MISSION STATEMENT: The School of Business prepares a diverse student body for successful careers by offering high-quality professional business programs in a student-centered learning environment. As a teaching institution enriched by management practice-related and pedagogical scholarship and service, the School primarily serves undergraduate students while offering strategically-focused graduate programs.

COURSE NUMBER AND TITLE: CS 552 Software Engineering

CLASS MEETING TIME AND LOCATION: TR 8:00 – 9:20 Cremer 315

PREREQUISITES: CS 345 Algorithms and Data Structures II

INSTRUCTOR AND OFFICE: Professor Heidi Webb, CH 111

OFFICE HOURS: M W 3:30 – 4:30 pm TR 10:00 am – 12:00 pm
               T R 3:30 – 4:00 pm by Appointment

CONTACT INFORMATION:
Email is the best way to contact me: hwebb@emporia.edu, however any emails sent after 3:00 pm on Friday may not be answered until Monday morning.

REQUIRED TEXT:

Author(s): Hans van Vliet
Publisher: John Wiley & Sons

SUPPLEMENTAL MATERIALS
Additional reading material will be used from
http://www.computer.org/portal/web/swebok/htmlformat

COURSE DESCRIPTION:
This course covers the phases of software development including formalization of requirements, architectural and detailed design, implementation, testing, and maintenance.
COURSE OBJECTIVES:
By the end of the semester, you will be able to:

- To understand principles, concepts, methods, and techniques of the software engineering approach to producing quality software (particularly for large, complex systems).
- To organize and manage a medium-sized software development project, including project plans and documentation, schedule and cost estimates, and quality assurance activities.
- To make effective technical oral and written presentations.
- To function effectively as a member of a team engaged in technical work.
- To think critically about ethical and social issues in software engineering.

SPECIAL FEATURES OF THE COURSE: TEAM PROJECT

A major focus of this course is to apply software engineering methods to carry out a software development project. Students will be assigned to teams of 4 - 5 students. Each team will be assigned to produce a software application. The project will be a major deliverable in this course. You will be working on all phases of the software cycle to produce at the minimum a working prototype, though a working product is preferred.

There is a minimal set of instructor designated requirements for how the team should be organized and what deliverables are required, refer to the blackboard course for more information. Beyond that, each team must determine for themselves (based on readings and class discussions) the best way to proceed in order to meet the project goals. Your decisions about how to coordinate and manage yourselves, including resource estimates and deadlines will be written in a Team Contract, which is due at the end of the second week of class.

Team effectiveness

One of the course goals is to learn how to work cooperatively as an effective team. There are many factors contributing to effectiveness, including: achieving milestones on schedule, organizing effective technical reviews, submitting status reports, running organized team meetings, exhibiting professional attitude and behavior, equitable distribution of tasks, good communication, clear expectations and responsibilities, cooperation in resolving conflicts, and so on.

Since this may be your first experience working in a team, it is not expected that your team will operate ideally the first try. However, problems in team dynamics and functioning are part of the course, and you are expected to work toward resolving them. You are encouraged to consult with the instructor about strategies for overcoming difficulties. If your team is struggling, it is crucial that you obtain instructor guidance early while there is still time to apply corrective strategies.

Project milestones

We use the term "milestone" to refer to the date on which a work product is due. Milestone dates are determined by the instructor at the beginning of the semester but each team can negotiate for
changes in some of the schedule at the start of their project (all projects will be due on the day of the scheduled final). Missing a milestone due date will result in a 15% reduction in that milestones grade.

Each week there will be a project status report due from all teams. These status reports are informal but important to the overall success of your team’s semester project.

COURSE EVALUATION PROCESS/LEARNING ACTIVITIES: (GRADING, MAKEUP EXAMINATION POLICY, TERM PAPERS, CLASS PARTICIPATION, ETC.)

Course Grade:
There will be one mid-term, project deliverables, and a semester long project. If there is a scheduling conflict let me know beforehand, and I will make accommodations. Project milestones will need to be completed throughout the semester and expected to be turned in by the due date deadline (Friday’s @ 9:00 am, unless otherwise noted on the course schedule). Any extensions for these milestone documents or presentations MUST be approved prior to the due date by the instructor. Requests for extensions are at the discretion of the instructor and your request may or may not be approved. Since some of the milestones will be presentations to the class or instructor extending the deadline may not be possible. Any extensions that are granted will be for no more than 3 days after the original due date and subject to an automatic 15% reduction in grade.

There will be individual project related exercises assigned throughout the semester. These exercises are assigned to assist in learning software engineering concepts and to also serve as a class participation/attendance grade. If any unforeseen problems occur during class and these assignments need extra time, they will be due at the start of the next class meeting. If you are absent on the day of an in-class assignment you may do the work but it will be entered as a zero since you did not attend the class and consequently could not participate in class discussions.

Besides the overall project milestone deliverables there are two deliverables for the project due at the end of the semester, one is the technical specification manual and the second is a working computer application. Regardless of individual work in this class the two final semester project deliverables are mandatory.

<table>
<thead>
<tr>
<th>GRADING</th>
<th>WEIGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project milestones</td>
<td>15%</td>
</tr>
<tr>
<td>Individual content exercises</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Project Technical document</td>
<td>20%</td>
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<tr>
<td>Project application</td>
<td>35%</td>
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These guidelines represent the planned grading standards; however, the guidelines may change if circumstances warrant.

**Grading Scale:**

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90 - 100%</td>
<td>A</td>
</tr>
<tr>
<td>80 - 89%</td>
<td>B</td>
</tr>
<tr>
<td>70 - 79%</td>
<td>C</td>
</tr>
<tr>
<td>60 - 69%</td>
<td>D</td>
</tr>
<tr>
<td>Below 60%</td>
<td>F</td>
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Plus and minus grading is NOT utilized.

**A. Project Milestones** – The project milestone assignments are a vital part of the learning process in software engineering. You will be required to complete a Team Introduction, Team Contract/MOU, and project reports that include software management tools (Gantt, Pert, etc.) Missed milestones will be assessed a grade of zero if an extension has not been approved or extended. If a milestone has been approved for a 3 day extension there will be a 15% penalty assessed. The majority of milestones will be due by the beginning of the class on the assigned due date, unless otherwise indicated in the course schedule.

**B. Content Exercises** – It is important to complete exercises on software engineering concepts to assist in understanding the course material and being successful with your projects. These exercises are currently planned for completion outside of class time. Each assignment will be due on a Friday by 9:00 AM, unless other indicated in the course schedule.

**B. Examinations (1)**

**Midterm**

Thursday October 10th  8:00 AM – 9:20 AM.

**C. Project** – The project will have two main deliverables due at the end of the semester during the regularly scheduled final exam (**Friday Dec. 13th at 8:00 AM**) The first deliverable is a technical specification for the developed software application and the second is the working software application itself. Grading is based on completing all of the requirements for the semester long project, creating an application that works in the manner expected by the client. Penalties will be assessed for failing to meet the deadline, for non-working projects, for failing to follow the assigned requirements and for missing deliverables, especially project milestones.

**ATTENDANCE POLICY:**

Students are expected to attend, prepare for and participate in classroom activities. Attendance is factored in through class participation via discussions and in-class projects. Excessive absenteeism will impact your final grade. I will count two tardies or early departures as a single absence.

**ACADEMIC DISHONESTY:**

At Emporia State University, academic dishonesty is a basis for disciplinary action. Academic
dishonesty includes, but is not limited to, activities such as cheating and plagiarism (presenting as one’s own the intellectual or creative accomplishments of another without giving credit to the source or sources).

The faculty member in whose course or under whose tutelage an act of academic dishonesty occurs has the option of failing the student for the academic hours in question and may refer the case to other academic personnel for further action. Emporia State University may impose penalties for academic dishonesty up to and including expulsion from the university. Additional information on this policy can be found in the student handbook http://www.emporia.edu/studentlife/handbook/

CLASSROOM PROTOCOL:
Arriving late to a class not disrupts both the instructor and your fellow classmates, for this reason you are expected to arrive on time ready for class. Turn off and put away (book bag or purse) your cell phone during all class periods. Answering a call during class is not acceptable at any time. If you find yourself receiving a call, text or tweet during class the assumption will be that you have a grave emergency occurring that needs to be handled outside of the classroom. Any student using the telephone during class, in the classroom, will have it placed on the instructor desk for the rest of the class period. If this situation occurs again, the student will be dismissed from class.

DISABLED STUDENT POLICY:
Please contact the instructor immediately if (1) you have or think you have a disability or medical condition which may affect your performance, attendance, or grades in this class and for which you wish to discuss accommodations of class related activities or schedules, (2) you may require medical attention during class, or (3) you may need special emergency evacuation preparations of procedures. Emporia State University will make reasonable accommodations for persons with documented disabilities. Students need to contact the Director of Disability Services and the professor as early in the semester as possible to ensure that classroom and academic accommodations are implemented in a timely fashion. All communication between students, the Office of Disability Services, and the professor will be strictly confidential. Contact the Office of Disability Services and Non-Traditional Student Programs at Room 211 S. Morse Hall, 620/341-6637 Voice, 620/341-6646 TTY, or via e-mail disabser@emporia.edu. Accommodations are provided on an individualized, as-needed basis after needs and circumstances have been evaluated.

WITHDRAWAL POLICY: Students who decide to withdraw and receive an automatic “W” must complete the formal withdrawal procedure by Wednesday, October 25, 2013.

COURSE TOPICS:

1. Software requirements
2. Software design
3. Software construction
   a. Coding
   b. Unit and integration testing
4. Software testing
5. Software maintenance
6. Software configuration management
7. Software engineering management
8. Software engineering process
9. Software engineering tools and methods
10. Software quality