

ELE 401 - GRADUATION PROJECT I INTERIM 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

TABLE OF CONTENTS

TABLE OF CONTENTS	1
LIST OF FIGURES AND TABLES	2
1. INTRODUCTION	3
2. PROJECT DESCRIPTION	3
3. ENGINEERING STANDARDS AND DESIGN CONSTRAINTS.....	4
4. LITERATURE REVIEW	5
5. METHODS.....	5
5.1. METHOD 1 (YOU MAY REPLACE WITH THE NAME OF THE METHOD)	5
5.2. METHOD 2 (YOU MAY REPLACE WITH THE NAME OF THE METHOD)	5
6. PRELIMINARY DESIGN	5
7. CONCLUSION (OPTIONAL).....	6
REFERENCES.....	6

LIST OF FIGURES AND TABLES**Figure 1****4****Table 1****4**

1. INTRODUCTION

This report template aims to help the students prepare their interim 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 **end of the 8th week** of the semester.

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_IR_groupname or studentname.pdf

Example: ELE401_Fall2025_IR_GroupAlpha.pdf (for group projects)

ELE401_Fall2025_IR_CanYazar.pdf (for individual projects)

In this section, briefly describe the project, and what is in this report.

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.

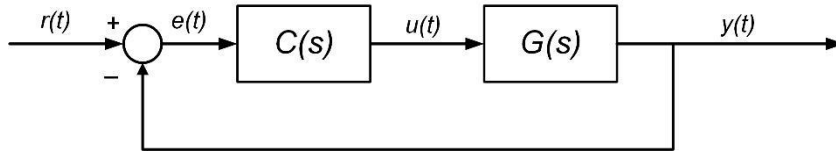


Figure 1 Block Diagram of a Unit Feedback Control System

Table 1 A Gantt Chart Example

Project Timeline	2016 – 2017													
Task List	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11	W 12	W 13	W 14
Task 1														
Task 2														
Task 3														
...														

3. DESIGN CONSTRAINTS

In this section, it is essential to clearly identify the design constraints relevant to the project and provide a thoughtful discussion on how these constraints impact both the conceptualization and practical realization of the design. These constraints should guide the design process and be considered during all stages of development. For reference, a list of realistic and commonly encountered design constraints is provided in the [Project Design Constraints](#) document. You are encouraged to refer to this list and incorporate applicable constraints into your discussion. However, you are not limited to those listed—any additional constraints that are relevant to your specific project should also be recognized and elaborated upon accordingly.

Furthermore, the proposed design must adhere to appropriate engineering standards. At least one recognized standard should be consistently applied throughout the project to ensure technical validity and professional integrity. Please consult Appendix A for a comprehensive list of relevant engineering standards and be sure to complete the corresponding form. In addition, your design should align with the principles of sustainable development. It is important that the project supports at least one of the Sustainable Development Goals (SDGs). Please review Appendix B for details regarding the SDGs and submit the required forms. The selection and integration of these constraints, standards, and goals must be thoroughly considered at this stage, as they

will form the foundation for the ongoing development of the project. A more in-depth analysis of how these elements are selected and implemented will be provided in the term report.

4. 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.

5. METHODS

In this section, clearly define the approaches or methods that can be employed 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 and discuss their advantages and limitations. 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.

5.1.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.

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

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

6. 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. in order 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.

7. CONCLUSION (OPTIONAL)

The conclusion should start with a brief summary of the report. It should also contain information regarding the current status of the design project and end with an elaboration on future work. The conclusion section is not mandatory in the interim report, but it might prove useful to plan ahead and lay out the remainder of the project work.

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.

APPENDIX A: 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 provided below. Note that a thorough discussion regarding the standard(s)' possible relevance to your project will be required in the term report. As an example, if you are using IEEE 802.11 standard in your design you are expected to go through that standard and include in your Term Report how you will utilize 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.

Please check at least one standard from the list.	
DoE Status of State Energy Codes (HVAC): http://www.energycodes.gov/implement/state_codes/index.stm	
EPA (health): http://www.epa.gov/	
Noise Control Codes: http://www.portlandonline.com/bds/index.cfm?&a=18493&c=38052	
Thermal Pollution (environment): http://www.esmagazine.com/CDA/ArticleInformation/features/BNP__Features__Item/0,2503,132219,00.html	
US Government web portal: http://www.firstgov.gov/	
Occupational Safety & Health Administration (U.S. Department of Labor): http://www.osha.gov/	
U.S. Consumer Product Safety Commission: http://cpsc.gov/	
American National Standards Institute: http://www.ansi.org/	
A National Resource for Global Standards: http://www.nssn.org/	
National Institute of Standards and Technology: http://www.nist.gov/	
ASME Codes & Standards: http://www.asme.org/Codes/	
LOS ALAMOS National Labs Standards http://engstandards.lanl.gov/ESM_Chapters.shtml	
IEEE standards http://standards.ieee.org/	
IEEE standards university http://www.standardsuniversity.org/	
ISO searchable standards database http://www.iso.org/iso/home/standards.htm	
UL safety http://www.ul.com/	
ASTM Standards https://www.astm.org/Standard/	
NIST Standards https://www.nist.gov/	
TSE Turkish Standards Institute www.tse.org.tr/	

APPENDIX B: 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 in the table below. You may find detailed information about the goals at <https://www.undp.org/content/undp/en/home/sustainable-development-goals.html>. Check from the list below which Goals are satisfied by your project. Note that you are expected to elaborate on your reasoning by providing sufficient detail for the Goals you mention in the term report.

Goal 1: <i>No poverty</i>	
Goal 2: <i>Zero hunger</i>	
Goal 3: <i>Good health and well-being for people</i>	
Goal 4: <i>Quality education</i>	
Goal 5: <i>Gender equality</i>	
Goal 6: <i>Clean water and sanitation</i>	
Goal 7: <i>Affordable and clean energy</i>	
Goal 8: <i>Decent work and economic growth</i>	
Goal 9: <i>Industry, Innovation, and Infrastructure</i>	
Goal 10: <i>Reducing inequalities</i>	
Goal 11: <i>Sustainable cities and communities</i>	
Goal 12: <i>Responsible consumption and production</i>	
Goal 13: <i>Climate action</i>	
Goal 14: <i>Life below water</i>	
Goal 15: <i>Life on land</i>	
Goal 16: <i>Peace, justice, and strong institutions</i>	
Goal 17: <i>Partnerships for the goals.</i>	