

# Master Project/Thesis Guideline

— Prepared by X. Xiong

If you register ELEG-597 (Master Project) or ELEG-598 (Master Thesis) under me, this guideline is prepared for you to have an overall idea about the whole procedure of the master project/thesis. Hope it will be helpful for you to achieve a great success in the master project/thesis. Generally, a master project/thesis research follows several phases as shown below.

## Phase 1. Choosing the Topic (~3 weeks)

Choosing a good topic is the very first step in a master project/thesis. In order for this, we first need to decide which field we are going to select topic from. Please ask yourself such a question: What's my interest? What's my future career goal? It's recommended that you choose a field which you are really interested in. This will be helpful for your future career in this field. For example, if you are interested in VLSI field and want to be a VLSI designer in the future, then you may wish to choose a VLSI related topic. In this way, your experience in master project/thesis will be helpful for your future career path as a VLSI engineer. Some of my example research fields include Microelectromechanical System (MEMS), VLSI, nanotechnology, controls, semiconductor, etc. However, your master/thesis topics are not only limited to above fields. Any topics in other fields are also welcome. You may suggest several possible fields to me, and we will further discuss about it together.

Once we decide the field, we need to find an interesting research topic in it. A good research topic for your master project/thesis should satisfy following criterions.

1. The topic should come from the most recent frontier in this field, and there should be enough academic value in it.
2. Creativity is highly recommended in the topic. That is, we need to have our own new contributions in it, instead of just repeating others' work.
3. You need to have adequate background for it.
4. The facility in our department should be enough for us to finish it.

First, the topic should come from the most recent frontier in this field. We also need to ensure that there is enough academic value in the topic. That is, the topic should not be a problem which is already well-solved by others. There should really be some interesting research issues in it. Thus, generally you cannot find a good research topic from a textbook or course project. The best resources for research topics are the academic conference/journal papers. They can give us a good understanding about what's going on in this field, what are the most recent research activities and what are the current problems in this field. These information can be very helpful for us to find a good research topic. In our phase 1, you need to read as many papers as you can. It's recommended that everyday you read 1~2 papers, and try to understand them in detail. The more papers you read, the sooner you will come to an interesting topic. Some books are also very helpful for you to get a comprehensive understanding about a certain field. Where can we find these papers and e-books? Our UB library offers many useful database services to students and faculty for free. If you access those databases via our UB library website, you will be able to search and read full paper and full e-book for free, because our library already paid for the service. Please take advantages of these services and you will find these database services very helpful for you in your research and study.

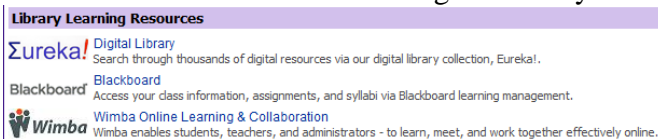
## 1. Full-text Paper Search in IEEE Xplore Database.

Our university library has the subscription to IEEE Explore. This is a great database. You can search and read millions of full text IEEE papers. Just follow the following steps:

- 1). Go to UB website: <http://www.bridgeport.edu>
- 2). Click on menu “myUB”, you will see the interface of “myUB Portal”, as below. Click “Log in to <https://myub.bridgeport.edu>”. It allows you to log in to your “myUB Portal” with remote access.



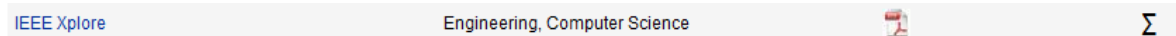
- 3). You will be asked to input your UB username and password. They are the same as your UB email username and password.
- 4). After you input username and password, click “OK”, you will see your myUB Portal main interface. Please click “Eureka! Digital Library” link as below.



- 5). Now you are in “Eureka!” main interface. Please click on “List of Online Database”, as shown below.



- 6). You will see "A-Z List of Online Databases". Scroll down the screen and click on “IEEE Xplore” as below:



- 7). Now you are in “IEEE Xplore” main interface via our UB library access. You may type any keywords to perform a search on all IEEE conference/journal papers. For example, if you are interested in low power memory design, please type keywords as “low power memory”, and click “Search”, as shown below.



- 8). You will see many papers about low power memory available. You may browse the titles of the papers. If you are interested in a specific paper, you may click “AbstractPlus” to read its abstract, or click “Full Text: PDF” to read the full paper in PDF format.

**SEARCH RESULTS**

You searched for: **low power memory**

Set Search Alert | Download Citations | Email Selected Results | Print

Results per Page: 25 | Showing 1 - 25 of 7,290 results | [Next >](#)

Sort By: Relevance | [Select All on Page](#) | [Deselect All](#)

**Low-power memory mapping through reducing address bus activity** [Quick Abstract](#)

Panda, P.R.; Dutt, N.D.;  
[Very Large Scale Integration \(VLSI\) Systems, IEEE Transactions on](#)  
 Volume: 7, Issue: 3  
 Digital Object Identifier: [10.1109/92.784092](#)  
 Publication Year: 1999, Page(s): 309 - 320

**IEEE JOURNALS**

[AbstractPlus](#) | Full Text: [PDF](#) (252 KB)

9). If you are interested in other topics, just type the corresponding keywords (e.g. MEMS micromirror, quantum dot cellular automata, etc.) to perform a search. You will find thousands of research papers with your search. Some of the results may not be a good fit. You may narrow down the search to the papers which are really a good fit for you, then print out the papers and read them carefully. With our library's IEEEExplore access, you should have unrestricted access to the full text pdf file of any IEEE paper. Please note that you must access the IEEEExplore via our UB library to get the free full-paper service, because our UB library already paid the service for it. If you access IEEEExplore via external link, you will be asked to pay money to access its full-text papers.

In addition to IEEEExplore, our UB library also has access to other databases as well. For example, you may also search full paper for free in "ScienceDirect" and "Science Resource Center" database, as shown below.

<a href="#">ScienceDirect</a>	Health Science, Social Science, Science			$\Sigma$
<a href="#">Science Resource Center</a>	Science			$\Sigma$

## 2. Full-text E-book Search

UB's library web site offers many e-books for that might be really helpful for your current/future studies. To access the full-text of e-books please follow the following steps:

- 1). Go to UB website: <http://www.bridgeport.edu>
- 2). Click on menu "myUB", you will see the interface of "myUB Portal", as below. Click "Log in to <https://myub.bridgeport.edu>". It allows you to log in to your "myUB Portal" with remote access.

myUB Portal

Log in

• [Log in to https://myub.bridgeport.edu](https://myub.bridgeport.edu)

- 3). You will be asked to input your UB username and password. They are the same as your UB email username and password.
- 4). After you input username and password, click "OK", you will see your myUB Portal main interface. Please click "Eureka! Digital Library" link as below.

**Library Learning Resources**

**Eureka!** Digital Library  
Search through thousands of digital resources via our digital library collection, Eureka!

**Blackboard**  
Access your class information, assignments, and syllabi via Blackboard learning management.

**Wimba** Wimba Online Learning & Collaboration  
Wimba enables students, teachers, and administrators - to learn, meet, and work together effectively online.

5). Now you are in “Eureka!” main interface. Please click “Searching for an electronic book”, as shown below.

Articles and More   **Catalog**   UB Publications

**Search for**

Look for my query  All items  with my search word  that contain my query words

In  Select Your Subject

[New Search](#)

**Want a specific database, ejournal or book?**

- > [List of Online Databases](#)
- > [Looking for a specific electronic journal title/citation?](#)
- > [Searching for an electronic book?](#)

6). Now you will see following interface.

**HOW TO FIND BOOKS, MOVIES & MUSIC**

**Book Stacks**

- Our stacks are open – you may browse freely

**To find a specific item**

- Search for it in our online catalog.
- Note the call number.
- Use a library floor map to locate and retrieve it.
- If you cannot locate an item on the shelves, a request to search for it can be placed at the Reserve Desk on the 1st floor of the library and a search for the item will be performed within the week.

**To Borrow Materials**

- You will need your current University of Bridgeport I.D.
- Bring item(s) to a self checkout machine or to the information desk at least fifteen minutes before closing.
- If you are not currently a student, or are not registered for the following semester, a guest borrower card can be purchased.

**Borrowing Privileges**

- As a student, you can borrow up to 20 books at a time.
- Books circulate for 30 days.
- Audiovisual material circulate for 7 days.
- Books can be renewed once online at Eureka! E-shelf by going to “My Library Card” as long as no one is waiting for the item.

**FIND RESOURCES BY SUBJECT**

**Subject Guides**

- Acupuncture
- Business
- Computer Sciences
- Education
- Global Development & Peace**
- Marital Arts
- Psychology

**E-BOOKS**

The Wahlstrom Library has ove of the UB community 24 hours

**E-BOOK DATABASES**

- ebrary
- NetLibrary

If you want to search e-book from UB library online catalog, please click “online catalog” link. You will be asked to input your UB username and password to log in.

7). There are also two other useful e-book database where you can read e-books for free: ebrary and NetLibrary. For example, if you want to search e-books in ebrary, please click the link of “ebrary”. You will see following interface:

**UNIVERSITY OF BRIDGEPORT**

Info   **Search**   QuickView   Bookshelf

Simple Search: MEMS      [Advanced](#)   [All Subjects](#)

**Do You Have an Existing Bookshelf?**

This ebrary site now uses single-sign-on and your ebrary login and bookshelf are automatic.  
See the KnowledgeBase article for information to access your existing bookshelf.

**Search and Browse**

To search the entire collection, u specific subject areas by clicking

You may type keywords to search any e-books you want. For example, if you are interested in MEMS field, you can type keywords as “MEMS”, and click “Search ebrary” button. Now you will see many e-books about “MEMS” is show as below.

**TITLE RESULTS** | CHAPTER RESULTS | SEARCHES


▼ Focus your search using: ☒ Any of the selected subjects (e.g. Math OR Science) ☐ All of the selected subjects

☐ United States ☐ Technological Innovations ☐

☐ Microelectromechanical Systems ☐ Engineering ☐

☐ Handbooks, Manuals, Etc ☐ Microtechnology ☐

Showing 1 - 20 of 557 documents



**MEMS Mechanical Sensors**

Author: [Beeby, Steve](#) [Fasel, Graham](#) [Kraft, Michael](#)

Publisher: [Artec](#)

Original Publication Date: 04/2004

Subjects: [Microelectromechanical systems](#), [Detectors](#)

8). If you are interested in an e-book, just click the title, (e.g. MEMS Mechanical Sensors), you will be able to read the full text of the e-book for free now.

▲ InfoTools |         ☒ Highlight Search Terms

22 Materials and Fabrication Techniques

processes give anisotropic etch profiles, which are extremely important for submicrometer semiconductor fabrication. By combining chemical and physical processes in a dry etch process, the optimum conditions for any particular process can be obtained.

The most common type of etching adapted for MEMS is deep etching into the silicon substrate; and this is often referred to as bulk micromachining. This bulk micromachining can be done either in a wet or dry process, and in each case it can be either isotropic or anisotropic. Other MEMS-specific etching is done on quartz or glass, using HF-based solutions or ammonium fluoride.

2.3.3.1 Silicon Wet Isotropic Etching

The most widely used isotropic etchant is a mixture of HNO<sub>3</sub>, HF, and CH<sub>3</sub>COOH, and this system proceeds by oxidation followed by dissolution of the oxide. Since the oxide is removed in the etch, masking materials such as silicon nitride, silicon carbide, or gold have to be used. The etch rate, surface roughness, and the geometrical aspects of the edges and corners of features depend on the precise composition of the

TOC NOTES (0)

mems

Rank	Chapter
1	MEMS Mechanical Sensors
2	Contents
3	Preface
4	1 Introduction
5	2 Materials and Fabrication Techniques
6	3 MEMS Simulation and Design Tools
7	4 Mechanical Sensor Packaging
8	5 Mechanical Transduction Techniques
9	6 Pressure Sensors
10	7 Force and Torque Sensors
11	8 Inertial Sensors
12	9 Flow Sensors
13	About the Authors
14	Index

### 3. Other External Paper/Book Search

You may also use some other external search engines, as listed below. Please note that you may not have full-text access to all search results. Some papers may require you to have subscription to get the full-text files.

<http://www.google.com>  
<http://scholar.google.com>

Second, innovation is highly recommended in the topic. That is, we need to have our own new innovation in it, instead of just repeating others' work. Master project/thesis research is different from our course projects. In our course projects, the goal is to further enhance your understanding to the concepts learned from the class. We may prepare some detailed tutorials to guide you through the project step by step. In master project/thesis research, you are expected to do some independent academic research, and make your own contribution to the unknown academic field. If we simply read a paper and follow exactly the same way to repeat others' work, we make no contribution to the academic world. The academic value is zero. The goal of research is to explore something new in the unknown field, solve some new problems, or suggest a new research direction. Thus we highly encourage you to explore something new (e.g. new VLSI circuit design, new MEMS/Nano device

structure, new VLSI testing algorithm...). Such exploration may be successful, but sometimes it may be wrong or lead to a failure. But please don't worry, even a wrong creation is still much better (in academic value) than simply repeating others' work, because at least it gives a hint to others that this direction is not a correct direction. Thus please feel free to make brave innovations in your research. Always try to conceive something new, or you can suggest some new improvements based on others' work. Even this effort eventually is proven to be not as good as others' solution, or even a failure, I will still give you good credit because you explored something new. Our scientific research is always a continuous exploration toward the unknown field. We try 100 times, maybe 99 times we fail, but once we succeed for the rest one time and discover something new, this will be a great contribution to the academic world.

Third, you need to ensure that you have the enough background for this topic. For example, if you choose a VLSI related topic, please ensure that you have finished some VLSI courses before, or your have some previous research experience in this field. Please do not choose a topic which you have no background in it. Otherwise you may not be able to finish it in time.

Lastly, the facility in our department should be enough for us to finish it. Please note that currently we don't have the fabrication facilities in this university. Thus, you may not be able to choose a research topic which requires you to fabricate a real VLSI chip or MEMS device. But we do have the capability to do some computer simulations (such as Matlab, PSPICE, Mentor Graphics tools, ANSYS, etc.). Thus we can do the computer simulation of control systems, design of VLSI circuits, simulation of MEMS devices, etc.

After reading many papers in this field, you may find some interesting topics in it. Please suggest your topics to me. I may also help to refer some topics for you. We will further discuss about it and finally decide a topic which is interesting to both of us, and doable based on the current facilities available in our department. Once we decide our topic, please do some background survey about this topic. Please write *a brief proposal* in Microsoft Word file and email it to me. In your proposal please include following issues.

- 1). Title of the master project/thesis: A short, descriptive title for the master project/thesis you are going to do. For example, "Design and simulation of MEMS torsional micromirror", "A Low-Power Transmission-Gate-Based Multiplier for Digital Hearing Aids", etc.
- 2). Description of the topic: In concise but specific language, please use one paragraph to define the research goal of this project/thesis, and the problem you are going to attack.
- 3). Background and review of literature: Describe existing research data and works that led you to this research topic. Please clearly cite others' work in this field. Please clearly identify what are others' solution to this research topic, what's the current problems in others' solution, and what's your intended solution to this problem. Please also make a comparison between your intended solution and others' work, and identify the advantages/disadvantages of your solution compared to others' solution.
- 4). Research methodology: Please briefly explain the strategy you are going to use for this project/thesis. Please use one or two paragraph to briefly explain your whole research plan. That is, how you are going to attack the problem proposed in your proposal. For example, for a project of "MEMS micromirror design optimization", you need to explain how you are going to perform computer simulations to look into the relationships between mirror performance and design

parameters. Based on these simulated curves, find out the optimized design parameters to meet the design specifications. Then we will use ANSYS coupled-field simulation to further verify the design.

5). Impact of the research: Please briefly explain the potential impact of your project to the research field it belongs to. Please explain the impact from both aspects: how this project would be helpful to others in this field, and how it will be helpful for your future career. For example, if you are doing a master project about MEMS micromirror design and simulation, the project will be helpful for the design optimization of micromirror device. It can help to find the optimized design parameters of a micromirror so that its performance can meet the given specifications. It will also be helpful for you to have a thorough understanding about the working principle and device design of micromirrors. You can also gain experience in ANSYS coupled-field analysis based on command line coding.

6). Qualifications for the topic: Please describe your qualifications for undertaking this project. Please include your prior experiences or familiarity with the field. For example, did you ever do a similar research in your previous undergraduate study, did you take the relevant course work, etc.

7). Required facilities: Please list the required facilities for you to finish this project/thesis. Since currently we don't have the fabrication facilities in our department, the required facilities mainly refer to the software packages. Please clearly identify what software packages you need to use in this project, and whether they are available in this department, and whether you have the access to them.

8). References: Please attach a reference list of your proposal, and clearly cite the reference papers in your proposal.

9). Research Plan: Please list a detailed research plan for your master project/thesis. This include tentative schedule and milestones for your research. For example, for a project of "MEMS micromirror design optimization", you may list your research plan as follow:

- i). Use MathCAD or other tools to find out relationships between mirror performance and design parameters: Month, date ~ Month, date.
- ii). Find out optimized design parameters to meet design specifications: Month, date ~ Month, date.
- iii). ANSYS simulation to verify the design: Month, date ~ Month, date.
- iv). Writing master project/thesis report: Month, date ~ Month, date.

## **Phase 2. Research phase (~8 weeks)**

In this phase, we will use the available research resources to attack the problem. You need to do many design and simulation in this phase. This is the most important portion of the project. You are going to attack all the research problems one by one. It may not be so smooth. Sometimes you may also encounter some frustration in the results. You may need to spend many time and effort in it, but with little progress. This is absolutely normal in scientific research. Please understand that we are exploring some exciting new research issues in the field, and these issues are not well solved by others. Thus please don't lose heart. Just think about the problem thoroughly, and we will frequently discuss with each other. We may try to adjust our research strategy sometimes when it's necessary. But eventually you will learn a lot from this process, and obtain valuable experience in tools and the related research field. This will be very helpful in your future career. Please be patient and try your best in it. Eventually you will overcome all the difficulties and obtain great results in this research.

## **Phase 3. Project/Thesis Report Writing (~4 weeks)**

Once you have finish all the research goals set up before, and collected all the necessary data and simulation results, we will have a discussion with each other. If we feel that the research quality in this research is enough for a master project/thesis, we are ready to move to the next phase: project/thesis report writing. Please note that the project/thesis report writing is also a very important portion. Sometimes a student may did a wonderful job in the research. But if he/she failed to tell others clearly about his research results and achievements in the project/thesis report, others still won't be able to understand his/her work and give him/her the deserved credit. We need to follow professional format for writing a master project/thesis report. Please use font size 12 and single line space. The good size for a master project report may be 40~60 pages (not including appendix). For master thesis report, it can be even longer. After you finish your first version, please email me the document immediately. I need some time to read it and give my comments. Then based on the comments please revise your report accordingly and email me back the revised version. This may take several rounds till finally both of us are satisfied in it. Thus please plan ahead for the project/thesis report writing. Generally it may take about 4 weeks to finally finish it.

Note: During the writing of master project/thesis report, please NEVER copy others' work directly into your report. NEVER copy any content from others' paper, book, internet resources, etc. This is deemed as *plagiarism* and will never be tolerated in academic world. Such behavior will totally ruin your academic career and it is just not worthy to take such a risk. In your Introduction chapter, you can cite others' similar work, but please read others' work and use your own words to summarize it. Please do NOT directly copy the text from others' paper, not even one sentence. If you have to cite others' figure, please clearly cite the reference in the caption (e.g. [1] [2]). Please never copy anything directly from Wikipedia or other internet resources. Always use your own words and your own writing.

Regarding the format of a master project/thesis report, generally it needs to include at least the following portions. Your chapter arrangement may be slightly different from the following list.

- Cover page
- Table of Contents
- List of Figures
- List of Tables
- Abstract
- Chapter 1. Introduction
- Chapter 2. Background Information
- Chapter 3. Our Work
- Chapter 4. Results and Discussion
- Chapter 5. Conclusions
- Chapter 6. Future Work
- Reference
- Appendix

In "Abstract" session, please use one page to briefly introduce what you did in this research. Please discuss what research strategy you used, what results you have achieved. Please also clearly identify your own contributions in this work. That is, your own unique work instead of others' work in it. Please also discuss about the advantages and disadvantages of your work.

In "Introduction" chapter, please have an overall introduction to the field you are going to do your master project/thesis research in. For example, if you are doing a research in "the design optimization of MEMS micromirror", please have an overall introduction about MEMS technology,



the history of MEMS, MEMS micromirrors and their categories, the applications of MEMS technology and micromirrors, etc.

In “Background Information”, please identify your research topic, cite others’ work in this topic. For others’ solutions to this topic, please also point out the advantages and limitations of them. Please also identify your solution to this topic, what research strategies you are going to use to attack this problem. Please also make a clear comparison between your and others’ solution. What are the advantages and disadvantages of your solutions compared to others’ work? Please also introduce some background knowledge about this topic if necessary. For example, for the design optimization of MEMS micromirror, please also introduce the working principle of a MEMS micromirror. Please list necessary equations and explain them clearly. In this chapter, some are others’ work and some are your ideas. For others’ work, please clearly cite the reference sources (such as [1], [2], etc.).

In “Our Work” chapter, please clearly explain your research strategy in this project/thesis. Please clearly identify your research goals, and how you would achieve these goals. Please list all the assumptions/hypothesis you made in your research work. Please explain any theory or working principle of your device in this chapter. For example, if you conceive a novel MEMS device, please clearly explain the working principle of your own device, and analyze the performance in this chapter. If you wrote a C++ program for finger print analysis, please clearly discuss the working principle of your program, and the function of each section of your code, etc. If you designed a low-power multiplier circuit, please describe the schematic structure and working principle of your circuit, how to perform power analysis on it, and why your design can save power, etc.

In “Results and Discussion” chapter, please list all the detailed simulation results of your master project/thesis research. Please attach figures, tables and all other data you obtained in the research. These should be your own research results instead of from others’ work. If you wish to compare your results with others’ work, please make sure you clearly cite the source for others’ work. Please do NOT use others’ results without citing the reference. If you are attaching a figure or table, please give the number and caption for each figure and table you attach. Please also clearly explain each figure or table. For example, if you attach a figure, please clearly explain what is X axis, what is Y axis, what is each curve in the figure. What is the tendency of each curve? If the curve is going up, or if there is a peak in the curve, please clearly explain the reason. Is the simulated curve in good agreement with your theoretical expectation? If not, why? What are the reasons which cause this difference? All these figures, tables and data carry very important and useful information in them. Please try to abstract these hidden information from them. Please do NOT just paste a simulated curve in your report without any caption or explanation. Others would never be able to understand these curves, tables or data without your clear explanation. You need to have thorough discussion on the results you obtained.

In “Conclusions” chapter, please use concise language to briefly conclude your work. Please clearly conclude what you have done, what results you have obtained, the advantages and limitations of your work, etc. For example, for a research topic in “design and simulation of MEMS micromirror”, you can conclude that in this project you have designed a torsional MEMS micromirror. The designed micromirror has a maximum torsional angle of  $\pm 8^\circ$  at a driving voltage of 25V, which satisfies the design specifications very well. ANSYS simulation results verified the performance of the designed micromirror, etc. In “Conclusion” chapter, please also clearly identify your main contributions in this work. Please itemize them clearly. This will help the readers to understand your own contributions in the research. This is required in your report. For example, you may say: My major contributions in this research work can be concluded as below. 1). I implemented a \*\*\*. 2). I designed a \*\*\* device and simulated its performance. 3). I solved the problem of \*\*\*, etc.

In “Future Work” chapter, please identify what aspects you can further improve your work in future research. For example, given more time, how would you further improve the sensitivity of your designed MEMS accelerometer? How would you further reduce the power consumption of your circuit?

In “Reference” session, please list all the references cited in your report according to the IEEE standard reference format.

1). If this is a book, you need to list the names of authors, book name, edition, publisher, location, publishing date, page number, etc. For example:

[1] A. J. Albrecht, “Measuring Application-Development Productivity,” *Programmer Productivity Issues for the Eighties*, C. Jones, ed., IEEE CS Press, Los Alamitos, California, 1981, pp. 34-43.

2). If this is a conference paper, you need to list the names of authors, paper title, conference name, conference location, date, volume/issue number, page number, etc. For example:

[2]. N. O. Bernsen and L. Dybkjar, “A Methodology for Evaluating Spoken Language Dialogue Systems and Their Components,” *Proceedings of the Second International Conference on Language Resources and Evaluation*, Athens, Greece, 2000, Vol. 1, pp. 183-188.

3). If this is a journal paper, you need to list the names of authors, paper title, journal name, publish date, volume number, edition number, page number, etc. For example:

[3]. H. Aust, M. Oerder, F. Seide, and V. Stenbiss, “The Philips Automatic Train Timetable Information System,” *Speech Communication*, Vol. 17, Issue 1, Nov. 1995, pp. 249-262.

4). If this is a URL, please clearly list the URL link. For example:

[4]. URL: <http://www.ansys.com>

In “Appendix”, you can include some other files which you deem necessary. For example, the program codes for simulation, the introduction about the usage of a software, etc.

After you finish your master project/thesis report (Microsoft Word format preferred), please do a Word spell check. When you open your file in Microsoft Word, all the words with potential spelling errors are underlined with red color automatically. The sentences with potential grammar errors are underlined with green color automatically. Please try to verify these underlined words or sentences one by one, and correct the spelling/grammar errors whenever it’s necessary. Once you finish the first version of your master project report, please email it to me immediately. I will read it and give my comments. Please make the corresponding revisions according to the comments. Then again I will take over your updated version and read it again. This revision process may repeat for several rounds, till finally both of us are satisfied with the report.

#### **Phase 4. Converting your master project/thesis report into one IEEE paper and one ASEE poster (~1 week)**

You have made tremendous efforts during the research, and made your own unique contributions to the academic field. Now let’s try to publish your results in the future, so that your work will be recognized by others. After you complete your master project/thesis report, please convert it into one IEEE paper (.doc Microsoft Word file, 8-10 pages) and one ASEE poster (.ppt powerpoint file, 1

page). I have attached some IEEE paper and ASEE poster samples for your reference. You just need to copy and paste the contents from your full master project/thesis report, and it should be very easy for you. Please submit your IEEE paper and ASEE poster to me in email together with your full master project/thesis report. In this way, we can submit them to future IEEE/ASEE conference/journals for publication. If you have some publications (papers/posters), you can add this into your resume and it will make your resume shining. It will distinguish you from others in job hunting or Ph.D application and greatly help you in your future career.

### **Phase 5. Grade reporting of your master project/thesis (~1 week)**

Based on the academic quality of the research and the writings of your master project/thesis report, I will decide your final grade and report it to the university. Please double check with the department and university to finish all the paperwork and other requirements for your graduation. Best congratulations on the great success you have earned through your valuable efforts in the research!

### **Frequently Asked Questions (FAQs)**

Question: Is there any deadline for me to finish my master project?

Answer: It's recommended that you finish the master project/thesis in one semester. However, in many cases, students may need more than one semester to finish it. This is quite reasonable. In these cases, I will give a grade of "I" (In Progress) for the semesters you are continuing your master project/thesis research. Once you totally finish it, a final grade will be reported to the university and it will replace your "I" grade permanently. Generally you have a maximum of 3 full semesters (summer semester not included) to finish your master project/thesis. That is, if you register your master project/thesis for this semester, you can further extend it for 2 more semesters (not including summer). For example, if you register your master project/thesis for this Spring semester, you need to complete it on or before Aug in next year (Spring-Fall-Spring). If you register master project/thesis for this Fall semester, you need to complete it on or before next December (Fall-Spring-Fall). However, please double check with our department head, International Student Office and the university for the most updated rules about the maximum allowed length for your master project/thesis. Please be sure to follow all the university rules to maintain your valid student status.

Question: Do I need to have a final presentation for my master project/thesis?

Answer: For master project, a final presentation is optional and not required. For master thesis, you must have a 40 minutes' final powerpoint presentation to defend your thesis.

Question: How frequently should we meet?

Answer: We need to keep effective communication with each other. Please keep me informed about the progress of your work from time to time. If you have any question or doubt in the research, please feel free to let me know immediately and I would be very glad to help. You can contact me in email, by telephone or just stop by my office. Please tell me your email, cell phone number so that we can keep effective communication with each other.

Question: I am doing my internship in another state. I cannot come to UB campus. Can I still access "IEEEExplore" via our library access to get free full papers?

Answer: Yes. You don't have to come to UB campus to access IEEEExplore database via our UB library. With UB Portal, you can remotely log in to your account and get free IEEE papers via our library's access to IEEEExplore. Just follow the steps I showed you before in this tutorial.

Question: I have a good friend who is also doing his/her master project under you. Can we do a joint master project research so that we can help each other in the research?

Answer: No. Master project/thesis research is an important and necessary step to train you into a qualified engineer or researcher with master degree level. Since we are not offering a joint master degree to both of you, each of you needs to perform an independent research (with separate topic) to earn your master degree.

Question: How will my final grade be decided?

Answer: Your final grade will be decided according to the academic quality of your research work, and the writing of your report. You should have your own creative work in it, instead of just listing others' work in this field. *Your own work and your own contributions* in this work will decide your final grade. Writing of the master project/thesis report is also very important. Please express your work and your own contributions in details very clearly.

Question: I need to apply my CPT/OPT/H-1 urgently. But I have not finished my master project/thesis research. Can you please do me a favor to send a grade to the university now, and I guarantee that I will finish it later?

Answer: No, this is impossible. This violates the university rules and I absolutely have no right to do it. If you wish to graduate on a certain date, please plan well ahead and finish all your project/thesis research and report in time. Without these I can not report any grade (except "F"-Fail) to the university.

Question: I need to use PSPICE for my master project/thesis research, but I am working in another state for my internship and I cannot come to UB computer lab to use the PSPICE software there. What should I do?

Answer: In your master project/thesis research, you may need to use some EDA tools (e.g. PSPICE, Mentor Graphics tools, Synopsys tools, ANSYS, Matlab). Due to license restrictions, the department cannot install the software in your computer. You have to come to our computer labs to use the software. However, if you need to use PSPICE and cannot come to our lab, you may try another software – WinSPICE. Its function is similar to PSPICE. You may request a free 30-days trial version of WinSPICE from the company's website: (Just input your name and email, then click "Submit")

<http://www.winspice.com/>

You may also use another free software - "LT Spice IV" by Linear Technology Inc. Just download the software from following URL and install it into your computer:

<http://www.linear.com/designtools/software/>