|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **OURSE INFORMATON** | | | | | | | | |
| **Course Title** | | *Code* | *Semester* | | *L+P Hour* | *Credits* | *ECTS* | |
| Essentials of Software Development | | COMP102 | 2 | | 3 | 3 | 6 | |
| **Prerequisites** | - | | | | | | |
| **Language of Instruction** | | | | English | | | |
| **Course Level** | | | | Bachelor's Degree (First Cycle Programmes) | | | |
| **Course Type** | | | | Compulsory | | | |
| **Course Coordinator** | | | |  | | | |
| **Instructors** | | | | Assist. Prof. Dr. Engin Kandıran | | | |
| **Assistants** | | | | Staff | | | |
| **Goals** | | | | - Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline | | | |
| **Content** | | | | Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.Software Processs Model. | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcomes** | **Program Learning Outcomes** | **Teaching Methods** | **Assessment Methods** |
| Understanding the software engineering process and different process models and how to choose between them. | 11 | 1, 2, 3 | A,C |
| How to elicit requirements from a client and specify them. | 7 | 1, 2, 3 | A,C |
| Design in the large, including principled choice of a software architecture. | 7 | 1, 2, 3 | A,C,E |
| Understanding good coding practices, including documentation, contracts, regression tests and daily builds | 8 | 1, 2, 3 | A,C |
| Various quality assurance techniques, including unit testing, functional testing, and automated analysis tools. | 3 | 1, 2, 3 | A,E |
| Understanding of the role of project management including planning, scheduling, risk management, etc | 8 | 1, 2, 3 | A,C,E |

|  |  |
| --- | --- |
| **Teaching Methods:** | 1: Lecture, 2: Question-Answer, 3: Discussion, 4: Simulation, 5: Case Study |
| **Assessment Methods:** | A: Testing B: Presentation, C: Homework, D: Project, E: Laboratory |

|  |  |  |
| --- | --- | --- |
| **COURSE CONTENT** | | |
| **Week** | **Topics** | **Study Materials** |
| 1 | Building a Systems and Software Process | Lecture Notes |
| 2 | Software Process Models |  |
| 3 | New and Emerging Process Methodologies | Lecture Notes |
| 4 | Software Requirements Gathering | Lecture Notes |
| 5 | Software Requirements Analysis and Specification | Lecture Notes |
| 6 | Architecture and Methodology | Lecture Notes |
| 7 | Design Characteristics and Metrics | Lecture Notes |
| 8 | Software Support and Maintenance | Lecture Notes |
| 9 | **Mid-term Exam** |  |
| 10 | Verification and Validation | Lecture Notes |
| 11 | Implementation Coding Practices and Principles | Lecture Notes |
| 12 | Software Quality Assurance | Lecture Notes |
| 13 | Configuration Management Integration and Builds | Lecture Notes |
| 14 | Software Project Management | Lecture Notes |
| 15 | Final Exam |  |

|  |  |
| --- | --- |
| **RECOMMENDED SOURCES** | |
| **Textbook** | Frank Tsui, Orlando Karam, and Barbara Bernal. 2013. Essentials Of Software Engineering (3rd. ed.). Jones and Bartlett Publishers, Inc., USA.  Ian Summerville, 9th Edition, Software Engineering, Addison Wesley |
| **Additional Resources** | Lecture notes, scientific calculator, spreadsheet |

|  |  |
| --- | --- |
| **MATERIAL SHARING** | |
| **Documents** | Guidelines and additional examples for Lecture Topics |
| **Assignments** | Homework Assignments |
| **Exams** | Midterm Exam and Final Exam |

|  |  |  |
| --- | --- | --- |
| **ASSESSMENT** | | |
| **IN-TERM STUDIES** | **NUMBER** | **PERCENTAGE** |
| Mid-terms | 1 | 40 |
| LAB AND Quizzes | 3 | 20 |
| Attendance | - | 0 |
| **Total** |  | **100** |
| **Contribution of Final Examination to Overall Grade** |  | 40 |
| **Contribution of In-Term Studies to Overall Grade** |  | 60 |
| **Total** |  | **100** |

|  |  |
| --- | --- |
| **COURSE CATEGORY** | Expertise/Field Courses |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COURSE'S CONTRIBUTION TO PROGRAM** | | | | | | | | | | | | | |
| No | Program Learning Outcomes | | Contribution | | | | | | | | | | |
| 1 | | 2 | | 3 | 4 | | 5 | |  | |
| 1 | Software Developer graduates have the knowledge and the skills to design and develop the complete systems for multi-media visual user interface. | |  | |  | | x |  | |  | |  | |
| 2 | Software Developer graduates have advanced the knowledge and skills to design, develop and install the application systems for multi-media. | |  | |  | | X |  | |  | |  | |
| 3 | Software Developer graduates have the knowledge and the skills to design, develop and apply algorithms and data structures to solve the basic problems of information processing, within the framework of discrete mathematics. | |  | |  | |  | X | |  | |  | |
| 4 | Software Developer graduates have the knowledge and the skills to design and develop computer applications, based on user specified requirements, using modern structured development tools and install them on various hardware platforms and deploy their usage. | |  | |  | |  |  | | X | |  | |
| 5 | Software Developer graduates have the knowledge and the skills to design and develop computer applications, based on user specified requirements, using modern object-oriented development tools and install them on various hardware platforms and deploy their usage. | |  | |  | |  |  | | x | |  | |
| 6 | Software Developer graduates know the logic of computer operating systems, the basic set of system commands, how to control access to system resources by users of different departments and how to monitor the running of jobs in the system. | |  | |  | |  | x | |  | |  | |
| 7 | Software Developer graduates have the knowledge and the skills to design and develop data models serving different requirements, database applications that would access and process data using various types of software, including queries, reports and business applications. | |  | |  | |  |  | | x | |  | |
| 8 | Software Developer graduates have the knowledge and the skills to design and develop business applications that would provide data access, modification and processing for data kept in enterprise database systems. | |  | |  | |  | x | |  | |  | |
| 9 | Software Developer graduates have the knowledge about computer networks, and have the skills to design, develop and monitor computer networks, how to configure them  and how to maintain their performance. | |  | | x | |  |  | |  | |  | |
| 10 | Software Developer graduates have the knowledge and the skills to design and develop visual user interfaces for the web, web-based applications for n-tier client/server configurations, how to deploy them in enterprises. | |  | | x | |  |  | |  | |  | |
| 11 | Software Developer graduates, within his/her job responsibilities can communicate the necessary information both written and orally in Turkish, English and another foreign language, respecting the values the societal institutions and establishments, of which he/she has acquired in the program. | | X | |  | |  |  | |  | |  | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION** | | | |
| Activities | Quantity | Duration (Hour) | Total Workload (Hour) |
| Course Duration (Including the exam week: 15x Total course hours) | 15 | 3 | 45 |
| Hours for off-the-classroom study (Pre-study, practice) | 15 | 4 | 60 |
| Mid-terms | 1 | 10 | 10 |
| Homework | 14 | 1 | 14 |
| Final examination | 1 | 10 | 10 |
| **Total Work Load** |  |  | 139 |
| **Total Work Load / 25 (h)** |  |  | 5,56 |
| **ECTS Credit of the Course** |  |  | 6 |

==================================================