Software Engineering: COSC 3370
School of Engineering & Computing Sciences
Fall 2018

A. COURSE INFORMATION
   Course number/section: 3370.001
   Class meeting time: TR 05:30-06:45PM
   Class location: OCNR-132
   Course Website: http://sci.tamucc.edu/~asheta

B. INSTRUCTOR INFORMATION
   Instructor: Dr. Alaa Sheta
   Office location: CI-342
   Office hours: TR 1:00 - 3:00PM
               M 12:00 -1:00PM
   Telephone: 825-3711
   E-mail: alaa.sheta@tamucc.edu
   Appointments: Must be scheduled at least a week in advance by email

C. COURSE DESCRIPTION
   The application of engineering principles to the development and maintenance of high quality large software systems, delivered on time and within budget, including the development and application of processes and tools for managing the complexities inherent in creating these systems.

D. PREREQUISIT ES AND COREQUISITES
   Prerequisites
   COSC 2437
   Corequisites
   None

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES
   Required Textbook(s)
   Software Engineering, I. Sommerville, Pearson Education, 10th Ed.

   Optional Textbook(s) or Other References
   Software Engineering: A Practitioner’s Approach, R.S. Pressman, McGraw Hill, 8th Ed.
Supplies
Some way to archive your documents (Flash drive, Dropbox/Cloud, etc)

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Evaluation is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

- Describe the basic concepts of software engineering
- Understand the significance of engineering and programming to software development
- Utilize a variety of techniques to develop functional requirements
- Understand effective project management techniques
- Develop a time plan for a project
- Use pseudo-code and other methods for component design
- Understand the use of various UML diagrams for software development
- Compute significant software metrics
- Discuss current developments in software engineering
- Test/Debug software system

By the end of this course, students should be able to:

1. Achieve team-assigned tasks
2. Listen and communicate in team settings
3. Meet deadlines and team duties
4. Apply current software development methodologies or techniques
5. Apply software principles to solutions to problems of varying complexity
6. Apply documentation principles in the construction of software systems

G. INSTRUCTIONAL METHODS AND ACTIVITIES

This course will be a mixture of lectures and discussions. The student is expected to actively participate in all class activities. The student is also expected to do outside work on assignments, reading, class presentation and project documentation.

H. MAJOR COURSE REQUIREMENTS AND GRADING

This is a high-level core course. This is a challenging course that demands all students attend all classes! Regular completion of all reading, homework, and other outside assignments, are absolutely essential for success in this course. Your course grade will be decided on your performance in the homework assignments, quizzes, projects, and two exams. The distribution of points is as follows:
<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Exams</td>
<td>30</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10</td>
</tr>
<tr>
<td>Assignments</td>
<td>20</td>
</tr>
<tr>
<td>Team Project</td>
<td>30</td>
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<tr>
<td>Attendance</td>
<td>10</td>
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</tbody>
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Grade Scale: A (90-100%)  B (80-89%)  C (70-79%)  D (60-69%)  F (<60%)

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>CHAPTER(S)</th>
<th>ASSIGNMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Introduction and Overview</td>
<td>Chapter 1</td>
<td>HW1: Intro. to SW</td>
</tr>
<tr>
<td>Week 2</td>
<td>Software Processes</td>
<td>Chapter 2</td>
<td>HW2: SW model</td>
</tr>
<tr>
<td>Week 3</td>
<td>Software Requirement (SR)</td>
<td>Chapter 4, Project Proposal Submission</td>
<td>HW3: SR phase 1</td>
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<tr>
<td>Week 4</td>
<td>Project Planning (pricing, activity network)</td>
<td>Chapter 23</td>
<td>HW4: SR phase 1</td>
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<td>Week 5</td>
<td>Project Scheduling and Management</td>
<td>MS Project</td>
<td>HW5: Project Time Plan</td>
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<td>Week 6</td>
<td>System Modeling</td>
<td>Chapter 5</td>
<td>HW6: Project Architecture Model</td>
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<tr>
<td>Week 7</td>
<td><strong>Exam 1 (10/9/2018)</strong> Design and implementation</td>
<td>Chapter 7</td>
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<td>Week 8</td>
<td>Project management (Risk, People, Teamwork)</td>
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<td>HW7: Develop project UML diagrams</td>
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<tr>
<td>Week 9</td>
<td><strong>Project Progress Presentation</strong></td>
<td>Team Presentation</td>
<td>Team Assign.</td>
</tr>
<tr>
<td>Week 10</td>
<td>Agile Software Development</td>
<td>Chapter 3</td>
<td>Read Chapter 3</td>
</tr>
<tr>
<td>Week 11</td>
<td>Software Project Estimation and Cost Management</td>
<td>Lecture Notes</td>
<td>HW8: Cost Estimation Draft report due (11/8)</td>
</tr>
<tr>
<td>Week 12</td>
<td>Software Reliability</td>
<td>Lecture Notes</td>
<td>HW9: SW Reliability</td>
</tr>
<tr>
<td>Week 13</td>
<td>Thanksgiving Holidays 11/22</td>
<td>Chapter 16</td>
<td></td>
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<tr>
<td>Week 14</td>
<td><strong>Exam 2 (11/27/2018)</strong> Selected Topics in SW</td>
<td>Final Report Submission due on 11/29/2018 for all students</td>
<td>No late submission is allowed.</td>
</tr>
<tr>
<td>Week 15</td>
<td>Project Presentations</td>
<td>Class presentations</td>
<td>Team Assign. Delivery</td>
</tr>
<tr>
<td>Week 16</td>
<td>Project Presentations</td>
<td>Class presentations</td>
<td>Team Assign. Delivery</td>
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Thursday December 13, 2018 from 4:30 p.m. – 7:00 p.m. Project Presentation.

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning
Outcomes described in Section F.

- **Course Syllabus**
  We will meet for lecture on Tuesdays and Thursdays, when new material will be presented. We will follow the text generally, but the non-text material may also be included in the lectures. The assignments and exams will be given during the class hours. You are responsible for all the material presented during the lecture.

- **Readings**
  1. The reading assignment will be provided on Bb every week.
  2. It is the student duty to do the reading.
  3. If you have any question about the reading, please let me know as early as possible.
  4. Inability to finish the reading might affect your learning outcomes.

- **Homework Assignments and Quizzes:**
  1. Approximately 8-9 homework assignments will be given.
  2. In addition, there will be a pop quiz from time-to-time.
  3. The assignment will be given almost every week.
  1. All assignment is due Friday at 12:00 PM.
  2. You MUST submit your HW on Bb.
  3. Any assignment MUST have a cover page which includes the assignment title, assignment number, the student name or team name for group assignment. **10% will be deducted if guidelines are not followed.**
  4. The compressed file is not allowed. You would get zero grade if you submitted a compressed file.
  5. You need to include a description of the process you followed to develop your results in case of coding assignment, any tuning parameters, tables and figures. Submitting the results without an explanation is not accepted means 50% will be deducted from your grade.
  6. For late submission, maximum two days after the deadline, 50% will be deducted from your grade.
  7. It is your responsibility to check frequently the posted contents, assignments or announcement on Bb.

- **Team assignment/project**
  1. For team assignment, every team member has to make a submission on Bb.
  2. Failure to do that will lead to zero grade for that student.

- **Project:** The project is a programming project with a final report. An in-class presentation is also required. The project should be done in a team of at maximum three students. **No more than three students are allowed. All projects must be approved by the instructor.**
  Additional details on the project will be available later on the course website. Each team needs to provide a summary of the project according to the given guidelines by the instructor on/before **Thursday September 13, 2018.** A team will have to provide a short introduction in class after the topic is approved.
Proposal Guidelines
A template guidelines for the proposal shall be posted on the Project folder. You must check and follow. **Do not delay this task to last mints.**

What your project needs
1. Searching to build an acceptable background about the subject
2. Be able to analyze the data to be used for your project. A project with no data less than 30 data record is filling the test phase. Your database has to be complete.
3. Discuss your adopted SW model.
4. Give a clear presentation and a technical report based on the format and guidelines provided by the instructor.

Project deliverables include:
- Project proposal
- Progress presentation
- Draft report
- Final report
- Final presentation

Attendance/Tardiness
You are expected to be in attendance, punctual, and prepared for class. If you are more than 10 minutes late to class, you will be counted as tardy. Please make sure that you will never be tardy to any of your classes or accept the consequences.

Quizzes
*Quizzes will be conducted at any time in the lecture without prior notice. Please be always ready.*

Exams: Exams will cover all/part of the lectures and reading material discussed in class. Exams must be taken on the hour they are scheduled. If you do not understand or have a question about the exam content, it is your responsibility to ask questions. **Do that early enough before the exam, at least 24 hours.** The first exam will be given on **Tuesday October 9, 2018** and the second exam will be provided on **Tuesday November 27, 2018**. The final exam day which is on **Thursday December 13, 2018** from 4:30 p.m. – 7:00 p.m. will be used for final project presentations.

J. COURSE POLICIES

Missed Exam
In the event, if you cannot attend the class to take the exam due to some emergency or some unavoidable situation (such as serious illness, death in the family, participation in university sports, religious observations, and so on) you must notify me as soon as possible before the exam and also you must validate your absence by providing me a document (e.g., with a letter from your doctor). Once your cause is validated a make-up exam will be given.
• **Late Work and Make-up Exams**
  NO makeup exams, assignments, or quizzes will be allowed unless I have agreed prior to the exam, assignment, or quiz time and been provided with official supporting documents.

• **Grading Error**
  All questions concerning a test score or grading of a returned test or assignment must be resolved within one week. It is always a good idea to keep all of your work until the end of the semester. In case of any recording errors or doubts, you may produce them for correction or verification.

• **Extra Credit**
  There is NO EXTRA CREDIT - don't bother asking.

• **Cell Phone Use**
  You are required to turn off your cell phone in class and pay attention to class discussions.

• **Laptop Use**
  Use of laptops and other electronic devices is restricted to taking notes.

• **Food in Class**
  Eating food in class is Not Allowed.

• **Missed Exam**
  Missed exams will be graded as ‘0’.

• **Participation**
  Class discussions and information provided in class are considered regular course material; it is your responsibility to take appropriate notes. You are expected to attend lectures and actively participate in class discussions.

• **Others**
  Read Section L!!!

K. **COLLEGE AND UNIVERSITY POLICIES**

• **Academic Integrity (University)**
  It is expected that university students will demonstrate a high level of maturity, self-direction, and ability to manage their own affairs. Students are viewed as individuals who possess the qualities of worth, dignity, and the capacity for self-direction in personal behavior.

  See Full University Policy at
  [http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity](http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity)
• **Classroom/Professional Behavior**
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

• **Deadline for Dropping a Course with a Grade of W (University)**
  The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

• **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

• **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in
the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.  
http://disabilityservices.tamucc.edu/

OTHER INFORMATION

1. These guidelines are designed to inform scholars of their responsibilities and of the course requirements in order to make this course a positive experience. The instructor is always available for consultation and discussion with students on any aspect of a course and of these general guidelines.
2. Consider yourself as a scholar rather than a student. The term “student” may imply some passivity, whereas the term “scholar” implies active participation, understanding and searching. We will use these terms interchangeably with the meaning of “scholar” implied. Osmosis does not work in a learning environment!
3. Further, define yourself as a “thinking explorer”. You are responsible for your education; an instructor can only be a guide and a facilitator. An instructor cannot learn for you. If you come across something that really interests you, explore it further.
4. Your experience at this University should not consist of passing a series of courses to earn a degree. Your experience should rather be a series of activities that will give you an education.
5. Concentrate on “learning to learn”. You will have to be a life-long learner to survive in your chosen career.
6. There is no such thing as a stupid question; there is such a thing as a stupid answer. So ask questions, the instructor is taking all the risks! Ask questions of your instructor and of your fellow scholars. Many times questions are more important than answers.
7. The Internet is a tremendous resource and also a great danger. When you find information on the Internet, you have no idea if it is correct. View such information with caution. But, use the Internet to explore topics that interest you. Do not only prepare for the exam in a course – learn as much as you can on the topics introduced to you by the course material. You are responsible for the extent of your education! READ MINDFULLY !!!!
8. In addition to details of the syllabus given in class, the syllabus for the course includes all the chapters of the required textbook/s unless indicated otherwise by the instructor.
9. The final letter grade for the class will be based on the raw composite numerical score obtained from the weighted average of the tests, quizzes, exams, labs, etc. as indicated by the instructor. The raw composite numerical score may be adjusted (curved) based on the highest score, the statistical profile of the scores and other academic standards or other considerations. Generally, the letter grade of A is 90% and over of the adjusted score, a B is between 80% and 89% (inclusive) of the adjusted score, a C is between 70% and 79% (inclusive) of the adjusted score, a D is below 70% of the adjusted score and an F is below 65% of the adjusted score. An incomplete (I) will only be given in very unusual circumstances. The University regulations on incomplete grades state: “An incomplete notation may be given to a student who is passing but has not completed a term paper, examination, or other required work for reasons beyond the student’s control other than the lack of time”. Students are expected to take ALL tests, quizzes, exams, etc., and to complete and hand in all labs and other assignments. There is no provision for “extra credit”. No final grades will be given via the telephone, e-mail, etc.
10. All University rules, regulations and expected student conduct apply to this course. Students
are held responsible for the information given in the current Catalog and Student Handbook.

11. All labs, assignments, etc. must be handed in on the assigned due date. Scholars having problems must notify the instructor well before the due date. Marks will be deducted for poor and sloppily presented work.

12. Labs, etc. handed in after the due date may be subject to a penalty of loss of marks. Labs, etc. handed in after the graded labs, etc. have been returned to students will get zero marks but must be handed in to the instructor.

13. Scholars are asked to take special note of the penalties, which the University attaches to Academic Dishonesty. Consult the Student Handbook.

14. All work handed in to the instructor must be the student’s own work. Extracts, excerpts, etc. from the work of others must be suitably noted, acknowledged and properly referenced. Any Group Work will be judged in the same way. That is, it is the work of the group and the extracts, excerpts, etc. of others must be acknowledged.

15. All written and graphical work handed in must be presented neatly printed. Student’s written work will be judged on written communication skills, critical thinking and problem solving ability.

16. There are NO provisions for making up missed exams except in cases where prior arrangements have been made and agreed to by the instructor.

17. Students must keep their given university e-mail address (i.e. firstname.lastname@islander.tamucc.edu). This will be the means of the instructor communicating with students.

18. All work submitted to the instructor (via e-mail or other means) must be clearly marked with the student’s name and the name and number of the course – this is especially important when work is submitted as an attachment to an e-mail.

19. The instructor reserves the right to make changes to the above with due notice to the students. These changes will be announced to the class (see 16 above) and each student is responsible for keeping herself/himself informed of such changes.

GENERAL DISCLAIMER

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.