[Course Title] Final Year Thesis

[Course Code] COMP4981H

[No. of Credits] 6-credit

[Any pre-/co-requisites] NIL

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## 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

## Intended Learning Outcomes (ILOs)

By the end of this course, students should be able to:

1. Develop original solutions to computer science and engineering problems of significant complexity.
2. Utilize prior knowledge, independent research, published information, and original ideas in addressing problems and generating solutions.
3. Critically evaluate different research approaches, and justify the final choice of design through system development, simulation and/or analysis.
4. Use computational and/or mathematical tools to plan, design and validate an approach if needed.
5. Prepare and deliver a well-structured written analysis of the project, as well as an oral defense.
6. Establish relationships and implement practices with advisors and/or local/international researchers that will underpin a high level of performance and encourage continuous improvement.
7. Identify ethical issues that an engineer in the field of computer science may face in workplaces.

## Assessment and Grading

This course will be assessed using criterion-referencing and grades will not be assigned using a curve. Detailed rubrics for each assignment are provided below, outlining the criteria used for evaluation.

**Assessments:**

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:

| Assessment Task | Contribution to Overall Course grade (%) | Due date |
|---|---|---|
| Project proposal report | 5% | 2025-09-12 |
| Individual essay | 5% (graded by communication tutors) | 2025-10-17 |
| Project progress report | 20% | 2026-02-28 |
| Final project report | 35% | 2026-04-17 |
| Oral presentation/thesis defense | 30% | 2026-04-25 to 2026-05-02 |
| Monthly reports (Oct, Nov, Dec/Jan) | 5% | 2025-10-31, 2025-11-30, 2025-01-15 |
| 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:
     o 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%
     o The grading scheme for the individual essay is (advisors/communication tutors only):
       ▪ Clarity - 30%
       ▪ Content - 30%
       ▪ Relevance - 40%
     o 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%
  - o 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%
  - o 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%
  - o The grading scheme for the monthly reports is (advisors only):
    - Each monthly report - 33.33%
  - o The grading scheme for the poster session is (readers only):
    - Clarity and presentation of the poster - 50%
    - Information conveyed - 50%

**Mapping of Course ILOs to Assessment Tasks**

[add to/delete table as appropriate]

| Assessed Task | Mapped ILOs | Explanation |
|---|---|---|
| Project proposal report | ILO1, ILO2 | This task assesses students' ability to explain and apply computer science and engineering concepts (ILO1), evaluate gaps in existing works (ILO2), and propose an original solution in addressing the target problem. |
| Individual essay | ILO7 | This task assesses students' understanding of potential ethical considerations and challenges when building systems in workplaces (ILO7) |
| Project progress report | ILO1, ILO2, ILO3, ILO4, ILO6 | This task assesses students' ability to explain and apply computer science and engineering concepts (ILO1), evaluate their implications (ILO2), critically analyze different design choices (ILO3), synthesize a well-argued solution (ILO4), and continuously improve the project through collaboration with advisors and/or other researchers (ILO6). |

| Final project report | ILO1, ILO2, ILO3, ILO4, ILO5, ILO6 | This task assesses students' ability to explain and apply computer science and engineering concepts (ILO1), evaluate their implications (ILO2), critically analyze different design choices (ILO3), synthesize a well-argued solution (ILO4), deliver a well-structured written presentation (ILO5), and continuously improve the project through collaboration with advisors and/or other researchers (ILO6). |
|---|---|---|
| Oral presentation | ILO1, ILO2, ILO3, ILO4, ILO5, ILO6 | This task assesses students' ability to explain and apply computer science and engineering concepts (ILO1), evaluate their implications (ILO2), critically analyze different design choices (ILO3), synthesize a well-argued solution (ILO4), deliver a well-structured written presentation (ILO5), and continuously improve the project through collaboration with advisors and/or other researchers (ILO6). |
| Monthly reports | ILO6 | Establish relationship and collaborative practices with team members and advisors to advance the project (ILO6). |

**Grading Rubrics**

[Detailed rubrics for each assignment will be provided. These rubrics clearly outline the criteria used for evaluation. Students can refer to these rubrics to understand how their work will be assessed.]

**Final Grade Descriptors:**

[As appropriate to the course and aligned with university standards]

| Grades | Short Description | Elaboration on subject grading description |
|---|---|---|
| A | Excellent Performance | Demonstrates a comprehensive grasp of subject matter, expertise in problem-solving, and significant creativity in thinking. Exhibits a high capacity for scholarship and collaboration, going beyond core requirements to achieve learning goals. |
| B | Good Performance | Shows good knowledge and understanding of the main subject matter, competence in problem-solving, and the ability to analyze |

| | | |
|---|---|---|
| | | and evaluate issues. Displays high motivation to learn and the ability to work effectively with others. |
| C | Satisfactory Performance | Possesses adequate knowledge of core subject matter, competence in dealing with familiar problems, and some capacity for analysis and critical thinking. Shows persistence and effort to achieve broadly defined learning goals. |
| D | Marginal Pass | Has threshold knowledge of core subject matter, potential to achieve key professional skills, and the ability to make basic judgments. Benefits from the course and has the potential to develop in the discipline. |
| F | Fail | Demonstrates insufficient understanding of the subject matter and lacks the necessary problem-solving skills. Shows limited ability to think critically or analytically and exhibits minimal effort towards achieving learning goals. Does not meet the threshold requirements for professional practice or development in the discipline. |

**Course AI Policy**

the course in general is open to the use of generative AI but the actual policy for individual groups will be decided by the advisors

**Communication and Feedback**

Assessment marks for individual assessed tasks will be communicated via FYP system within two weeks of submission. Feedback on assignments will include specific details, e.g., strengths and areas for improvement. Students who have further questions about the feedback including marks should consult the advisor within five working days after the feedback is received.

**Resubmission Policy**

Not applicable.

**Required Texts and Materials**

[List required textbooks, readings, and any other materials]

N/A

**Academic Integrity**

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST's Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to Academic Integrity | HKUST – Academic Registry for the University's definition of plagiarism and ways to avoid cheating and plagiarism.

**[Optional] Additional Resources**

[List any additional resources, such as online platforms, library resources, etc.]

N/A