Kurdistan Regional Government-Iraq
Ministry of Higher Education and Scientific Research
Univers y of Salahaddin – Hawler
College of Engineering
Department of Software Engineering

کۆلێژی ئەندازیاری
College of Engineering

Course Book

System Analysis and Design

2nd Year Material

Academic year (2011-2012)
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1 Course Description

The objective of this course is to introduce the students to the modern techniques of system analysis, design and an introduction of software engineering from software point of view. It focuses on the main steps that a software engineer must follow to establish a well designed application, also introduces methods of solving some design issues.

The course is taught in English (and the exams should be written in English too). In order to pass the course, you should pass the assignments (all of them) as well as the paper exam.

1.1 *For whom this course is intended?*

This course is intended for the second stagers at Software Engineering undergraduate program.

1.2 *Prerequisites of the course (topics)*

The students should have finished the courses of the first stage to be able to take this course.

1.3 *Unusual circumstances of the course*

None

2 Objectives

By the end of the course, students should:

2.1 have a good knowledge of systems and the terminologies of the system analysis.

2.2 know about different types of systems, like: Socio-Technical and Critical systems.

2.3 have a background knowledge about Free and Open Source softwares and the way they are designed and analyzed, as well as licensing and their impacts on the system development.

2.4 have an extensive knowledge about Software Development Life-Cycle (SDLC).

2.5 know how to collect requirements and analyze them.

2.6 know how to design software systems.

2.7 learn about UML and Flowcharts.

2.8 learn some of the most common design patterns.

3 Content and Organization

3.1 Introduction to System Analysis I
3.2 Introduction to System Analysis II
3.3 Different Types of Software Systems
3.4 Free and Open Source Software as an Example
3.5 System Development Life Cycle
    i   Requirements

    ii   Designing
    iii Development
    iv Testing
3.6 Requirements
    i   System Specification
3.7 Designing
    i   UML and Flowchart
    ii   Architectural Design
    iii Object-Oriented Design
    iv Design Patterns

4 Teaching Methodology

4.1 16 Lectures, 2 hours/week.
4.2 Two mandatory assignments, students can collect up to 6 bonus points through the assignments.
4.3 A guest lecture to present the business value of the system analysis and design in the real world.
4.4 Contact hours: 2 hours per week.

5 Evaluation

5.1 There will be two mandatory assignments, each of them weighs 3 bonus points, with the following policy:
- Full mark → 3 bonus points.
- 9 → 2 bonus points.
- 8 → 1 bonus point.
- 7, 6, 5 → pass (but 0 bonus points).
- 4, 3, 2, 1, 0 → resubmit the assignment and 0 bonus points.

5.2 Written exams, three in total: first term exam, second term exam and final exam.
5.3 The final grade is calculated based on the following system:
- Two assignments: 6 points
- First term exam: 17 points
- Second term exam: 17 points
- Final exam: 60 points

6 Resource Material

6.1 Ian Sommerville, "Software Engineering", 8th edition or newer (the main course book).

6.2 J. Whitten, L. Bentley and K. Dittman, "Systems Analysis and Design Methods", 5th edition or newer.

6.3 Satzinger, Jackson and Burd, "Systems Analysis and Design, in a Changing World", 2nd edition or newer.

6.4 Erich Gamma, "Design patterns: elements of reusable object-oriented software", Addison-Wesley 1995.