

Title (Units): **COMP7960 MSc Research I (3,*,*)**

Course Aims: Students will learn how to carry out research under the supervision of academic staff. They will go through the initial phase of the research process: i) identifying research problems, ii) conducting literature reviews and critically analyzing existing solutions, and iii) obtaining initial results of potential impact. In this research process, students will be guided to develop self-learning skills, fostering a foundation for lifelong learning.

Prerequisite: COMP7950 IT Project Skills

Course Intended Learning Outcomes (CILOs):

Upon successful completion of this course, students should be able to:

| No. | Course Intended Learning Outcomes (CILOs) |
|-----|--|
| | Knowledge |
| 1 | Demonstrate a thorough understanding on the selected research topic |
| 2 | Apply appropriate research methodologies for the selected research topic |
| | Professional Skill |
| 3 | Conduct a systematic literature review |
| 4 | Identify research problems and propose novel solutions to solve the problems |
| 5 | Produce research papers and effective oral presentations |
| | Transferable Skill |
| 6 | Demonstrate organizational and time-management skills |

Calendar Description: Each student is required to work on an academic research project independently under the supervision of an academic staff. After completing the research projects, students will submit written research papers and present their research results. Each project will be assessed by the supervisor and one observer on four aspects: (i) project management and progress, (ii) methodologies and results, (iii) paper writing, and (iv) oral presentation. Through these research projects, students will learn and practice how to identify research problems, conduct literature reviews, criticize and analyze existing solutions, propose and evaluate new solutions, write and present research papers.

Teaching and Learning Activities (TLAs):

| CILOs | Type of TLA |
|-------|--|
| 1-4 | Students will work on their research projects independently under the supervision of our faculty members. |
| 1,5,6 | Students are required to write progress reports and conduct meetings with their supervisors regularly. |
| 1,5,6 | Each student will submit a research paper and give an oral presentation upon completion of the research project. |

Assessment:

| No. | Assessment Methods | Weighting | CILOs to be addressed | Description of Assessment Tasks |
|-----|---|-----------|-----------------------|---|
| 1 | Project Management and Progress | 10% | 6 | This category assesses the attitude of the students, the amount of effort the student has put into the project, self-discipline, and the general project management skills. The progress reports are assessed in this category. This category is assessed by the Supervisor only. |
| 2 | Novelty and Originality of Research problem | 15% | 1-4 | This category assesses the understanding of the research problem and its novelty and originality. |

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|---|--|-----|-----|---|
| 3 | Literature review | 10% | 1-4 | This category assesses the depth and completeness of literature review, research methodologies, novelty, originality, and technical contribution. |
| 4 | Research methodologies and their technical contributions | 35% | 1-4 | This category assesses the research methodologies and their technical contributions. |
| 5 | Paper Writing | 20% | 5 | This category assesses the quality of the final research paper, including the organization, English writing, references, etc. |
| 6 | Oral Presentation | 10% | 5 | This category includes oral presentation of the research work, and demonstration if applicable. Communication skills are emphasized. |

Assessment Rubrics:

| | Excellent (A) | Good (B) | Satisfactory (C) | Fail (F) |
|---------------------------------|---|---|---|---|
| Project management and progress | <ul style="list-style-type: none"> Has a high degree of effectiveness in project management Always follows the schedule, and makes good progress in all phases | <ul style="list-style-type: none"> Has a considerable degree of effectiveness in project management Always follows the schedule, and makes good progress in most phases | <ul style="list-style-type: none"> Has some degree of effectiveness in project management Cannot strictly follow the schedule, but be able to make some progress | <ul style="list-style-type: none"> Very poor in project management Cannot follow the schedule Cannot make reasonable progress in most phases |
| Methodologies and results | <ul style="list-style-type: none"> Has a thorough understanding of the problem, and conducts a comprehensive literature review Has a thorough understanding on the research methodology required for solving the selected research problem Achieves good initial research results that have the potential for academic publication | <ul style="list-style-type: none"> Has a good understanding of the problem, and conducts a good literature review Has a good understanding on the research methodology for solving the selected research problem Achieves some progress in original research | <ul style="list-style-type: none"> Can conduct a reasonable literature review Has some understanding on the research methodology for solving the selected research problem Unable to propose any original solution | <ul style="list-style-type: none"> Has difficulties in understanding the problem, and unable to conduct literature review Unable to master the methodology required for solving the research problem Unable to propose any original solution |
| Paper writing | <ul style="list-style-type: none"> Demonstrates excellent organization, clarify, English grammar, spelling, format, and references | <ul style="list-style-type: none"> Demonstrates good organization, clarify, English grammar, spelling, format, and references | <ul style="list-style-type: none"> Demonstrates acceptable organization, clarify, English grammar, spelling, format, and references | <ul style="list-style-type: none"> Demonstrates poor organization, clarify, English grammar, spelling, format, and references |

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|-------------------|--|--|---|---|
| Oral presentation | <ul style="list-style-type: none"> • The whole presentation is very well organized • All information is presented very clearly and fluently • All questions are appropriately answered • Visual aids are carefully prepared and can support the presentation effectively | <ul style="list-style-type: none"> • Most parts of the presentation are well organized • Most information is presented clearly and fluently • Most of the questions are appropriately answered • Visual aids are carefully prepared and can support the presentation | <ul style="list-style-type: none"> • Some parts of the presentation are not well organized • Most information is understandable • Some of the questions are appropriately answered | <ul style="list-style-type: none"> • The whole presentation is poorly organized • Most information is difficult to understand • No questions are appropriately answered • Little knowledge of the topic is demonstrated |
|-------------------|--|--|---|---|

Course Content and CILOs Mapping:

| Content | | CILO No. |
|---------|------------------|----------|
| I | Research Project | 1-6 |

References:

- Selected articles from journals, magazines, conference proceedings, research monographs, etc.
- T. Hung, Avoiding Plagiarism, HKBU (http://ar.hkbu.edu.hk/curr/avoid_plagiarism/).
- Barbara Gastel and Robert A. Day, How to Write and Publish a Scientific Paper, 8th Edition, Greenwood, 2016.
- John Bowden, Writing A Report,,: How to Prepare, Write & Present Really Effective Reports, 9th Edition, How To Books, 2011.
- C. Lipson, Doing Honest Work in College: How to Prepare Citations, Avoid Plagiarism, and Achieve Real Academic Success, Third edition, Chicago Guides to Academic Life, 2019.

Course Content:

Topic

- I. Research Project
Students can select specific topics in consultation with their project supervisors.