering Project Management

EGS 4625

Section GEN1 / Class #13756

Class Periods: Friday, Periods 2 – 4 (8:30 a.m. – 11:30 a.m.)

Location: Online

Academic Term: Fall 2020

Instructor:

Mark Hoover, Adjunct Professor

Engineering Leadership Institute, University of Florida Herbert Wertheim College of Engineering

- a. E-mail Address: mark.hoover@ufl.edu
- b. Cell Phone: (352) 316-6518
- c. Office Hours: By appointment on scheduled day of class
- d. Course Site: UF Canvas website
- e. Teaching Assistant: None

Course Description:

This course provides engineering students with a comprehensive understanding of how to plan, optimize, and efficiently manage projects (or tasks) to implement products, services, or developments. This includes building the structure, processes, components, and linkages with a team for successful project delivery within scope, schedule, budget, and quality requirements.

Credit Hours: 3

Course Pre-Requisites / Co-Requisites:

Junior or Senior level standing

Course Objectives:

In today's competitive and often complex work environment, engineers and other professional staff are very likely to be called upon to manage projects (or tasks) that implement their stakeholders', or company's products, services, or developments in an optimized, efficient manner. This course provides students with skills and knowledge in organizing multi-disciplinary teams to achieve successful project outcomes; enables students to understand the key components of a successful project and to integrate the necessary processes, components, and attributes into execution of their projects; allows practicing of communication skills to organize project teams; and facilitates student development of project trouble-shooting capabilities through careful analysis and root cause determinations.

Specific learning objectives are to prepare engineering students to plan, develop, lead, manage, and successfully implement and deliver projects within their chosen technical practice area. This involves an in-depth study of the various components, phases, and attributes of a project. Coupled with the theory of project management, students will practice and gain hands-on experience with the implementation and use of many key project components in a team setting, using the "flipped" classroom practice of implementing concepts of theory through team-based and individual exercises that analyze case studies and apply newly gained knowledge to real-life examples. Students will have the opportunity to link their knowledge and skills together to understand the basis of a successful project.

This course is part of the undergraduate Engineering Project Management Certificate offered by the Herbert Wertheim College of Engineering. The 9 credit-hour certificate requires students to make a B or higher in two required courses and one course from an elective list:

- Required: EGS 4625 Fundamentals of Engineering Project Management
- Required: EIN 3354 Engineering Economy
- Plus one course from a list of approved courses

More information can be found at:

<https://www.eng.ufl.edu/leadership/academic-programs/certificates/undergraduate>

Materials and Supply Fees:

None

Professional Component (ABET):

This course is not specific to a major under ABET purview. However, the course meets the required level of contact hours of formal project management education necessary for the Project Management Institute (PMI) designation as a Certified Associate in Project Management (CAPM). Meeting this requirement enables the student to undertake the certification examination for this level (along with the student's degree certification).

Relation to Program Outcomes (ABET):

This course is not specific to a major under ABET purview.

Required Textbooks and Software:

Textbooks:

- Title: A Guide to the Project Management Body of Knowledge (PMBOK Guide)
Author: Project Management Institute, Inc.
Publication date and edition: 2017, Sixth Edition
ISBN number: 978-1-62825-184-5

NOTE: The PMBOK Guide (Sixth Edition) will be available free of charge to all enrolled students through the Course Reserves tab on the Canvas course site. In addition, students should expect to have additional reading assignments that will be posted on the Course Reserves tab (comprised of journal articles) and other handouts (posted on the modules tab) that support various project components under discussion at the time. Journal articles and handouts are available free of charge to all enrolled students.

- Any needed supplemental reading material can be obtained directly through the link(s) provided on the Canvas course site.

Software:

- Microsoft Office (available at no charge to all enrolled students through UF Apps)
- Microsoft Project (available at no charge to all enrolled students through UF Apps)
- Ability to create Adobe PDF files
- Browser: Either Chrome or Firefox must be used to access the Canvas course site

NOTE: This course integrates use of the HonorLock system for online course exams. HonorLock is an online proctoring service that allows you to take exams from the comfort of your home. You do not need to create an account and you do not need to schedule an

appointment in advance. HonorLock is available 24/7 and all that is needed is a computer that meets UF standards with a working webcam, a stable Internet connection, and Google Chrome (HonorLock will add a Chrome Extension). The HonorLock Chrome Extension can also be downloaded at <https://static.honorlock.com/install/extension>. More information regarding this online proctoring service is provided in the HonorLock testing guidelines document located on the Canvas course site under Files => HonorLock.

Recommended Materials:

Readings will be assigned in class according to the content on the Canvas course site, as applicable.

Course Schedule:

The course will be delivered according to the following weekly schedule (subject to revision by the course instructor via Canvas, as necessary):

Week #	Week Beginning	Class Date	Module	Topic	Quiz	Exam
1	8/31/2020	9/4/2020	Module 1	Course Overview, Syllabus Review, Basic Concepts	Welcome and Syllabus Quiz	---
2 ^a	9/7/2020	9/11/2020	Module 2	PM History and Methodologies, Project Life Cycle	Module 2 Quiz	---
3	9/14/2020	9/18/2020	Module 3	Leadership and Management, Personality Styles	Module 3 Quiz	---
4	9/21/2020	9/25/2020	Module 4	Contracts	Module 4 Quiz	Exam #1 * Modules 2-3
5 ^b	9/28/2020	10/2/2020	Module 5	Risk Management	Module 5 Quiz	---
6	10/5/2020	10/9/2020	Module 6	Health & Safety	Module 6 Quiz	---
7	10/12/2020	10/16/2020	Module 7 Module 8	Quality Concepts, Client Relationships, Customer Service	Module 7 Quiz Module 8 Quiz	Exam #2 * Modules 4-6
8	10/19/2020	10/23/2020	Module 9	Chartering and Endorsement, Project Scoping	Module 9 Quiz	---
9	10/26/2020	10/30/2020	Module 10	Work Breakdown Structures, Network Diagrams	Module 10 Quiz	---
10	11/2/2020	11/6/2020	Module 11	Scheduling/Budgeting, Costing/Pricing, Project Execution Plans	Module 11 Quiz	Exam #3 * Modules 7-10
11 ^a	11/9/2020	11/13/2020	Module 12	Project Controls, Earned Value Management	Module 12 Quiz	---
12	11/16/2020	11/20/2020	---	GGBP Case Study Team Presentations	---	---
13 ^a	11/23/2020	no class	Module 13	Status Reports and Cash Flow, Change Management	Module 13 Quiz	---
14	11/30/2020	12/4/2020	Module 14	Project Closeout, Lessons Learned	Module 14 Quiz	---
15 ^c	12/7/2020	no class	End of Course	Course Summary	---	Exam #4 * Modules 11-14

^a Holidays are 9/7/2020 (Labor Day), 11/11/2020 (Veteran's Day), and 11/25/2020 - 11/27/2020 (Thanksgiving)

^b Homecoming 2020 has been delayed from October 2 to December 24.

^c Reading Days are 12/10/2020 - 12/11/2020

*** HonorLock required**

Fundamentals of Engineering Project Management will be delivered in a single weekly 3-period online session (with breaks that coincide with published times between periods), primarily in the “flipped” classroom mode; namely, students will be required to preview the lecture material prior to attending class. The first session of the meeting time will be devoted to clarification and understanding of the previewed lecture material. The following two sessions will involve practical application of the theories learned through discussion and case study analysis as learning assignments to be submitted by the student project teams. The learning assignments will enable the practical application and demonstration of the session theory.

The course is designed to introduce engineering students to the concepts, theories, and applications of project management in multiple professional settings. Students will obtain a strong team-based and individual hands-on learning experience through a course curriculum consisting of supporting lectures on the various theories of project management and the application of these theories through team-based learning activities and assignments utilizing case studies and role-playing.

Online Course Recording:

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and/or sharing of recorded materials is prohibited.

Attendance Policy, Class Expectations, Make-Up Policy, and Assignment Submissions:

Student attendance during class sessions is not mandatory. However, students are expected to actively participate in all discussions and team-oriented assignments. Also, scheduled exams, assignments, and lecture quizzes may be made up only through excused absences, consistent with published UF policies (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>), and require appropriate documentation. Required readings have been specifically chosen to provide a certain insight or skill; questions regarding reading content will be included in the exams. Unless stated otherwise, assignments are to be submitted via Canvas by the stated deadline (“Due” date).

Evaluation of Grades:

Assignment	Total Points	Points for Each	Percentage of Final Grade
Individual/Team Assignments			
Individual (up to 10)	up to 115	varies	~ 50%
Team (17)	534	varies	
Quizzes/Exams			
Quizzes (14)	140	10	~ 50%
Exams (4)	~ 500	~ 125	
TOTAL:			100%

Grading Policy:

The final class grade will be based on the student’s performance on exams, assignments (individual and team), and lecture quizzes within the grade scale for the class, which is listed below. There will be no grading “curve” for the class; however, numerous opportunities exist to earn extra credit based on individual performance on team assignments (according to the team performance assessment process detailed below) and “Health & Safety Moment” presentation (detailed during the semester).

Percent	Grade	Grade Points
90.0 – 100	A	4.00
87.0 – 89.9	A-	3.67
84.0 – 86.9	B+	3.33
81.0 – 83.9	B	3.00
78.0 – 80.9	B-	2.67
75.0 – 77.9	C+	2.33
72.0 – 74.9	C	2.00
69.0 – 71.9	C-	1.67
66.0 – 68.9	D+	1.33
63.0 – 65.9	D	1.00
60.0 – 62.9	D-	0.67
0 – 59.9	E	0.00

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Individual Expectations:

Scheduled exams, individual assignments, and lecture quizzes must be accomplished within the scheduled “time windows” identified on the Canvas course site. These items may be made up only through excused absences in compliance with published UF policies, as stated. The process to request an excused absence is to make a request through Canvas e-mail to the instructor at least 48 hours prior to the item “Start” time shown on the Canvas course site. The instructor will review the request and reply via a timely return e-mail either granting or denying the request. It is the student’s responsibility to secure a determination of the excused absence request. Appropriate documentation may be requested by the instructor, per UF policies (<https://catalog.ufl.edu/ugrad/current>).

Late individual assignment submissions (after the “Due” date but before the “Until” date for any unexcused absences) will result in a 10% reduction in grade for the assignment. Submissions beyond the “Until” date (typically 3 days after the “Due” date) will receive no credit, subject also to published UF policies (<https://catalog.ufl.edu/ugrad/current>).

Team Assignments and Participation Expectations:**Expectations for Teams:**

Engineering project management is a team-based “sport” that requires team members to effectively work together, including working through differences and issues that may occur in order to create a high-quality submittal by the scheduled delivery date. To this end the expectations, team formation, and performance assessments of the teams in this course are summarized below:

- Four specific roles will be rotated between individual team members for team assignments throughout the semester. These consist of assignment leadership roles (Project Manager [PM], Senior Consultant [SC], and Quality Lead [QL]) and the key role of Team Member (TM).

Each student will serve in all leadership roles at least once in the semester and perhaps multiple times, depending on class enrollment. The instructor will publish a role roster by assignment for the semester once the teams are established. Roles may be switched due to conflicts during the semester, but it is up to the student desiring a change to seek out and agree with another member of their team regarding the role swap. The adjustment may only occur between the roles of PM, SC, and QL, and must be an equal swap: PM for PM, SC for SC, and QL for QL. Once agreed upon, the instructor must then be notified of the change so the role roster can be updated.

- Responsibilities for the four specific roles are provided on the Canvas course site. It is the student’s responsibility to read and understand each role to guide their execution when they are assigned each responsibility. In addition, their performance for each team assignment will be evaluated against these role descriptions (detailed below).

Team Formation:

Five- to six-person teams will be formed either the first or second week of the semester to execute and deliver team assignments throughout the semester. The instructor will coordinate the formation of the teams. Typically, this formation involves some freedom in choosing teammates, but also will involve instructor assignment of students to teams. The latter approach is the most “real-world” as staff in a professional setting typically have little to no say in the composition of their team; team formation is instead a function of the project and company needs as well as the experience and qualification of potential team members. Team formation in this manner will also enable students to make new acquaintances as they pursue successful team assignments together.

Team Performance Assessments:

When assigned via Canvas, the PM, SC, and QL will provide reviews of their assigned team members using the provided templates. The PM will review their assignment leadership team (SC and QL) in their respective roles, as well as all other team members. The SC and QL will assess the PM performance in their role, as well as the remaining team members. In this way, there will be a top-down performance review of all the key team roles and all remaining team members from three different reviewer perspectives. The review summary is shown in the following table:

Performance Assessment Summary Table				
	Roles Reviewed			
Reviewer	PM	SC	QL	Team
PM		✓	✓	✓
SC	✓		✓	✓
QL	✓	✓		✓

Performance assessments of each role component will be evaluated according to the following criteria (detailed descriptions of each criterion are available in the assessment templates):

No Participation	Significant Underperformance	Met Expectations	Exceeded Expectations	Above and Beyond
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A performance score for each team member will be determined based on a scale of 1 (no participation) to 5 (above and beyond). The average score for all evaluated criteria (based on the role descriptions listed on the Canvas course site) will be calculated and applied to the individual student's score on team assignments based on the following assessment score ranges:

Overall Score:

4.75 - 5.00 = actual assignment score +10% bonus

4.00 - 4.74 = actual assignment score +5% bonus

2.51 - 3.99 = actual assignment score

1.51 - 2.50 = 75% of actual assignment score

1.01 - 1.50 = 50% of actual assignment score

1.00 = score of 0% (did not participate)

Justification for any evaluation resulting in either a bonus addition or a deduction from the team score will require justification comments by the reviewer in the evaluation template. Each reviewer will conduct performance reviews as assigned on the Canvas course site by the specified "Due" date.

Excused Absences from Team Assignments and Late Team Submittals:

All team assignments are expected to be completed according to the scheduled dates on the Canvas course site. In recognition of events occurring outside the student's control, excused absences for team assignments may be granted per UF policies (<https://catalog.ufl.edu/ugrad/current>).

The process to request an excused absence is to make a request through Canvas e-mail to the instructor at least 48 hours prior to the assignment "Start" date shown on the Canvas course site, making sure the team is aware of the request. The instructor will review the request and reply via a timely return e-mail either granting or denying the request. It is the student's responsibility to secure a determination of the excused absence request. Appropriate documentation may be requested by the instructor, per UF policies (<https://catalog.ufl.edu/ugrad/current>).

Approved excused absences from team assignments will result in a "Met Expectations" score for the assignment (the team's graded score). Where possible, it is expected that the excused student will continue to support the team's assignment development efforts. Unexcused absences will be deemed a "No Participation" assessment resulting in zero (0) points for the assignment, subject to UF policies (<https://catalog.ufl.edu/ugrad/current>), as appropriate.

Late team assignment submissions (after the "Due" date but before the "Until" date for any unexcused absences) will result in a 10% reduction in grade for the assignment. Submissions beyond the "Until" date (typically 3 days after the "Due" date) will receive no credit, subject also to published UF policies (<https://catalog.ufl.edu/ugrad/current>).

Confidentiality of Reviews:

Individual performance reviews by the assignment leadership team members are expected to be confidential and may not be shared with anyone other than the instructor, although reviewers may jointly discuss their evaluation of team members regarding specific criteria considerations prior to submittal of the assignment.

Review Inquiry Process:

Students who received an adverse review with subsequent adjustment of their assignment score may, at their choosing, initiate an inquiry process to receive an explanation of the basis of an adverse rating. This will be accomplished using a tiered approach.

Tier 1 involves a Zoom or telephone discussion with all members of the assignment leadership team that conducted the reviews, unless one of the leadership team members is requesting the inquiry. In that case, only the three members of the leadership team will participate in the discussion. For team members that are requesting the inquiry, the assignment PM will facilitate the discussion and explain to the team member the primary source areas of the adverse review. The intent of the Tier 1 discussion is to resolve any issues satisfactorily with the assignment leadership team and the team member and to make any recommended adjustments to the instructor, which may also include no change.

In the unlikely event that the issue is not resolved at the Tier 1 level, Tier 2 will be invoked. This requires the instructor to convene a new meeting with all parties to facilitate a discussion and reach agreement between all parties. The intent of the Tier 2 level is for the facilitator to attempt to drive the discussion to a conclusion. If no agreement is reached at the end of Tier 2, then the instructor will issue a final determination.

Students Requiring Accommodations:

Students with disabilities requesting accommodations should first register with the Disability Resource Center (DRC) at 352-392-8565 or <https://www.dso.ufl.edu/drc> by providing appropriate documentation. Once registered, students will receive an accommodation letter which then must be presented to the course instructor when requesting an accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation:

Students are expected to provide feedback on the quality of instruction and content of material in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Course evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

University Honesty Policy:

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code." On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the course instructor.

Commitment to a Safe and Inclusive Learning Environment:

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your course instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use:

All faculty, staff, and students of the University of Florida are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy:

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>.

Campus Resources:

Health and Wellness:

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. Nighttime and weekend crisis counselors are available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence:

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu.

Sexual Assault Recovery Services (SARS):

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu>.

Academic Resources:

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio>.

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.