

(CS 2302 w/C or better AND EE 2169 w/C or better AND EE 2369 w/C or better AND MATH 2300 w/C or better ) OR (CS 2401 w/B or better AND EE 2169 w/B or better AND EE 2369 w/B or better AND MATH 2300 w/B or better)

**University of Texas at El Paso  
Course Syllabus**

**COURESE DESCRIPTION**

<b>Dept., Number</b>	CS4310	<b>Course Title</b>	Software Engineering I: Requirements Engineering
<b>Approval Date</b>	Sept 2018	<b>Course Coordinator</b>	Ann Gates

**CATALOG DESCRIPTION**

Methodologies, approaches, and techniques associated with software requirements analysis and definition; process for defining requirements of a system including feasibility study, requirements elicitation, formal specification, modeling, validation, verification, and documentation; other topics include cooperative teamwork and project management; first semester of a two-semester capstone project in which students work with a customer to capture and specify requirements for a real-world application.

**TEXT BOOK**

Hull, E., Jackson, K., and Dick, J. Requirements Engineering 3/E. Springer, ISBN 978-1-84996-405-0 (<http://www.springer.com/computer/swe/book/978-1-84996-404-3>)

**COURSE OUTCOMES**

**Level 1: Knowledge and Comprehension:**

Level 1 outcomes are those in which the student has been exposed to the terms and concepts at a basic level and can supply basic definitions. Upon successful completion of this course, students will able to:

- a. Define basic software engineering concepts and principles (abstraction, anticipation of change, modularity, stepwise refinement, and separation of concerns).
- b. Define quality attributes such as availability, correctness, efficiency, interoperability, maintainability, portability, reliability, security, modifiability, availability, testability, and usability.
- c. State the main features of process improvement models, e.g., CMM, ISO, PSP, QPI, Plan-Do-Check.
- d. Define security design principles and the Rule of Least Astonishment

**Level 2: Application and Analysis:**

Level 2 outcomes are those in which the student can apply the material in familiar situations, e.g., can work a problem of familiar structure with minor changes in the details.

Upon successful completion of this course, students will be able to:

- a. Determine which life cycle model to use by analyzing different scenarios.
- b. Apply techniques for eliciting requirements.

- c. Analyze requirements to determine if they meet the attributes of well-written requirements.
- d. Identify risks in software development and project management.
- e. Analyze the course project and determine the local and global impact on computing on individuals, organizations, and society, including consideration of professional software engineering code of ethics.
- f. Relate the importance of professional societies.
- g. Engage in self-directed study to learn new techniques and tools for software requirements definition.

**Level 3: Synthesis and Evaluation**

Level 3 outcomes are those in which the student can apply the material in new situations. This is the highest level of mastery. Upon successful completion of this course, students will be able to:

- a. Construct a feasibility report that demonstrates ability to engage in self-directed study.
- b. Conduct verification and validation using techniques such as inspections and walkthroughs.
- c. Construct a prototype, which adheres to basic HCI and applicable security design principles, to validate the user interface.
- d. Construct a software requirements specification.
- e. Analyze and model aspects of a problem by applying various modeling techniques.
- f. Demonstrate an ability to assemble and orally present technical work and compose technical documents that are grammatically correct and technically sound.
- g. Apply effective techniques for project management, collaboration, and problem-solving within teams.

**ABET STUDENT OUTCOMES MAPPING**

Course outcomes	Student Outcome
None	1
1b, 1d, 2a, , 2b, 2c, 2d, 3a, 3c, 3e	2 (ABET 1)
None	3 (ABET 2)
3g	4 (ABET 5)
2e	5 (ABET 4)
3f	6 (ABET 3)
2e	7
2f, 2g	8
2g, 3a, 3b	9
3a, 3d, 3e	10 (ABET 6)

**PREREQUISITES BY TOPIC**

CS 3331 with a grade of C or better
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