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| **ISHIK UNIVERSITY FACULTY OF SCIENCE Department of INFORMATION TECHNOLOGY,2017-2018 Spring Course Information for IT 455 SOFTWARE ENGINEERING** |

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| --- | --- |
| **Course Name:** | SOFTWARE ENGINEERING |
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| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course type** | **Regular Semester** | **Theoretical** | **Practical** | **Credits** | **ECTS** |
| IT 455 | 2 | 7 | 3 | - | 3 |  |

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| **Name of Lecturer(s)-Academic Title:** | Halit Vural - PhD. |
| **Teaching Assistant:** | - |
| **Course Language:** | English |
| **Course Type:** | Non-area Elective |
| **Office Hours** | (Sun & Tue) 12:00~13:00 ; (Wed & Thu) 13:00~14:00  |
| **Contact:** | Email:halit.vural@ishik.edu.iq Tel:--  |
| **Teacher's academic profile:** | Machine Learning, Bioinformatics, Statistics, Software Engineering, Computer Programming |
| **Course Objectives:** | The aim of the Software engineering course is a comprehensive study of the theories, processes, methods, and techniques of building high-quality software in cost effective ways. |
| **Course Description (Course overview):** | Software engineering is a set of principles, methods and activities that must be followed to develop high quality software products that are reliable, easy to understand, modify and maintain. The software development process includes activities requirements gathering, analysis, design, construct, test and releasing of the software product. The course objective is to help students to learn these knowledge areas and improve their skills to apply them to development of software products. Modeling UML, introduction to design patterns, project management and software development processes, requirements elicitation and analysis, system design, object design, testing, rational, and configuration management, software life cycle, and methodologies, particular emphasis is on a team project in which a group of students implement a system from its specification. |
| **COURSE CONTENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Hour** |               **Date**               | **Topic** |
| **1** | 3 | 8-12/10/2017 | Introduction to Software Engineering and this course |
| **2** | 3 | 15-19/10/2017 | Overview of Software Engineering Phases |
|  |  |  |  |
| **3** | 3 | 22-26/10/2017 | Document Management in Software Development |
| **4** | 3 | 29/10-2/11/2017 | Project Management |
|  |  |  |  |
| **5** | 3 | 5-9/11/2017 | Requirements Gathering and Analysis - Quiz1 |
| **6** | 3 | 12-16/11/2017 | High-level Design |
|  |  |  |  |
| **7** | 3 | 19-23/11/2017 | Midterm Exam |
| **8** | 3 | 26-30/11/2017 | Low-level Design |
|  |  |  |  |
| **9** | 3 | 3-7/12/2017 | Low-level Design |
| **10** | 3 | 10-14/12/2017 | Software Development |
|  |  |  |  |
| **11** | 3 | 17-21/12/2017 | Testing - Quiz2 |
| **12** | 3 | 24-28/12/2017 | ? |
|  |  |  |  |
| **13** | 3 | 31/12/2017-4/1/2018 | Maintenance |
| **14** | 3 | 7-11/1/2018 | Software Development Methodologies - Quiz3 |
|  |  |  |  |
| **15** | 3 | 14-18/1/2018 | Final Exam |
| **16** | 3 | 21-25/1/2018 | Final Exam |
|  |  |  |  |

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| **COURSE/STUDENT LEARNING OUTCOMES**

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| --- | --- |
|  |  |
| **1** | Understand the core issues in software engineering particularly on software development |
| **2** | Foster an understanding of why software engineering skills are important |
| **3** | Develop skills that will enable them to construct software of high quality – software that is reliable, and that is reasonably easy to understand, modify and maintain |
| **4** | Describe different methods of specifying the software requirements |
| **5** | Describe the different stages in the design process |

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| **COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES**(Blank : no contribution, I: Introduction, P: Profecient, A: Advanced )

|  |  |  |
| --- | --- | --- |
|  | **Program Learning Outcomes** | **Cont.** |
| **1** | An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution |  |
| **2** | An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs |  |
| **3** | An ability to function effectively on teams to accomplish a common goal | I |
| **4** | An understanding of professional, ethical, legal, security, social, and economic issues and responsibilities | I |
| **5** | An ability to analyze the local and global impact of computing on individuals, organizations, and society | I |
| **6** | An ability to use current techniques, skills, and tools necessary for computing practice | I |
| **7** | An ability to use and apply current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, networking, web systems and technologies | P |
| **8** | An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems |  |
| **9** | An ability to effectively integrate IT-based solutions into the user environment | I |
| **10** | An ability apply problem solving skills, core IT concepts, best practices and standards to information technologies |  |
| **11** | An ability to identify and evaluate organizational requirements and current and emerging technologies | P |
| **12** | An ability to select, design, integrate and administer IT-based solutions into the organizational environment | A |

 |
| **Prerequisites (Course Reading List and References):** | Before taking this course, the student should have basic background in a high level programming language. |
| **Student's obligation (Special Requirements):** | The student should attend all the classes, quizzes, and other in-class activities. The student should not break the discipline of the class by some improper behaviors such as chewing gum, using any digital device (mobile, tablet, laptop, ..), chatting loudly and entering the classroom in the middle of the class, etc.. |
| **Course Book/Textbook:** | 1. Beginning Software Engineering, Rod Stephens, John Wiley & Sons, Inc.2015, ISBN: 978-1-118-96914-4 2. Ian Sommerville. Software Engineering. Addison-Wesley Professional, 9th edition, 2011, ISBN: 10: 0-13-703515-2. 3. Bernd Bruegge & Allen H. Dutoit, "Object-Oriented Software Engineering Using UML, Patterns, and Java", Third Edition, Prentice Hall, ISBN 10: 0-13-606125-7 |
| **Other Course Materials/References:** | 1.Carlo Ghezzi, Mehdi Jazayeri, Dino Mandrioli. Fundamentals of Software Engineering, Prentice Hall, 2nd Edition, 2002, ISBN: 0133056996. 2. Frederick P. Brooks. The Mythical Man-Month: Essays on Software Engineering, Addison-Wesley Professional, 1995, ISBN: 0201835959. |
| **Teaching Methods (Forms of Teaching):** | Lectures, Excersises, Presentation, Project, Assignments |
| **COURSE EVALUATION CRITERIA**

|  |  |  |
| --- | --- | --- |
| **Method** | **Quantity** | **Percentage (%)** |
| Participation | 1 | 5 |
| Quiz | 2 | 5 |
| Homework | 5 | 1 |
| Project | 1 | 10 |
| Midterm Exam(s) | 1 | 30 |
| Final Exam | 1 | 40 |
| **Total** | **100** |
| **Examinations:**True-False, Fill in the Blanks, Multiple Choices, Short Answers |  |  |

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| **Extra Notes:** |
| **ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD**

|  |  |  |  |
| --- | --- | --- | --- |
| **Activities** | **Quantity** | **Duration (Hour)** | **Total Work Load** |
| Course Duration (Including the exam week: 16x Total course hours) | 13 | 3 | 39 |
| Hours for off-the-classroom study (Pre-study, practice) | 8 | 3 | 24 |
| Assignments Mid-terms | 6 | 1 | 6 |
| Final examination | 1 | 3 | 3 |
| Other | 1 | 4 | 4 |
| **Total Workload** | **76** |
| **ECTS Credit (Total workload/25)** | **3.04** |

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**Peer review**

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| --- | --- | --- |
| Signature: | Signature: | Signature: |
| Name: | Name: | Name: |
| Lecturer                                                                       | Head of Department                                                         | Dean |

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