Management of Software Development  
Fall 2015  
Schedule Number 21069  
COURSE INFORMATION

**Class Days:** MW  
**Class Times:** 1600-1715  
**Class Location:** EBA 412  
**Professor:** Jo Ann Lane  
**Contact Information:** jalane@mail.sdsu.edu  
**Office Hours Days:** Mondays and Wednesdays  
**Office Hours Times:** 1:00-1:30 & 3:15-3:45 pm (or by appointment)  
**Office Hours Location:** GMCS 564

**Course Overview**

**Description from the Official Course Catalog**

Managing software projects, modern software management process models, project planning, cost estimation, tracking and control, staffing, risk management, and software process improvement.

**Description of the Purpose and Course Content**

The purpose of CS 636 is to provide students with strategies and skills for planning and managing software engineering projects, determining when projects are not progressing according to plans, and techniques for mitigating/resolving issues to avoid a project failure. The following topics are covered in CS 636:

1. Managing software projects
2. Modern software development process models
3. Project planning
4. Cost estimation
5. Tracking and control
6. Staffing
7. Risk management
8. Software process improvement
9. Special topics as time permits

**Expected Student Learning Outcomes**

1. Ability to develop project plans based on project requirements, goals, and available staff resources
2. Ability to select and tailor a software process appropriate to the project requirements, goals, and available staffing
3. Ability to track software project progress with respect to project plans and make necessary adjustments to plans in response to progress to date and unanticipated events
4. Ability to identify and mitigate risks associated with project plans and goals
5. Ability to conduct project retrospectives and identify improvements for the next project based on lessons learned or unsatisfactory outcomes

**Real Life Relevance**

Course is designed to give students experience in managing software development projects through planning project processes, staffing, and schedules; monitoring progress with respect to plans; and making adjustments to plans as “reality” creeps into project plans, schedules, and risks. Instructor will guide student teams through the processes that are used in industry today to manage the development of software-intensive systems.
Relation to Other Courses

CS 636 is designed to encourage students to apply and integrate techniques and methodologies learned in other computer science courses and to plan for their application to actual projects.

Enrollment Information

Prerequisites

Computer Science 532 or 535. Proof of prerequisites is required. It is also strongly suggested that students have a rudimentary understanding the software development phases discussed in Parts II and III of the Boehm ICSM book listed under Text Books below.

Adding/Dropping Procedures

Students that do not show up the first week of class will be dropped at the end of the first week. Students will be allowed to add the course based on space available, with people scheduled to graduate at the end of the semester given preference (proof of planned graduation will be required). Last day for students to add or drop class: 9/4/2015.

Course Materials

Text Books

5. SE 636 Notes (available on Blackboard)

Course Structure and Conduct

Style of the Course: lecture, discussion, prototyping, role-playing and team projects

Semester Projects

Class will be divided into 3-4 person teams. Each team in the class will develop process description document, a project management plan, and an analysis of the project processes with respect to the SEI’s Capability Maturity Model Integration (CMMI) over the course of the semester. Each team may define their own project (subject to instructor approval) or select a project from a list provided by the instructor. The team will be responsible for analyzing the project characteristics and then developing detailed processes and a management plan appropriate for that project. Extra credit will be given for teams presenting aspects of their project plans to the class for discussion or engaging in role-playing skits to illustrate key software project management concepts.

Technology Utilized in the Course: Blackboard
### Management of Software Development
#### Course Schedule – Fall 2015

<table>
<thead>
<tr>
<th>Week</th>
<th>Start Date</th>
<th>Topic</th>
<th>Reading Assignments</th>
<th>Project Activities/Reviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/24</td>
<td>Course Overview</td>
<td>Boehm et al: Chap 0</td>
<td>Establish project teams</td>
</tr>
<tr>
<td>2</td>
<td>8/31</td>
<td>Overview: Staffing, People Management, Team Dynamics</td>
<td>Henry: Chap 1, Brooks: Chap 3</td>
<td>Team dynamics exercise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HOLIDAY: 9/7/2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>9/14</td>
<td>Overview: Tools and Measurement</td>
<td>Henry: Chaps 3 &amp; 4, Brooks: Chap 12</td>
<td>GQM exercise</td>
</tr>
<tr>
<td>6</td>
<td>9/28</td>
<td>Life cycle models, processes, builds, and milestones</td>
<td>Henry: Chap 7, Boehm et al: Chaps 3 &amp; 4</td>
<td>Software project outline exercise&lt;br&gt;9/28: Peer review #1 due at start of class</td>
</tr>
<tr>
<td>7</td>
<td>10/5</td>
<td>Developing Project Plans: Size, Effort, Schedule</td>
<td>Henry: Chap 8, Boehm et al: Chap 14, Brooks: Chaps 2 &amp; 14</td>
<td>Begin Project Plan assignment</td>
</tr>
<tr>
<td>8</td>
<td>10/12</td>
<td>1st Midterm Exam: Review on 10/12/2015, exam on 10/22/2015</td>
<td>Based on readings, class exercises, and lecture materials from weeks 1 through 7</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>10/19</td>
<td>Team organization</td>
<td>Henry: Chap 9, Brooks: Chap 4</td>
<td>Team building exercise</td>
</tr>
<tr>
<td>10</td>
<td>10/26</td>
<td>Process Improvement</td>
<td>CMMI Part I, Chaps 1, 2, and 3</td>
<td>Process improvement example exercise</td>
</tr>
<tr>
<td>Week</td>
<td>Start Date</td>
<td>Topic</td>
<td>Reading Assignments</td>
<td>Project Activities/Reviews</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
<td>-------</td>
<td>---------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>11</td>
<td>11/2</td>
<td>Detailed schedules, resources, management styles and what to focus on</td>
<td>Henry: Chaps 10, 11, &amp; 12 Brooks: Chaps 1, 10, &amp; 15</td>
<td><strong>11/2:</strong> <em>Project Plan due at start of class.</em> Begin <em>Process Analysis and Improvement Plan assignment (CMMI Level 2 process areas) and improvement plan</em></td>
</tr>
<tr>
<td>12</td>
<td>11/9</td>
<td>Evidence and risk-based decisions</td>
<td>Henry: Chap 13 Brooks: Chaps 4 &amp; 15</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>11/16</td>
<td>Working and adjusting the plan</td>
<td>Henry: Chap 14</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>11/23</td>
<td>Quantitative Project Management (QPM)</td>
<td>Lecture notes</td>
<td>Maintaining schedule exercise</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Wednesday, November 25, 2015: No classes</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 14   | 11/30      | • QPM (cont.)  
• Lean software development and 6-Sigma overviews | Henry: Chap 15 Lecture notes | Lean example  
6-Sigma project example |
| 15   | 12/7       | Wrap up/final exam review | Henry: Chap 16 | **12/7:** *Process Analysis and Improvement Plan due at start of class.*  
12/9: Final exam review  
12/9: *Peer review #2 due at start of class* |
| 16   | 12/14      | | | **Comprehensive final exam** |
|      | 1530-1730  | | | |
Scored activities and weighting by percentage of total score

1. Projects: 30%
2. Class participation: 10%
3. Exams: 60%
   - Midterm (30%)
   - Final Exam (30%)

Grading Scale: Standard curve

Excused Absence Make-up Policies: No individual make-ups allowed for team assignments—students must participate in team activities throughout the semester. Make-up exams allowed for midterms, but there will be no “take home” make-ups.

General Course Conduct/Information

1. Class information (syllabus, lecture slides, project plan outline, sample forms, related information/web links, etc.) is posted on Blackboard.
2. The Microsoft Office products (e.g., Word, Excel, PowerPoint, Project/OpenProj) should be used for developing key project materials. Many of these products are available on the Microsoft website as evaluation copies. OpenProj is an open source version of MS Project available at http://sourceforge.net/projects/openproj/.
3. Exams will focus on applying the principles discussed in class. Questions on the tests will come from the textbooks, other identified reading assignments, lecture notes, and class exercises. NO OPEN BOOK/NOTES during exams—the only notes allowed will be on a single sheet of 8.5”x11” paper. Each student will be allowed to use one sheet (front and back of one standard 8.5”x11” sheet of paper) of prepared notes for each exam. Computers/laptops and cellphones cannot be used during exams. Students are NOT to collaborate with anyone except the instructor when working on a midterm exam. Once an exam starts, students cannot leave and then return to the test room. Once a student leaves the test room, he/she may not work further on the exam.
4. Team Peer Reviews: Each team will provide peer reviews twice during the semester. Peer review forms will be submitted directly to the instructors. Each student will review his/her team members with respect to:
   - Preparation: was (s)he prepared when (s)he came to class?
   - Contribution: did (s)he contribute to the team discussion and work?
   - Gatekeeping: Did (s)he help others contribute?
5. Flexibility: Did (s)he listen when disagreements occurred? Extra Credit: No extra credit other than team presentations or role-playing skits will be allowed. Each team will be allowed the opportunity to participate in one extra credit event.
6. Cheating and plagiarism WILL NOT BE TOLERATED. If a student is found cheating or plagiarizing material written by someone else (including information posted on websites), that student will fail this course.
7. If you are having problems with the assignments or tests, contact the instructor as soon as possible. It will NOT be possible to earn additional extra credit to improve a poor grade at the end of the semester.
8. If you MUST bring a cell phone or pager to class, set it to the vibrate mode and step out of the room to take any necessary calls. PLEASE limit this to emergency/critical situations only.
9. Special Assistance: If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact Student Disability Services at [619] 594-6473. To avoid any delay in the receipt of your accommodations, you should contact Student Disability Services as soon as possible. Please note that accommodations are not retroactive, and that accommodations based upon disability cannot be provided until you have presented your instructor with an accommodation letter from Student Disability Services. Your cooperation is appreciated.