

**1. Course number and name**

CptS 484: Software Requirements

**2. Credits and contact hours**

3 credits, 3 lecture hours

**3. Instructor's or course coordinator's name**

Bolong Zeng

**4. Textbook, title, author, and year**

K.E. Wiegers and J. Beatty. 2013. *Software Requirements* (3rd ed.). Microsoft Press.

ISBN-13: 978-0735679665. (Required)

I. Sommerville. 2011. *Software Engineering* (9th ed.) Addison-Wesley. ISBN-13:

978-0137035151. (Recommended)

P. Loucopoulos and V. Karakostas. 1995. *System Requirements Engineering*,

McGraw-Hill. ISBN-13: 9780077078430. (Recommended)

**5. Specific course information**

a. *Catalog description*: Elicitation, analysis, specification, and validation of software requirements as well as the management of requirements during the software life cycle.

b. *Prerequisites or corequisites*: CptS 322 with a C or better; certified major in CptS, CE, EE, or SE.

**6. Specific goals for the course**

By the end of the course, students will be able to

- Explain the role of requirements engineering and its process. (1c, 7b)
- Determine stakeholder requirements using multiple standard techniques. (1a, 1b, 1d, 1e, 3b, 3c, 7a, 7b, 7d)
- Produce specifications with functional and non-functional requirements based on the elicited requirements (1a, 1b, 2c, 2d, 2e, 3a, 3b, 3e, 3f, 7a, 7b).
- Decide scope and priorities by negotiating with the client and other stakeholders. (1c, 1d, 2b, 2c, 2d, 2e, 7a, 7b, 7c, 7d, 7f, 7g)
- Manage requirements. (1a, 1b, 1d, 1e)
- Apply standard quality assurance techniques to ensure that requirements are: verifiable, traceable, measurable, testable, accurate, unambiguous, consistent, and complete. (1a, 1b, 1d, 1e, 7b, 7g)
- Produce test cases, plans, and procedures that can be used to verify that they have defined, designed and implemented a system that meets the needs of the intended users. (6b, 6c, 6d, 7b, 7g)

**7. Brief list of topics to be covered**

- Fundamentals of software requirements and requirements process
- Requirements elicitation, analysis, specification, and validation.
- Requirements management and traceability.

- Formal verification, model checking, temporal logic.