

CS 4273 / ECEN 4273 Software Engineering

FALL 2018

Instructor: Dr. J. Cecil (j.cecil@okstate.edu)

Class Times: 2:30-3:45 MW

Classroom: MSCS 310 for main campus students

Instructor Office Hours: Note office hours will be held in MSCS room 316

Mon, Wed: 1:30 to 2:30 pm

Tue: 11:30 to 12:30 pm

Email for appointments at other times.

TA: Avinash Gupta (avinash.gupta@okstate.edu). Office: MSCS 316

TA office hours: Tue and Thur: 10 am to 11 am (MSCS 316).

Prerequisites: CS 2133, CS 3443 (or ENSC 3213), CS3653.

COURSE OUTLINE

Fundamental characteristics of the software life cycle. Tools, techniques, and management controls for development and maintenance of large software systems. Software metrics and models. Human factors and experimental design.

COURSE OBJECTIVE AND OUTCOMES

The primary objective of this course is to introduce students to concepts, principles and methods in software engineering. Students will be exposed to theory as well as the practices relevant to software engineering; there will be a significant emphasis on model building and software design. Students will be expected to acquire experience in software engineering practices through homework and project activities. A secondary objective is to encourage students to work as teams as well as become proficient at presenting their work to the class.

The specific outcomes expected include:

- Ability to identify the different phases in the software engineering process.
- Ability to apply structured concepts, methodologies for the analysis and design of information systems.
- Ability to develop use case diagrams (IDEF based and others), function models, collaboration, sequence and class diagrams based on the Unified Modeling Language
- Ability to work as part of a team to design and build software applications
- Ability to give technical presentations

TEXT AND READING MATERIAL

In addition, lecture material will be provided through class notes posted on Brightspace. All students are expected to have this text book:

Software Engineering – A Practitioner’s Approach by Roger Pressman and Bruce Maxim, Eighth edition. McGraw Hill.

Apart from the text, PowerPoint notes will be posted on Brightspace. Students may be asked to read other articles and papers during the course of the semester.

METHOD OF INSTRUCTION AND INTERACTION

There will be two lecture meeting times each week as indicated in the course schedule. Lectures may cover material not contained in the text. Students are responsible for all material covered in class as well as material assigned as required or additional reading by the instructor. Regular class attendance is expected. Students who do not attend class cannot expect to do well in this class. Class notes will be posted on Brightspace.

Guest speakers will be giving occasional presentations; during these presentations, students are expected to take notes and grasp the essentials of these presentations. Questions may be asked from these presentations in quizzes, homework and exams.

An important part of this course is to research for information pertaining to topics in the class from the web and other sources. Questions may be asked from this additional assigned reading which may not be covered in class.

Deliverables for Grading:

Mid Term Exams (2) – each exam is 15 % (mid-term exam is 30% of total grade)

- One of the mid-term exams MAY be a project

Final Exam – 30 %

- May be an ‘in-class’ exam or a final project

Homework Assignments - 30 %

Quizzes - 8 %

Class participation – 2 % (note: students who use cell phones will receive no points under class participation grades).

Grading Policy:

Each student’s score/points on each deliverable will be used to compute the percentage points for each deliverable. For example, if you score 90/100, you will receive 18 percent points that will go towards your overall grade calculation ($90/100 * 20 = 18$).

The letter grade for this course.

A - 90-100

B - 80-90

C - 70-80

D - 60-70

F - 0-60

The instructor however reserves the right to 'curve' the grade. Additional work is required of any graduate students in this course. This will be discussed explicitly in class or outside class. In certain instances, all graduate students will be asked to meet as a group with the instructor to discuss the nature, scope and extent of this additional work. This is to ensure that the undergraduates do not get confused about these 'additional work' deliverables.

Semester Project:

Students will work as a team on a project which will begin after the first mid-term exam and continue until one or two weeks before final exams. Each team will provide two reports: (a) an interim report the week before thanksgiving and (b) a comprehensive final project report. A final project presentation as a team is expected. Students in Tulsa campus are expected to record their presentations and upload on Brightspace. If time permits, project presentations of interim work may also be required.

Homework Assignments:

Depending on the homework, students will have to either work independently or as part of teams. This may vary and will be indicated on the question sheet.

Quizzes:

Quizzes are given to ensure students understand the fundamental concepts covered in this class. These will be closed book and closed notes. Apart from 3 scheduled quizzes, there may be random or pop quizzes given at different times during the semester. There are no 'make-up' quizzes if you miss them (unless you have obtained prior approval from instructor).

LATE SUBMISSION POLICY AND STUDENT TRAVEL POLICY

Some deliverables require students to work on teams. For team based deliverables, all students are expected to contribute to a team's assigned work to ensure fairness. Note that peer evaluations will be used to get feedback on contribution and roles of each student in a team. Students who have not contributed to their fair share of work will be given a lower grade point than the grade points given to the overall team. Students who do not contribute to an assigned team related work will receive zero points.

Homework and other deliverables are expected to be well organized and neatly presented (stapled, collated, with a cover page). If you work as part of a team, the names of all the team members should be written (using first initial and last name) along with the Team number assigned. Read the instructions for each deliverable with care; some of them may require you to submit as a hard copy, flash drive or the associated course website.

Homework and all other deliverables are due at the beginning of class on the due date.

Late submissions will receive an automatic penalty on the following scale:

Submission after start of class time (on day of deliverable) can range from 5% to 10 % penalty.

Submission (after 1 day) will result in a penalty of 20 %.

NO SUBMISSIONS WILL BE ACCEPTED AFTER 1 DAY (24 hours) PAST ASSIGNED DEADLINE.

Please do not email deliverables to instructor unless you were specifically given permission or asked to do so (or if there were extenuating health reasons which were discussed with the instructor explicitly).

MISSING A DELIVERABLE OR CLASS DUE TO HEALTH REASONS:

If you miss an exam or other submissions due to medical reasons, a signed letter from your doctor is required. A possible acceptance of late submission can occur (this is not guaranteed) only with such a letter. Please do not give a 'NOTE' from a nurse or anyone else (letter from doctor is needed). If you are attending a conference or another event representing your department or university, please let the instructor know well in advance and obtain permission to be absent prior to this event. In such situations, students are expected to complete/ submit their deliverables before they attend or participate in a conference or seminar, etc. The submissions rules for such occurrence may be decided on a case by case basis (if circumstances warrant this).

Pop quizzes cannot be retaken. However, with appropriate documentation, students MAY be allowed to submit their individual quiz work and homework. Instructor reserves the right to decide this on a case by case basis.

HOMEWORK AND OTHER SUBMISSIONS

Homework, project reports and other submissions are expected to be well organized and neatly presented (stapled, collated, with a cover page). If an electronic file is to be submitted in a flash drive, please make sure to include your relevant printouts and the flash drive on a large envelope and you write your first and last names clearly on the envelope. If you are submitting any deliverable as part of a team, the names of all the team members should be written (using first initial and last name) along with the Team number assigned. Along with the team deliverable (on specific deadlines), confidential peer evaluations must be submitted by each team member regarding contribution of each member. This will be used to allocate individual grade points of each student for a given team based deliverable. Failing to submit these peer evaluations will result in zero grade points for that deliverable. A template will be provided for peer evaluations. Students who receive poor peer evaluations will be given a reduced score / grade which can include being given zero points for not contributing to team deliverables.

TEAM SUBMISSIONS

A student absent from any team based deliverable including team presentations will not receive any points or credit; extraordinary circumstances involving health reasons or family emergencies will be reviewed on a case by case basis when appropriate documentation is provided. Each student is expected to contribute their equal share in any team based deliverable or submission. Students who miss team meetings and/or do not contribute to any team based deliverable MAY receive zero grade points or a lower grade than the grade points given to other team members. Any student missing class presentations by other teams (on assigned dates of these presentations) will receive a penalty for not being present.

INDIVIDUAL SUBMISSIONS

If a student is unable to be present in class (due to extraordinary health or family emergencies or circumstances) to personally handover an individual homework submission (or deliverable), they are expected to arrange for someone to drop this off before the deadline of the submission. It is the student's responsibility to call the instructor as soon as possible (preferably the same day

before the deadline) AND SEND AN EMAIL to instructor to explain the extraordinary circumstances which should be supported by appropriate documentation. Falling sick on the day of the deliverable is not an automatic excuse for a late submission or for a makeup exam; without adequate documentation (see below), students may not be given an opportunity for a makeup exam. Undocumented absences during any presentations or deliverables will result in zero grade points. Undocumented late submissions will be evaluated based on the late assignment policy indicated earlier. Students who cannot participate in a team presentation or deliverable due to attending a conference or for other official reasons need to discuss this with the instructor AT LEAST 2 WEEKS BEFORE any such absence. Alternatives will be discussed on a case by case basis.

Any student who provides medical documentation for missing class or any other activity will need to provide the following (no excuses): The medical physician should provide a letter (using the Hospital or Health Care facility's letterhead) along with a signature, and time/day of the doctor's appointment or treatment along with a phone number. Submitting a sheet of paper without adequate details is not acceptable. If the medical documentation is not adequate, students will not be excused.

If a student has to miss an exam due a family emergency, they may be allowed to take a makeup exam after the planned class exam date (not before). Students who fall sick on the day of an exam must contact the instructor as soon as possible along with explicit documentation from a physician or health center explaining the reasons for missing the exam (simply turning in a signed note from a nurse does not constitute adequate documentation). Instructor reserves the right to reduce the exam grade or assign a grade of zero points for makeup exams.

CLASSROOM ETIQUETTE

All students are expected to arrive on time. In case of late arrival because of unforeseen circumstances (vehicle breakdown, inclement weather, etc.), students should occupy the first available empty seat to minimize disruption caused. Use of any electronic devices including laptops is prohibited during the regular class period.

ALL STUDENT CELL PHONES MUST BE TURNED OFF before class begins. Students are expected to be respectful to each other and the instructor. Texting each other, using the cell phone, or causing other distractions or disturbances are violations of class policy. The instructor reserves the right to ask students who violate these policies to leave the class room.

Students should not be using cell phones during class for any reason (cell phones should be turned off at the beginning of class). If a student is observed using a cell phone (for any reason), he or she will receive zero points for class participation (2% of overall grade). They can also expect to receive penalty points deducted from their overall grade at the end of the semester. Laptops can be used only when the instructor indicates it is allowed to research a topic on the internet during a specific class (they should not be turned on during a class without specific instructor authorization). In other situations, students should not be using their laptops or tablets or any other computers during class.

Students are expected to be respectful to instructor, the TA and each other during all interactions including lecture sessions and other interactions including when meeting outside of the classroom to discuss class activities. Rudeness and impolite behavior will not be tolerated. Students engaging in improper conduct including harassing team mates, being impolite to

instructor or TA or each other or indulging in any unprofessional or improper behavior will be reported to campus authorities.

CHEATING

Any instance of cheating or plagiarism will be reported to the Dean of students for appropriate action (which includes possible failure in the course and/or dismissal from the University). Copying of homework and failure to cite a source or acknowledge assistance received are considered as acts of academic dishonesty.

Academic dishonesty (cheating) will not be tolerated. Any work submitted by a student must be his/her own work. Students are specifically not allowed to ask their peers, parents, campus staff or anyone else to proof read their reports or any other submissions.

Some examples of academic dishonesty include:

- Soliciting answers from a fellow student during a quiz or examination;
- Looking or glancing at another student's paper during any in-class activity such as an individual quiz or examination (discussion during certain team based activities is permitted only when indicated by instructor)
- Forging or 'Making' your own medical letters with forged signatures of physicians or health care personnel
- Using a cell phone (or any other resource not approved by instructor) to answer questions during a quiz or exam or any other deliverable in the classroom or any other evaluation room;
- When the instructor feels beyond reasonable doubt that dishonesty has occurred, he will take disciplinary action in accordance with university policies and procedures.
- For more information, please refer to the *Oklahoma State University Student Rights and Responsibilities Governing Student Behavior* and also the following website:
<http://academicintegrity.okstate.edu>

TOPICS COVERED IN THIS COURSE

This is an outline of topics to be covered in this course; instructor reserves the right to make changes to this topic schedule including when guest speakers will be presenting. It is important for each student to check their emails regarding updates. Pop Quizzes can be held without advanced notice. Students who miss a pop quiz cannot re-take this quiz unless there are extenuating circumstances discussed elsewhere in this document. It is important to recognize that if a student wants to re-take a pop quiz due to missing a class due to medical reasons, a signed letter from a physician is necessary (short signed notes from nurses or anyone else will not be accepted).

Introduction
Ch 1 - Nature of Software
Ch 2 - Software Engineering
CH 3 - SOFTWARE PROCESS STRUCTURE
CH 9 - REQUIS MODELING- SCENARIO METHODS + IDEF-0
CH 4 - PROCESS MODELS
CH 4 - PROCESS MODELS
CH 5 - AGILE DEVELOPMENT
CH 8 - UNDERSTANDING REQUIREMENTS
CH 10 - REQUIREMENTS MODELING - CLASS DIAGRAMS
CH 12 - DESIGN CONCEPTS
GUEST SPEAKER PRESENTATIONS
PROJECT PRESENTATION

OTHER IMPORTANT DATES:

Sept 15	Exam 1 (tentative)
Oct 15	Exam 2 (tentative)
See University Final Exam Week Schedule	Final Exam

There will be team based homework presentations and quizzes during the course of the semester. Students will be informed of scheduled quizzes and homework in class and/or by email.