Syllabus

Instructor and Course-Section Information

Welcome	Welcome to Engineering Project Management! Where engineering and management converge to create awesome career opportunities. Hot Tip! 30 Million additional Project Managers needed by 2035 (PM Talent Gap, PMI.org) 
Course	**16:540:502 Engineering Project Management**
Cross-Listed Sections	**Section 01** – Face-to-Face – In-person class attendance. Wednesday 6:00 pm – 9:00 pm, CoRE 601. **Section 90** - Synchronous - Class attendance is expected synchronously online via Zoom. The Zoom links for each class are posted on Canvas. **Section 91** – Asynchronous: Class attendance is not required. Students engage by viewing video lectures and other materials online asynchronously. This section is reserved for MSEO students. All sections cover the same material posted on Canvas.
Instructor	**Randy Reagan, PhD, MBA, PMP** Assistant Teaching Professor and Undergraduate Director Department of Industrial and Systems Engineering (last name is pronounced "RAY-gun") You can call me Professor Reagan, or Dr. Reagan, or just Professor.
Email	randy.reagan@rutgers.edu I strive to reply to emails same day, or at most within 24-hours.
Office Location, Hours and Contact	**CoRE Building – CoRE 212** Office Hours: Tuesday and Friday 1:30 – 2:30 pm, Wednesday 5:00-5:45 pm Also available by appointment, in-person, or on Zoom. Contact Phone: 848-445-5469
About Me	My background includes teaching more than 50 college courses across a wide range of engineering and management topics. Before academia, I held senior industry roles, where I managed hundreds of technical and business projects. My research centers on project management methods for new product development. Let's connect: https://www.linkedin.com/in/randyreagan/ In my spare time, I manage the schedule and risk for daily walks with my dog! 
Teaching Philosophy	My teaching philosophy emphasizes clear structure, active engagement, and real-world relevance. I provide students with guidance on how to approach management and engineering problems and to collaborate productively. I connect theory to practice, challenge students through individual and team-based work, and foster an inclusive environment that encourages questions, feedback, and continuous improvement
Course Genesis	When I joined Rutgers a few years ago, I identified a gap in the curriculum: there was no course in Engineering Project Management. Despite facing a challenging approval process, I took the initiative to propose, plan, design, and develop this new course. Now in its fourth edition, this course is fully approved, highly enrolled, and provides significant value to Rutgers students.
Change to Schedule	The instructor will notify students promptly should it be necessary to revise the schedule. For example, in the event of extreme weather the instructor may announce a particular in-person class session will be held on Zoom. Please look for announcements via email and Canvas.
Change to Syllabus	The syllabus is intended to remain unchanged for the duration of the current term and be updated at the beginning of the next term. I welcome feedback on the syllabus at any time and will generally issue revisions or corrections during the term as announcements on Canvas.

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Course Information and Materials

Course Description	Fundamentals of engineering project management principles with a focus on developing skills and competencies needed by engineers and engineering managers to manage projects in business, engineering, research, technology, design, systems, software, manufacturing, and most any technical area, using predictive, agile, and hybrid methodologies.
Learning Outcomes	A student completing this course will be able to: 1. Describe the various approaches for selecting technology and engineering projects. 2. Describe when to use predictive, agile, and hybrid approaches for engineering projects. 3. Explain the main project management tasks involved in technical projects and engineering project management. 4. Demonstrate an understanding of engineering project management in relation to both the overall organization and within multidisciplinary engineering management. 5. Discuss the process for managing scope on technical requirements and technical engineering work responsibilities. 6. Apply engineering project management concepts to build engineering project plans and schedules using various methods, including the theory of constraints. 7. Use Microsoft Project, or other software, to construct detailed project schedules that reflect detailed engineering project work plans. 8. Choose appropriate methods for assigning technical resources to ensure multidisciplinary engineering skills match technical work requirements. 9. Develop detailed engineering project budgets and use risk management and earned value analysis to monitor and control technical projects. 10. Demonstrate technical engineering management communication skills for detailed engineering project work plans. 11. Appreciate the importance of engineering project management by sharing examples of good and bad engineering project management and using the knowledge and skills developed in this class.
Career Competencies	In this course, you will build skills that employers are seeking, including all 8 of the NACE (National Association of Colleges and Employers) competencies: Career & Self Development, Communication, Critical Thinking, Equity and Inclusion, Leadership, Professionalism, Teamwork, and Technology. More details can be found at: naceweb.org.
Required Reading (Primary Text for this course)	**Contemporary Project Management, Fifth Edition** Timothy Kloppenborg, Vittal S. Anantatmula and Kathryn N. Wells Cengage, 2023, ISBN 978-0-357-71573-4 Available electronically through Cengage and in paperback. A copy is on reserve at the Rutgers Math & Physics Library.
Optional References (for our class)	As you go on to pursue Certification after the class, you will need these additional resources, but you don't need to acquire them right away for our class. We will discuss more about these. #1 A Guide to the Project Management Body of Knowledge PMBOK® Guide, 6th Edition ANSI/PMI 99-001-2017 (PMBOK6e), PMI, 2017. #2 A Guide to the Project Management Body of Knowledge PMBOK® Guide, 7th Edition and The Standard for Project Management, ANSI/PMI 99-001-2021 (PMBOK7e), 2021.
Canvas Learning Management	Videos, lecture notes, assignments, quizzes, references, schedules, updates, and announcements will be posted on the Canvas course page. Please check the Canvas page frequently for announcements, postings, and updates to schedules. https://rutgers.instructure.com/courses/387594

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Course Guidelines

Respectful Classroom Etiquette	Please be respectful of the instructor and fellow students. When the instructor asks for your attention, please discontinue side conversations and focus on the class session. Please raise your hand and when called on, feel free to share ideas, express different points of view, or ask relevant questions at appropriate times. It is not necessary to agree, but it is necessary to listen and participate respectfully. If you need to excuse yourself from the class, please do so quietly and without disturbing the class. Please advise the instructor ahead of time if you plan to leave class early.
Computers & Software	Please bring computers to class and connect to the internet to participate in activities, quizzes and exams on Canvas. A tablet or smart phone may suffice for Canvas. However, a full PC or Mac may be required to run required other course software. Further instructions on software will be discussed in class. Computers and devices should be fully charged prior to class and must be used solely for class activity during class.
Phones	Please place phones on silent mode during class. If you need to use the phone during class,, e.g., take a phone call, please step out of the classroom without disturbing the class.
Calculators	Please bring a scientific calculator to class for assignments, quizzes and exams. Generally, smartphones are not permitted for exams.
Assignments	Individual homework assignments may consist of case studies, questions, problems or essays. Please upload submissions on Canvas by the assigned due date. Late assignments typically score at most half credit.
Quizzes	Quizzes are typically on Canvas, scheduled, timed, and only open for a specified window of time. Quizzes are open book & notes and may be administered as in-class activities or as online assignments per instructions provided with each quiz.
Exams	All exams are closed-book and closed-notes and administered on Canvas unless instructed otherwise. Section 01 - Exams for in-person students are proctored during designated class periods. Section 90 – Exams for synchronous students are administered during designated class periods and require the use of the Respondus Lockdown browser for proctoring. Section 91 – Exam will be scheduled within a designated time period and will require the Respondus Lockdown browser for proctoring.
Term Project	All students are required to form teams of 2 or 4 to develop the term project deliverables. Topic and deliverable will be discussed further. Each team member should upload a copy of the term project deliverables by the assigned due dates. Section 01– Students deliver an in-person final team presentation during an assigned class. Section 90 – Students deliver a Zoom final team presentation during an assigned class. Section 91 – Students are expected to deliver a final team presentation via recorded video. (Section 91 students may optionally present live during a class period if time permits)
Student Recordings	Students may not make or distribute audio-visual recordings of classroom lectures and discussion without written permission from the instructor ahead of time.
Instructor Recordings	The instructor has the responsibility to record class lectures and distribute them as part of the class materials for conducting the class.

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Grading

Grade Weighting	20% Quizzes, 20% Individual Homework Assignments, 20% Term Project Assignment, 10% Exam #1, 10% Exam #2, 20% Final Exam
Semester Letter Grade [Score]	A [90 - 100], B+ [85 - 90], B [80- 85], C+ [75 - 80], C [70-75], D [60-70], F < 60
Attendance	Attendance will be recorded for Section 01 and 90 students, and they are expected to attend and participate in class to stimulate discussion that enriches learning for the entire class. Attendance may be used to determine the final grade, with an expectation of at least 90% attendance to earn an A, 80% to earn a B, 70% to earn a C, etc. Students may report their absence using the Rutgers Self-Report Absence Application: https://sims.rutgers.edu/ssra/. An absence may be excused for legitimate reasons such as sickness, religious holiday, etc. Attendance is not required for Section 91 asynchronous students.
Makeup Work	Students are expected to provide advance notification if they will be absent for any reason and include plans to make up any work they have missed. In this class, all lectures are provided on video, and all other recordings, notes, and class materials are readily available on Canvas.
Extra Credit	There is no extra credit planned for this class.
Canvas Scores	The overall average score in Canvas scaled to 100% is used to determine the letter grade. Please periodically check scores and averages posted in Canvas and notify the instructor immediately of any discrepancy or irregularities in the Canvas scores. The instructor will announce if any assignment or quiz has been regraded.
Teamwork	You are expected to enthusiastically cooperate, collaborate and contribute on the term project with fellow students. Please take initiative, communicate professionally, set up weekly meetings, resolve conflicts, follow through with commitments, make steady progress, deliver results and contribute to team success. Teamwork may be used in determining the final grade or in applying extra credit.
Target Schedule	The target schedule and dates outlined in the syllabus are for planning purposes only. Please refer to Canvas for the exact schedule for the course delivery and assignments.
Due Dates	All assignments, projects, quizzes and exams will have firm due dates. Check Canvas frequently for the most recent assignment due dates.
Late Submission	Late submissions are not accepted after solutions are posted. Notify the instructor as soon as possible if any submission will be late. Late submissions or extensions must be approved by the instructor in advance. Late submissions generally receive reduced credit.
Generative Artificial Intelligence	Project Management practice increasingly incorporates generative AI across all phases of work. However, students are fully responsible for the quality, accuracy, and originality of all submitted work. AI may be used as a support tool, but any AI-generated content must be translated, restructured, verified, and integrated so that the final deliverable clearly reflects the student's own thinking and effort. Submitting AI output verbatim is not acceptable. Any assignment submitted directly from AI without substantive student translation and ownership will receive no credit..
Academic Integrity	All students have a responsibility to understand and to uphold the standards of academic integrity as outlined in the Rutgers Code of Student Conduct and in the Rutgers University Academic Integrity Policy. https://academicintegrity.rutgers.edu/

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Campus Resources

Academic Calendar	The course is scheduled according to the Rutgers academic calendar. https://scheduling.rutgers.edu/academic-calendar/
Extra Help	If you encounter difficulty for any reason, please see the instructor for extra help or to arrange extra time on assignments.
Department Resources	Please contact the ISE department for curriculum support: https://www.ise.rutgers.edu/
Learning Centers	Please contact the Learning Centers for academic or remedial support: https://learningcenters.rutgers.edu/
Counseling Services	Please contact Rutgers Counseling Services if you need counseling support: https://health.rutgers.edu/counseling-services
Dean of Students	Please contact the Dean of Students for assistance connecting to other university services. https://deanofstudents.rutgers.edu/
Accommodation for special needs	Students with disabilities requesting accommodations must follow the procedures outlined at the Office of Disability Services.
Online Learning Tools	Students needing help with online learning can seek assistance at Rutgers RIOT and RefWorks at the Rutgers Libraries.
Canvas or IT Help	If you need any assistance with your Canvas account or IT, please contact 833-648-4357 or: help@oit.rutgers.edu
Library Help	If you need assistance from the Rutgers Library, please contact 732-943-1643 or: ask@libraries.rutgers.edu
Religious Holiday	Per Rutgers policy absences due to a religious observance holiday that fall within the semester will be excused, so long as you let the instructor know in writing at least two days in advance. You will be responsible for making up any work you miss. You may also request additional time for assignments or homework that is due on a day when you have a religious observance and arrange alternative dates for quizzes or exams.
Emergency Notification System (ENS)	Emergency Notification System (ENS) is used at Rutgers University to send emergency text messages to alert subscribed users on their cell phones during situations of emergency as deemed by Public Safety. Periodically, ENS alerts are also sent out for the purposes of system test. All users choose to subscribe (opt-in or opt-out) to ENS **Manage your ENS subscription**
Emergency Contact	For Police, Fire, Medical emergency dial 9-1-1 or "Call when you can...Text when you can't." Non-emergency call Rutgers security 732-932-7211 or press 2-7211 on any campus phone.
Course Feedback	Students have an opportunity to provide feedback on the course and instructor near the end of the semester. However, please feel free to offer input, suggestions and feedback at any time.

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Course Schedule

Target	Module - Lecture Topic	Module Learning Outcomes	Activities	Assessment
Jan 21	1. Introduction to the Course and PMI & PMP, Introduction to Project Management	Define the organization, texts, references, resources and expectations for the class. Describe characteristics and examples of technical engineering projects vs. other types of projects. Outline the project management discipline, project management history, project types, project definitions, project roles, agile projects and the project management standard.	Course Intro, PMI Lecture L1 Reading: CPM 1 Assignment A1 P1 - Form Teams	Assignment Quiz/Exam Project
Jan 28	2. Project Selection and Prioritization	Describe the strategic context for project selection. Develop qualitative and quantitative models for project prioritization and selection. Explain project portfolio management and securing projects with proposals. Outline considerations for selecting Agile Projects	Lecture L2 Reading CPM 2 Assignment A2 Teams Meet	Assignment Quiz/Exam Project
Jan 28	3. Chartering Projects	Describe how to direct and manage project execution Outline methods for monitoring and control Describe integrated change control Define project requirements Develop project scope statement Describe work breakdown structures Review approach to verify and control scope	Lecture L3 Reading CPM3 Assignment A3 Teams Meet	Assignment Quiz/Exam Project
Feb 4	4. Organizational Capability: Structure, Culture and Roles	Outline the types of organizational structures and the impact of culture on projects. Define the traditional project life cycle and traditional roles within the organization. Explain agile projects and the different roles defined for agile projects.	Lecture 4 Reading CPM4 Assignment A4 Teams Meet	Assignment Quiz/Exam Project
Feb 4	5. Leading and Managing Project Teams	Explain how project teams are formed. Outline various stages of team development. Describe the role of the project manager in managing the team and building relationships. Outline conflict management approaches . Define the communications needs for virtual teams and agile teams.	Lecture L5 Reading CPM 5 Assignment A5 P2 – Team Proposal	Assignment Quiz/Exam Project
Feb 11	6. Stakeholder Analysis and Communication Planning	Describe how to identify, analyze and document stakeholders. Explain how to plan, manage and monitor stakeholder engagement and communications. Outline the needs for agile project stakeholder analysis and communications.	Lecture L6 Reading CPM 6 Assignment A6 Teams Meet	Assignment Quiz/Exam Project
Feb 11	7. Scope Planning	Describe how to define, plan and manage the project scope and scope statement. Develop project requirements. Describe and produce work breakdown structures. Outline methods for monitoring and control Define how to manage Agile project scope.	Lecture L7 Reading CPM7 Assignment A7 Teams Meet	Assignment Quiz/Exam Project
Feb 18	**Exam #1**	**Exam Covers Modules 1-7**	**E1 – Take Exam**	

L – Lecture Notes, A – Homework Assignment, Q – Quiz, E - Exam, P – Project Deliverable
CPM – Contemporary Project Management Text
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Feb 18 Feb 25	8. Scheduling Projects	Define time management terms and definitions Explain processes for activity definition, sequencing and estimation Introduce network diagrams and precedence diagramming method Develop time constrained scheduling techniques Explain critical path method and PERT method Outline methods for schedule control	Lecture L8 Reading CPM8 Assignment A8 Teams Meet	Assignment Quiz/Exam Project
Mar 4 Mar 11	9. Resourcing and Accelerating Projects	Explain how resource constraint impact schedules Describe Critical Chain Project Management Introduce methods for resource loading and leveling Develop resource constrained project schedules	Lecture 9 Reading CPM9 Assignment A9 Teams Meet	Assignment Quiz/Exam Project
Mar 11	10. Budgeting Projects	Define cost management concepts Review cost estimating techniques Discuss methods for constructing a budget Outline budget contingencies .	Lecture L10 Reading CPM10 Assignment A10 Teams Meet	Assignment Quiz/Exam Project
Spring Break March 17-21				
Mar 25	11. Project Uncertainty Planning	Define risk management plan Review risk identification methods Explain qualitative risk assessment Develop quantitative risk analysis techniques Outline risk response strategies and methods Introduce decision tree analysis.	Lecture L11 Reading CPM11 Assignment A11 P3 – Interim Report	Assignment Quiz/Exam Project
Apr 1	**Exam #2**	**Exam Covers Modules 8-11**	**E2 – Take Exam**	
Apr 8	12. Project Quality Planning and Kickoff	Introduce quality founders and background Outline quality management techniques Develop quality plans Describe quality assurance and control Provide an overview of quality analysis tools Explain cost of quality	Lecture L12 Reading CPM12 Assignment A12 Teams Meet	Assignment Quiz/Exam Project
Apr 8	13. Project Procurement and Partnering	Introduce processes for managing procurement Explain make or buy analysis Describe various types of contracts Discuss proposal evaluation techniques Outline methods for administering and controlling contracts	Lecture L13 Reading CPM13 Assignment A13 Teams Meet	Assignment Quiz/Exam Project
Apr 8	14. Determining Project Progress and Results	Introduce processes for tracking project progress and results Discuss various issue identification techniques Describer reports and customer communication. Explain balanced scorecard and Earned Value Analysis Discuss project control and replanning	Lecture L14 Reading CPM14 Assignment A14 Teams Meet	Assignment Quiz/Exam Project
Apr 15	15. Finishing the Project	Define project completion Describes the ways in which a project is terminated Outline project documentation Discuss importance of lessons learned	Lecture L15 Reading CPM15 Assignment A15 Teams Meet	Assignment Quiz/Exam Project

L – Lecture Notes, A – Homework Assignment, Q – Quiz, E - Exam, P – Project Deliverable
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Target	Module - Lecture Topic	Module Learning Outcomes	Activities	Assessment
Apr 22 and Apr 29	Term Project Reports	Teams Present Project Plans	P4 – Team Presentation P5 – Team Written Report	Team Project
May 13	**E3 – Final Exam**	**Comprehensive – All Topics**	**6:00 pm Take Exam**	**E3 - Final Exam**

Tips for Success

Tips for Success

1. **Treat the course like a real project -** Plan your workload, manage deadlines, track risks, and allocate time intentionally. Students who approach the course as a professional project—rather than a traditional class—consistently perform at a higher level.
2. **Take ownership of all deliverables -** You are responsible for the clarity, correctness, and professionalism of every submission. Use tools (including AI) appropriately, but ensure all work reflects your own analysis, judgment, and decision-making.
3. **Stay ahead of the schedule -** Project management concepts build on one another. Falling behind makes later material significantly harder. Review upcoming topics early and avoid last-minute work, especially for team deliverables.
4. **Engage actively in class and discussions -** Graduate-level learning depends on participation, questioning assumptions, and learning from real-world examples. The most successful students contribute thoughtfully and consistently.
5. **Apply concepts, don't just describe them -** Focus on *how* and *why* project management tools are used, not just what they are. Strong submissions demonstrate application, trade-off analysis, and professional judgment.
6. **Communicate clearly and professionally -** Treat reports, presentations, and project documentation as executive-level work products. Clear structure, concise writing, and well-supported conclusions matter.
7. **Seek feedback early and use it -** Ask questions, validate assumptions, and incorporate feedback throughout the course. Continuous improvement—both in your work and your approach—is a core expectation in graduate project management education.