

# **ELE 401 - GRADUATION PROJECT I TERM REPORT**

**HACETTEPE UNIVERSITY**  
**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**GROUP NAME (Optional)**

**PROJECT TITLE:** (The title of the ELE 401 – ELE 402 project)

**PROJECT GROUP MEMBERS:** (The names of the students who work together in the same project group)

**PROJECT SUPERVISOR:** (Academic title and name of the supervisor)

**SUBMISSION DATE:**

**FALL 2025-2026**

## ABSTRACT

The Abstract is the first section of the term report which contains a brief summary of the entire project report. A single paragraph composed of 5-6 sentences up to half a page is usually considered a decent size for the Abstract section. The purpose and the content of the report should be clearly mentioned. A brief explanation of the work conducted throughout the first few weeks and the results obtained in this period should be included.

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# 1. INTRODUCTION

This template aims to help the students prepare their term report for the ELE 401 Graduation Project I course. The students are required to follow the exact formatting of page setup, page, section, and subsection numbering, referencing, tables and figures as given in this template, as well as the specific instructions regarding the content of the report. The grading of this report will be both over style and content. This report must be submitted by the **last day of the final exams**.

The report, along with its attachments, should be printed one-sided and punched and placed in a soft binder. The electronic copy of this submission should also be sent to the project supervisor in a single pdf file through e-mail. The pdf file should be named in the format as:

**ELE401\_semesteryear\_TR\_groupname or studentname.pdf**

**Example: ELE401\_Fall2025\_TR\_GroupAlpha.pdf (for group projects)**

**ELE401\_Fall2025\_TR\_CanYazar.pdf (for individual projects)**

Similar to the interim reports, this section is expected to provide general information about the overall project, the progress made during previous report terms, as well as what has been accomplished specifically throughout the remainder of the semester. It should clearly mention the additional work that has been conducted after the second interim report has been submitted. A summary of the information given in the following sections should also be included at the end. Recall that the Introduction section is usually *not* comprised of subsections.

The main body of the term report starts here. The subsections of this report are a combination of the two interim reports. The following sections and subsections are expected to be included in this report; more sections may be added, if necessary. Although these sections appear to be identical to those in the previous reports, they are expected to contain more detail and should be written with more care than before. If any information provided in the corresponding subsections of the interim reports has been found incomplete or incorrect, this report will be the opportunity to present the latest and most up to date result and overall progress.

For an explanation of what is to be included in the sections and subsections, consult the first and second interim report templates.

# 2. PROJECT DESCRIPTION

This section provides a thorough and detailed description of the design project, as well as the motivation for the work and possible utilization schemes for the intended outcome in practice. The steps that are considered to be taken throughout the design and implementation of the project need to be clearly presented in this section. Visual

elements such as schematic depictions, illustrations, block diagrams and photographs of the intended design steps and those of similar or related previous designs should be utilized in order to provide the reader with a better understanding of the overall project. These should be mentioned in the text first and then appear later in the report, as shown in Figure 1. Finally, a weekly schedule proposal should be given in tabular form or as a Gantt chart. Table 1 presents an example for such a chart.

At this point, it is important to emphasize that your design experience should be based on the knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints.

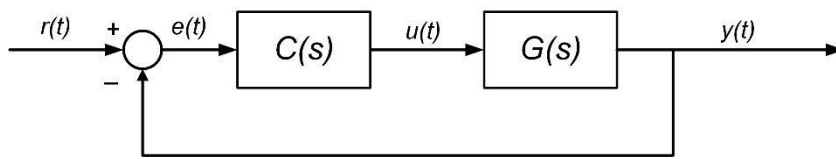


Figure 1 Block Diagram of a Unit Feedback Control System

Table 1 A Gantt Chart Example

| Project Timeline | 2016 – 2017 |    |    |    |    |    |    |    |    |     |     |     |     |     |
|------------------|-------------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|
| Task List        | W1          | W2 | W3 | W4 | W5 | W6 | W7 | W8 | W9 | W10 | W11 | W12 | W13 | W14 |
| Task 1           | ■           | ■  |    |    |    |    |    |    |    |     |     |     |     |     |
| Task 2           |             | ■  | ■  | ■  |    |    |    |    |    |     |     |     |     |     |
| Task 3           |             |    | ■  | ■  | ■  | ■  |    |    |    |     |     |     |     |     |
| ...              |             |    |    |    |    | ■  | ■  | ■  |    |     |     |     |     |     |

### 3. ENGINEERING STANDARDS AND DESIGN CONSTRAINTS

The design should be subject to engineering standards and/or multiple realistic constraints. There should be at least one standard, and one constraint mentioned in this report. These chosen standards and constraints must be followed and applied throughout the rest of the project, so it is important that they be identified accordingly at this point.

#### 3.1. ENGINEERING STANDARDS

This section of the report aims to clarify which engineering standard(s) apply to this design project and how the design project is expected to satisfy these standards.

Include the necessary standard(s) from the checklist you have selected in your interim report. Provide a thorough discussion regarding the standard(s)' possible relevance to

your project. As an example, if you are using IEEE 802.11 standard in your design you are expected to go through that standard and discuss here how you will utilize, and have utilized so far, this standard in your design. An example list of engineering standards is given below. More examples of standards can be found in the [Project Design Constraints](#) document.

### 3.2. DESIGN CONSTRAINTS

The design constraints should be identified and some discussion on how these apply to the design project and their realization are to be included in this section. You may refer to the list of some realistic design constraints that can be found in the [Project Design Constraints](#) document. Other constraints can be identified and discussed, if applicable.

## 4. SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030.

There are 17 SDGs listed below:

Goal 1: *No poverty*

Goal 2: *Zero hunger*

Goal 3: *Good health and well-being for people*

Goal 4: *Quality education*

Goal 5: *Gender equality*

Goal 6: *Clean water and sanitation*

Goal 7: *Affordable and clean energy*

Goal 8: *Decent work and economic growth*

Goal 9: *Industry, Innovation, and Infrastructure*

Goal 10: *Reducing inequalities*

Goal 11: *Sustainable cities and communities*

Goal 12: *Responsible consumption and production*

Goal 13: *Climate action*

Goal 14: *Life below water*

Goal 15: *Life on land*

Goal 16: *Peace, justice, and strong institutions*

Goal 17: *Partnerships for the goals*

You may find detailed information about the goals at

<https://www.undp.org/content/undp/en/home/sustainable-development-goals.html>.

Clearly state which Goals are satisfied by your project and how. Elaborate on your reasoning by providing sufficient detail for the Goals you mention.

## 5. LITERATURE REVIEW

In this section, provide the theoretical background from courses taken during the first three years of the undergraduate program that will be applied in the project, and the further research and literature studies you conduct to reach your design constraints, meet the engineering standards and fulfill your project in general. Discuss relevant topics, including available methods, tools, and, if necessary, mathematical formulae and derivations. As the knowledge acquired in previous coursework is typically insufficient for completing the project, additional research—such as literature reviews, advanced theoretical or practical studies, or expertise in specific fields, software, or hardware—may be required. Any essential background knowledge not covered in previous coursework should also be presented in this section, with proper references in IEEE format.

## 6. METHODS

In this section, clearly define the approaches or methods that you chose to employ to achieve the objectives of the project. Provide detailed justification for the selection of each method, considering its relevance, feasibility, and effectiveness in addressing the project's requirements. Where applicable, compare alternative approaches you opted out of, and discuss their limitations compared to your choice of methods. Ensure that the chosen methodologies align with established engineering standards and best practices, supporting the overall success of the project. Please give citations when you use references for each method in IEEE format.

### 6.1. METHOD 1 (YOU MAY REPLACE WITH THE NAME OF THE METHOD)

Explain the first method in detail. Explain advantages and disadvantages. Use references. Use figures when necessary.



## 6.2.METHOD 2 (YOU MAY REPLACE WITH THE NAME OF THE METHOD)

Explain the first method in detail. Explain advantages and disadvantages. Use references. Use figures when necessary.

## 7. PRELIMINARY DESIGN

Based on the methods provided in the previous section,

- Choose one of the methods and explain the reasoning behind your choice.
- Provide a preliminary design using the chosen method. Use figures, flow charts, etc. to describe the preliminary design.
- Clearly identify the parameters and design choices in the preliminary design. At this stage, you do not need to determine the value of the parameters. You do not need to make design choices. However, you do need to identify what the parameters and design choices are.

## 8. PROGRESS & RESULTS

In this section, provide a detailed account of initial observations related to the selected methods, including any preliminary assessments or insights gained during their application. Document the progress made in various stages of the project, such as system development, testing, modifications, and reporting of any subsystems. Highlight any challenges encountered, adjustments made to improve performance, and key findings that contribute to the overall refinement of the project. This analysis should offer a comprehensive overview of the iterative process involved in achieving the project's objectives.

## 9. TEAMWORK

This section is dedicated to clarifying the details of the team's efforts if the project is conducted by a group of students. How the workload has been split up amongst the group members needs to be clearly explained in this section. Each member's individual contributions to the project must be visible to the reader.

## 10. CONCLUSIONS

The inclusion of the comments and conclusions section is mandatory in the term report. It should start with a summary of the report and present an elaborate picture of the current status of the design project. The author is expected to briefly discuss the results obtained in terms of goals set for the semester, accuracy, sufficiency, etc. Finally, the steps of the proposed future studies need to be indicated.



## REFERENCES

(When a reference, such as a book [1-2], handbook [3], report [4], journal [5], or conference paper [6], or any other document is cited in the text, it should be properly listed in the References section. Use the [IEEE Citation Reference](#) format.)

- [1] J. K. Author, "Title of chapter in the book," in *Title of His Published Book*, xth ed. City of Publisher, Country if not USA: Abbrev. of Publisher, year, Ch. x, sec. x, pp. xx-xx.
- [2] B. Klaus and P. Horn, *Robot Vision*. Cambridge, MA: MIT Press, 1986.
- [3] *Motorola Semiconductor Data Manual*, Motorola Semiconductor Products Inc., Phoenix, AZ, 1989.
- [4] J. H. Davis and J. R. Cogdell, "Calibration program for the 16-foot antenna," Elect. Eng. Res. Lab., Univ. Texas, Austin, Tech. Memo. NGL-006-69-3, Nov. 15, 1987.
- [5] R. E. Kalman, "New results in linear filtering and prediction theory," *J. Basic Eng.*, ser. D, vol. 83, pp. 95-108, Mar. 1961.
- [6] C. Berrou, A. Glavieux, and P. Thitimajshima, "Near Shannon limit error-correcting coding and decoding: Turbo-codes. 1," in *Proc. Int. Conf. Commun.*, Geneva, Switzerland, May 1993, pp. 1064-1070.