KIRWAN STATE HIGH SCHOOL:YEAR 11 Unit OVERVIEW

Unit 3: Digital innovation

Unit Description:

In Unit 3, students are required to engage with and learn subject matter through the use of the various phases of the problem-solving process in Digital Solutions. Students analyse the requirements of particular groups of people, and use knowledge and skills of problem-solving, computational, design and systems thinking. They will determine data requirements and use available resources to create prototyped digital solutions by programming and developing user interfaces to improve user experiences. Students will do this through one of the technology contexts: web or mobile applications, interactive media, or intelligent systems (which use microcontrollers, sensing or control boards).

Unit Objectives:

1. recognise and describe programming elements, digital system and user interface components, and useability principles
2. symbolise and explain programming information, ideas and interrelationships between data structures and user experiences
3. analyse problems and information related to the selected technology context
4. determine solution requirements, and prescribed and self-determined criteria of a digital problem
5. synthesise information and ideas to determine possible data elements, user interface and programmed components for digital solutions
6. generate user interfaces and programmed components of the prototype digital solution
7. evaluate impacts, components and a solution against criteria to make refinements and justified recommendations
8. make decisions about and use mode-appropriate features, language and conventions for particular purposes and contexts.

Assessment Overview:

Summative IA1: Investigation — technical proposal (20%)

This assessment requires students to research a specific problem through collection, analysis and synthesis of information. A technical proposal uses research or investigative practices to assess a range of cognitions in a particular context. Research or investigative practices include locating and using information beyond students' own knowledge and the data they have been given.

Students must adhere to research conventions, including citations, reference lists or bibliographies. This assessment occurs over an extended and defined period of time. Students may use class time and their own time to develop a proposal and identify a low-fidelity prototype digital solution.

Conditions:
- Length: multimodal presentation, 9–11 minutes
- Other:
  - the reference list is not included in the presentation time
  - schools implement authentication strategies that reflect QCAA guidelines (see Section 1.3.2).

All unit objectives are assessed

Summative IA2: Project — digital solution (30%)

This assessment focuses on the problem-solving process in Digital Solutions that requires the application of a range of cognitive, technical and creative skills and theoretical understandings. The response is a coherent work that documents the iterative process undertaken to develop a solution to a technical proposal. It may include written paragraphs and annotations, diagrams, sketches, drawings, and components of a prototype digital solution.

This assessment occurs over an extended and defined period of time. Students may use class time and their own time to develop a response.

Conditions:
- Length:
  - 8–10 A3 pages
  - 2–4 minute demonstration of the functionality of the user interface, data and coded components of the digital solution by video recording
  - 4–6 A4 pages of code with annotations
- Other:
  - the reference list is not included in the page count
  - schools implement authentication strategies that reflect QCAA guidelines (see Section 1.3.2).

All unit objectives are assessed

Guaranteed Vocabulary:

Useability principles, data flow diagrams, referential integrity, personal, social and economic impacts, constraints, requirements, prescribed and self-determined criteria, system controls 2D data sources, data components,