**Phil Feain** - Hello and welcome to the VCE Algorithmics Implementation on-demand video on the new Algorithmics Study Design for 2023-2026. The purpose of this video is to introduce the background to the Unit 3 Outcome 1 School-assessed Coursework task for Algorithmics. My name is Phil Feain and I'm the Curriculum Manager for Digital Technologies with the VCAA. This presentation will cover: the study design, the area of study statement, the outcome statement, the assessment task, key knowledge, key skills, the draught performance descriptors and the Advice for teachers. This is the new 2023-2026 study design. This is available on the Algorithmics study page right now. Unit 3 Outcome 1 is now a School-assessed Coursework task. If you're planning on teaching the study next year, it'll be good to have a look at this now and to become familiar with the new study.

The first area of study is Unit 3 Area of Study 1: Data modelling with abstract data types. In this area of study, students develop and apply knowledge and skills in data abstraction. Students consider the structure of information through a study of the definition and properties of abstract data types. They select appropriate ADTs and use them to model salient aspects of real-world problems. Students study a variety of collection-based data types, with a particular focus on the graph ADT, which encapsulates a set of nodes along with their interconnections. Students explore how graph ADTs can be applied to network problems, such as social or transport network problems and planning problems. Let's have a look at the Unit 3 Outcome 1 statement.

On completion of this unit the student should be able to define and explain the representation of information using abstract data types and devise formal representations for modelling various kinds of real-world information problems using appropriate abstract data types. This slide shows the assessment task for Unit 3 Outcome 1. This task is a School-assessed Coursework task. The task for Unit 3 Outcome 1 is: In response to given stimulus material, create one or more designs of a data model using abstract data types to capture the salient aspects of a real-world information problem. And this is worth 50 marks. Here's the key knowledge for the Unit 3 Outcome 1 SAC:

- the motivation for using ADTs

- signature specifications of ADTs using operator names, argument types and result types

- specification and uses of the following ADTs:

- set, list, array, dictionary or

- stack, queue, priority queue

- graphs, including undirected and directed graphs and unweighted and weighted graphs

- features of graphs, including paths, weighted path lengths, cycles and subgraphs

- categories of graphs, including complete graphs, connected graphs, directed acyclic graphs and trees, and their properties

- modularisation and abstraction of information representation with ADTs

- the structure of decision trees and state graphs. And here are the key skills:

- explain the role of ADTs for data modelling

- read and write ADT signature specifications

- use ADTs in accordance with their specifications

- identify and describe properties of graphs

- apply ADTs to model real-world problems by selecting an appropriate ADT and justifying its suitability

- model basic network and planning problems with graphs, including the use of decision trees and state graphs. We are currently developing the VCAA Performance descriptors in the Advice for teachers for Unit 3 Outcome 1. This is a draught of the performance descriptors as they currently look to provide some idea of how the assessment task can be assessed. Just be aware that this may change. The Advice for teachers will be published hopefully later this year. To help you prepare for 2023 and to support teachers during the lifetime of the next study design, there'll be a new Advice for teachers on the Algorithmics study page. This advice has been written by several experienced teachers of the study. The Advice for teachers will include the following support for Unit 3 Outcome 1.

- An overview of Unit 3: Algorithmic problem solving

- Unit 3 Outcome 1: - Teaching and learning activities and these are based on the key knowledge.

- Detailed examples that relate to one of the teaching and learning activities

- Sample approaches to developing an assessment task This provides guidance in the development of an assessment task.

- Performance descriptors to help you develop a rubric to assess the task. And a Unit 3 Sample weekly planner. The weekly planner is a sample course outline to help new or inexperienced teachers of the study to plan their course for Unit 3. Thank you for following this presentation. If you have any questions regarding this presentation, you can contact Phil Feain, the Digital Technologies Curriculum Manager, at the contact details below.

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