CS 3540: INTRODUCTION TO SOFTWARE ENGINEERING

Semester Hours: 3.0  
Contact Hours: 3

Coordinator: Yan Wu

Text: Head First Software Development

Author(s): DAN PILONE AND RUSS MILES

Year: 2007

SPECIFIC COURSE INFORMATION

Catalog Description:

Overview of software engineering as a discipline. Software life-cycle models and phases of the software development process. Introduction to HCI, user-centered development, teams and project management. Prerequisite: Grade of C or better in CS 2020.

Course type: REQUIRED

SPECIFIC COURSE GOALS

- I can understand key terms used when analyzing human interaction with software.
- I can analyze, specify and document software requirements for a software system.
- I can understand user interface design standards.
- I can express and understand the importance of professional ethics, etiquette, and communication in a software development environment.
- I can develop alternative design solutions to a given problem and recommend the best one within limitations of cost, time, knowledge, existing systems, and organizations.
- I can apply the process of project initiation, planning, execution, and management.
- I can analyze and compare various software development lifecycle methods that include requirements analysis, design, implementation, testing and maintenance.

STUDENT OUTCOMES ADDRESSED BY THIS COURSE
• B.1 Analyze a given problem, and identify and define the computing requirements appropriate to its solution
• B.2 Use current techniques, skills, and tools in computing practice
• B.4 Understand the impact of professional, ethical, and social issues in computing
• B.5 Apply design and development principles in the construction of software systems of varying complexity
• B.7 Contribute effectively to professional teams in order to accomplish a common goal

LIST OF TOPICS COVERED

• Software Processes and Models
  o Software engineering concepts
  o SDLC, Process model
  o Agile Software Development
• Planning and Requirements Analysis
  o User and/or system requirements
  o Effort estimation
• Design and Development Methodologies
  o Human and Computer Interaction and Design
  o Team design
  o Architecture and design patterns
  o Internal and external design factors
  o Coding methods and guidelines
• Documentation, Testing and Evaluation
  o Standards and best practices
  o Testing methods
  o Assurance and acceptance criteria
  o Reliability and performance
• Project Management
  o Resources and configuration control
  o Risk analysis
  o Product integration
  o Best practices
  o Release management and source control