

**Unit 2 Applied Computing – 2024**
**Outcome 1 Innovative solutions – Template for developing an assessment task – Plan**

<b>Outcome 1</b>		<b>Assessment task development</b>
On completion of this unit the student should be able to, in collaboration with other students, analyse, design, develop and evaluate an innovative solution to an identified need or opportunity involving a digital system.		Students are to work collaboratively to develop an innovative solution to an identified need or opportunity. The innovative solution may take the form of a proof of concept, prototype or product. All stages of the problem-solving methodology are applied to investigate the use of digital devices and emerging technologies as part of the innovative solution. Students are to document, monitor and modify a project plan for the duration of the assessment task. Key content within the assessment task should be based on the targeted key knowledge and key skills.
<b>Key knowledge</b>	<b>Key skills</b>	
<ul style="list-style-type: none"> <li>components of digital systems</li> <li>types of digital devices used for a range of current and emerging applications such as smart phones, smart refrigerators and virtual assistants</li> <li>emerging trends in digital systems and the importance of innovation to organisations, such as improving efficiency and effectiveness of customer service and maintaining competitiveness</li> <li>functions and capabilities of digital systems used by individuals and organisations, such as assistive technologies, financial services, global positioning system (GPS) devices, robotics and traffic management</li> <li>goals and objectives of digital systems</li> <li>economic issues involving emerging technologies, such as access, deskilling, job loss, misuse and sustainability</li> <li>the impact of current and emerging technologies, such as automation, cyberbullying and the decline of physical human interactions and interpersonal skills</li> </ul>	<ul style="list-style-type: none"> <li>investigate a problem, need or opportunity and identify potential users and purpose</li> </ul>	Students in their groups are to investigate a problem, need or opportunity and develop it as an innovative solution. The innovative solution may take the form of a proof of concept, prototype or product. Students are to identify potential users and the purpose of the innovative solution.
<ul style="list-style-type: none"> <li>techniques for collecting data to determine user needs and requirements, such as interviews and surveys</li> </ul>	<ul style="list-style-type: none"> <li>propose a range of methods to collect data for analysis</li> </ul>	Students in their groups are to propose a range of methods to collect data through interviews and surveys.
<ul style="list-style-type: none"> <li>solution specifications such as functional and non-functional requirements, constraints and scope</li> </ul>	<ul style="list-style-type: none"> <li>analyse and document solution requirements to develop an innovative solution</li> </ul>	Students in their groups are to analyse their need or opportunity and document the solution requirements (functional and non-functional), constraints and scope. This document could be completed as a written report.
<ul style="list-style-type: none"> <li>design tools and techniques for representing solution designs, such as mock-ups, pseudocode, sitemaps and storyboards</li> </ul>	<ul style="list-style-type: none"> <li>select and use appropriate design tools for generating solution designs</li> </ul>	Students in their groups are to select and use a range of appropriate design tools (mock-ups, pseudocode, sitemaps and storyboards). Designs are to represent the appearance and functionality of their innovative solution.
<ul style="list-style-type: none"> <li>characteristics of creative and innovative solutions</li> <li>functions and techniques for developing innovative solutions</li> </ul>	<ul style="list-style-type: none"> <li>develop an innovative solution using appropriate digital systems</li> </ul>	Students in their groups are to use appropriate functions and techniques for developing innovative solutions. The innovative solution should use appropriate digital systems.
<ul style="list-style-type: none"> <li>techniques for documenting the development of solutions</li> </ul>	<ul style="list-style-type: none"> <li>document the development of the innovative solution</li> </ul>	Students in their groups are to document the development of the innovative solution. The documentation should show the stages of the problem-solving methodology in the development of the proof of concept, prototype or product.
<ul style="list-style-type: none"> <li>techniques for validating and testing solutions</li> </ul>	<ul style="list-style-type: none"> <li>design and apply suitable validation and testing techniques</li> </ul>	Students in their groups are to design and apply relevant data validation techniques to check all input data. A testing table is to be developed that involves the testing of all validation, objects and processing such as calculations, etc.
<ul style="list-style-type: none"> <li>key legislation and how emerging technologies are affected by: the Copyright Act 1968, the Health Records Act 2001, the Privacy Act 1988 and the Privacy and Protection Act 2014</li> <li>ethical issues arising from the development of emerging technologies</li> </ul>	<ul style="list-style-type: none"> <li>identify and discuss potential legal and ethical issues affecting the development of an innovative solution</li> </ul>	Students in their groups are to identify and discuss the potential legal and ethical issues that affect the development of their innovative solution. Key legislation could include the Copyright Act 1968, the Health Records Act 2001, the Privacy Act 1988 and the Privacy and Protection Act 2014. This document could be completed as a written report.
<ul style="list-style-type: none"> <li>evaluation criteria and techniques for evaluating the efficiency and effectiveness of innovative solutions</li> </ul>	<ul style="list-style-type: none"> <li>apply evaluation criteria and evaluate the efficiency and effectiveness of an innovative solution to meet a need or opportunity</li> </ul>	Students in their groups are to evaluate the efficiency and effectiveness of their innovative solution in meeting their need or opportunity via the solution requirements (functional and non-functional). Definitions for efficiency and effectiveness can be found in the <i>Terms used in this study</i> section of the <i>Applied Computing Study Design</i> . This evaluation could be completed as a written report.
<ul style="list-style-type: none"> <li>tools and techniques for coordinating and monitoring projects, such as Gantt charts</li> </ul>	<ul style="list-style-type: none"> <li>document, monitor and modify project plans using a Gantt chart</li> </ul>	Students in their groups are to document their project plans before commencing the project. Project plans are to include the sequencing and time allocation of the tasks required to develop their innovative solution. They are to monitor the progress of the project plan and modify the project plan in the development of their innovative solution during the life of the project.