Syllabus - Fundamentals of Engineering Project Management

EGS4625

Sections 3D18; Class No 14174

Meeting Day: Friday
Class Periods: 7 - 9
Class Location: Turlington 2319
Academic Term: Fall 2019

1. Instructor:
   James Edens, P.E.
   Engineering Leadership Institute, University of Florida Herbert Wertheim College of Engineering
   a. E-mail address: jedens.ufl.edu
   b. Cell Phone: (352) 213-3748
   c. Office hours: By appointment on scheduled class day
   d. Web site: UF course Canvas web site
   e. No teaching assistant

2. Catalog 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 schedule, budget and quality requirements.

3. Credit Hours: 3. Graduate students will not receive graduate credit for taking the undergraduate version of the class. They can enroll in the undergraduate section, but the credits will not count toward the degree.

4. Pre-requisite: None

5. Course Objectives: In today’s cost-competitive and often complex work environment, engineers 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 embed the necessary processes, components, and attributes into execution of their projects; allows practice of communication skills to organize project teams; and allows students to develop 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 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 most key components in a team setting, using the “flipped” classroom practice of implementing sections on theory through team-based and individual exercises that analyze case studies and real-life examples. Students will have the opportunity to link their knowledge and skills together to understand the basis of a successful project.

6. Contribution of course to meeting the professional component: This item is not applicable as the 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’s 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).

7. **Relationship of course to program outcomes:** This item is not applicable as the course is not specific to a major under ABET purview.

8. **Class schedule:** The course will be delivered in a single weekly 3-hour session (with breaks that coincide with published times between periods). The course will be delivered 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 testing of 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.

9. **Material and Supply Fees:** – N/A

10. **Textbooks and Software Required:**

    a. Title: A Guide to the Project Management Body of Knowledge (PMBOK Guide)
    b. Author: Project Management Institute, Inc.
    c. Publication date and edition: 2013, Fifth Edition
    d. ISBN number: 978-1-935589-67-9

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

    • Any needed supplemental material can be purchased directly through the link(s) provided

    **Software:**
    • Microsoft Excel
    • Ability to create Adobe PDF files
    • Microsoft Project (available at no charge to all enrolled students)

11. **Recommended Reading:** assigned in class as applicable.

12. **Course Outline:** *Fundamentals of Engineering Project Management* is designed to introduce engineering students (both undergraduate and graduate) 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. The course will be delivered according to the following sequence (subject to revision by the instructor via Canvas):
<table>
<thead>
<tr>
<th>Date</th>
<th>Week</th>
<th>Module</th>
<th>Topic</th>
<th>Readings</th>
<th>Individual Assignments</th>
<th>Team Assignments</th>
<th>Learning Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-Aug</td>
<td>1</td>
<td>1</td>
<td>Course overview, syllabus review, basic concepts</td>
<td>• Course syllabus&lt;br&gt;• Project Management as a Field of Study&lt;br&gt;• Typical Expectations for Project Managers&lt;br&gt;• PM/Team/Communications Guidelines&lt;br&gt;• Certified Associate in Project Management certification - Summary&lt;br&gt;• Certified Associate in Project Management certification - Handbook</td>
<td>Welcome; Intro Lecture; Course Expectations; Syllabus Quiz</td>
<td>None</td>
<td>• Recognize opportunities, needs, and drivers within the project management practice&lt;br&gt;• Identify the instructor contacts, course content and delivery schedule;&lt;br&gt;• Review the grade performance criteria, course policies, and requirements;&lt;br&gt;• Evaluate potential PM certifications</td>
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<tr>
<td>26-Aug</td>
<td>2</td>
<td>2</td>
<td>PM history through major milestones; PM methodologies; project life cycle</td>
<td>• Kozak-Holland, M. The History of Project Management: pp23-59, 397-528&lt;br&gt;• PM methodology pros and cons&lt;br&gt;• 10 Key Guidelines for Effective Team Membership&lt;br&gt;• Communications guidelines&lt;br&gt;• Team assignment roles and responsibilities</td>
<td>PM History and methodology lecture; Project life cycle lecture; Social loafing video; Quiz 2; Personal bio; Review expectations summary; Team contract</td>
<td>Team organization; Lego build #1</td>
<td>• Identify the various people, milestone projects, entities, and organizations that have historically contributed to the current PM body of knowledge&lt;br&gt;• Discover the key PM methodologies available today and where they are best utilized&lt;br&gt;• Recognize the requirements to obtain a UF Engineering Project Management Certification&lt;br&gt;• Review key team dynamics and guidelines as teams for the term are formed&lt;br&gt;• Assemble your bio sketch to share with your team members&lt;br&gt;• Review the course coverage for all student expectations&lt;br&gt;• Apply your skills to successfully solve a team-based problem</td>
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<tr>
<td>3-Sep</td>
<td>3</td>
<td>3</td>
<td>Leadership and management</td>
<td>• PMBOK pp 1-68 (in course reserves)&lt;br&gt;• Creasy and Anantamula article (in course reserves)</td>
<td>Leadership lecture; Discussion thread</td>
<td>Global Green Books Publishing PM case study</td>
<td>• Identify the traits needed to be a good leader&lt;br&gt;• Select specific actions that can demonstrate your leadership skills&lt;br&gt;• Recognize self and others’ personality styles</td>
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<td>Mayhew styles lecture; Jung personality styles questionnaire; Quiz 3</td>
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<td>• Examine project management needs in a case study example&lt;br&gt;• Describe leadership traits that you find admirable</td>
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<tr>
<td>9-Sep</td>
<td>4</td>
<td></td>
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<td>all topics from beginning of class</td>
<td></td>
<td>• Identify the basic elements of a contract&lt;br&gt;• Appraise key contract clauses related to liability, performance, change management, and contract type&lt;br&gt;• Generate acceptable alternatives to inappropriate contract clauses</td>
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<tr>
<td>16-Sep</td>
<td>5</td>
<td>5</td>
<td>Risk Management</td>
<td>• AACE estimate classification&lt;br&gt;• DoD Risk Management Guide&lt;br&gt;• Beasley: Today’s Risk Management Challenges&lt;br&gt;• Risk Management – Monte Carlo Cost Estimating Simulation from PMI</td>
<td>Risk management lecture; Quiz 5; Quality Lead and Sr consultant report</td>
<td>Risk assessment case study</td>
<td>• Identify all reasonable risks associated with a case study project&lt;br&gt;• Assess consequences, exposure, mitigation plans, triggers, and appropriate assignees for the risks&lt;br&gt;• Predict total project costs using Monte Carlo simulations&lt;br&gt;• Evaluate and summarize project risk cause-and-effect and sensitivity on project cost forecast&lt;br&gt;• Prepare a presentation of risk assessment findings</td>
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<tr>
<td>Date</td>
<td>Week</td>
<td>Topic</td>
<td>Notes</td>
<td>Lecture/Assignments</td>
<td>Assessment</td>
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<td>23-Sep</td>
<td>6</td>
<td>Health &amp; safety</td>
<td>• Behavior based safety guide</td>
<td>H&amp;S lecture; Quiz 6; Safety audit of designated structure</td>
<td>• Recognize the leading causes and consequences of unsafe acts • Identify hazardous energies and ways to control the hazard • Apply health and safety concepts to project safety planning • Develop awareness of safety of surroundings and present situations</td>
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<tr>
<td>30-Sep</td>
<td>7</td>
<td>Exam 2</td>
<td>Exam will be scheduled on or before Wednesday of this week due to Homecoming</td>
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<td>Homecoming - NO CLASS</td>
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<td>7</td>
<td></td>
<td>Quality Assurance/Control concepts</td>
<td>• A comparative case study of sustaining quality as a competitive advantage, Su, et. Al (course reserve) • Managing quality in projects – an empirical study, Basu (Course reserves)</td>
<td>Quality Lecture Quiz 7 Quality lead and sr consultant reports</td>
<td>• Recognize the definitions of quality • Review the history of quality development and its early contributors • Distinguish the different quality types and their application • Apply concepts to project quality case study issues</td>
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<tr>
<td>8</td>
<td></td>
<td>Client Service</td>
<td>Example client service plans</td>
<td>Client service lecture Quiz 8 SW Airlines Customer Service Plan case study</td>
<td>• Recognize the importance of customer relationships • Identify the key components of building trust • Review the concept of ‘social capital’ and how it applies to customer relationships • Analyze the key components of superior client service • Discover the appropriate approaches to delivering ‘bad news’ • Evaluate key elements of a customer service plan</td>
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<tr>
<td>7-Oct</td>
<td>8</td>
<td>Chartering/Endorsement</td>
<td>• Review Charter Example 1 • Review Charter Example 2</td>
<td>Charter lecture Quiz 9 Team charter signing Lego build #2</td>
<td>• Define how the project team will work together and agree to a team charter • Distinguish the attributes needed to achieve high team performance • Identify the value of endorsement of key project components • Solve a simple team-based problem</td>
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<tr>
<td>9</td>
<td></td>
<td>Scoping</td>
<td>PMBOK pp105-140</td>
<td>Requirements/scoping lecture Quality lead and sr consultant reports</td>
<td>• Develop the initial specifications, requirements, and scope of a detailed engineering project</td>
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<td>14-Oct</td>
<td>9</td>
<td>WBS; network diagrams</td>
<td>PMBOK pp 141-192</td>
<td>WBS lecture Network diagrams lecture Quiz 10 Quality lead and sr consultant reports</td>
<td>• Convert the scope statement into a deliverable-oriented hierarchical chart • Develop a precedence-driven network diagram • Apply needed resources to build a budget • Summarize all the planning documents into a project execution plan • Apply WBS and network diagram concepts to the ongoing engineering case study</td>
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### 13. Attendance and Expectations:

Student attendance at class sessions is not mandatory. However, scheduled exams, assignments, and lecture quizzes may be made up only through excused absences as determined by the instructor in accordance with university policy. 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. Late submissions are not accepted, subject to the statements above and the policies of the
undergraduate (https://catalog.ufl.edu/ugrad/current) or graduate (http://gradschool.ufl.edu/students/catalog.html) catalogues, as appropriate.

Students are expected to actively participate in all discussions and group project assignments.

14. Grading:

On a rotating basis, students on team assignments may serve specific roles as either Senior Consultant or Quality Leads on their respective team assignments, in addition to possibly serving as the project manager for a specific team assignment. Up to six additional graded assignments for students will be required that demonstrate understanding and satisfactory performance of the Senior Consultant and Quality Lead roles.

Individual and team assignments (up to 35) will comprise approximately 50% of total class points. Quizzes (up to 14) and scheduled exams (up to 4) will comprise approximately 50% of the student’s grade.

15. Grading Scale. The final class grade will be based on the student’s performance on class assignments within the grade scale for the class. The instructor reserves the right to establish a ‘curve’ for the class, depending on class-specific performance.

Grading Scale (rounded to tenths of a point)

<table>
<thead>
<tr>
<th>Total %</th>
<th>Grade</th>
<th>Grade Points</th>
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</thead>
<tbody>
<tr>
<td>90.0-100.0</td>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>87.0-89.9</td>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>84.0-86.9</td>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>81.0-83.9</td>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>78.0-80.9</td>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>75.0-77.9</td>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>72.0-74.9</td>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>69.0-71.9</td>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>66.0-68.9</td>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>63.0-65.9</td>
<td>D</td>
<td>1.00</td>
</tr>
<tr>
<td>60.0-62.9</td>
<td>D-</td>
<td>0.67</td>
</tr>
<tr>
<td>0-59.9</td>
<td>E</td>
<td>0.00</td>
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</tbody>
</table>

For undergraduate students, a grade of C- will not be a qualifying grade for critical tracking courses. To graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: A C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx
16. **Students Requiring Accommodations**

   Students with disabilities requesting accommodations should first register with the [Disability Resource Center](tel:352-392-8565) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

17. **Course Evaluation**

   Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at [https://gatorevals.aa.ufl.edu/students/](https://gatorevals.aa.ufl.edu/students/). Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via [https://ufl.bluera.com/ufl/](https://ufl.bluera.com/ufl/). Summaries of course evaluation results are available to students at [https://gatorevals.aa.ufl.edu/public-results/](https://gatorevals.aa.ufl.edu/public-results/).

18. **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://honor.ufl.edu) specifies several 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 instructor or TAs in this class.

19. **Software Use**

   All faculty, staff, and students of the University 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.

20. **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 the [Undergraduate Catalog’s statement on FERPA rights](https://catalog.ufl.edu/content/student-privacy-ferpa/).  

21. **Campus Resources:**

   **SafeZone+**

   The University of Florida and the HWCOE are committed to fostering a diverse and inclusive environment. Many Gator Engineering students have indicated they are unaware of who they can talk to about various sensitive issues. Towards addressing this issue, several HWCOE faculty and staff have received SafeZone+ training which has prepared selected them to speak with students on issues involving race, sex, gender, and orientation. These trained faculty and staff supplement the existing support provided by HWCOE College and Departmental advising staff. Students may request the name(s) of SafeZone+ trained HWCOE faculty and staff from the course instructor.

   **Health and Wellness**

   **Commitment to a safe and inclusive learning environment**

   The HWCOE 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 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@ufl.edu

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

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. A nighttime and weekend crisis counselor 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: CWC Website, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)
Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or UPD Website.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling.

Library Support, 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.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints Process:
On Campus Students

Online Students