



# Unit Outline (Higher Education)

<b>Institute / School:</b>	Institute of Innovation, Science & Sustainability
<b>Unit Title:</b>	Food Processing Systems 2
<b>Unit ID:</b>	SCFST2024
<b>Credit Points:</b>	15.00
<b>Prerequisite(s):</b>	(SCFST2023)
<b>Co-requisite(s):</b>	Nil
<b>Exclusion(s):</b>	(SF622)
<b>ASCED:</b>	019905

## Description of the Unit:

The course provides students with an advanced knowledge of principles of food engineering and their application in food processing systems. Students will also develop problem solving skills in industry-related scenarios, and learn to apply a mathematical approach, to mass and energy balances to develop and control processes in food manufacturing, including the unit operations of fluid flow, heat transfer, freezing, concentration, and drying.

**Grade Scheme:** Graded (HD, D, C, P, MF, F, XF)

## Work Experience:

No work experience

**Placement Component:** No

**Supplementary Assessment:** Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

## Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	■	■	■	■	■	■
Intermediate	■	■	✓	■	■	■

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Advanced	■	■	■	■	■	■

### Learning Outcomes:

#### Knowledge:

- K1.** Demonstrate knowledge of mathematics and fundamentals of engineering including mass and energy balances involved in food processing.
- K2.** Recognise Newtonian and non-Newtonian fluids and understand their importance in the food industry.
- K3.** Apply principles of fluid flow and heat transfer with a mathematical approach in food processing.
- K4.** Develop process conditions for various operations in food processing including thermal processes, evaporation, drying, and freezing.

#### Skills:

- S1.** Define and develop process conditions using mathematics and engineering principles.
- S2.** Solve problems related to food formulation, energy and material.
- S3.** Measure and evaluate processing parameters involved in fluid flow, heat transfer, freezing, drying, concentration.

#### Application of knowledge and skills:

- A1.** Apply mathematical and engineering approaches to analyse and develop processes.
- A2.** Critically evaluate scientific data.
- A3.** Prepare written reports in an acceptable format using appropriate scientific language.
- A4.** Apply knowledge and practical skills to the completion of practical activities in a team environment.

#### Unit Content:

Topics may include:

1. Overview of unit operations in food processing
2. Mass and energy balance, units and dimensions
3. Fluid flow, pumps and flow measuring instruments
4. Heat transfer, heat exchangers and thermal processing
5. Evaporation and concentration
6. Dehydration and drying
7. Freezing and refrigeration

#### Graduate Attributes

The Federation University Federation graduate attributes (GA) are entrenched in the [Higher Education Graduate Attributes Policy](#) (LT1228). FedUni graduates develop these graduate attributes through their engagement in

explicit learning and teaching and assessment tasks that are embedded in all FedUni Courses. Graduate attribute attainment typically follows an incremental development process mapped through Course progression.

**One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all attributes must be directly assessed in each Course**

Graduate attribute and descriptor		Development and acquisition of GAs in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	K1-4, S2,	AT1, AT2, AT3
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	N/A	N/A
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	N/A	N/A
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	A3	AT1, AT2
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	N/A	N/A

### Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, K4, S1, S2, S3, A1, A2, A3, A4	Practicals	Written report	30-40%
K1, K2, K3, A2, A3	Assignment/ Tutorials	Written report	10-20%
K1, K2, K3, K4, A2	Demonstrate and apply knowledge from course content in response to questions	Test	40-60%

### Adopted Reference Style:

Australian Harvard

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)