

Course Code
COMP 4981H

Course Title
Final Year Thesis

Course Description

Students are expected to conduct research under the supervision of a faculty member, summarize their work in an individual thesis and make a defense at the end. Credit load will be spread over the year. For students in the BEng in Computer Science and BEng in Computer Engineering programs under the four-year degree only. Instructor's approval is required for enrollment in the course. Exclusion(s): COMP4981

List of Topics

N/A

Textbook

N/A

Reference books

N/A

Grading Scheme

1. All students are given an official grade of PP at the end of the Summer and Fall Terms respectively. The five components of the final letter grade have the following weighting from the advisor's perspective:

Project proposal report	5%
Individual essay	5% (graded by communication tutors)
Project progress report	20%
Final project report	35%
Oral presentation/thesis defense	30%
Monthly reports	5%
Total	100%

Letter grade with A to F will be given. The advisor may give different letter grades in each of the five components to students within the same group.

The reader will focus on the product of the project. A different set of weights are used based on the reader's perspective:

Project proposal report	5%
Project progress report	15%
Final project report	35%
Oral presentation/thesis defense	40%
Poster session	5%
Total	100%

The reader gives one letter grade for each of the five components for each project.

2. Grade Determination

- Advisors and readers grade the five components independently.
- Advisors grade the five components for each of the students in group projects. Thus, it is possible that members of the group receive different letter grades for each component.
- Readers grade the five components for the project only. Thus, all members receive the same letter grade for each component.
- The final letter grade for each student is computed by combining the letter grades given by the advisor and the reader using a advisor-reader weighting of 60:40.
- Readers may interact with advisors during the year to gain more insights on the projects.

3. The components

- For FYT:
 - The grading scheme for the proposal report is (both advisors & readers):
 - Thesis objective formulation, methodology to be followed, background - 60%
 - Clarity and presentation of the report (organization, use of English) - 30%
 - Planning of future work - 10%
 - The grading scheme for the individual essay is (advisors/communication tutors only):
 - Clarity - 30%
 - Content - 30%
 - Relevance - 40%
 - The grading scheme for the progress report is (both advisors & readers):
 - Work completed - 60%
 - Clarity and presentation of the report (organization, use of English) - 30%
 - Use of research approaches related to computer science and engineering discipline (literature review, system/algorithm design, mathematical analysis, modeling, simulation, system prototyping are included here) - 10%

- The grading scheme for the final report is (both advisors & readers):
 - Results obtained - 60%
 - Clarity and presentation of the report (organization, use of English) - 30%
 - Use of research approaches related to computer science and engineering discipline (optimization, analysis, simulation, result verification are included here) - 10%
- The grading scheme for the thesis defense is (both advisors & readers):
 - Result presentation - 40%
 - Delivery: Oral delivery, contact with audience, slides, timing - 40%
 - Quality of answers - 20%
- The grading scheme for the monthly reports is (advisors only):
 - Each monthly report - 33.33%
- The grading scheme for the poster session is (readers only):
 - Clarity and presentation of the poster - 50%
 - Information conveyed - 50%

Course Intended Learning Outcomes

The objectives of this course are to:

1. Provide an opportunity for the student to apply and integrate the knowledge acquired throughout his/her undergraduate study.
2. Develop the capabilities of a student in analyzing and solving complex and possibly real-case problems.
3. Develop a student's skills in the systematic development, documentation and presentation of a significant piece of work.

Assessment Rubric

Program Outcome	Component	Percentage	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C)
Proposal Report					
	Project objective formulation, methodology to be followed, background	60%	The objectives are well defined and prioritized. All relevant information and constraints are obtained and accurately analyzed. Decision and design recommendation are well supported by the information.	All major objectives are identified. Sufficient information is obtained. Appropriate analyses are selected. Decision and design recommendation are reasonable and mostly supported by the information.	Most major objectives are identified but two minor ones are missing or prioritized not established. Most constraints are identified but some are not adequately addressed or accurately analyzed. Decision and design recommendation is reasonable.
	Clarity and presentation of the report (organization, use of English)	30%	Report is well organized and clearly written. The underlying logic is clearly articulated and easy to follow. Words are chosen that precisely express the intended meaning and support reader comprehension. Diagrams or analyses enhance and clarify presentation of ideas. Sentences are grammatical and free from spelling errors.	Report is organized and clearly written for the most part. In some areas the logic or flow of ideas is difficult to follow. Words are well chosen with some minor exceptions. Diagrams are consistent with the text. Sentences are mostly grammatical and only a few spelling errors are present but they do not hinder the reader.	Report is organized but topic/flow, but in some areas it is difficult to follow the flow of ideas. Words can be further improved. Some diagrams are not explained. Grammatical errors that impede flow of communication.

Program Outcome	Component	Percentage	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C)
Progress Report					
	Work completed	60%	Progress is beyond expectations with respect to plan. Highly detailed discussions on milestones completed.	Progress is highly satisfactory with respect to plan. Detailed discussions on milestones completed.	Progress is mostly satisfactory with respect to plan. Some discussions on milestones completed.
	Clarity and presentation of the report (organization, use of English)	30%	Report is well organized and clearly written. The underlying logic is clearly articulated and easy to follow. Words are chosen that precisely express the intended meaning and support reader comprehension. Diagrams or analyses enhance and clarify presentation of ideas. Sentences are grammatical and free from spelling errors.	Report is organized and clearly written for the most part. In some areas the logic or flow of ideas is difficult to follow. Words are well chosen with some minor exceptions. Diagrams are consistent with the text. Sentences are mostly grammatical and only a few spelling errors are present but they do not hinder the reader.	Report is organized but topic/flow, but in some areas it is difficult to follow the flow of ideas. Words can be further improved. Some diagrams are not explained. Grammatical errors that impede flow of communication.
	Use of software engineering techniques (concepts of initial system development)	10%	Employ appropriate analytical tools and/or software engineering techniques. Clearly demonstrates mastery of several areas of the project at hand.	Employ appropriate analytical tools and/or software engineering techniques acquired in his course of study to the project at hand.	Employ some analytical tools and/or software engineering techniques acquired.

Program Outcome	Component	Percentage	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work
Final Report					
	Results obtained	60%	Perform competently and in addition notice improvements that can be made to the design spec. Deliver code of exceptional quality. Plan and execute thorough list of test cases.	Develop code that follows the design spec. Develop structured code. Plan and execute list of test cases with expected result specified.	Develop code follows the design spec but can be further improved. Plan and execute some test cases but not cover all possible scenarios.
	Clarity and presentation of the report (organization, use of English)	30%	Report is well organized and clearly written. The underlying logic is clearly articulated and easy to follow. Words are chosen that precisely express the intended meaning and support reader comprehension. Diagrams or analyses enhance and clarify presentation of ideas. Sentences are grammatical and free from spelling errors.	Report is organized and clearly written for the most part. In some areas the logic or flow of ideas is difficult to follow. Words are well chosen with some minor exceptions. Diagrams are consistent with the text. Sentences are mostly grammatical and only a few spelling errors are present but they do not hinder the reader.	Report is organized by topic/flow, but in some areas it is difficult to follow the flow. Words can be improved. Some diagrams are not clearly explained. Grammatical errors that impede the flow of communication.
	Use of software	10%	Employ appropriate	Employ appropriate	Employ some

Program Outcome	Component	Percentage	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work
Oral Presentation					
	Project demonstration	40%	Present a fully-functioning working product with several original/inventive elements. Show strong effort was made in breaking new ground and building excitement about the application. The demonstration techniques are imaginative and effective in conveying ideas to the audience.	Present a working product with support to all desired functions. Offer some new information or approach about the application. The demonstration techniques are effective in conveying main ideas.	Present a working product but some functions are not supported or malfunction. The demonstration shows how the application works but the demonstration is not well planned.
	Delivery: Oral delivery, contact with audience, slides, timing	40%	Slides cover complete, accurate description of important outcomes. Effective use of charts, graphs, figures etc. Use of fluent English and confident. Hold attention by direct eye contact and nature hand gestures. Excellent timing and smooth transition among slides.	Slides cover accurate description of most of important outcomes. Use of charts, graphs, figures etc. Fair use of English. Hold attention by consistent use of direct eye contact. Presentation runs with desired pace and finishes within allocated time.	Slides cover outcomes. Little use of charts, graphs etc. Use of English is not noticeable or eye contacts are not consistent. Presentation is not well planned within allocated time.