

Part II. Detailed Course Information**Course Objectives***Explain the aims of the course. Maximum 100 words.*

- 1) To introduce the mechanical engineering profession to freshman students
- 2) To introduce the Cankaya University Mechanical Engineering program
- 3) To introduce the fields of specialization in mechanical engineering.

Learning Outcomes*Explain the learning outcomes of the course. Maximum 10 items.*

1. Have knowledge of Çankaya University ME curriculum and the facilities,
2. Have knowledge of mechanical engineering profession, its history, topics,
3. Have knowledge of mechanical engineering's current issues, future, job possibilities and role in the society
4. Have knowledge of engineering sciences and basic mechanical engineering fields
5. Have an ability to understand and comment on the impact of engineering solutions in national and global context.
6. Have an understanding of professional responsibility as mechanical engineers in economics, environmental issues, ethics, health, and safety.

Textbook(s)*List the textbook(s), if any, and other related main course materials.*

| Author(s) | Title | Publisher | Publication Year | ISBN |
|-----------|-------|-----------|------------------|------|
| | | | | |
| | | | | |
| | | | | |

Reference Books*List the reference books as supplementary materials, if any.*

| Author(s) | Title | Publisher | Publication Year | ISBN |
|------------------|---|-----------|------------------|---------------|
| Jonathan Wickert | An introduction to mechanical engineering | Thomson | 2006 | 9780534552978 |
| | | | | |

Teaching Policy*Explain how you will organize the course (lectures, laboratories, tutorials, studio work, seminars, etc.)*

There will be 2 hours of lectures in a week.

Laboratory/Studio Work*Give the number of laboratory/studio hours required per week, if any, to do supervised laboratory/studio work, and list the names of the laboratories/studios in which these sessions will be conducted.*

Mechanical Engineering Department Laboratories will be visited on schedule.

Computer Usage*Briefly describe the computer usage and the hardware/software requirements in the course.*

Students are encouraged to prepare the homeworks using office applications and/or computational tools.

| Course Outline <i>List the topics covered within each week.</i> | |
|---|--|
| Week | Topic(s) |
| 1 | Introductory Meeting: ME Curriculum, Undergraduate Regulations |
| 2 | History and Development of Engineering, Mechanical Engineering |
| 3 | Analytical, Experimental, and Computational Tools for Engineers |
| 4 | Dimensional Analysis |
| 5 | Dimensional Analysis and Unit Systems |
| 6 | Units Systems |
| 7 | Arithmetic Calculation, Error Analysis |
| 8 | Engineering Sciences: Thermal, Fluid Related Sciences |
| 9 | Engineering Sciences: Mechanical Sciences |
| 10 | Manufacturing Technologies |
| 11 | Engineering Design and Problem Solving |
| 12 | Introduction to Engineering Economics, Environmental issues, health and safety |
| 13 | Engineering ethics |
| 14 | Technical Visit |

| Grading Policy <i>List the assessment tools and their percentages that may give an idea about their relative importance to the end-of-semester grade.</i> | | | | | | | | |
|---|----------|------------|---------------------|----------|------------|-----------------|----------|------------|
| Assessment Tool | Quantity | Percentage | Assessment Tool | Quantity | Percentage | Assessment Tool | Quantity | Percentage |
| Homework | 4 | 20 | Case Study | | | Attendance | 14 | 10 |
| Quiz | | | Lab Work | | | Field Study | | |
| Midterm Exam | 1 | 30 | Class Participation | | | Project | | |
| Term Paper | | | Oral Presentation | | | Final Exam | 1 | 40 |

| ECTS Workload <i>List all the activities considered under the ECTS.</i> | | | |
|---|----------|------------------|------------------------|
| Activity | Quantity | Duration (hours) | Total Workload (hours) |
| Attending Lectures (<i>weekly basis</i>) | 14 | 2 | 28 |
| Attending Labs/Recitations (<i>weekly basis</i>) | - | - | - |
| Preparation beforehand and finalizing of notes (<i>weekly basis</i>) | - | - | - |
| Collection and selection of relevant material (<i>once</i>) | - | - | - |
| Self study of relevant material (<i>weekly basis</i>) | 14 | 1 | 14 |
| Homework assignments | 4 | 3 | 12 |
| Preparation for Quizzes | - | - | - |
| Preparation for Midterm Exams (<i>including the duration of the exams</i>) | 1 | 6 | 6 |
| Preparation of Term Paper/Case Study Report (<i>including oral presentation</i>) | - | - | - |
| Preparation of Term Project/Field Study Report (<i>including oral presentation</i>) | - | - | - |
| Preparation for Final Exam (<i>including the duration of the exam</i>) | 1 | 10 | 10 |
| TOTAL WORKLOAD / 25 | | | 70/25=2.8 |
| ECTS Credit | | | 3 |

Total Workloads are calculated automatically by formulas. To update all the formulas in the document first press CTRL+A and then press F9.

| Program Qualifications vs. Learning Outcomes | | | | | | |
|--|---|--------------|---|---|---|---|
| <i>Consider the below program qualifications determined in terms of learning outcomes of all the courses in the curriculum and capabilities. Look at the learning outcomes of this course given above. Relate these two using the Likert Scale by marking with X in one of the five choices at the right..</i> | | | | | | |
| No | Program Qualifications | Contribution | | | | |
| | | 0 | 1 | 2 | 3 | 4 |
| ME-01 | Adequate knowledge in mathematics, science and engineering subjects pertaining to Mechanical Engineering; ability to use theoretical and applied information in these areas to model and solve Mechanical Engineering problems. | | X | | | |
| ME-02 | Ability to identify and define complex Mechanical Engineering problems; ability to select and apply proper analysis tools and modeling techniques for formulating and solving such problems. | | X | | | |
| ME-03 | Ability to design a complex system, process, product or a machine under realistic constraints and conditions, in such a way as to meet the requirements; ability to apply modern design methods for this purpose. | | X | | | |
| ME-04 | Ability to devise, select, and use modern techniques and computing tools needed for Mechanical Engineering practice; ability to employ and make use of information technologies effectively with the use of engineering design software. | | X | | | |
| ME-05 | Ability to design and devise experimental setup, conduct experiments, gather data, analyze and interpret results for investigating Mechanical Engineering problems. | X | | | | |
| ME-06 | Ability to search databases and other information sources effectively; ability to identify and extract effectively the required information and knowledge from literature and other sources. | | | X | | |
| ME-07 | Ability to work efficiently in teams; ability to collaborate effectively in intra-disciplinary and multidisciplinary teams; ability to take responsibility within teams. | X | | | | |
| ME-08 | Ability to work individually, to take independent initiatives, and to create original inferences. | | | X | | |
| ME-09 | Ability to communicate effectively in Turkish, both orally and in writing. | X | | | | |
| ME-10 | Knowledge of a minimum of one foreign (English in particular) at a fluency level enough to follow easily Mechanical Engineering knowledge presented in that language and enough to communicate effectively with colleagues. | | | | X | |
| ME-11 | Ability to report the findings, conclusions and interpretations related to a project work, ability to write technical reports, to prepare and conduct effective presentations. | | X | | | |
| ME-12 | Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to keep continuously self improved. | | | X | | |
| ME-13 | Awareness of professional and ethical responsibility issues. | | | | X | |
| ME-14 | Capability to grasp business life practices such as project management, risk management, change management and strategic management. | X | | | | |
| ME-15 | Awareness of environmental issues, occupational safety and health, and their legal consequences. Knowledge about contemporary issues and the global and social effects of engineering practices; awareness of the legal consequences of engineering solutions | | | | X | |
| ME-16 | Awareness of entrepreneurship, innovation, and sustainable development. | | X | | | |

Contribution Scale to a Qualification: 0-None, 1-Little, 2-Medium, 3-Considerable, 4-Largest

Part III New Course Proposal Information

State only if it is a new course

| | | | | |
|--|--|--|----------------------------|---|
| Is the new course replacing a former course in the curriculum? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Former Course's Code | Former Course's Name |
| Is there any similar course which has content overlap with other courses offered by the university? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | Most Similar Course's Code | Most Similar Course's Name |
| Frequency of Offerings <i>Check all semesters that the course is planned to be offered.</i> | <input type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring <input type="checkbox"/> Summer | | | |
| First Offering | Academic Year | 2 0 1 1 / 2 0 1 2 | | Semester <input type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring |
| Maximum Class Size Proposed | 40 | Student Quota for Other Departments | - | Approximate Number of Students Expected to Take the Course |
| | | | | 60 |

Justification for the proposal*Maximum 80 words*

There is a wide range of application areas for the mechanical engineers. Therefore the course aims to inform the students with the general mechanical engineering applications. In addition, undergraduate program policies should be explained to mechanical engineering freshman students.

Part IV Approval

| Proposed by | Faculty Member <i>Give the Academic Title first.</i> | Signature | Date |
|----------------|---|-----------|------|
| | Asst. Prof. Dr. Ekin Özgirgin Yapıcı | | |
| | Asst. Prof. Dr. Ender Yıldırım | | |
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|------------------------------------|-------------------------|-------------------|--|--------------------|--|
| Departmental Board Meeting Date | | Meeting Number | | Decision Number | |
| Department Chair | Prof. Dr. S. Kemal İDER | Signature | | Date | |

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|--|-----------------------|-------------------|--|--------------------|--|
| Faculty Academic Board Meeting Date | | Meeting Number | | Decision Number | |
| Dean | Prof. Dr. Nevzat ONUR | Signature | | Date | |

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|------------------------|--|-------------------|--|--------------------|--|
| Senate Meeting Date | | Meeting Number | | Decision Number | |
|------------------------|--|-------------------|--|--------------------|--|