**ECTS COURSE INFORMATION FORM**

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| **Faculty** | **Faculty of Engineering** | |
| **Program** | **B.Sc. in Civil Engineering** | **Elective** |
| | **B.Sc. in Computer Engineering** | **Elective** |
| | **B.Sc. in Electrical-Electronics Engineering** | **Required** |
| | **B.Sc. in Industrial Engineering** | **Elective** |
| | **B.Sc. in Mechanical Engineering** | **Elective** |

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| **Course Code** | EE 491 | | | |
| **Course Title in English** | EE Senior Design Project I | | | |
| **Course Title in Turkish** | EE Tasarım Projesi I | | | |
| **Language of Instruction** | English | | | |
| **Type of Course** | Project | | | |
| **Level of Course** | Undergraduate | | | |
| **Course Category (by % of Content)** | Basic Science | Basic Engineering | Engineering Design | General Education |
| | 0 | 0 | 100 | 0 |
| **Semester Offered** | Fall / Spring | | | |
| **Contact Hours per Week** | Lecture: - | Recitation: 6 hours | Lab: - | Other: |
| **Estimated Student Workload** | 176 hours | | | |
| **Number of Credits** | 7 ECTS | | | |
| **Grading Mode** | Standard Letter Grade | | | |
| **Pre-requisites** | 4th year student (minimum 180 ECTS completed)<br>Pre-requisite override conditions:<br>156 ECTS completed and EE101, EE201, EE204, EE308 and at least any 2 out of EE 301, EE 302, EE 303, EE 304, EE 305, EE 306. | | | |
| **Expected Prior Knowledge** | Prior knowledge in different fields of Electrical and Electronics Engineering. | | | |
| **Co-requisites** | One EE Elective Course | | | |
| **Registration Restrictions** | Only 4th year Students | | | |
| **Overall Educational Objective** | To learn to perform literature review about an Electrical and Electronics Engineering topic and to define an engineering problem and to propose a solution for the engineering problem by using the knowledge and skills acquired through previous classes. | | | |
| **Course Description** | This course is the first stage of a one-year senior design project course. In senior design project, the students work in project teams for a capstone design project on a specific topic in any field of Electrical and Electronics Engineering. In this course, the students are expected to define an engineering problem and to propose a solution for an engineering problem. Students will first perform a literature survey on the real-life problem that they selected at the beginning of the semester. Then, students will propose a solution to that problem under the supervision of their advisors. | | | |
| **Course Description in Turkish** | Bu ders, EE tasarım projesi dersinin ilk kısmıdır. Tasarım projesinde öğrenciler proje grupları halinde Elektrik-Elektronik Mühendisliği alanında bir tasarım projesinde çalışacaklardır. Bu derste öğrencilerin bir mühendislik problemini tanımlamaları ve bu probleme çözüm üretmeleri beklenmektedir. Öğrenciler dönem başında, kendilerinin seçtikleri gerçek hayatta karşılaşılan bir problem üzerine öncelikle bir literatür taraması yapacaklar ardından da bu probleme çözüm üreteceklerdir. Tüm süreç seçilen konunun danışmanının idaresinde sürdürülecektir. | | | |
| **Course Learning Outcomes and Competences** | Upon successful completion of the course, the learner is expected to:<br>1. examine a practical complex engineering problem by applying principles of engineering, science, and mathematics;<br>2. create a conceptual design that will solve the considered problem by considering engineering standards, realistic constraints and conditions in addition to public health, safety, welfare, as well as global, cultural, social, environmental, and economic factors; | | | |

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| | 3. compose a well-organized written report and a presentation to explain the engineering problem and design to a wide audience;<br>4. distinguish professional and ethical responsibility and the impact of engineering solutions in global, economic, environmental, and societal contexts followed during a design process;<br>5. plan an engineering project based on the established goals and tasks tailored for a collaborative team;<br>6. construct a model and conduct appropriate experimentation/simulation producing meaningful data to verify the conceptual design;<br>7. determine appropriate learning strategies to acquire new knowledge as needed by the engineering problem. |

| **Relationship of the Course with the Student Outcomes** | Level | Learning Outcome(s) | Assessed by |
|---|---|---|---|
| **Student Outcomes** | N=None<br>S=Supportive<br>H=High | | Exam, Project, HW, Experiment, Presentation, etc. |
| (1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics | H | 1 | Reports, Presentations |
| (2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors | H | 2 | Reports, Presentations |
| (3) an ability to communicate effectively with a range of audiences | H | 3 | Reports, Presentations |
| (4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts | H | 4 | Reports, Presentations |
| (5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives | H | 5 | Reports, Presentations |
| (6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions | H | 6 | Reports, Presentations |
| (7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies | H | 7 | Reports, Presentations |

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| **Prepared by and Date** | Asst. Prof. Dr. Tuba Ayhan / April 2020 | |
| **Semester** | Fall 2019-2020 | |
| **Name of Instructor** | Asst. Prof. Dr. Tuba Ayhan (Coordinator) | |
| **Course Contents** | Week | Topic |
| | 1. | Weekly meeting with the advisor and weekly report submission. |
| | 2. | Weekly meeting with the advisor and weekly report submission. |
| | 3. | Weekly meeting with the advisor and project proposal submission. |
| | 4. | Weekly meeting with the advisor and weekly report submission. |
| | 5. | Weekly meeting with the advisor and weekly report submission. |
| | 6. | Weekly meeting with the advisor and weekly report submission. |
| | 7. | Weekly meeting with the advisor and weekly report submission. |
| | 8. | Mid evaluation of the progress of the project through the submitted report and a presentation |
| | 9. | Weekly meeting with the advisor and weekly report submission. |
| | 10. | Weekly meeting with the advisor and weekly report submission. |
| | 11. | Weekly meeting with the advisor and weekly report submission. |

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| | 12. | Weekly meeting with the advisor and weekly report submission. |
| | 13. | Weekly meeting with the advisor and weekly report submission. |
| | 14. | Weekly meeting with the advisor and weekly report submission. |
| | 15. | Presentations and project demonstration |
| | 16. | Presentations and project demonstration |

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| **Required/Recommended Readings** | |
| **Teaching Methods** | Weekly meetings with the advisor |
| **Homework and Projects** | - |
| **Laboratory Work** | Students use the equipment in EE lab if needed in the project. |
| **Computer Use** | Students design their projects using computer tools and programs. |
| **Other Activities** | - |
| **Assessment Methods** | Types of assessment: |

| | Number | Ratio (%) |
|---|---|---|
| Weekly meeting reports | 10-14 | 10 |
| Proposal | 1 | 15 |
| Progress report and midterm presentation | 1 | 30 |
| Project report and final presentation | 1 | 45 |
| Total | | 100 |

**Course Administration**

**Instructor's office**: 5th Floor
**office hours:** TBA
**email address:** TBA

**FOLLOWING RULES ARE NON NEGOTIABLE!**

**Meeting with the advisors:** You are responsible for all arrangements of weekly meetings with your advisor.

**Proposal**: No late submission (for every day over the due date will decrease your grade by 10%)

**Progress report:** No late submission. Students fail to submit their progress report on time will fail the course.

**Final report**: No late submission. Students fail to submit their progress report on time will fail the course.

**Presentation**: Students that miss their presentation time/day will fail the course.

**Disclaimer:** The instructor reserves the right, when necessary, to alter the grading policy, change examination dates, and modify the syllabus and course content. Modifications will be announced through BB. Students are responsible for the announced changes.

**A reminder of proper classroom behavior, code of student conduct**: YÖK Regulations

**Academic Dishonesty and Plagiarism**: YÖK Regulations

ECTS Student Workload Estimation

| Activity | No/Weeks | Hours | | | Calculation | Explanation |
|---|---|---|---|---|---|---|
| | No/Weeks per Semester (A) | Preparing for the Activity (B) | Spent in the Activity Itself (C) | Completing the Activity Requirements (D) | | |
| Weekly meeting with adviso | 14 | 2.5 | 1 | 4 | 105 | A*(B+C+D) |
| Proposal | 1 | 15 | 0 | 6 | 21 | A*(B+C+D) |
| Project Presentation | 2 | 6 | 1 | | 14 | A*(B+C+D) |
| Project Writing | 2 | 18 | 0 | | 36 | A*(B+C+D) |
| Total Workload | | | | | 176 | |
| Total Workload/25 | | | | | 7.04 | |
| ECTS | | | | | **7** | |