

ITU Faculty of Electrical and Electronics
Control and Automation Engineering Program
CONTROL AND AUTOMATION DESIGN I GUIDELINES

As part of the Control and Automation Engineering Program, students are expected to complete a major design project over two semesters. In the first semester, within the scope of the KON 4901 Control and Automation Design I course, students prepare project proposals, plan their work, and conduct initial studies to establish fundamental requirements such as experimental setups or simulations. Below is the guide to be followed in this process. The calendar provided in this guide is for reference only, and the Department Chair reserves the right to change the final submission deadlines for all forms and reports. Additionally, students may complete certain activities earlier than the recommended timeframes with the knowledge of their advisors.

1. **Course Enrollment (During the Course Enrollment Period):** Students must enroll in the KON 4901 course through the OBS system. The prerequisites for the course are available in the OBS system.
2. **Understanding Expectations (Weeks 1-2):** Students must review the course documents available on the department's course web pages and the Ninova/Moodle system to understand what is expected of them in the graduation design project. This includes familiarizing themselves with project report submission rules, interim and final report templates, the ethics compliance form, and interim and final report checklists. Students are encouraged to attend the orientation meeting organized by the Department Chair to ask any questions they may have.
3. **Selection of Topic, Team, and Advisor (Weeks 1-2):** First, students should form their project teams (a maximum of five members per team) and identify potential project topics. When selecting topics, students should explore project topics announced by faculty members. By consulting with faculty members, students should determine their advisors. After discussions with their advisor and team members, students should finalize their research topic and project title. The final report title at the end of the year may differ slightly from the initial project title. However, students must obtain approval from the department chair if they wish to change their project topic or advisor later.
4. **Submission of Registration Forms (First Two Weeks):** Signed project registration forms (KON_4901_FORM 1) must be submitted to the department secretary by the end of the second week. Updated forms can be downloaded from Ninova/Moodle and the department website (see link below).
5. **Defining the Design Problem and Relevant Design Criteria (Weeks 2-4):** Students should work with their advisor to clarify their design problem and relevant design criteria. It is important to consider multiple design criteria/constraints in the project.
6. **Identifying Relevant Standards (Weeks 2-4):** Students should identify the engineering standards relevant to their project in consultation with their advisor. Projects that are not associated with any engineering standards or that reference unrelated standards will be considered unsuccessful.
7. **Defining Work Packages (Weeks 2-4):** Students should work with their team members and advisor to clearly define the project's work packages (for the KON 4901 course).
8. **Conducting a Literature Review (Weeks 2-8):** Students should conduct a comprehensive literature review covering previous studies and recent developments.
9. **Risk Planning (Weeks 2-8):** Students should identify potential project risks, determine measures to mitigate these risks, and establish contingency plans in case of unforeseen issues.
10. **Impact Analysis (Weeks 2-8):** Students should assess the possible impacts of their project (environmental, economic, social, ethical, etc.).
11. **Interim Report Submission (Week 8):** Using the provided report template, students should complete their interim report and upload it to the Ninova/Moodle system and Turnitin by the deadline. A digital copy must also be sent to their advisor.
12. **Interim Report Evaluations (Week 9):** Advisors will evaluate the interim reports, complete the advisor section of the Interim Report Submission Forms, and submit the graded reports to the department chair.
13. **Identification of Inadequate Interim Reports (Week 10):** Based on forms completed by faculty members of the Department Quality Commission and the submitted interim reports, inadequate reports will be identified. Projects associated with inadequate interim reports will be deemed unsuccessful, and students will need to retake the course. Reports that do not include multiple design criteria or relevant engineering standards will be considered inadequate. Having an interim report evaluated as adequate does not necessarily

mean that the final projects will be found adequate. **The design criteria and the engineering standards provided in the interim reports might need to be revised as the project evolves and more details are unveiled.**

14. **Defining Work Packages (Weeks 9-14):** Students should work with their team members and advisor to detail the work to be conducted in the following semester and clearly define the work packages (for the KON 4902 course).
15. **Identifying Method(s) to be Used (Weeks 9-14):** Students should determine the method(s) they will use to solve their design problem, conduct basic research on these methods, and understand their theoretical aspects. If possible, they should apply these methods to simple (toy) problems to gain a better understanding.
16. **Setting Up Experiment/Simulation Arrangements (Weeks 9-14):** Students should complete the installation of the necessary experimental setups and/or simulation software required for the main part of their project in the second semester. They should review the user manuals of the setups/software, conduct simple (toy) experiments to ensure the setup functions correctly, and avoid spending additional time on setup installation in the second semester (KON 4902 course).
17. **Preparing the Final Report (Weeks 12-14):** Students should prepare their final report according to the provided template, ensuring that they meet all checklist criteria and consider the evaluation criteria provided in the Final Report Evaluation Criteria Table.
18. **Submitting the Final Report (Week 14):** Students should upload their final report to the Ninova/Moodle system and Turnitin by the submission deadline. A digital copy should also be shared with their advisor.
19. **Final Report Evaluations (Week 15):** Advisors will evaluate the final reports and submit the evaluation results online to the Department Chair. Students whose reports are deemed unsuccessful will not be allowed to present their projects and will fail the course.
20. **Preparing the Presentation File (Weeks 12-16):** At the end of the semester, students are expected to present their report to a jury of faculty members. They should prepare their final report presentation file according to the provided template and ensure it adheres to effective presentation techniques and fits within the allocated time.
21. **Giving the Presentation (Weeks 16-20):** Students should deliver their presentation within the allocated time and be prepared for possible questions. Presentation dates will be announced via the Ninova/Moodle system.
22. **Evaluation of Presentations (Weeks 16-20):** Presentations will be evaluated by the jury either during or immediately after the presentation. The final course grade will be determined based on the weighted average of interim reports, final reports, and presentations. Students with an average score below 50 will be considered unsuccessful.
23. **Holding Regular Meetings (General):** Students should hold regular project meetings with their team members and advisor.
24. **Using Project Report Templates (General):** Students should download and use the project report templates while preparing their reports. They should ensure that all checklist items are completed. Templates are available on Ninova/Moodle and the department website (see links below).
25. **Complying with Rules and Deadlines (General):** Students must comply with the rules and final submission deadlines announced by the department.

Website: <https://kontrol.itu.edu.tr/en/education/undergraduate/graduation-design-project>