

1. Course Number and Course Title:

COE 420 – Software Engineering

2. Credits Hours

3-1-3

3. Prerequisites

Prerequisites: CMP 305 (Data Structures and Algorithms) and COE312 (Software Design for Engineers) or CMP256 (GUI Design and Programming)

4. Name and Contact Information of Instructor:

Dr. Khaled El-Fakih

5. Course Description (Catalog Description)

Introduces the basic principles and practices of software engineering. Emphasizes the different phases of the software development process and quality issues. Includes the following topics: software life cycle models; general design, implementation and testing issues; specification and design methodologies; model-based approaches to software design; project management and the use of various design and development tools.

6. Textbook and other Supplemental Material:

Textbook:

R. Pressman, *Software Engineering: A Practitioner's Approach*, 8th edition. McGraw-Hill, 2015.

Other supplemental material:

I. Sommerville, *Software Engineering*, 18th edition. Addison Wesley, 2015.

7. Learning Outcomes

Upon completion of the course, students will be able to:

1. Describe major elements of the software life cycle
2. Elicit, analyze, prioritize and document requirements for a software system
3. Design, build and test a system based on its requirements specification using industrial-strength design techniques and development tools
4. Apply project management techniques to software projects
5. Estimate the cost and effort required to complete a software project
6. Compose effective technical reports for a technical audience
7. Communicate clearly and present software engineering content

8. Teaching and Learning Methodologies:

Methods include lectures, labs, project, exams and class discussions.

9. Course Topics and Schedule:

Topic	Weeks
Describe major elements of the software life cycle	1
Requirements engineering	3

Specification and design methodologies	3
Implementation	1
Reliability & Testing	3
Project Management	3
Review and Evaluation	2
Total	16