

Australian Curriculum: Technologies — Year 10

Digital technologies

Band plan-2023

CURRICULUM		Year 10					
		Semester 1			Semester 2		
		Term 1		Term 2	Term 3		Term 4
Unit name		Expert systems	Algorithms	Robotics interface	SQL and data bases		Encryption
Unit description		Students build an expert system to respond to a selected situation. The system may be one of identification, diagnosis or advice. Students collect and process data from an expert source, to create the structures that allow unique conclusions.	Students investigate the algorithms involved on the user-interface, the server and the database to store and retrieve data.	Students will create modular code for controllers to solve an identified problem. They will apply computational thinking skills including abstraction, specification to address complex problems, design a user experience of a solution for a controller that sends data to a database, using storyboards and mock-ups. They will use diagrams (data flow diagrams), structured English (pseudocode) to design algorithms and validate them through tracing and test cases. Students will apply object-oriented programming language to implement interact features and investigate the economic success for their digital solution considering safety and sustainability.	Students create a web application to address a problem. MySQL Database: Students design the user experience of a digital system (eg; library borrowing) by evaluating alternative designs against criteria including functionality, accessibility, usability, and aesthetics.	Students will develop an understanding of how digital systems can be restricted to authorised use, examine how information is encoded and how with the relevant 'key' the computer decodes the message. They will introduce and examine common types of cybercrime and complete a challenge of designing a secure digital system, that hashes the password and encrypts the data. They will write a report to explain internet security.	
ASSESSMENT		Year 10					
		Semester 1			Semester 2		
		Expert systems-AT1	Algorithms-AT2	Robotic interfaces-AT3	SQL Exam- AT4	Web data application- AT5	Encryption- AT6
Range and	Technique	Portfolio	Investigation	Project	Exam	Investigation	Project
	Type of Text	Mobile application	Explanation	Code	Short response	Database	Report

	Mode	Digital- Excel and web-based	Multimodal- graphic and written	Digital	Written	Digital multimodal	Product and written
	Conditions		<ul style="list-style-type: none"> In class & home individual 5 weeks 	<ul style="list-style-type: none"> In class and at home. Access to online resources. Some teacher and peer assistance. 9 Weeks 	<ul style="list-style-type: none"> Up to 60 minutes Exam conditions Up to 400 words 	<ul style="list-style-type: none"> Multimodal Presentation of responses 6-8 minutes 	<ul style="list-style-type: none"> Written responses including graphical representations 300–400 words Multimodal responses 3–4 minutes

Aspects of the achievement standard

explain the control and management of networked digital systems and the security implications of the interaction between hardware, software and users		✓		✓		✓	✓
explain simple data compression, and why content data are separated from presentation		✓		✓		✓	✓
plan and manage digital projects using an iterative approach	✓			✓		✓	
define and decompose complex problems in terms of functional and non-functional requirements	✓	✓		✓	✓	✓	✓
design and evaluate user experiences and algorithms	✓	✓		✓		✓	
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						
take account of privacy and security requirements when selecting and validating data			✓			✓
test and predict results and implement digital solutions	✓	✓	✓	✓	✓	✓
evaluate information systems and their solutions in terms of risk, sustainability and potential for innovation and enterprise	✓	✓	✓		✓	✓
share and collaborate online, establishing protocols for the use, transmission and maintenance of data and projects			✓		✓	

Term 1
Term 2
Term 3
Term 4
✓

indicates opportunities that summative assessments provide for students to demonstrate evidence against aspects of the achievement standard