

Course Title:	Nature Inspired Computing
Course Code:	COMP701
Descriptor Start Date:	31/01/2025
POINTS:	15.00
LEVEL:	7
PREREQUISITE/S:	None
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

Provides an overview of the fundamentals of nature inspired computing (NIC), particularly in the fields of evolutionary algorithms, swarm intelligence, artificial life, DNA computing and quantum computing. Real world applications in optimization, simulation and modeling will be introduced in workshops and recent advances presented and analysed.

LEARNING OUTCOMES

1. Demonstrate specialist knowledge of, and skills involved in, the design, development and implementation of nature-inspired solutions to specific problems.
2. Analyse and evaluate NIC techniques and representations.
3. Demonstrate appropriate and rigorous NIC programming skills through the use of specialized toolboxes.

CONTENT

The content may vary from year to year depending on the research interests of staff but will typically include:

- Genetic and evolutionary algorithms
- Swarm intelligence algorithms
- Artificial neural networks and neural computing

LEARNING & TEACHING STRATEGIES

Disclaimer: Course descriptors may be amended between teaching periods/semesters

- Personal reading and workshop assignments
- Analysis and reporting
- Lectures and workshops
- Discussion sessions
- Practical workshops in Matlab and other publicly available NIC tools.

ASSESSMENT PLAN

Assessment Event	Weighting %	Learning Outcomes
Problem-solving assignment 1	50.00	1,2,3
Problem-solving assignment 2	50.00	1,2,3

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:

To pass this course, students must achieve a minimum overall grade of C-.

LEARNING RESOURCES

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

Principal Programme:	AK3697, Bachelor of Computer and Information Sciences
Related Programme/s:	AK3698
	AK1041
	AK3001
	AK3003
	AK3756
	AK3706

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