Course Title:	**Numerical Analysis**
Course Code:	**MATH703**
Descriptor Start Date:	**03/03/2023**
Descriptor End Date:	**30/01/2025**
POINTS:	**15.00**
LEVEL:	**7**
PREREQUISITE/S:	**MATH603**
COREQUISITE/S:	**None**
RESTRICTION/S:	**None**

LEARNING HOURS

Hours may include lectures, tutorials, online forums, laboratories. Refer to your timetable and course information in Canvas for detailed information.

Total learning hours: 150

PRESCRIPTOR

Develops skills in the interpretation and use of numerical methods appropriate to engineering and science, and in the development of computer programs using numerical techniques.

LEARNING OUTCOMES

1. Apply numerical methods to solve systems of algebraic equations.
2. Use polynomials and splines for interpolation and approximation of functions.
3. Evaluate derivatives and integrals using numerical methods.
4. Numerically solve differential equations and their system.
5. Simulate processes using Monte Carlo methods.

CONTENT

- Error analysis
- Systems of linear equations
- Interpolation and approximation
- Numerical differentiation and integration
- Numerical solution of differential equations and systems
- Monte Carlo methods and simulation

LEARNING & TEACHING STRATEGIES

Lectures and weekly computer laboratory sessions. The student will apply the theory through regular assignments, which form an integral part of the course.

ASSESSMENT PLAN

Assessment Event	Weighting %	Learning Outcomes
Assignment 1 – Problem Solving	30.00	1,2
Assignment 2 – Problem Solving	30.00	3,4,5
Problem Solving Questionnaire	40.00	1,2,3,4,5

Grade Map **MAP1**

A+ A A- Pass with Distinction
B+ B B- Pass with Merit
C+ C C- Pass
D Fail

Overall requirement/s to pass the course:

A minimum of C- overall grade.

LEARNING RESOURCES

Steven Chapra; Applied Numerical Methods with MATLAB for Engineers and Scientists (2018)

For further information, contact: Te Ara Auaha - Faculty of Design & Creative Technologies

Principal Programme: **DJ1041, Bachelor of Science**

Related Programme/s: **AK1042**
AK1043
AK3001