

# Course Outline (Higher Education)

**Institute / School:** Institute of Innovation, Science & Sustainability

**Course Title:** ENGINEERING DESIGN & DRAFTING

**Course ID:** ENGIN1004

**Credit Points:** 15.00

**Prerequisite(s):** Nil

**Co-requisite(s):** Nil

**Exclusion(s):** (ENCOR1010 and GPENG1004)

**ASCED:** 039999

## Description of the Course:

This course introduces students to the principles of engineering design and drafting. It utilises commonly used engineering software such as the AutoDESK software AutoCAD. The course introduces the fundamentals of communicating a design through a technical drawing as well as introducing how to implement this within the computer software. Through practise and example, students will develop their skills to a level capable of modelling complicated objects or structures in two (2D) and three dimensions (3D) as well as developing the skills needs to determine key information from their models. By the end of the course, students should be able to communicate intricate ideas with succinct diagrams to a deadline.

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

## Work Experience:

No work experience: Student is not undertaking work experience in industry.

**Does Recognition of Prior Learning apply to this course?** No

**Placement Component:** No

**Supplementary Assessment:** Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

**Program Level:**

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Learning Outcomes:

On successful completion of the course the students are expected to be able to:

#### Knowledge:

- K1.** Reproduce, reorganise and review engineering drawings.
- K2.** Identify the correct usage of isometric, third angle, oblique and sectional drawing styles.
- K3.** Outline relevant engineering drawing standards.

#### Skills:

- S1.** Translate between different views of an object and develop two and three dimensional models.
- S2.** Appraise the capabilities of engineering design software.
- S3.** Use engineering drawings as communication tools.

#### Application of knowledge and skills:

- A1.** Apply knowledge of drafting principles to produce high quality drawings.
- A2.** Produce an estimate of quantities from two and three-dimensional models.

#### Course Content:

Topics may include:

- Basic techniques in technical drawing, incorporating third angle, isometric, sectioning, assembly drawings, dimensioning and tolerancing.
- Introduction to using computer software to undertake two and three dimensional modelling.
- Introduction to the methodology of engineering design incorporating a practical design task.
- Elective assignments focusing on mechanical, mining, civil, mechatronic or other relevant areas

#### 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 programs. Graduate attribute attainment typically follows an incremental development process mapped through program progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each**

**program**

Graduate attribute and descriptor		Development and acquisition of GAs in the course	
		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-K3	1, 2
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.	Not applicable	Not applicable
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.	Not applicable	Not applicable
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.	S3	1, 2
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.	Not applicable	Not applicable

**Learning Task and Assessment:**

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1 - K3, S1 - S3, A1 - A2	Technical drawing assessments focusing upon a relevant engineering area.	Report	40 - 60%
K1 - K3, S1 - S3, A1 - A2	Elective assignments focusing upon a relevant engineering topic.	Report/Presentation	40 - 60%

**Alignment to the Minimum Co-Operative Standards (MiCS)**

The Minimum Co-Operative Standards (MiCS) are an integral part of the Co-Operative University Model. Seven criteria inform the MiCS alignment at a program level. Although courses must undertake MiCS mapping, there is NO expectation that courses will meet all seven criteria. The criteria are as follows:

1. Co-design with industry and students
2. Co-develop with industry and students
3. Co-deliver with industry
4. FedTASK alignment
5. Workplace learning and career preparation
6. Authentic assessment
7. Industry-link/Industry facing experience

MiCS program level reporting highlights how each program embraces the principals and practices associated with the Co-Operative Model. Evidence of program alignment with the MiCS, can be captured in the Program Modification Form.

**MICS Mapping has been undertaken for this course** No

Date:

**Adopted Reference Style:**

Other (Refer to the library website for more information: IEEE)

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

Fed Cite - [referencing tool](#)