KTU
1955 KARADENİZ TEKNİK ÜNİVERSİTESİ

Faculty of Engineering

ELECTRICITY AND ELECTRONICS
DEPARTMENT OF ENGINEERING

# ENGINEERING DESIGN AND GRADUATION PROJECT APPLICATION GUIDELINES

December 27, 2024

# CONTENTS

# 1. RELATED REGULATION ARTICLE

**KARADENIZ TECHNICAL UNIVERSITY ASSOCIATE DEGREE AND UNDERGRADUATE DEGREE EDUCATION- TEACHING, EXAM, EVALUATION AND STUDENT AFFAIRS REGULATION**

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**CHAPTER THREE**
**Exams and Assessment**

**Graduation work**

**ARTICLE 32 –** (1) Conducting the graduation work or the studies to replace it,

The procedures and principles regarding the evaluation are determined by the relevant unit board.

# 2. DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING ENGINEERING DESIGN AND FINISHING PROJECT IMPLEMENTATION DIRECTIVE

Since it is necessary to pass the Engineering Design course in order to take the Graduation Project course in the Department of Electrical and Electronics Engineering, the Graduation Project application guideline has been prepared to include the Engineering Design course.

*Engineering Design* course is a compulsory course for students of the Department of Electrical and Electronics Engineering (hereinafter referred to as the *Department*) to be taken in the 7th semester. It is also a prerequisite course for the **Graduation Project** course taken in the 8th semester.

The most important reasons for adding the *Engineering Design* course to the curriculum are to provide students with the ability to design and implement projects to solve engineering problems, and at the same time, to save time for the practical part of the Graduation Project in the next semester by carrying out the design and project preparation parts of the *Graduation Projects* based on practical work within the scope of the *Engineering Design* course.

For this reason, how *the Engineering Design* and *Graduation Project* courses will be implemented should be carefully planned and prepared in advance. For this purpose, the following implementation plan has been prepared.

## 2.1. Engineering Design and Graduation Project Processes

1. Students make their topic selections online in the middle of the 6th semester (usually in April) through **the Engineering Design *Topic Selection link on the Engineering Design*** tab of the department website.
2. Students who have made their subject selections are assigned an *Engineering Design* advisor in May. *Engineering Design* advisors continue their duties as *the Graduation Project* advisors of the same students in the following semester.
3. *Students who have a designated Engineering Design* advisor determine their project topics by contacting their advisors and continue their work during the summer months to apply for support from organizations such as TÜBİTAK to find support for their projects. They continue their work when the 7th semester begins. The **"1. Introduction"** section of the "Engineering Design and **Graduation** Project Template File" file located in **the Engineering** Design and

*Graduation Project* sub-tabs of the department web page can be used to prepare an application file **for the TÜBİTAK Industry-Focused Graduation Projects Support Program.** The explanations in this section contain the content of the project writing guide.

4. Students who did not make ***an Engineering Design Subject Selection*** in April and therefore did not have an advisor assignment, can make the subject selections explained in Article 1 during the course registration and course add-drop week at the beginning of the fall semester. The Project Advisors of these students will be determined in the 3rd week of the fall semester. It is important for students to make their Engineering Design subject selections in April in order to apply **to the TÜBİTAK Industry-Focused Graduation Projects Support Program**.
5. Just as in professional business life, employees do not determine their teammates in advance and have to work together no matter who they are, in the context of Engineering Design, students' requests to work in groups they have formed among themselves or to work with the same advisor on the same project are not accepted. Similarly, faculty members' requests to be assigned to them by prior agreement with students are not taken into consideration.
6. Students who have worked on projects for different purposes in the semesters before enrolling in the Engineering Design course may continue these projects within the scope of the Engineering Design and Graduation Project courses with the approval of their advisors. However, since they do not comply with the principle of equality, these projects cannot be included in the Graduation Project 1st, 2nd and 3rd place rankings to be made in the Graduation Project Exhibition and presentations.
7. Project advisor faculty members divide the students assigned to them into groups of 2-3 or maximum 4 and give each group a project topic. Students in the groups formed can work among themselves and prepare a project proposal and submit it to the project advisor. The project advisor makes some changes to the project proposals brought by the students and decides whether or not they will be implemented. Interdisciplinary work opportunities are evaluated if any.
8. Projects to be done within the scope of the Engineering Design course must be of a practical and application- requiring type that clarifies a subject, solves a problem or addresses an application, taking into account the targeted program outcomes in engineering education. These projects can be in the form of designing and installing a stand-alone system, or they can be part of a larger project in practice.
9. Engineering Design, **which does not involve design** in the form of researching and writing a subject, and Graduation Project is not accepted.
10. The projects given in the *Engineering Design* course are prepared by taking into consideration *the Graduation Project* course to be taken by the same students in the following semester. The studies carried out in the Engineering Design course are continued in the Graduation Project course and the prototype of the designed project is produced. Therefore, by the end of the Engineering Design course, the design work should be completed and the project should be ready to be realized.
11. Studies related to the project topic studied within the scope of Engineering Design course should be organized under the headings *Introduction, Theoretical Background, Design, Simulation, Results* and *Evaluations* and these headings should be filled in as explained ***in the Engineering Design and Graduation Project Writing Guide.*** When writing the Graduation Project book, an *Experimental Studies* heading is added to these headings after *the Simulation* heading. Updates are made *to the Appendixes* with *results, evaluations* and, if necessary, the list of *References.“Engineering Design and Graduation Project Template File”* can be taken as an example.
12. Engineering Design and Graduation Projects to be prepared should be prepared in a way that includes engineering standards and realistic constraints (such as economy, environmental issues, sustainability, manufacturability, ethics, health, safety, social and political issues). The standards to be applied according to the subject of the study, economic constraints,

environmental impact assessment, sustainability and manufacturability of the project, compliance with ethical rules, and whether it will cause health, safety, social and political issues should be clearly stated. Possible legal dimensions related to the study should also be evaluated.

13. Groups must submit their projects and final reports describing these projects within the scope of Engineering Design or Graduation Project courses by the last day of classes, using the link provided in the Engineering Design and Graduation Project tabs on the department website. They deliver via online file delivery interfaces that they can access via their addresses. In order for project files to be delivered, **the Project Delivery Conditions must be met.** The deadlines for submitting Engineering Design and Graduation Project files are the same as the Graduation Project deadlines given in the Academic Calendar. The Engineering Design file submission interface and Graduation Project file submission interfaces are different.
14. The submission of Engineering Design and Graduation Project files must be in accordance with the explanations made ***in the Engineering Design and Graduation Project Writing Guide.***
15. ***The Engineering Design and Graduation Project Writing Guide*** must be followed in the preparation of project reports. **Project files that are not prepared in accordance with this guide will not be accepted.**
16. The last two days of the fall semester final exams and the last three days of the spring semester final exams are reserved for project presentations.
17. Within the scope of Engineering Design, each project group presents the project they designed to a 3-person evaluation jury with a 20-minute presentation open to all department students and faculty members. The presentation is made by group members sharing the presentation equally. Questions about the work may be asked at the end of the presentation. An evaluation grade is given to replace the Final Exam by taking into account the Final Report, Presentation Performance and the answers to the questions. This evaluation is made through ***the Engineering Design Evaluation Form*** and signed and recorded by the exam jury.
18. The projects prepared within the scope of the Graduation Project must be exhibited **in the Department Graduation Projects Exhibition from Thought to Reality** organized within the department. Each project group prepares the project prototype they have produced during the exhibition, which is open to everyone. In addition to the prototype, a poster explaining the project is prepared and used in the exhibition. The three-person evaluation jury examines the prototype during the exhibition and asks questions. They want the prototype to be run. Students can share and answer the questions. An evaluation grade is given to replace the Final Exam, taking into account the final report, presentation performance and the answers given to the questions. This evaluation is made through ***the Graduation Project*** Evaluation ***Form,*** signed by the exam jury and recorded.
19. Students whose Engineering Design project is not accepted and is found unsuccessful must repeat the procedures explained from article 1 for the following year.
20. 4th and 4+ grade students who lost a term can still enroll in the Engineering Design course in the Spring Term. These students must complete their subject selection process by the end of the spring term course software week.
21. Students who have previously passed the Engineering Design course but have not continued with the Graduation Project and have taken at least a one-term break must complete the topic selection process by the end of the course revision week when they enroll in the Graduation Project course later. Students in this situation may continue with a new advisor or, if they wish, continue with the Graduation Project with their Engineering Design advisor. However, they must write this in the explanation section of the form where they made their topic selection.
22. The matters specified in this guideline apply to Engineering Design and Graduation Project courses, regardless of the semester they are taken.

23. Students who fail Engineering Design start the Engineering Design process over again the next semester.
24. Students who fail the Graduation Project must restart the Graduation Project process in the following semester.
25. The process ends with the closing ceremony held at the end of the third day of the graduation projects exhibition. At the closing ceremony, participating students are given a certificate of participation by their project advisors.

## 2.3. Engineering Design and Graduation Project Scope

In addition to meeting the Department Program Outcomes, the project topic must provide at least one of the following features.

a. Design and hardware implementation of a system. ve donanım olarak gerçeklenmesi.
b. Theoretical examination and conclusion of a subject.
c. Design of a system and its implementation in a software environment.
d. Implementation of a part of an industrial project.

## 2.4. Project Final Report (Book)

1. Engineering Design and Graduation Project books must be prepared according to ***the Engineering Design and Graduation Project Writing Guide*** published on the department website by the department head.

# 3. APPENDICES

APPENDIX-1. Engineering Design and Graduation Project Writing Guide
APPENDIX-2. Engineering Design and Graduation Project Writing Template
APPENDIX-3. IEEE Ethics Rules
APPENDIX-4. Realistic Constraints Form
APPENDIX-5. Interdisciplinary Work Form
APPENDIX-6. Engineering Design File Submission Conditions Form
APPENDIX-7. Graduation Project File Submission Conditions Form
APPENDIX-8. Engineering Design Evaluation Form
APPENDIX-9. Graduation Project Evaluation Form