CSP587 Software Quality Management

Instructor: Dennis J. Hood
Email: dhood@iit.edu
Address: 10 West 31st Street, Room 235, Chicago, IL 60616
Office Hours: Virtual and SB209-B, by appointment

Course Description: This course will provide students with the knowledge and skills to define and implement software quality management. This course will focus on developing a quantifiably effective software quality management function and measuring the success of QA plans, teams and tools. The course will explore the latest industry standards, tools and approaches, and will explore the challenges of managing the QA function for modern software application environments.
Prerequisites: CS487 or permission of instructor. **Credit**: 3-0-3
Lecture Day, Time & Place: TR 1:50pm - 3:05pm, WH-113
TA: Sharath Devasahayam, Vignesh Ram Ramesh Kutti, Snehashis Chakraborty, Siddhartha Upase, Kasargod Kailash Cha Shenoy

Schedule of Lecture Topics and Readings: (subject to change at the discretion of the instructor)

Week	Date	Topic	Reading	Assigned	Due
1	**8/20**	Intro and Motivation	n/a		
	8/22				
2	**8/27**	Quality Fundamentals	Ch. 1		Team rosters: 9/1
	8/29				
3	**9/3**	Quality Culture	Ch. 2	Res. Paper Assigned	
	9/5				
4	**9/10**	Software Quality Requirements	Ch. 3	HW #1	
	9/12				
5	**9/17**	Software Engineering Standards and Models	Ch. 4	Team #1	HW #1: 9/21
	9/19				
6	**9/24**	Reviews	Ch. 5	HW #2	Team #1: 9/28
	9/26				
7	**10/1**	Software Audits	Ch. 6	Team #2	HW #2: 10/5
	10/3				
8	**10/8**	Verification and Validation	Ch. 7		Team #2: 10/12
	10/10				
9	**10/15**	SW Configuration Management	Ch. 8	HW #3	RP: Draft 10/19
	10/17				
10	**10/22**	Policies, Processes, and Procedures	Ch. 9	Team #3	HW #3: 10/26
	10/24				
11	**10/29**	Measurement	Ch.10	HW #4	Team #3: 11/2
	10/31				
12	**11/5**	Risk Management	Ch. 11	Team #4	HW #4: 11/9
	11/7				
13	**11/12**	Supplier Management and Agreements	Ch. 12		Team #4: 11/16
	11/14				
14	**11/19**	SQA Planning	Ch. 13		Team Assess: 11/23
	11/21				
15	**11/26**	Case Studies / The Future	tba		RP: Final 11/26
	11/28	No class - Thanksgiving			
16	**12/2-7**	Final Exam Week*			*TBD

Resources:

- Required text: LaPorte and April (2018), *Software Quality Assurance (1st Ed.)*, IEEE Press / Wiley, ISBN 978-1118501825.

- Articles, papers, etc. will be assigned as supplements to the posted lecture notes.

Course Objectives: This course provides students with the knowledge and skills to effectively design, implement and manage the software quality assurance function. It will introduce quality assurance as a formal part of the overall software development life cycle. Terminology, documentation, organization, planning, and cost-benefit analysis will all be covered.

Course Outcomes: Students successfully completing this course will be able to:

- Discuss the concepts of quality assurance
- Discuss the role of quality assurance in the software development life cycle
- Analyze metrics for assessing quality
- Explore methods for determining the costs and benefits of quality assurance
- Analyze organizational issues including personnel, communication, management and documentation
- Explore tool support (including CASE tools)
- Discuss the role of standards and certification

Course Notes: Copies of the week's course lecture notes will be posted on the Canvas system by Monday evening of each week. Students should note that the lecture notes are meant to frame the lecture and class discussion, and alone will not provide the depth of knowledge required to successfully achieve the course objectives. Students are required to actively participate in class discussions and to take their own notes as necessary.

Readings: Readings for the course will be from the textbook and from supplemental sources as assigned by the instructor (see schedule above.) Students are expected to complete assigned readings before class.

Grading:

- **Homework Assignments**: Students will be assigned 4 problem sets (see schedule above.) Each student will be required to prepare and submit a written analysis. Each student will receive an overall homework grade computed by averaging their assignment grades. The overall homework grade will count for 20% of their overall course grade.
- **Individual Research Paper**: Students will research an assigned topic related to software quality management. Students will prepare and submit documentation describing their research and analysis. This assignment will count for 20% of the student's overall course grade.
- **Team Projects**: Students work in assigned teams to complete SQM research/analysis projects utilizing the techniques described in lecture for the engineering of quality software systems. This assignment will count for 20% of their overall course grade.
- **Final Exam**: There will be a comprehensive final exam which will count for 20% of the student's overall course grade.
- **Class Engagement**: Students are required to be actively engaged in lecture discussions. Engagement is defined here as attending and interacting during lecture and/or as watching lecture recordings and submitting discussion responses as assigned. Class engagement will count for 20% of the student's overall course grade.
- **Plagiarism**: Plagiarism, including use of content-generation tools, will result in an automatic overall course grade of E.
- **Extra Credit**: There will be no extra credit opportunities.

ADA: Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodations from the Center for Disability Resources (CDR). The CDR is located in 3424 S. State St. – 1C3-2 and can be reached at 312.567.5744 or disabilities@iit.edu.