



Of Technology Faculty

**DEPARTMENT OF
ELECTRONICS AND
COMMUNICATION
ENGINEERING**

**ENGINEERING DESIGN AND
GRADUATION PROJECT
APPLICATION DIRECTIVE**

1. RELEVANT REGULATION ARTICLE

BLACK SEA TECHNICAL UNIVERSITY ASSOCIATE AND UNDERGRADUATE EDUCATION, EXAMINATION, EVALUATION AND STUDENT AFFAIRS REGULATION

Official Gazette Date: 07.10.2017 Official Gazette No: 30203

PART THREE Exams and Evaluation

Graduation study

ARTICLE 32 - (1) The procedures and principles regarding the conduct and evaluation of the graduation study or substitute studies are determined by the relevant unit board of the unit.

2. ELECTRONICS AND COMMUNICATIONS ENGINEERING DEPARTMENT OF ENGINEERING DESIGN AND FINAL PROJECT APPLICATION REGULATION

Since it is necessary to have passed the Engineering Design course in order to take the Graduation Project course in the Department of Electronics and Communication Engineering, the Graduation Project application directive has been prepared to cover the Engineering Design course.

Engineering Design course is a compulsory course for the students of the Department of Electronics and Communication Engineering (hereinafter referred to as *the Department*) 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 the addition of the *Engineering Design* course to the curriculum are to provide students with the ability to design and implement projects to solve engineering problems and also to save time for the practical part of *the* Graduation Project in the next semester by doing the design and projecting 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 planned in advance and carefully prepared. For this purpose, the following implementation plan has been prepared.

2.1. Engineering Design and Graduation Project Processes

1. In the middle of the 6th semester (usually in April), students make their subject selections online via the **Engineering Design Subject Selection** link on the **Engineering Design** tab of the department website.
2. An *Engineering Design* advisor is assigned to the students who have chosen a topic in May. *Engineering Design* advisors continue their duties as *Graduation Project* advisors of the same students in the following semester.
3. Students who have a specific *Engineering Design* advisor communicate with their advisors, determine their project topics and continue their studies during the summer months to apply for support to organizations such as TÜBİTAK in order to find support for their projects. When the 7th semester starts, they continue these studies. The section titled "**1. Introduction**" of the file titled "*Engineering Design and Graduation Project Template File*" 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-Oriented Graduation Projects Support Program**. The explanations made in this section have the content of a project writing guide.

4. Students who have not been assigned an advisor because they did not make **Engineering Design Subject Selection** in April can make the subject selections described in Article 1 during the course software 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 topic selections in April in order to apply to **the TUBITAK Industry-Oriented Graduation Projects Support Program**.
5. Just as in professional business life, employees do not pre-determine their teammates and have to work together regardless of who they are, within the scope of Engineering Design, the groups that students form among themselves in advance or their requests to take part in the same project with the same advisor are not accepted. Likewise, it is not taken into consideration for faculty members to request that students be assigned to them by prior agreement.
6. Students who have been working on projects for different purposes before enrolling in the Engineering Design course can continue these projects within the scope of Engineering Design and then Graduation Project courses with the approval of their advisors. However, since it does not comply with the principle of equality, these projects cannot participate in the Graduation Project Exhibition and presentations such as Graduation Project 1st, 2nd and 3rd place.
7. The project advisor faculty members divide the students assigned to them into groups of 2-3 or maximum 4 students and give each group a project topic. The students in the formed groups can work among themselves and prepare a project proposal and present it to the project advisor. The project advisor makes some changes in the project proposals brought by the students and decides whether they should be implemented or not. If there are opportunities for interdisciplinary work, they are evaluated.
8. The projects to be carried out within the scope of the Engineering Design course must be of a type that clarifies a subject, solves a problem or addresses an application that requires practical and application, taking into account the program outcomes targeted in engineering education. These projects can be in the form of designing and installing a system alone or as part of a large project in practice.
9. Engineering Design and Graduation Projects **that do not involve design** in the form of research and writing of a topic are not accepted.
10. The projects given in the *Engineering Design* course are prepared by considering the *Graduation Project* course to be taken by the same students in the following semester. The work done in the Engineering Design course is continued in the Graduation Project course and the prototype of the designed project is produced. Therefore, at the end of the Engineering Design course, the design work should be finished and the project should be ready to be realized.
11. The studies related to the project topic studied within the scope of the Engineering Design course should be organized under the headings of *Introduction*, *Theoretical Background*, *Design*, *Simulation*, *Results* and *Evaluations*, and these headings should be filled in as described 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. *Conclusions*, *evaluations* and, if necessary, updates are made in the *References* list and *Appendices*. "*Engineering Design and Graduation Project Template File*" can be taken as an example.
12. Engineering Design and Graduation projects should be prepared in a way to include engineering standards and realistic constraints (such as economics, 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, whether it will cause health, safety, social and political problems should be clearly stated. Possible legal aspects of the study should also be evaluated.
13. Groups submit their projects and final reports describing their projects within the scope of

Engineering Design or Graduation Project courses until the last day of the courses via the link given on the Engineering Design and Graduation Project tabs on the department website.

They submit their project files through the online file submission interfaces that they can access with their addresses. Project **Delivery Conditions must be met in** order to submit the project files. **The** deadlines for submission of Engineering Design and Graduation Project files are the same as the Graduation Project deadlines given in the Academic Calendar. Engineering Design file submission interface and Graduation Project file submission interfaces are different.

14. The submission of the Engineering Design and Graduation Project files must comply with the instructions in the *Engineering Design and Graduation Project Writing* Guide.
15. *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 are not 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 have designed with a 20-minute presentation to a 3-person evaluation jury open to all students and faculty members of the department. Group members make the presentation by sharing equal time. Questions about the work can be asked at the end of the presentation. Taking into account the Final Report, Presentation Performance and the answers given to the questions, an evaluation grade is given to replace the Final Examination. This evaluation is made on *the Engineering Design Evaluation Form*, signed and recorded by the exam jury.
18. The projects prepared within the scope of the Graduation Project must be exhibited at the **Departmental Graduation Projects Exhibition from Dream to Reality** organized within the department. Each project group exhibits the project prototype they have produced during the exhibition, which is open to everyone. In addition to the prototype, a poster describing the project is also prepared and used in the exhibition. A three-person evaluation jury examines the prototype and asks questions during the exhibition. They ask to run the prototype. Students can answer the questions by sharing them. Taking into account the final report, presentation performance and answers to the questions, an evaluation grade is given to replace the Final Exam. This evaluation is made on the *Graduation Project Evaluation Form*, signed and recorded by the exam jury.
19. Students whose Engineering Design project is not accepted and found unsuccessful must repeat the procedures described in item 1 for the following year.
20. 4th and 4+ year students who have lost a semester can enroll in the Engineering Design course in the Spring Semester. These students must make their subject selection until the end of the spring semester courseware week.
21. Students who have previously passed the Engineering Design course but did not continue the Graduation Project and took at least one semester break must complete the subject selection process until the end of the course software week when they enroll in the Graduation Project course. Students in this situation can continue with a new advisor, or if they wish, they can continue the Graduation Project with their Engineering Design advisor. However, they should write this in the explanation section of the form in which they choose the subject.
22. Regardless of the semester in which they are taken, the provisions specified in this directive apply to Engineering Design and Graduation Project courses.
23. Students who fail Engineering Design will start the Engineering Design process again the following semester.
24. Students who fail the Graduation Project will start the Graduation Project process again in the following semester.
25. The process ends with the closing ceremony held at the end of the third day of the graduation project exhibition. At the closing ceremony, participating students are given a certificate of participation by their project advisors.

2.3. Scope of Engineering Design and Graduation Project

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

- a. Design and hardware implementation of a system.
- b. Theoretical examination and finalization of a subject.
- c. Design and implementation of a system in software environment
- d. Realization 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 by the department chairmanship on the department web page.

3. APPENDICES

- ANNEX-1. Engineering Design and Graduation Project Writing Guide
ANNEX-2. Engineering Design and Graduation Project Writing Template
ANNEX-3. IEEE Code of Ethics
Annex 4. Realistic Constraints Form
ANNEX-5. Interdisciplinary Study Form
ANNEX-6. Engineering Design File Submission Requirements Form
ANNEX-7. Graduation Project File Submission Requirements Form
ANNEX-8. Engineering Design Evaluation Form
ANNEX-9. Graduation Project Evaluation Form