**COURSE INFORMATION FORM**

| | | |
|---|---|---|
| **Faculty** | **Faculty of Engineering** | |
| **Program** | **B.Sc. in Civil Engineering** | **N/A** |
| | **B.Sc. in Computer Engineering** | **N/A** |
| | **B.Sc. in Electrical-Electronics Engineering** | **Required** |
| | **B.Sc. in Industrial Engineering** | **N/A** |
| | **B.Sc. in Mechanical Engineering** | **N/A** |
| **Semester** | **Fall 2017-2018** | |

| | | | | |
|---|---|---|---|---|
| **Course Code** | EE 100 | | | |
| **Course Title in English** | Introduction to Electrical and Electronics Engineering | | | |
| **Course Title in Turkish** | Elektrik-Elektronik Mühendisliğine Giriş | | | |
| **Language of Instruction** | English | | | |
| **Type of Course** | Flipped Classroom/ Seminar/ Project | | | |
| **Level of Course** | Undergraduate | | | |
| **Course Category (by % of Content)** | Basic Science | Basic Engineering | Engineering Design | General Education |
| | 10 | 45 | 15 | 30 |
| **Semester Offered** | Fall | | | |
| **Contact Hours per Week** | Lecture: 2 hours | Recitation: - | Lab: - | Other: - |
| **Estimated Student Workload** | 75 hours per semester | | | |
| **Number of Credits** | 3 ECTS | | | |
| **Grading Mode** | Standard Letter Grade | | | |
| **Pre-requisites** | None | | | |
| **Expected Prior Knowledge** | None | | | |
| **Co-requisites** | None | | | |
| **Registration Restrictions** | Only Undergraduate Students | | | |
| **Overall Educational Objective** | To develop an understanding about the field of Electrical and Electronics Engineering. | | | |
| **Course Description** | This course provides a general introduction to the field of Electrical and Electronics Engineering. The course content covers MEF's Electrical and Electronics Engineering program and curriculum, basic research areas of Electrical and Electronics Engineering and basic concepts in these research areas. In addition to the theoretical lectures, there will be seminars from professionals and researchers from the field of Electrical and Electronics Engineering. | | | |
| **Course Description in Turkish** | Bu ders Elektrik-Elektronik Mühendisliği alanına genel bir giriş sağlamaktadır. Bu dersin iceriği MEF Üniversitesinin Elektrik-Elektronik Mühendisliği programını, Elektrik-Elektronik Mühendisliğinin temel araştırma alanlarını ve bu alanlarda kullanılan temel terimleri tanıtmaktır. Teorik derslere ek olarak, Elektrik-Elektronik mühendislerinden ve araştırmacılardan seminerler olacaktır. | | | |
| **Course Learning Outcomes and Competences** | Upon successful completion of the course, the learner is expected to be able to:<br>1. (h) recognize the EE Engineering program and its continuous improvement;<br>2. (f, h, i) explain the professional and ethical responsibilities of an EE engineer;<br>3. (h, i, j) recognize the contemporary issues and application areas of Electrical and Electronics Engineering;<br>4. (c, h, i) describe the basic concepts and the formal design process in Electrical and Electronics Engineering;<br>5. (d-1, f, g-1, g-2, h, i, j) as a team work, prepare a technical report and verbal presentation about a state of the art application in the field of Electrical and Electronics Engineering;<br>6. (a) demonstrate a knowledge in basic mathematics required for solving EE Engineering problems. | | | |

| Relationship of the Course with the Student Outcomes | Level | Learning Outcome(s) | Assessed by |
|---|---|---|---|
| **Program Outcomes** | N=None S=Supportive H=High | | Exam, Project, HW, Experiment, Presentation, etc. |
| (a) an ability to apply knowledge of mathematics, science, and engineering | S | 6 | Exam |
| (b) an ability to design and conduct experiments, as well as to analyze and interpret data | | | |
| (b)-1. an ability to design/develop an experiment by identifying required assumptions, constraints, data collection methods and models | N | | |
| (b)-2. Implement experimental procedures to conduct an experiment and use engineering judgment to draw conclusions | N | | |
| (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability | S | 4 | Homework Exam |
| (d) an ability to function on multidisciplinary teams | | | |
| (d)-1. Function effectively on a intradisciplinary team | S | 5 | Project |
| (d)-2. Function effectively on a multidisciplinary team | N | | |
| (e) an ability to identify, formulate, and solve engineering problems | N | | |
| (f) an understanding of professional and ethical responsibility | S | 2, 5 | Project, Homework |
| (g) an ability to communicate effectively | | | |
| (g)-1. Communicate effectively with well-organized written documents | S | 5 | Project |
| (g)-2. Communicate effectively verbally with a range of audiences | S | 5 | Project |
| (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context | S | 1, 2, 3, 4, 5 | Project, Homework, Exam |
| (i) a recognition of the need for, and an ability to engage in life-long learning | S | 2, 3, 4, 5 | Project, Homework, Exam |
| (j) a knowledge of contemporary issues | S | 3, 5 | Project, Homework |
| (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice | N | | |

| | |
|---|---|
| **Prepared by and Date** | Asst. Prof. Dr. Ebru Arısoy Saraçlar / June 2017 |
| **Name of Instructor** | Asst. Prof. Dr. Ebru Arısoy Saraçlar |

| **Course Contents** | Week | Topic |
|---|---|---|
| | 1. | Introduction to Electrical and Electronics Engineering and MEF's Electrical and Electronics Engineering Program and Curriculum |
| | 2. | Introduction to Engineering Profession and Fundamental Units and Dimensions |
| | 3. | Engineering Ethics |
| | 4. | Formal Design Process in Engineering |
| | 5. | Direct Current Fundamentals |
| | 6. | Introduction to Electrical and Electronics Laboratory |
| | 7. | Introduction to Signal Processing -- Analog vs Digital Signals |
| | 8. | Introduction to Control Systems |
| | 9. | Introduction to Electronics |

| | | |
|---|---|---|
| | 10. | Introduction to Communication Systems |
| | 11. | Technical Report Writing and Presentation |
| | 12. | Basic Mathematics for Electrical and Electronics Engineers |
| | 13. | Basic Mathematics for Electrical and Electronics Engineers |
| | 14. | Final Project Presentation |
| | 15. | Final Examination Period |
| | 16. | Final Examination Period |

| | |
|---|---|
| **Required/Recommended Readings** | Suggested Text:<br>Engineering Fundamentals: An Introduction to Engineering, Saeed Moaveni, Cengage Learning, 4th Ed., 2010 ISBN-13: 978-1439062081<br><br>Electrical Engineering Uncovered, Dick White and Roger Doering<br>Pearson, 2nd Ed., ISBN-13: 978-0130914521 |
| **Teaching Methods** | Contact hours using "Flipped Classroom" as an active learning technique |
| **Homework and Projects** | There will be 3-5 homework assignments and a final project. |
| **Laboratory Work** | Two of the lectures will be at the Electrical and Electronics Engineering Laboratory and students will conduct simple experiments in those lectures. |
| **Computer Use** | - |
| **Other Activities** | - |
| **Assessment Methods** | Types of assessment:<br>Final — Number: 1 — Ratio (%): 40<br>Homework/Lab Assignments — Number: 5 — Ratio (%): 20<br>Project — Number: 1 — Ratio (%): 40<br>Total — Ratio (%): 100 |
| **Course Administration** | **Instructor's office and phone number**: 5th Floor, (0212) 3953677<br>**office hours:** TBA<br>**email address:** saraclare@mef.edu.tr<br>**Rules for attendance:** -<br>**Missing a midterm**: Provided that proper documents of excuse are presented, a make-up exam will be given for the missed midterm.<br>**A reminder of proper classroom behavior, code of student conduct**: YÖK Regulations<br>**Statement on plagiarism**: YÖK Regulations<br>http://3fcampus.mef.edu.tr/uploads/cms/webadmin.mef.edu.tr/4833_2.pdf |

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) | | |
| Lecture | 14 | | 2 | | 28 | A*(B+C+D) |
| Assignments | 5 | 2 | 1.5 | | 17.5 | |
| Final | 1 | 10 | 1.5 | | 11.5 | A*(B+C+D) |
| Project | 1 | 16 | 2 | | 18 | A*(B+C+D) |
| Total Workload | | | | | 75 | |
| Total Workload/25 | | | | | 3 | |
| ECTS | | | | | **3** | |

**PROGRAM CRITERIA**

| |
|---|
| 1. Breadth in electrical-electronics engineering practice, analysis and design with 16 required course, and depth in one or |

| |
|---|
| more fields with 16 electives. |
| 2. Knowledge of mathematics, including differential and integral calculus, basic sciences, computer science, and engineering sciences that is necessary for analysis and design of complex electrical and electronic devices, software, and systems containing hardware and software components. |
| 3. Knowledge of probability and statistics, including application to Electrical and Electronics engineering; knowledge of advanced mathematics, including differential equations, linear algebra, complex variables, and discrete mathematics. |

Note: For program-specific courses ABET Program Criteria of the related engineering program will be put here as before.