

SE 477 Software and Systems Project Management

Instructor

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Course Information

SE 477 Section 801/810
Class time: Wednesday, 5:45-9:00 PM
Class Room: Lewis 1511
Campus: Loop
Course homepage:
<http://condor.depaul.edu/dmumaugh/classes/SE477W17/>

Summary

Project Management is presented from a practitioner's view. The four basic building blocks of software project management: people, process, tools, and measurements are covered. Special emphasis is placed on professional standards such as the Project Management Book of Knowledge and IEEE Software Engineering Standards. Specific topics include Managing People, Selecting Project Tools, Leadership & Motivation, Software Development Processes, Estimation, Risk Analysis, Scheduling and Tracking, Leveraging Measurements, and Project Completion. Consideration is given to rapid development and project cultural issues.

Software development projects pose significant project management challenges due to project complexity and tight scheduling demands. This course provides a fundamental understanding of the project management concepts, techniques, and tools needed to plan, implement, control, and deliver a product and successfully complete a project. It is important to realize that an IT project consists of more than the system/software development life cycle. This course discusses how the software development life cycle is a subset of the overall project life cycle and shows how the two life cycles can be integrated. We discuss some of the specialized techniques and tools of software development and how they relate to project management techniques and tools.

The course is organized around the phases of a typical IT project and the corresponding software development life cycle. Topics covered include:

- Project management basics
- Project and software development life cycles and how they relate
- Project management and team activities in both the project and software development life cycles
- Initializing a project
- Analyzing and planning a project, including:
 - Project time management:
 - Activity identification
 - Activity duration estimation
 - Activity sequencing
 - Activity resource estimation
 - Schedule development using the critical path method (CPM)
- Project risk management, including:
 - Understanding risk and the risk management model

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- Risk management planning
 - Risk identification, with emphasis on risks encountered in the IT environment
 - Qualitative risk analysis
 - Risk response planning
 - Risk monitoring
- Project execution, monitoring and control, and close out
- People skills (a.k.a. 'human resources')

The course attempts to be consistent with the standards, principles, and processes of the Project Management Institute (PMI) and the Project Management Body of Knowledge (PMBOK). However, there may be some minor differences in approach, vocabulary, and techniques.

The course consists of:

- Lectures
- Reading
- Individual homework assignments including a journal,
- Mid-term exam
- A final exam
- A team project.

Online students work remotely on the team project with in-class students and/or other online students. Both exams are delivered electronically online.

Learning Objectives (LO)

- Students will demonstrate understanding of the motivation for, basic principles of, and terminology of project management in individual and team assignments, quizzes, and the final exam. (LO1)
- In a series of team assignments, students will apply their understanding of the relationship of development and project management concerns and how they may be reconciled. (LO2)
- In a series of team assignments, students will execute the activities and responsibilities of a project management team in a software development project. (LO3)
- In a series of team assignments, quizzes, and the final exam, students will demonstrate understanding of the reasons for IT project failures and how they might be averted. (LO4)
- In a series of team assignments, students will apply principles of effective interpersonal skills. (LO5)
- In a series of team assignments, students will implement an essential subset of the activities associated with project planning, execution, monitoring and control, and close-out. (LO6)

Required Texts

- Project Management Institute (2013). Software Extension to A Guide to the Project Management Body of Knowledge (PMBOK Guide) Fifth Edition. Project Management Institute, Inc. ISBN-13: 978-1628250138. Available at <http://library.books24x7.com.ezproxy.depaul.edu/toc.aspx?site=XOBDU&bookid=62558> (Referred to as PMBOK-SWE below.)
- Deemer, P., Benefield, G., Larman, C., and B. Vodde (2012). The Scrum Primer: A Lightweight Guide to the Practice of Scrum, Version 2.0. Available at: <http://www.infoq.com/minibooks/>

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[Scrum_Primer.](#)

- The **definitive text book** is: *A Guide to the Project Management Body of Knowledge (PMBOK Guide), Fifth Edition*, Project Management Institute, 2013. ISBN-13: 9781935589679, available at <http://library.books24x7.com.ezproxy.depaul.edu/toc.aspx?site=XOBDU&bookid=51356> [You don't have to buy this, you can use it on-line.]

Recommended texts or supplemental readings

Material from the following sources is used in the course. This list is provided for your reference only; you need not purchase any of these textbooks. All of these references are available online via Books 24/7 at the DePaul Libraries Web site, <http://www.library.depaul.edu/>.

- Practice Standard for Work Breakdown Structures, Second Edition, Project Management Institute, Project Management Institute, 2006. ISBN: 9781933890135
- Fundamentals of Project Management, Third Edition, James P. Lewis, AMACOM, 2007. ISBN: 9780814408797
- Information Systems Project Management: How to Deliver Function and Value in Information Technology Projects, Second Edition, Jolyon Hallows, AMACOM, 2005 ISBN: 9780814472736
- Managing Information Technology Projects: Applying Project Management Strategies to Software, Hardware, and Integration Initiatives, James Taylor, AMACOM, 2004. ISBN: 9780814408117
- A Survival Guide for Project Managers, Second Edition, James Taylor, Amacom, May 05, 2006, ISBN: 9780814408773
- PMP: Project Management Professional Exam Study Guide, 7th Edition, Kim Heldman, Wiley (Sybex), July 2013, ISBN: 978-1-118-53182-2 (my recommendation)
- Project Management: A Systems Approach to Planning, Scheduling, and Controlling, 11th Edition, Harold Kerzner, John Wiley & Sons, 2013. ISBN: 978-1118022276

Note that there are many other good books available, many on-line (Google Fundamentals of Project Management). In addition, there is a [reading list/reference web page with material cited there.](#)

Prerequisites

Knowledge of the Software development life cycle model, for example through courses such as SE 430 Object- Oriented Modeling, IS 421 Systems Analysis/IS 422 Systems Design, ECT 455 E-Commerce Web Site Engineering, HCI 513 Design/Strategies for Internet Commerce, or through appropriate practical work experience.

Familiarity with an object-oriented programming language such as Java, C++, C#, or Smalltalk is needed only to understand in-class, practical code examples. The student should understand basic object-oriented concepts: class, instance, polymorphism, encapsulation and inheritance. There are no programming assignments in this course. Please contact the instructor if you have any questions or concerns about the prerequisite requirement.

Assignments, Team Project and Exams

Coursework includes both individual and team assignments. Work will consist of periodic assignments that reflect the topics just covered. In addition, there will be a project consisting of the analysis and design of a small system.

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Homework There will be a number of homework assignments during the quarter. Homework is intended as a means for you to learn and practice the material discussed in class. One assignment will be to organize a project schedule, another will require a risk management assessment, and one will be a retrospective case study of a large, failed project. A sample solution for the assignment will be posted after the assignment deadline.

Team project is done as part of a team consisting of three to five students. The team will provide a Project Management Plan for a medium sized project. All students on each team are expected to contribute equally. At the end of the quarter, students must complete a peer review of their teammates. The peer review assesses the participation, quality of work, and cooperation of all members of the team. The review is used, in part, in determining each student's project grade component, which constitutes 30% of the overall grade.

Unless otherwise specified, all assignments must be submitted via Desire2Learn and are due by 11:59 PM (CT) on the assignment due date. No late assignments are accepted via D2L.

Online exams. There will be two exams to test comprehension of vocabulary, concepts, and the practical elements of project management. The exams are delivered online via Desire2Learn.

Examinations There will be a mid-term examination and a final examination. The midterm and final examinations will be administered using the Desire2Learn on-line system. The exams are taken online via Desire2Learn (<https://d2l.depaul.edu/>). The final exam will concentrate on the last five weeks of the course but will also cover the rest of the course to a lesser degree. The final exam is online via Desire2Learn during the regular final exam week for the quarter.

Submissions All assignments must be submitted electronically through Desire2Learn (D2L) and are due at the close of business on the due date. Unless otherwise specified, all assignments must be submitted via Desire2Learn (D2L) (<https://d2l.depaul.edu/>) and are due by 11:59 PM CT, on the assignment due date. The documents may be in Microsoft Word (.doc) format, HTML, or Adobe PDF. Any included figures must be embedded directly within the document, not bundled separately.

Time Budget. Students should allow approximately 3-4 hours of work outside of class for each scheduled hour of class; this works out to 10-12 hours each week (on average) for most students. Team meetings and project collaboration may increase the amount of time required.

Journal

Students will keep a journal. This will cover collateral reading assigned, questions asked in class, and your thoughts on course material. The journal entries should comment on the readings and the lessons learned. You are encouraged to add material other than the exercises given at the end of each lecture. Include reading other than assigned.

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Grading

Your grade will be computed based on your scores on homework assignments, project, and the mid-term and final exams. The following weights will be assigned:

Homework	20%
Journal	10%
Team project	30%
Mid-term exam	20%
Final Examination	20%

Grading will be done on the usual 60/70/80/90 bands but will be adjusted to account for clustering and banding of scores. Bands may be adjusted if there seems to be a systemic bias to the scores.

Important note: No extra-credit assignments are offered; it is a far more effective use of time to put the effort that would be expended on extra-credit work into the regular homework assignments instead.

Other Course Information

Software: The software needed for this class includes:

- Word processing software. I accept submissions in MicroSoft Word, PDF and plain text formats.
- Project Management Software. You may download a copy of MicroSoft Project for your computer. There is a work-alike product called **ProjectLibre** that you may download. It works on both Windows and MacOS platforms.

Class homepage: <http://condor.depaul.edu/dmumaugh/classes/SE477W17>

Examinations: examinations will be administered using Desire2Learn (<https://d2l.depaul.edu/>).

Learning Management System: We will be using Desire2Learn <https://d2l.depaul.edu> for everything: assignments, submissions, lecture recordings, etc.

Team Management and Behavior: Teamwork is an integral part of this course. The primary purpose of teams in this course is to provide diverse perspectives and skills for the coursework, *not* to reduce the amount of work done by individual students. It is expected that all members of a team participate fully and equally in all team planning efforts, meetings, decisions, and coursework. To encourage and assess this participation, the course utilizes a confidential Peer Review system.

Teams that have significant participation, behavioral, or other difficulties with a team member first should attempt to resolve the problems with the problematic team member causing the difficulties. If the team member refuses input or persists in failing to participate, exhibiting inappropriate behavior, or causing other disruptive conditions, the team should contact the instructor via email—copying all other team members *except* the problematic member—rather than wait to raise the issue via the Peer Review process. The team should provide the instructor with a clear description of the issue(s), evidence supporting their issue claims (such as emails), and a suggested action by the instructor. In most cases, the instructor will attempt to resolve the issue with the least amount of disruption to the team. Most problematic team members will receive one written email warning from the instructor. After the warning, if the disruptive behavior persists and the team feels it is warranted, it may request that the instructor remove the team member from the team. In exceptional

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situations, the instructor may remove the problematic team member immediately. Removal from a team is at the instructor's discretion.

Student Support: Support for both in-class and online students is provided through weekly office hours dedicated to the course and through a mailing list. Students in the Chicago area may come to the instructor's posted office hours. Most questions should be directed to the mailing list. Email should be used only for personal issues or for student-specific coursework questions. Make all questions clear, concise, and specific.

Please include the course number and section (e.g., SE 477 - OL) in the email *Subject:* field and include your full name in the *body* of the email.

Note: The instructor does not preview homework assignments. However, the instructor does answer specific questions about assignments.

Exceptional Circumstances: Every effort is made to accommodate students who encounter exceptional personal circumstances during the quarter. Students who experience unanticipated personal, work, health, or family emergencies should notify the instructor by email or phone as soon as possible with a brief explanation of the circumstances and any anticipated impact these might have on coursework. Students who have anticipated exceptional circumstances such as secular or religious holiday observances, medical treatment, or work-mandated travel should notify the instructor as early as possible of these circumstances and any anticipated impact these might have on coursework. In both unanticipated and anticipated cases, a suitable plan for dealing with the coursework impact is agreed upon by the student and instructor. In some cases, the instructor may request suitable documentation of the exceptional circumstances.

Schedule

About the Week-by-Week Schedule

Although this schedule represents the course's anticipated order and list of topics, some additions, deletions, or rearrangement of the topics may occur. PLEASE NOTE: Recommended readings are intended to provide you with an alternate view of the topics that we cover. You are not required to do the reading for the class; indeed, you can do all the coursework without reading the book at all (but I wouldn't recommend it). The course notes and instructor will present some material differently from the text; in all coursework, the course notes (not the text) should be considered the standard approach for student work.

For the exact topics to be covered and the reading assignment, consult the class home page.

Introduction and Overview: Class Administrivia: Roll, Syllabus. **Introduction:** Roadmap for Software Project Management; Fundamentals; Software Process or What is a project? Project characteristics; Classic Mistakes;

Software project management overview: Project life cycle; Project managers; Project organization; Putting a process in place; Software process; Phases for software project management; Defining the project; Project charter; Statement of work (SOW); Preliminary Scope; Project management tools

Project Planning Initial Phase: System Development Processes; The Project Management Plan; Scope Management; Creating the Work Breakdown Structure (WBS)

Charter; WBS details; **Project Planning Activity:** Activity Definition; Activity Sequencing; Estimating size and complexity

Project Planning Activity: Activity Resource Estimating; Activity Duration Estimating; **Project Planning Schedule Development:** Scheduling: Gantt Chart and PERT and Critical Path Method (CPM); Schedule compression; Resource leveling;

Risk Management: Planning, risk identification, quantification and prioritization; Risk analysis, response planning, avoidance, mitigation, monitoring

Project Processes: Execution; Monitoring, control and tracking; Project velocity; Earned Value Analysis;

Miscellaneous: Quality Control, Planning and Assessment; Change control and project tracking; Final stages: Project Recovery; Project closeout; Project Success

Miscellaneous: Project management anti-patterns; Agile Project management

Managing the Project Team: Project and Team Organization; Project Management Context; Project environments: cultural and social, international and political, physical; Managing the Project Team; Shaping project culture

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School policies:

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.

Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in [CampusConnect](#).

Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at <http://academicintegrity.depaul.edu/> If you have any questions be sure to consult with your professor.

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the [University Academic Calendar](#). Information on enrollment, withdrawal, grading and incompletes can be found at <http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>.

Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that that you have contacted the Center for Students with Disabilities (CSD) at: csd@depaul.edu.

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Phone number: (312) 362-8002
Fax: (312) 362-6544
TTY: (773) 325.7296