CEN 4010
Software Engineering
Spring 2023

Instructor: Dr. Sandeep Reddivari
Office Hours: 9:00 am – 11:30 am Tuesday and Thursday (other times by appointment)
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Class Time: Tuesday and Thursday 12:15 pm – 1:30 pm
Class Location: 4 – Skinner-Jones Hall, Room 1705

Course Description:
This course introduces students to fundamental Software Engineering concepts and current practices by covering software development activities associated with the entire software development lifecycle, including ethical and legal issues. Concepts and practices are applied through the collaborative, incremental, and iterative development of a comprehensive software system for a variety of hardware platforms and software clients, and with the support of professional integrated development environments, version control, and project tracking tools.

Topics covered include, but are not limited to: software process models; domain modeling; model-driven development; elicitation and documentation of requirements; software architectures; design paradigms and patterns; project management, tracking, and release planning; collaborative development; testing, deployment, and maintenance; ethical and legal issues in Software Engineering.

Prerequisites:
COP 3530 and COP 3703

Textbook and materials:
Software Engineering, by Ian Sommerville, 10th Edition, ISBN-13: 978-0133943030. Pearson: Addison-Wesley, 2011

Use Cases – Requirements in Context, by Kulak and Guiney
Addison-Wesley, ISBN: 0-321-15498-3   Published in 2004. Use latest edition.

Other Readings: IEEE standards for software engineering and assigned articles.

Important Dates:

For holidays, add/drop dates, etc., see:
https://www.unf.edu/asa/faculty/important-dates.html#Spring
Before you withdraw from this (or any) class, be sure to read the following policy:
http://www.unf.edu/ccec/computing/PoliciesGuidelines/Satisfactory_Progress_Policy.aspx

Course Objectives/Learning Outcomes

Course should enable students to develop solution procedures (algorithms) and systems applications that use modern languages and to provide ability to:

1. Apply knowledge of computing and mathematics appropriate to the discipline
2. Analyze a problem, and identify and define the computing requirements appropriate to its solution
3. Design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
4. Use current techniques, skills, and tools necessary for computing practice
5. Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices
6. Apply design and development principles in the construction of software systems of varying complexity

Tentative Topics:

Chapter 1: Introduction to Software Engineering
Chapter 2: Software Processes
Chapter 3: Agile Software Development
Chapter 4: Requirements Engineering
Chapter 5: System Modeling
Chapter 6: Architectural Design
Chapter 7: Design and Implementation
Chapter 8: Software Testing
Chapter 9: Software Maintenance and Evolution
Ethical and Legal Issues in Software Engineering

Method of Evaluation:

Exam 1: 15%
Exam 2: 15%
Quizzes: 20%
Course Project & Deliverables: 35%
Project Presentation: 5% (both in-class and School of Computing Symposium)
Class Attendance: 5%
Assignments/Class Participation: 5%

Letter grades will be based on:
90-100 = A;
80-89 = B;
70-79 = C;
60-69 = D;
0-59 = F.

The penalty for cheating on an exam or assignments will be F grade in the course. Work which is similar beyond coincidence will automatically be considered cheating by all parties.

At the end of the semester, if a student's final grade falls on the border line, (i.e., >89 & <90, >79 & <80, >69 & <70, or >59 & <60) the instructor will take the ceiling of the final grade, if and only if, the student has attended more than 90% of the classes. For example, if a student's final grade is 89.3 and he/she attended more than 90% of the classes, the final letter grade will be an A. It will be a B if the student has >=10% of **unexcused absences** (cf. Section "Attendance Policy").

Note: Please see the course schedule for the tentative exam dates and other details.

A quiz will be given on every Thursday unless otherwise specified. The quizzes will comprise of 20% of your final grade in this course. Solutions to all quizzes will be posted on the course website. There will not be any make up quiz (for unexcused absences).

Late Assignments:
There will be a penalty of **10% per day** for late submission of assignments (including weekends and holidays). No credit will be given for work turned in more than two days late. No partial credit will be given for assignments which are not producing reasonable output.

Exam policy:
Each student is required to take all exams at the scheduled times. All exceptions must be cleared with the instructor prior to the exam time. Exams missed for insufficient reason or without being cleared with the instructor prior to the exam time will be assigned a score of zero. There will **not** be any make up exams or quizzes unless there is a documented emergency.

Academic dishonesty:
No type of academic dishonesty will be tolerated. If you are caught cheating (on the assignments or exams) the punishment will be the most severe penalty allowed by the university policy. The policy on academic integrity can be found at:
http://www.unf.edu/catalog/policies/academic_integrity/

Other Remarks:
- A grade of incomplete will not be given except for catastrophic illness or calamity.
- All university rules regarding classroom behavior and attendance apply.
- Assignments for extra credit will not be assigned. If you do not complete an assignment by the date assigned, no make-up assignment will be provided and you will receive a score of zero for that assignment.

Attendance Policy
Attended is expected. Students must attend all the lectures for this course. An exception (i.e., excused absence) could be made only when the student provides valid documentation. If a student misses a class, the student is still responsible for the material that is covered and for completing any assignments by the due date that may have been handed out by the professor in class.

Course Topics
It is expected that the student will read the chapter assigned prior to the class meetings and will have questions for the instructor on any topics the student is not sure of, or does not understand. The student is responsible for all topics presented in the text regardless of their coverage. In addition, the students will be responsible for all lecture material that is not included in the text.

E-mail:
Every UNF student is required to use his/her official email address, that is, *your'N'number@ospreys.unf.edu*. In the email "subject field" begin the subject with "CEN 4010". The body of your email should identify yourself and what class section that you are taking (if any).

Right to Change:
The instructor reserves the right to change the courses policies or schedule in order to facilitate instruction. Any such changes will be updated on the course website and distributed to students via Announcements on Canvas or through the course mailing list.

Students with Disabilities
Students with disabilities who seek reasonable accommodations in the classroom or other aspects of performing their coursework must first register with the UNF Disability Resource Center (DRC) located in Building 57, Room 1500. DRC staff members work with students to obtain required documentation of disability and to identify appropriate accommodations as required by applicable disability laws including the Americans with Disabilities Act (ADA). After receiving all necessary documentation, the DRC staff determines whether a student qualifies for services with the DRC and if so, the accommodations the student requires will be provided. DRC staff then prepares a letter for the student to provide faculty advising them of approved accommodations. For further information, contact the DRC by phone (904) 620-2769, email (drc@unf.edu), or visit the DRC website (http://www.unf.edu/drc/). Military and veteran students who return from combat exposure may be utilizing the post 9/11 GI bill to continue postsecondary education goals and may need both physical and academic accommodations. Contact Ray Wikstrom, Director of Military and Veterans' Resource Center by phone (904) 620-2655, email (ray.wikstrom@unf.edu).

Student Technology
UNF Information Technology Services (ITS) provides information about technology topics including, Canvas, email, computer labs, etc. For more information, visit
http://www.unf.edu/its/For_Students.aspx

Non-discrimination, Equal Opportunity and Diversity Statement
The University of North Florida (UNF) is committed to providing an inclusive and welcoming environment for all who interact in our community. To accomplish this intent, UNF shall not commit or permit discrimination or harassment on the basis of genetic

information, race, color, religion, age, sex, disability, gender identity/expression, sexual orientation, marital status, national origin or veteran status in any educational, employment, social or recreational program or activity it offers. Similarly, UNF will not commit or permit retaliation against an individual who complains of discrimination or harassment or an individual who cooperates in an investigation of an alleged violation of University Regulation. In exercising these standards, the University will not abridge either free speech or academic freedom based on its context. Accordingly, any member of the UNF community who believes that they have been subjected to discrimination, discriminatory harassment, retaliation, or sexual misconduct may seek guidance, counseling and/or file a complaint by contacting: Cheryl Gonzalez, Director, E.O.D. and Title IX Administrator, located at Building One, J.J. Daniel Hall, Suite 1201, 1 UNF Drive, Jacksonville, Florida 32224-7699, or call (904) 620-2507 or via 711 Florida Relay for persons who are deaf or hard of hearing or those with speech impairments and/or limitations. Please read the Non-Discrimination, Equal Opportunity and Diversity Statement at:

https://www.unf.edu/eoi/NonDiscrimination,_Equal_Opportunity,_Inclusion_Statement___Title_IX.aspx