**Course Specification**

(CS 251 Software Engineering)

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| *University:* | Helwan University |
| *Faculty:* | Faculty of Computers & Information |
| *Department:* | ***Computer Science*** |

**1. Course Data**

|  |  |
| --- | --- |
| **Code:** | **CS 251**  |
| **Course title:** | Software Engineering |
| **Level:** | 3 |
| **Specialization:** | General |
| **Credit hours:** |  |
| **Number of learning units (hours):**  | (3) theoretical (2) tutorial |

**2. Course Objective**

Overview of software engineering, software requirement: requirement engineering processes, system models, software prototyping. Design: architecture design, distributed system architecture, object oriented design, user interface design.

**3. Intended Learning Outcomes:**

* **Knowledge and Understanding**

A19. Outline the principles of Software Engineering.

A20. Extrapolate the engineering process of software production.

* **Intellectual Skills**

B11. Plan, conduct and present Software Projects.

* **Professional and Practical Skills**

C2. Choose the appropriate Operating system.

C8. Investigate and use of Information Technology skills.

C14. Develop an effective risk management plan.

C15. Detect safety aspects.

C16. Deploy the tools for software projects documentation.

C17. Discover efficient design of human-computer interfaces.

* **General and Transferable Skills**

D6. Use Modeling capability in software projects.

D13. Practice Designing skills in software projects.

D14. Practice Engineering skills for software development

**4. Course contents**

|  |  |  |  |
| --- | --- | --- | --- |
| **Topic** | **No. of hours** | **Lecture** | **Tutorial/ Practical** |
| Introduction | 6 | 3 | 3 |
| Socio-technical Systems | 6 | 3 | 3 |
| Critical Systems | 6 | 3 | 3 |
| Software Processes | 6 | 3 | 3 |
| Project management | 6 | 3 | 3 |
| Software requirement.  | 12 | 6 | 6 |
| Requirements engineering process | 6 | 3 | 3 |
| System models | 12 | 6 | 6 |
| Object-oriented Design. | 6 | 3 | 3 |

**Mapping contents to ILOs**

|  |  |
| --- | --- |
| Topic | Intended Learning Outcomes (ILOs) |
| Knowledge and understanding | Intellectual Skills | Professional and practical skills | General and Transferable skills |
| Introduction |  |  |  |  |
| Socio-technical Systems | A20 |  | C2,C8 |  |
| Critical Systems | A19 |  | C14,C15 | D14 |
| Software Processes |  |  | C16,C17 |  |
| Project management | A20 | B11 | C15 | D6 |
| Software requirement.  | A19 |  | C16 | D14 |
| Requirements engineering process | A20 | B11 | C17 |  |
| System models | A19 | B11 | C14,C2 | D13,D14 |
| Object-oriented Design. | A20 | B11 | C15,C8 | D6 |

**5. Teaching and Learning Methods**

Class Lectures

Paper readings

Highly lab-based courses

**6. Teaching and Learning Methods for students with limited capability**

 Using data show

 e-learning management tools

**7. Students Evaluation**

**a) Used Methods**

 Assignments

mini projects

**b) Time**

Assessment 1: Test 1 Week 4

Assessment 2: Test 2 Week 7

Assessment 3: Midterm Exam Week 10

Assessment 4: final written exam Week 14

**c) Grades Distribution**

Mid-Term Examination 20%

Final-term Examination 60%

Other types of assessment 20 %

 Total 100%

Any formative only assessments

**List of Books and References**

**a) Notes**

Course Notes

Handouts

**b) Mandatory Books**

 **Title: “***Software Engineering****”*.**

 **Author(s):** Sommerville, Ian

 **Publisher:** Addison-Wesley Publishers Limited, 2004

 **ISBN:** 0-321-21026-3

**c) Suggested Books**

 **Title:** *"Project Management Practitioner's Handbook"*

 **Author(s):** *Ralph L. Kleim and Irwin S. Ludin*

 **Publisher:**AMACOM Books, 2005

 **ISBN:** 0814403964

**d) Other publications**

**Course Coordinator:**  Prof. Dr. Mostafa Sami

**Chairman of the Department:** Prof. Dr. Iraqi Khalifa