

EE 699 – M.S.E.E. Thesis

The goals of the M.S.E.E. program are as follows:

- Graduates will demonstrate a depth of education beyond that of the baccalaureate and the specialized skills that will allow the graduate to practice in and contribute to the sub-disciplines of electrical engineering emphasized in the program.
- Graduates will demonstrate an understanding of the current practices in the field of specialization through a project or thesis program component that has a level of complexity and specialization that extends the knowledge, intellectual maturity, and independence of the student.
- Graduates will demonstrate the ability to communicate their ideas to their peers and to the public.

In Plan I, the program culminates in a thesis that is a key curriculum component addressing these goals. The thesis and its oral presentation will be evaluated based on how well a) the goals are satisfied and b) how well the student work products satisfy the guidelines presented below.

Important Dates - The following schedule must be followed.

Date	Item
Months before the first semester in which you wish to register for thesis hours	Become familiar with Graduate School Procedures and Deadlines.
A least three months before the graduate school deadline for admission to candidacy for the first semester in which you wish to register for thesis hours	Set the advisor and form a committee. Prepare a Thesis Proposal according to the guidelines below. Present the Thesis Proposal to the committee at a committee meeting. Based on the committee feedback, make modifications as necessary to gain the approval of the committee. Have the title page (http://www-ece.eng.uab.edu/) of the final Thesis Proposal signed by the advisor and each of the other committee members to indicate their approval.
A least one month before the graduate school deadline for admission to candidacy for the first semester in which you wish to register for thesis hours	Submit an application for admission to candidacy and the signed Thesis Proposal to Sandra D. Muhammad.
Before the graduate school deadline for the semester that you wish to graduate	Apply for the degree
While registered for thesis	Do the work, meet with your advisor regularly and write the thesis.
At least two weeks before the graduate school's last day for the final defense of the thesis in the semester in which you wish to graduate	Having worked with the advisor and obtained the advisors approval signifying that the thesis is complete, in final form, and ready to defend, schedule a defense date with the committee and schedule a room and a projector with Sandra D. Muhammad by submitting a room reservation form.
No fewer than 10 days before the defense	Submit a copy of the Thesis to Sandra D. Muhammad. The Thesis must be prepared according to the guidelines below and with the title page signed to indicate that the advisor agrees that the thesis is complete, in final form, and ready to defend. Ms. Muhammad will forward a copy to the faculty committee who will review the thesis and see the defense. If the thesis is not submitted by the deadline, the defense will be cancelled.

The Thesis Proposal

At a minimum, the Thesis Proposal consists of the following sections: Title, Introduction, Project Description, Project Plan, and Risk Analysis. The work undertaken will be on a scale larger than that of the project and activities of a single course, and it should reflect at least 9 credit hours of work.

- The Introduction (one page minimum) presents the thesis problem statement and explains why the problem is important, how the work fits in to a larger problem and the body of literature on the subject (including references), how the work will be done, and what will be delivered at the conclusion of the work (the deliverables).
- The Project Description (two page minimum) describes in detail what work will be done, what skills and standards of engineering practice will be employed, what methods, procedures or processes will be used, and how the resulting work product will be evaluated and tested. In describing how the work is expected to be done, the student should list and discuss the alternatives for how the work could be approached.
- The Project Plan (two page minimum) lists the activities and tasks needed to produce each of the deliverables. It lists the major project milestones and dates by which the milestones should be completed. Milestones are the major steps or tasks that must be accomplished as part of the process of completing the thesis work.
- There is always some uncertainty associated with thesis work. The Risk Analysis (one page minimum) consists of a brief discussion of possible outcomes, events, factors, or uncertainties that may disrupt the work and the alternative paths to be taken should these disruptions occur.

The Thesis

1. The thesis must be well written and it must exemplify correct spelling, grammar and punctuation. It must be well organized using proper main sections and subsections, with consistent spacing between sections. It must be prepared according to graduate school guidelines and format. It must be prepared according to IEEE style, and references must be cited appropriately according to IEEE style. The thesis must include at least the following sections, and will typically include more sections if necessary.
 - Abstract. The abstract should briefly explain what work was done, why it was important, how it was done, and what was learned or accomplished through the work. Write the abstract last, because the report should stand on its own without the abstract. The reader should not have to have the abstract available to make sense of the rest of the report.
 - Introduction. The introduction is to be written in the present or future tense. It must explain why the work will be done, what will be accomplished when the work is finished, and how the work fits into a larger problem. A literature review should be either incorporated into the introduction or it should be the first of the main body sections of the thesis. The literature review should review the work in the field of the thesis, cite key references, place the thesis work in the context of the literature in the field, and explain the contribution of the thesis work.
 - Main Body Sections. The main body of the report should explain in detail what work was done and the processes describing how it was done. It would typically consist of the "Methods" section, although if acceptable to your advisor, other section titles may be used instead of "Methods." Do not use "Body" or "Main Body Sections" or similar names as the title of a thesis section.
 - Results. The outcomes produced by applying the Methods or processes outlined in the Main Body Sections should be presented. Tables, plots and graphs should be used where possible to summarize results and show relationships.

- **Discussion.** The discussion of results should include a comparison of the results achieved against requirements, results of any previous work in the field, and expectations predicted from theory or models. The discussion should be written in the past tense.
- **Conclusions.** The conclusion should describe what was accomplished, the process used in addressing the problem, the correctness of the result, and future work. It should be written in the past tense, except when explaining next steps that could be taken in future work.

Please see the discussion of **Academic Ethics and Conduct** in [The UAB Graduate Student Handbook](http://www.uab.edu/graduate/UAB_Grad_Handbook.pdf). (http://www.uab.edu/graduate/UAB_Grad_Handbook.pdf) Pay special attention to the section on plagiarism. Using the work of other people and representing it as your own is plagiarism. Examples of plagiarism include improper citation of referenced works, use of commercially available scholarly papers, failure to cite sources, and copying others' ideas. Proper citation of reference works and ideas, words, data, computer programs, creative compositions, artwork, etc., done by someone else is required. Please note that a student who commits an act of academic misconduct, including plagiarism, may be given the grade of *F* in the course in which the misconduct occurred, and may receive other consequences. See a presentation on plagiarism and the use of references at http://www.uab.edu/profdev/ppt/writing/ethics_jsa_2002_files/frame.htm.

Graphical work such as charts, plots, or graphs must meet the expectations of the faculty. Descriptive titles should be provided for all the graphical work. If a figure complements some analytical work, the variables from the analysis must be shown on the figure.

2. The thesis must be prepared according to graduate school guidelines using the IEEE style listed in the documents below.

<http://www.ieee.org/web/publications/authors/transjnl/index.html>

- [IEEE "Information for Authors" kit](#),
- [IEEE Style Manual](#), and
- [Template and Instructions on How to Create Your Paper](#)

Any other materials required by the advisor are to be submitted as an appendix section of the thesis that follows the reference section. The appendix may be in a format specified by the advisor, but should be prepared carefully and using proper documentation practices.

3. **IMPORTANT!** Use the following references for organizing the thesis and determining how to write each section of the thesis.

[HOW DO I WRITE A SCIENTIFIC PAPER?](#)

<http://www.scidev.net/ms/howdoi/index.cfm?pageid=60>

Through The University of Alabama at Birmingham eContent Collection:

[How to Write and Publish a Scientific Paper, 5th edition. Orynx Press. Day, R. 1995.](#)

www.netlibrary.com/ebook_info.asp?product_id=7615

4. Use the following references for the use of English and grammar and preparation of the thesis.

[The Elements of Style](#)

<http://www.bartleby.com/141/>

[Writing Guidelines for Engineering and Science Students](http://www.writing.eng.vt.edu/index.html)

<http://www.writing.eng.vt.edu/index.html>

The Thesis Defense

The thesis defense includes an oral presentation of the work described in the thesis draft that was submitted to the committee. Only work that was included in the thesis submitted should be defended. The oral presentation must be designed to convey a description of the work without the benefit of long written explanations. The presentation serves to convey the main points of the work assuming that the audience will read the thesis and the references if more detail is desired.

- The presentation must be made within time limits set by the committee using an appropriate number of slides. About twelve to fifteen slides are usually appropriate for a twenty-minute presentation.
- The presentation must include an introduction that states the problem, presents the motivation for the work, tells what will be accomplished when the work is done, and explains how the work fits into a larger problem.
- The presentation must clearly describe what work was done and how it was done.
- There will be questions. The student must listen to and understand the question before answering, and must provide answers that are concise, to the point, and in enough depth.

Graphical work such as charts, plots, or graphs should be used when necessary and must meet the presentation expectations of the faculty. Descriptive titles should be provided for all the graphical work. If a figure complements some analytical work, the variables from the analysis must be shown on the figure.