

# UNIT 3 & 4 GENERAL MATHEMATICS

General Mathematics is intended to provide for students with diverse needs and aspirations and is intended to be widely accessible. It is intended to provide general preparation for employment and further study in a variety of different fields.

## UNIT 3

In this unit students will undertake the study of 'Data analysis' including investigating data distributions, associations between two variables as well as investigating and modelling linear associations and time series data. They will also cover the topic of 'Recursion and financial modelling' which will see them investigate the use of first-order linear recurrence relations and technology to model and analyse a range of financial situations, and solve related problems involving interest, appreciation and depreciation, loans, annuities and perpetuities.

### AREA OF STUDY

- Data analysis, probability and statistics
- Discrete mathematics (Financial Modelling)

### OUTCOMES

**Outcome 1:** Define and explain key concepts as specified in the content from the areas of study and apply a range of related mathematical routines and procedures.

**Outcome 2:** Apply mathematical processes in non-routine contexts, including situations with some open-ended aspects requiring investigative, modelling or problem-solving techniques or approaches, and analyse and discuss these applications of mathematics.

**Outcome 3:** Apply computational thinking and use numerical, graphical, symbolic and statistical functionalities of technology to develop mathematical ideas, produce results and carry out analysis in situations requiring investigative, modelling or problem-solving techniques or approaches.

## UNIT 4

In this unit students will undertake the study of the 'Matrices' module which will cover the definition of matrices, different types of matrices, matrix operations, transition matrices and the use of first-order linear matrix recurrence relations to model a range of situations and solve related problems. Students will also cover the 'Networks and decision mathematics' module which will cover the definition and representation of different kinds of undirected and directed graphs, Eulerian trails and circuits, bridges, Hamiltonian paths and cycles, and the use of networks.

### AREA OF STUDY

- Discrete mathematics (Matrices)
- Discrete mathematics (Networks)

### OUTCOMES

**Outcome 1:** Define and explain key concepts as specified in the content from the areas of study and apply a range of related mathematical routines and procedures.

**Outcome 2:** Apply mathematical processes in non-routine contexts, including situations with some open-ended aspects requiring investigative, modelling or problem-solving techniques or approaches, and analyse and discuss these applications of mathematics.

**Outcome 3:** Apply computational thinking and use numerical, graphical, symbolic and statistical functionalities of technology to develop mathematical ideas, produce results and carry out analysis in situations requiring investigative, modelling or problem-solving techniques or approaches.