University of Texas at El Paso
Course Syllabus

COURESE DESCRIPTION

Dept., Number	CS4310	**Course Title**	Software Engineering I: Requirements Engineering
Approval Date	Sept 2018	**Course Coordinator**	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. 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.
h. Construct an interview report.

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,	8
2g, 3a, 3b	9
3a, 3d, 3e	10 (ABET 6)

PREREQUISITES BY TOPIC

CS 3331 with a grade of C or better