WORK BASED PROJECT - UNIT SPECIFICATION

Programs: Bachelor of Engineering Technology (Professional Honours in Infrastructure Asset Management)

Bachelor of Engineering (Professional Honours in Road Engineering and Construction)

Unit Name Work Based Project

Unit Code KNE520

Duration One semester

Credit Points 1

Delivery Mode Online

Prerequisites BEng (IAM): KNE510, KNE509, KNE519 plus one other unit

BEng(RE&C): KNE550, KNE551 plus two other units

Co requisites Nil

Unit Chair Kieran Sharp

Synopsis

This unit provides the opportunity to undertake a research project that will augment professional work in road asset management and form a foundation for future learning and professional development. It will impart cognitive skills to think critically about research methods, planning, analysis and presentation. The unit encompasses research investigation involving the analysis and interpretation of data, or a critical review and interpretation of literature on an approved topic. The research provides an opportunity for the practical application and integration of the student’s professional background and skills, and studies in supporting units of the Bachelor of Engineering (Professional Honours Infrastructure Asset Management) or Bachelor of Engineering (Professional Honours Road Engineering and Construction).

Unit Topics

Topic 1 concerns developing a research proposal and outlines the various types of research that may be undertaken by engineers and suggests that most engineers typically undertake research in the applied research space, using a quantitative approach. The importance of developing the research question and topic is stressed along with the need to ensure that the proposed research can be completed within the time allocated to the project.

Topic 2 succinctly outlines definitions, structures and the role of the literature review in a research report. It stresses how one of the most important roles of the literature review is to show where the proposed research fits within, and augments, the existing international contemporary literature.
Topic 3 provides an overarching framework to planning a research program, outlining the need to develop a schedule for the entire project and to identify the breadth and depth of testing required to generate adequate and reliable data.

Topic 4 outlines the importance of accurate analysis, interpretation and presentation of experimental results and explores the use of regression and correlation as tools to help explain trends in data. The role of hypothesis testing in engineering is introduced.

Topic 5 involves the provision of guidance on structuring and writing the Research Report and preparing the Audio-visual Presentation.

**Unit Learning Outcomes (ULOIs)**

After completing this unit students will be able to:

1. Develop and justify an integrated research plan and select and apply appropriate research methodologies
2. Source and critically evaluate and synthesise research literature to determine the level of contemporary knowledge in a specialist area.
3. Undertake experimentation, data collection through laboratory and/or field studies and/or critical analysis of the literature.
4. Judge the degree to which research outcomes are supported by the research data and form appropriate conclusions and recommendations based on the research.
5. Apply established theories and techniques to present the significance of their research, findings and make informed recommendations for future research directions.

**Assessment Tasks and Weightings**

To obtain a pass grade in this Unit 50% overall must be achieved and at least 40% achieved in the final research report.

Unit Assessment consists of four assessment tasks as summarised below. Students must also refer to the Assignments and the Unit Assessment Guide for Work Based Project, provided on the CPEELMS. Detailed information is provided for each assessment task. There is no final examination in this Unit.

**Assessment Task 1** requires the development of the *Research Topic Proposal*, the research question and outlining the proposed research methodology to ensure that the proposed research is achievable. It is worth 10% of the total marks for the Unit.

**Assessment Task 2** helps to facilitate the structured development of the research by requiring a *Project Progress Report*, which must include a critical review of the international literature. The progress report will be presented as a concise engineering report. It is worth 25% of the total marks for the Unit.

**Assessment Task 3** involves the preparation and submission of the final *Project Thesis*. The thesis is the capstone of the Bachelor of Engineering (Professional Honours Infrastructure Asset Management) or Bachelor of Engineering (Professional Honours Road Engineering and Construction).
and should be around 4,000 to 6,000 words excluding tables, graphs and appendices. It is noted that some theses may vary significantly in length due to the research topic. While the content of a research thesis may vary greatly, the structure remains reasonably consistent as outlined in Work Based Project: Unit Material. It is worth 50% of the total marks for the Unit and is independently graded by both the Unit Chair and the workplace project supervisor.

Assessment Task 4 provides an opportunity for the Digital Audio-visual Presentation of the research outcomes. The presentation must include both visual and audio and may be provided via mediums such as YouTube, a videoed workplace seminar or a similar recording. It is worth 15% of the total marks for the Unit.

Student Workload

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<tr>
<th>Total</th>
<th>150 hours</th>
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<tbody>
<tr>
<td>Assessment</td>
<td>30 to 50 hours</td>
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<tr>
<td>Directed Study</td>
<td>120 to 100 hours</td>
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Required Facilities

Students must have access to the internet, email and word processing and spreadsheet programs.

Prescribed Text(s)


(Note: This text will be provided to students)

Recommended Materials(s)

Numerous links are provided within the Unit to research organisations, international universities, YouTube clips, and research databases.