COLLEGE OF CREATIVE INNOVATION

Programme

Master of Software Engineering
(Level 9) 180 Credits

Course

MSE907: Industry-based Capstone Research Project
(60 Credits)

Assessment 1

# Research Development and Plan

Weighting within the course:

20%

# Assessment Tasks to Learning Outcome and GPOs mapping

| Tasks | Learning Outcomes | GPOs |
|---|---|---|
| **Task 1** | LO1 | GPO1, GPO2 |
| **Task 2** | LO2 | GPO1, GPO2 |

## Objective

The aim of the assessment is to develop a high-level, practice-centered, industry-focused capstone project proposal that advances knowledge in software engineering and addresses specific industry needs. You will need to prepare a comprehensive research plan outlining the project's background research, system development approach, analysis methods, and evaluation criteria using relevant industry standards.

## Assessment Instructions

- This assessment is an open book activity, you can use your own course and review notes as well as offline or online resources, such as textbooks or online journals.
- You can always ask your tutor if you need further explanation or if the instructions are not clear.
- By completing and submitting an assessment you are authenticating that you are the original creator and/or author of all the submitted work and that it does not violate plagiarism or copyright law. All written work such as essays, reflections, reports must be in your own words. Please refer to the Academic Misconduct and Authenticity of Assessment Evidence statement in your Student Handbook for more information.
- Please ensure the completion of the assessment by **week 15.**
- Grades and feedback will be returned within 15 days of the submission date.

## Learning Outcomes

**LO1:** Critically analyse literature to find gaps in the chosen field of interest.
**LO2:** Evaluate appropriate research methods and techniques to design and implement a solution for identified gaps in the chosen software engineering industry project.

## Graduate Profile Outcomes (GPOs) covered

**GPO1:** Develop advanced software engineering knowledge and skills and apply these to solve emerging or existing problems.

**GPO2:** Utilise highly specialised knowledge and skills to carry out cutting-edge software engineering projects independently and collaboratively.

## Success Criteria:

You need to meet all the requirements of each of the learning outcomes and receive 50% or more to pass this assessment. You are allowed a maximum of three attempts. To meet all the requirements of each of the learning outcomes, you must achieve PASS results for each task item.

## Grading:

The final grade will be determined by the score achieved in this assessment based on the following table. Should a second or third attempt be required the maximum contribution toward the overall mark for the tasks that required a second or third assessment attempt is 50%. A late submission is considered a second attempt, so the contribution will be capped at 50%.

| Grade | Mark Band Range |
|---|---|
| A+ | Meet all course requirements, mark range (90-100) |
| A | Meet all course requirements, mark range (85-89) |
| A- | Meet all course requirements, mark range (80-84) |
| B+ | Meet all course requirements, mark range (75-79) |
| B | Meet all course requirements, mark range (70-74) |
| B- | Meet all course requirements, mark range (65-69) |
| C+ | Meet all course requirements, mark range (60-64) |
| C | Meet all course requirements, mark range (55-59) |
| C- | Meet all course requirements, mark range (50-54) |
| D | Did not meet all course requirements, mark range (40-49) |
| E | Did not meet all course requirements, mark range (0-39) |

## Submission requirements:

- Submit your written research proposal in docx or pdf format. The submission must have your name and ID number clearly printed.
- Submission should be typed, double-spaced, and adhere to a standard citation format if external sources are referenced.

1. Project Proposal Document
2. Turnitin Similarity Report
3. Presentation Slides
4. Presentation Video

## Additional Information:

- You are encouraged to discuss your research plan with your supervisor to ensure alignment with your chosen project and industry needs.
- Consider including any relevant diagrams, tables, or figures to enhance your plan's clarity.
- All references should be properly cited in a consistent style guide. (e.g., APA).

# Assessment Tasks

## Task1: Literature Review and Gap Analysis.

**LO1:** Critically analyse literature to find gaps in the chosen field of interest.

You are required to apply critical thinking skills to analyse existing research within your chosen software engineering field, identify gaps in knowledge or limitations in current practices, design a research plan to address these gaps through a software engineering project, and apply appropriate research methodologies and techniques to implement your proposed solution.

- Select a specific area within software engineering that interests you.
- Conduct a comprehensive literature review to identify existing research and industry practices within your chosen area.
- Critically analyse the reviewed literature to identify gaps in knowledge, limitations in current practices, or potential areas for improvement.
- Summarise your findings in a well-organised report, highlighting the identified gap(s) you aim to address through your project.

## Task2: Project Proposal and Research Design

**LO2:** Evaluate appropriate research methods and techniques to design and implement a solution for identified gaps in the chosen software engineering industry project.

- Develop a detailed proposal outlining your research project that will address the identified gap(s) from your literature review.
- Clearly define the research question(s) and/or the specific problem your project aims to solve.
- Justify the significance of your project and its potential impact on the software engineering field or industry.
- Propose a research methodology that aligns with your project goals. This can include quantitative or qualitative methods such as surveys, user studies, experiments, or case studies depending on your chosen problem area.
- Clearly outline your proposed solution, which should be implemented as a software engineering project. Explain how your solution will address the identified gap(s).
- Describe the evaluation plan for your project. This should involve relevant industry-standard metrics to measure the effectiveness of your proposed solution.

# Marking Rubric

**Task 1:** Literature Review and Gap Analysis.
**LO1** Critically analyse literature to find gaps in the chosen field of interest.

| **Criterion & Weighting** | | **A**<br>**(80-100) %** | **B**<br>**(65-79) %** | **C**<br>**(50-64) %** | **D**<br>**(40-49) %** | **E**<br>**(0-39) %** |
|---|---|---|---|---|---|---|
| Depth and Clarity of Literature Review | 20% | Conducted a comprehensive and critical analysis of relevant literature. Demonstrated a strong understanding of the chosen field and identified clear gaps in knowledge or limitations in current practices. | Conducted a thorough literature review. Identified gaps or limitations, but the analysis could be deeper. | Conducted a literature review, but the analysis was limited or lacked depth. Gaps or limitations were identified, but the justification was weak. | Limited literature review conducted. Gaps or limitations were not clearly identified or justified. | Minimal to no literature review was conducted. Gaps or limitations in existing research were not identified or justified. Little to no effort was made to develop a research plan or apply appropriate methodologies. The work demonstrated a lack of understanding of the research process and did not meet the minimum requirements for a passing grade. |
| Identification and Justification of the Chosen Gap | 20% | Clearly identified a significant gap in knowledge or limitation in current practices within the chosen field. Provided a strong justification for the importance of addressing this gap through the proposed project. | Identified a gap or limitation, but the justification for its significance could be stronger. | Identified a gap or limitation, but the justification for its importance was weak or unclear. | Did not identify a clear gap or limitation, or the justification for addressing it was lacking. | Failed to identify any significant gaps or limitations in the current research. Made no attempt to justify the need for further investigation or address gaps in the research. |
| Clarity and Detail of the Research Question(s)/Problem Statement | 15% | Formulated a clear, concise, and well-defined research question(s) or problem statement that directly addresses the identified gap. | Formulated a research question(s) or problem statement, but it could be more specific or better focused on the chosen gap. | Formulated a research question(s) or problem statement, but it lacked clarity or focus on the identified gap. | Did not formulate a clear research question(s) or problem statement, or it did not connect to the chosen gap. | Did not formulate a clear research question(s) or problem statement, or the question(s) were irrelevant to the chosen topic. Made no attempt to connect the research question(s) to the chosen gap, or the connection was entirely absent. |
| Subtotal | 55% | | | | | |

**Task 2:** Project Proposal and Research Design
**LO2:** Evaluate appropriate research methods and techniques to design and implement a solution for identified gaps in the chosen software engineering industry project.

| **Criterion & Weighting** | | **A (80-100) %** | **B (65-79) %** | **C (50-64) %** | **D (40-49) %** | **E (0-39) %** |
|---|---|---|---|---|---|---|
| Suitability and Justification of the Chosen Research Methodology | 15% | Selected a research methodology that is highly appropriate for addressing the research question(s) or problem statement. Provided a clear justification for the chosen methodology and explained how it will be implemented | Selected a research methodology that is somewhat appropriate for addressing the research question(s) or problem statement. Justification for the methodology could be stronger or more detailed. | Selected a research methodology that may not be the most suitable for addressing the research question(s) or problem statement. Justification for the methodology was weak or unclear. | Did not select a research methodology, or the chosen methodology was not relevant to the research question(s) or problem statement. | Did not select or discuss a research methodology at all. Made no attempt to justify the chosen methodology, or the justification was nonsensical or absent. |
| Feasibility and Potential Effectiveness of the Proposed Solution | 15% | Presented a well-defined and feasible solution that has the potential to effectively address the identified gap. Explained how the solution will be implemented within the software engineering project. | Presented a solution that addresses the gap, but the feasibility or effectiveness could be further developed. | Presented a solution that may not be fully feasible or effective in addressing the gap. | Did not present a clear solution, or the proposed solution was not relevant to the identified gap. | Did not present a clear solution, or the proposed solution was entirely irrelevant to the identified gap. Made no attempt to propose a solution or address the identified gap in the research. |
| Clarity and Appropriateness of the Evaluation Plan | 15% | Developed a clear and detailed evaluation plan that utilizes relevant industry-standard metrics to measure the effectiveness of the proposed solution. | Developed an evaluation plan, but it could be more detailed or may not fully utilize appropriate metrics. | Developed an evaluation plan, but it lacked clarity or did not include relevant metrics. | Did not develop an evaluation plan, or the plan was not relevant to the research project. | Did not develop an evaluation plan at all, or the plan was entirely irrelevant to the research project and its intended outcomes. Made no attempt to create an evaluation plan to assess the success or effectiveness of the research project. |
| Subtotal | 45% | | | | | |
| Total | 100% | | | | | |

**Note:** *The ranges for each grade level encompass the full 11-point grading system as outlined in the accompanying table. Please refer to the table for detailed percentage ranges associated with each letter grade.*