KIRWAN STATE HIGH SCHOOL: **YEAR 10 COURSE OVERVIEW**

Term 1: Introduction to Information Systems *using SQL and Access*

Year 10 Australian Curriculum Achievement Standard:
By the end of Year 10, students explain the control and management of networked digital systems and the security implications of the interaction between hardware, software and users. **They explain** simple data compression, and **why content data are separated from presentation**.

Students plan and manage digital projects using an iterative approach. They define and decompose complex problems in terms of functional and non-functional requirements. Students design and evaluate user experiences and algorithms. **They design and implement modular programs**, including an object-oriented program, **using** algorithms and **data structures** involving modular functions **that reflect the relationships of real-world data and data entities**. **They take account of privacy and security requirements when selecting and validating data**. Students test and predict results and implement digital solutions. They evaluate information systems and their solutions in terms of risk, sustainability and potential for innovation and enterprise. They share and collaborate online, establishing protocols for the use, transmission and maintenance of data and projects.

Unit Overview:
Students will expand on the concepts of algorithms and programming in object orientated software to help them design and develop more efficient and effective solutions. Students will study the process of developing a system for the RSPCA and use this as a model to create an original information system for a real world client. Students will also explain why content data is separated from presentation. Students then complete an exam on content and application.

Assessment Overview:

Formative Tasks	**Summative Task**
Students will complete activities set in class to revisit prior knowledge. The activities (including a practice database) and the associated ready reference entries will act as the first step of the formative assessment.	Students are to complete a summative exam on algorithms, SQL and information systems with solutions for solving them. Key Skill/s: advanced use of SQL within Microsoft Access. Conditions: In class exam with access to Ready Reference created in class.

Guaranteed Vocabulary:	**Design Question Four Strategy:**	**Design Question Five Strategy:**	**21st Century Skill:**
Analysis Decomposition Evaluation Digital Systems	How will I design and deliver lessons that help students deepen their understanding and develop fluency in skills and processes? • Element 9 Using structured practice sessions (p 38-39 NASoT) ○ Modelling ○ Guided practice ○ Close monitoring ○ Varied practice ○ Worked examples (gradual release of responsibility) ○ Practice sessions before	What will I do to help students apply what they have learned to unique situations? • Element 13 Providing Resources and Guidance (p49-50 NASoT) ○ Using proficiency scales ○ Providing Resources ○ Teaching research skills ○ Circulating around the room ○ Collecting informal assessment information	***Skilled Communication*** – focusing on activities that require students to articulate their ideas in a permanent form: a presentation or written document. ***Knowledge Construction*** – focusing on activities that require students to construct knowledge surrounding the content.

	testing		
Guaranteed Skills/ Language Features:	**Reading Comprehension Skill/ Strategy:**	**Cognitive Verbs:**	**ICT to Enhance Learning:**
Explanation stages: Phenomenon - outcome, Explanation - factors ***Language features,*** Evaluative language **Formal** voice (more authoritative, more power of persuasion) **Nominalise** information – turn verbs, adverbs or clauses into nouns for more authority	***Checking Understanding of Task*** Concept/Definition Mapping Doug Beuhl, page 66 ***Creating Mental Images, Making Inference*** Power Notes Doug Beuhl, page 125 Problematic Situations Doug Beuhl, page 129	design test modify implement evaluate	For teacher to decide on a class level. Using ICT concepts to enhance learning Students will collect, select, analyse, organize, extend, transform and present knowledge using ICT

Learning Goals:

Strands and Sub-Strands	Australian Curriculum Content Descriptors	Kirwan High Goals – Students will know and/or be able to:
	• Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors (ACTDIP029)	• Students will create algorithms and identify errors to complete an exam using SQL and Microsoft Access
	• Implement and modify programs with user interfaces involving branching, iteration and functions in a general-purpose programming language (ACTDIP030)	• Students will understand how to use the constructs of coding – Sequence, Selection and Iteration
	• Evaluate how student solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability (ACTDIP031)	• Students will evaluate their solutions to the problems on the exam

Possible Habit of Mind: *Communicating with Clarity and Precision*

Exploring Meaning of the HOM	Expanding Capacity for using the HOM	Increasing Alertness for the HOM	Extending Values of the HOM	Building Commitment towards the HOM
By the end of this unit students will be able to: • Explore what is means to communicate clearly and use precision in punctuation, grammar, spelling and language choice.	By the end of this unit students will be able to: Students will be able to edit their work and make specific language choices for the purpose of text. Students will give each other feedback about clarity and precision of their writing.	By the end of this unit students will be able to: Actively look for clarity and precision in all written work	By the end of this unit students will be able to: *Describe how Communicating with Clarity and Precision improved their results in this unit of work using a rubric*	By the end of this unit students will be able to: Explain how, when and why they will use this HOM in the future

General Capabilities: This unit provides opportunities for students to engage in following capabilities:

Literacy	ICT	Personal and social capability
Comprehending texts through listening, reading and viewing Composing texts through speaking, writing and creating Text knowledge	Applying social and ethical protocols and practices when using ICT Investigating with ICT	Self-awareness Self-management Social awareness

Grammar knowledge Word knowledge **Numeracy**	Creating with ICT Communicating with ICT Managing and operating ICT **Critical and creative thinking** Inquiring - identifying, exploring and organising information and ideas Generating ideas, possibilities and actions Reflecting on thinking and processes Analysing, synthesising and evaluating reasoning and procedures	**Ethical understanding** Reasoning in decision making and actions **Intercultural understanding**
Cross Curriculum Priorities:		
		Sustainability
Resources:		
Microsoft Word Notepad Buehl's Classroom Strategies for Interactive Learning Solution Exemplar		
Differentiation [for small groups or individuals]:		
Formative practice will be checked and feedback given Students will need to apply feedback until an acceptable standard is reached. Project progress will be monitored and feedback will need to be applied and time caught up outside of class time either with teacher or independently. Advanced students will develop their own in class project to meet specific needs.		