EE4013 Thesis I

Preamble:

This course covers the development of a preliminary design and early stages of implementation work on a thesis project. It entails a Project Plan, a lab book (your working journal), a technical presentation, and a final progress report. It is assumed that the project will make use of third year core and technical elective material in one or more areas of electrical engineering.

While students may work on a project as part of a group, there may be course components where a submission is required from *each* student (typically this involves only the lab book). Normally only one written thesis is required from each group in EE 4023 Thesis II. However, at the end of EE 4013 Thesis I, based on the peer reviews and other factors, a supervisor *may* decide that a written thesis is required from each member of the group for EE 4023 Thesis II. This would be an exceptional case and would only happen if some group members were not contributing to the project. Under normal circumstances only one thesis document would be required for both Thesis I and Thesis II.

Calendar Description:

The approved calendar description is:

EE 4013 Thesis I

"Covers the development of a proposal and the preliminary design for a project which will serve as the basis for the thesis to be completed in EE 4023 Thesis II. Students may work individually or in approved groups. Each student will present a proposal, commence work on the project, and submit written progress reports. Supervision is by ECE faculty"
2 ch (4L)(W)

Prerequisite: Completion of 120 credit hours of the program.

EE4013 Thesis I Chronological Schedule of Course Components

Component	Submission Date	Value	Comment
Project Plan	18th day of classes	5%	1 copy for each supervisor, and 1 copy for UTEB member. **All material to be passed in to the ECE Office (D36) by 4 P.M.**
Presentation	During the last two weeks of classes. This year the days are Tuesday, Nov. 30th and Thursday, Dec. 2	10%	No submission required
Lab Note Book	Last day of classes in term	5%	1 notebook for each person in the group **All material to be passed in to the ECE Office (D36) by 4 P.M.**
Final Progress Report	Last day of classes in term	80%	1 copy for each supervisor, and 1 copy for UTEB member. **All material to be passed in to the ECE Office (D36) by 4 P.M.**

Note: All course deliverables in the table above, with the exception of the presentation, should be kept in a three-ring binder which will be submitted on the last day of classes in the term. You will have to have the lab book drilled so it will fit in the binder. This binder should be kept for Thesis II so all project documents are kept together.

- The deadlines are firm. The only basis for extending any deadline is for documented compassionate or medical reasons. Any such requests must be made to the course coordinator.

- If any component of the thesis is handed in late, a mark of zero will be assigned to that component.

- If the university becomes closed due to bad weather, all due dates become the next day that the university is open.

EE4013 Thesis Project Plan
(Value = 5% of Total Mark)

DUE: 4 PM on the 18th day of classes in the term, to the Department Office.

NOTE: One Project Plan for each project must be submitted.

Approximate length: 4 to 5 pages, though it may be longer without penalty

The Project Plan should include the following information on its title page:

- Thesis Project Title
- Student Name(s) and signature(s)
- Supervisor Name
- Co-supervisor name, if any

Description:

In general terms, answer the question, "What is the project?" After reading this section one should know what your project is about.

Goals:

In concrete terms, when the project has been completed, what you will have done (designed, built, coded), or, if the thesis is a research project, what fundamental research question will you have answered?

Motivation:

Why is this project being done? (Justify the reason for pursuing this project in particular.)

History:

If your project is a continuation of an ongoing project, discuss any previous work that has been done leading up to your project. If your project is part of a larger research project, explain how your work fits into that larger context. If you are starting a new design project from the beginning, give some background for the project.

Methodology:

Approach to the project: Here you should consider and discuss any design methodology involved, whether you are designing hardware, software, a process, a clinical technique, or something else. If the project is not one that involves design of a product or process directly (as may be the case in research projects which often set out to answer scientific questions), then consider any design aspects that are related to the tools, experiments, procedures, software, etc. that you may have to design to obtain the answer to your question.

Plan of execution: Delineate with time lines the stages of your project and how you intend to carry out it out. These project stages should be broken down into as small and detailed steps as you can manage. It is easier to budget your time if you consider as many of the details of the project as possible before you begin. And allow time for a change of plan or approach. Things don't always go as you intend.

Resources:

Note any instrumentation or lab equipment that will be required to complete the project.

Indicate the tools you anticipate needing in the execution of the project, as well as any hardware that you would have to obtain, whether purchased, as samples from the manufacturer, or from the stock of typical components that we have in the tech shop.

Deliverables:

Describe what specific thing or things you will deliver at the completion of your project (apart from the documentation, which is understood to be required).

Note: There is $50 available from the department for each student project. The $50 is only for electrical materials, components, and supplies that are to be used in the completion of the project (excluding paper and transparencies, but including interlibrary loan materials). It was never intended for items such as transparencies, copying and the like. If you need to make a purchase, speak with your supervisor.

EE 4013 Thesis I Lab Notebook
(Value = 5% of Total Mark)

DUE: Last day of classes in the term by 4 PM, to the Department Office.

RETURN: Professors should return the Notebooks before the students are done exams i.e., in one week, so students can use them over the holidays if they want to.

TYPE: Each student in the course must have a bound lab notebook (no loose leaf) to record their individual progress on the thesis. The notebook should be drilled with three holes so it can be placed in the binder with all other course deliverables. This binder will be used to hold all of the material for both EE4013 and EE4023.

FUNCTION: The Lab Notebook should be a record of the work done by each student. The (bare) minimum requirement should be that it contains a signed and dated record of the weekly progress report meetings with the project supervisor, and the supervisor's comments on the work accomplished. Ideally, there should also be signed and dated records of any work done on the project. It is recommended that you log your work sessions in this book, and any other information that you might require later when doing your write up.

WHEN USED: 1. Every time work is done on the project an entry in the notebook should be made. If you are working mostly on a computer (e.g., it's a software design project), you should still record in your lab book what you did in each session.

2. When preparing progress reports all the relevant material needed should already be collected in the notebook.

ENTRIES: **1. Work entries:** This type of entry must be dated and can contain any or all of the following items:

   a) brainstorming notes and diagrams

   b) interactions with partners

   c) decisions taken

   d) tests performed

   e) results and conclusions drawn from tests

   f) notes from reference material with citations

2. Progress report to supervisor: This entry may be one paragraph or several pages but should describe the progress since the last meeting. It should include a summary, background, facts and outcomes which answer the following questions:

   a) given your current pace, will your project be completed on schedule

   b) what progress have you made

c) have you had any problems

d) what are your plans/expectations for the next step(s) in the process

This entry should be signed by the supervisor.

3. Comments on the progress reports: This entry could contain comments on the report made by the supervisor before signing and/or your notes of the discussion of your report with the supervisor.

NOTE: Students doing their projects off campus will have to copy their progress reports from their notebook to an email. The reply from the supervisor should be written into the lab notebook (if made verbally via telephone) or pasted in (if by fax or email).

4. Peer Review: The last entries before the due date. There should be an entry for each partner in the project. For each partner the entry should include your observation of the following:

a) the scope of work covered — i.e., their progress toward the goal

b) the quality of performance of the work done

c) the completeness and quality of the technical documentation done.

These entries should be viewed and signed by each partner. Keep in mind that the project continues in the second term with EE4023.

EE 4013 Thesis I Presentation
(Value = 10% of Total Mark)

DUE:

Last 2 weeks of classes in the term (schedule provided)

GENERAL FORM:

The number of slides indicated are assuming a single person presenting. If you have more than one group member, the presentation will require more slides.)

      a) Title (1 slide)

      b) Summary (1 slide)

      c) Background (1–2 slides)

      d) Methodology (2–4 slides)

      e) Work Completed (2–3 slides)

      f) Work Remaining (1–2 slides)

LENGTH OF PRESENTATION:

1 person: without counting any set-up time, 10 minutes, plus 5 minutes for questions.

2 persons: without counting any set-up time, 20 talk (10 minutes for each person), plus 10 minutes for questions

OR

2 persons: without counting any set-up time, 10 minutes talk and 5 minutes for questions for first person, and 10 minutes talk and 5 minutes for questions for second person

more than 2 persons: talking time to be determined by course coordinator and supervisor

EVALUATION:

Your presentation will be evaluated by faculty members in attendance when you present. Your mark will be calculated from the evaluation sheets filled out by faculty in attendance. The presentation will be evaluated on:

- legibility of slides

- visual aids used in the slides

- delivery of presentation

- organization of material

- report content (effectiveness in conveying technical information)

- progress indicated

- treatment of questions

Audience: EE 4013/4023 classmates, friends, undergraduate and graduate students, supervisor(s), UTEB, other faculty.

Note: Evaluation criteria for presentations will be somewhat different in EE4023. Be sure to read the relevant document when preparing for that presentation.

EE4013 Thesis I Final Progress Report
(Value = 80 % of Total Mark)

DUE: Last day of classes in the term by 4 PM, to the Department Office

The final progress report is intended to clearly identify the nature and scope of the work you have completed to date and how the work is related to the goals of your thesis. The report will also describe the work remaining to complete the thesis. There is also a requirement to provide evidence of the work completed in the form of detailed explanations, pictures, schematics, simulation results and source code listings, etc.

The evaluation of the report will be based on the following criteria:

- **Writing, W:** The writing style and grammar, conciseness, organization, coherency and relevance.

- **Technical, T:** Adequate technical content (explained at the level of a 3rd year or 4th year core course), presented with conciseness, clarity and accuracy.

- **Progress, P:** A measure of the work completed and progress achieved.

Note that the mark breakdown given for the sections listed below is approximate and serve only as guidelines. Your supervisor and the UTEB marker are not constrained by those approximate valuations. The report is being assessed as a complete entity and the marker can vary this scheme at his or her discretion. The mark you receive for this document will be reported as a single number and not on a per section basis.

Format of the Report

Typed, double space, single column, 8.5 x 11, 12 pt or 10 cpi, 1″ margins.

1. **Summary** . . . . W 5%

   One page or less. This is a summary of this document, the Final Progress Report, not of the overall thesis. It should *not* be a table of contents written in prose. It should summarize the content of the entire document.

2. **Introduction** . . . . W 10%

   2.1 Introduction to the problem. (1–2 paragraphs)

   2.2 Background: This should include background material required to understand the project. It also should include "background" about how the project came about (some of this material carries forward from your project plan). Also there should be references to allow the reader to find extra material related to the topic, and reference to any previous work completed by others. (3–5 pages).

   2.3 Thesis goals and/or objectives. (1 page)

3. Methodology and Work Schedule

3.1 Methodology: Describe in a systematic manner the steps that you expect to follow to complete the thesis. The description must give evidence of a design component to the thesis. Be sure to give a technical basis explained at the level of a 3rd year or 4th year core course for the steps chosen. (4–6 pages) . . . . W, T 20%

3.2 Work Schedule: When and how long will it take to complete each of the steps in Section 3.1. You may use a time-line graph or table with a written explanation. (1–2 pages) . . . . W 5%

3.3 Explanation of expected results and/or deliverables. (1 page) . . . . W 5%

4. Work Completed and Progress Achieved

4.1 For each of the steps in Section 3.1 that you have completed, describe the nature of the work done, the scope of the work, approximate time spent doing the work. The evaluation is based on your explanation of the breadth and depth of the work completed and progress achieved. (4-6 pages of written text) . . . . W, T, P 25%

4.2 Evidence of the work completed . . . . W, T, P 25%
Identify, via the table, evidence to support the completion of each step described in section 4.1

Sub-section 4.2 should be completed in tabular form as follows:

Step	Nature of the Work	Scope of the Work	Time Spent	Evidence of Work Done
1.	Simulated the proposed DSP algorithm in MATLAB	Three 6-line MATLAB macros	6 hours	Listing and Simulation results in APPENDIX 6.1

5. Work Remaining to Complete the Thesis . . . . W 5%

For each of the steps in Section 3.1 that remain to be done, identify the nature of the work, the scope of the work and the estimated time needed to complete each step.

Section 5 should be completed in tabular form as follows:

Step	Nature of the Work	Scope of the Work	Estimated Hours to Complete
1.			

6. Appendices

6.1 Evidence of Work Completed (figures, plots, S/W listings, schematics, etc.)

Total 100%