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| **Course Description** |
| Course Code | YZ 304 |
| Course Name | SOFTWARE TEST & QUALITY ASSURANCE |
| Prerequisite Courses |  |
| Language of the Course | The English |
| Course Coordinator |  |
| Instructor(s) |  |
| Course Assistants |  |
| The aim of the course | This course introduces concepts, metrics, and models in software quality assurance. The course covers components of software quality assurance systems before, during, and after software development. It presents a framework for software quality assurance and discusses individual components in the framework such as planning, reviews, testing, configuration management, and so on. It also discusses metrics and models for software quality as a product, in process, and in maintenance. The course will include case studies and hands-on experiences. Students will develop an understanding of software quality and approaches to assure software quality. |
| Course Content |  |

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| **Weekly Course Content** |
| Week 1 | Background |
| Week 2 | Software quality factors |
| Week 3 | Components of SQA |
| Week 4 | Pre-project components |
| Week 5 | Defect removal effectiveness |
| Week 6 | Testing |
| Week 7 | Maintenance and external participants |
| Week 8 | Midterm exam. |
| Week 9 | Configuration management  |
| Week 10 | Standards, Software quality metrics |
| Week 11 | Cost of software quality |
| Week12 | Software reliability models |
| Week 13 | In-process quality metrics and models |
| Week 14 | Future of SQA |
| Week 15 | Final exam. |

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| **Course Learning Outcomes** |
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| **Contribution of the Course to Program Qualifications** | **Contribution Level** |
| 01 | The student will have the ability to apply analytical approach, mathematics and science knowledge in software and engineering issues. | 4 |
| 02 | The student will have the ability to identify, define, formulate and solve a problem in software and computer systems. | 5 |
| 03 | The student will have gains scientific research skills in software and engineering problems, has the ability to design a system, part or process. | 4 |
| 04 | The student will have the ability to use the design capability, techniques and tools required for engineering applications. | 2 |
| 05 | The student will have the ability to design, implement and interpret experimental work and software projects by analyzing the results. | 4 |
| 06 | The student will have the ability to work between disciplines and teamwork. | 5 |
| 07 | The student will have the ability to work in international environments and adapt to different cultures. | 5 |
| 08 | The student will have verbal and written communication skills in Turkish and English. | 4 |
| 09 | The student will have the awareness of the necessity of lifelong learning and the ability to realize it. | 5 |
| 10 | The student will gain knowledge of legal issues with the awareness of professional and ethical responsibility. | 3 |
| 11 | The student will have managerial skills (leadership, organization, time and risk management, quality awareness, efficiency, etc.). | 5 |
| 12 | The student will have the ability to participate in social activities, to acquire regular sports habits and to use time in the best way. | 5 |
| 13 | The student will have the ability to find unusual ways and produce projects. | 3 |
| 14 | The student will have professional self-confidence, being an entrepreneur and taking initiative. | 3 |
| 15 | It is sensitive about the problems of the age and looks after the national interests. | 4 |

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| **ECTS WORKLOAD** |
|  | **Number** | **Duration (hours)** | **Number\*Duration** |
| Face to face education | 14 | 3 | 42 |
| Out-of-class study time (pre-study, reinforcement) | 14 | 3 | 42 |
| Homeworks | 4 | 5 | 20 |
| Presentation / Seminar preparation | 0 | 0 | 0 |
| Quizzes | 0 | 0 | 0 |
| Preparation for midterm exams | 1 | 10 | 10 |
| midterm exams | 1 | 2 | 2 |
| Project (Semester assignment) | 0 | 0 | 0 |
| Lab | 0 | 0 | 0 |
| field work | 0 | 0 | 0 |
| Preparation for the final exam | 1 | 15 | 15 |
| Semester final exam | 1 | 2 | 2 |
| Research | 5 | 2 | 10 |
| **TOTAL WORKLOAD** |  |  | **157** |
| **ECTS** |  |  | **5** |

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| **Evaluation** |
| SEMESTER EVALUATION | **Number** | **Contribution Percentage** |
| Midterm | 1 | 20 |
| Quiz | 0 | 0 |
| Homework | 4 | 20 |
| **SEMESTER TOTAL** |  | **40** |
| Contribution rate of mid-term evaluations to success |  | 40 |
| Contribution rate of the final exam to success |  | 60 |
| **GRAND TOTAL** |  | **100** |

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| **RESOURCES** |
| Textbook |  |
| Helpful Resources | Daniel Galin,  **Software Quality Assurance : From Theory to Implementation**, Addison Wesley, 2003.Stephen Kan,**Metrics and Models in Software Quality Engineering (2nd Edition)**, Addison Wesley, 2002. |

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