



**UNSW**

## UNSW Course Outline

# MANF9544 Concurrent Product and Process Design - 2024

Published on the 08 Feb 2024

## General Course Information

**Course Code :** MANF9544

**Year :** 2024

**Term :** Term 1

**Teaching Period :** T1

**Is a multi-term course? :** No

**Faculty :** Faculty of Engineering

**Academic Unit :** School of Mechanical and Manufacturing Engineering

**Delivery Mode :** In Person

**Delivery Format :** Standard

**Delivery Location :** Kensington

**Campus :** Sydney

**Study Level :** Postgraduate

**Units of Credit :** 6

[Useful Links](#)

[Handbook Class Timetable](#)

## Course Details & Outcomes

### Course Description

Concurrent Engineering approach to the design of products, processes and manufacturing systems. The product development process and the Concurrent Engineering team. Customer focussed design and Quality Function Deployment. Design for Manufacture, Design and Planning

for Assembly, Rapid Prototyping. Implementation, organisation and management of Concurrent Engineering.

## Course Aims

This course aims to provide an understanding of the integrative nature of the concurrent product and process development in a teamwork environment, and how it affects all subsequent activities in production. This course discusses the various methods and approaches that can be used for the concurrent development of products and processes in today's competitive and dynamic market condition.

## Course Learning Outcomes

Course Learning Outcomes
CLO1 : Describe the fundamental principles of the interdisciplinary field of concurrent product development.
CLO2 : Demonstrate critical thinking and problem solving in the context of collaborative and multi-disciplinary work.
CLO3 : Analyse change and change management and effectively communicate the challenges

Course Learning Outcomes	Assessment Item
CLO1 : Describe the fundamental principles of the interdisciplinary field of concurrent product development.	<ul style="list-style-type: none"><li>• Group Assignment</li><li>• Individual Assignment</li></ul>
CLO2 : Demonstrate critical thinking and problem solving in the context of collaborative and multi-disciplinary work.	<ul style="list-style-type: none"><li>• Test</li><li>• Individual Assignment</li></ul>
CLO3 : Analyse change and change management and effectively communicate the challenges	<ul style="list-style-type: none"><li>• Test</li><li>• Individual Assignment</li></ul>

## Learning and Teaching Technologies

Moodle - Learning Management System

# Assessments

## Assessment Structure

Assessment Item	Weight	Relevant Dates
Group Assignment Assessment Format: Group	30%	Start Date: Not Applicable Due Date: 02/04/2024 11:59 PM
Test Assessment Format: Individual	50%	Start Date: Not Applicable Due Date: Not Applicable
Individual Assignment Assessment Format: Individual	20%	Due Date: 15/03/2024 11:59 PM

## Assessment Details

### Group Assignment

#### Assessment Overview

Assessment length: 3000 words

This assignment covers the methods and concepts related to the Design for Assembly.

#### Assessment criteria

The students need to demonstrate being able to identify the assembly structure of a product by application of the covered design for assembly framework in the course and suggest proper applicable assembly sequence.

#### Additional details

This is a group assignment. The students in a group of four can practice teamwork to do this assignment.

The written feedback are given within two weeks after submission.

#### Course Learning Outcomes

- CLO1 : Describe the fundamental principles of the interdisciplinary field of concurrent product development.

#### Assessment Length

3000 words

### Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

## Test

### Assessment Overview

**Assessment length:** two hours

This is the final exam of the course. It covers the entire course content. It will include problem-solving questions, descriptive and multiple choice.

The exam will happen in the exam period.

### Course Learning Outcomes

- CLO2 : Demonstrate critical thinking and problem solving in the context of collaborative and multi-disciplinary work.
- CLO3 : Analyse change and change management and effectively communicate the challenges

### Assessment Length

2 hours

### Assessment information

This is an individual assignment.

### Assignment submission Turnitin type

This is not a Turnitin assignment

## Individual Assignment

### Assessment Overview

**Assessment length:** 1000 words

This assignment allows students to apply the Quality Function Deployment method on a product.

Assessment criteria

The students need to demonstrate application of a theoretical framework on a real case and demonstrate their understanding about functional requirements definition and defining their relationships.

The written feedback are given within two weeks after submission.

#### **Course Learning Outcomes**

- CLO1 : Describe the fundamental principles of the interdisciplinary field of concurrent product development.
- CLO2 : Demonstrate critical thinking and problem solving in the context of collaborative and multi-disciplinary work.
- CLO3 : Analyse change and change management and effectively communicate the challenges

#### **Assessment Length**

1000 words

#### **Assessment information**

The exam will happen in the exam period.

#### **Assignment submission Turnitin type**

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

## **General Assessment Information**

#### **Grading Basis**

Standard

## **Course Schedule**

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Lecture	Introduction and definitions
Week 2 : 19 February - 25 February	Lecture	Product Development and Time-to-Market Concept
	Tutorial	Economic Trade-off Analysis in Product Development Exercise
Week 3 : 26 February - 3 March	Lecture	Quality Function Deployment
	Tutorial	QFD Exercise
Week 4 : 4 March - 10 March	Lecture	Design for Manufacture (DFM)
Week 5 : 11 March - 17 March	Lecture	Design for Assembly (DFA) Modularization
	Tutorial	DFA Exercise
Week 6 : 18 March - 24 March	Reading	Readings are provided for the flexibility week.
Week 7 : 25 March - 31 March	Lecture	Systems Engineering Manufacturing System Design
	Tutorial	Assembly Sequence Generation Exercise
Week 8 : 1 April - 7 April	Lecture	Design for Environment (DFE) Design for Reliability (DFR)
	Tutorial	Exercises of DFR and DFE
Week 9 : 8 April - 14 April	Lecture	Rapid Prototyping Digitalization and Industry 4.0
Week 10 : 15 April - 21 April	Lecture	Organization, Management, and operation of CE Teams
	Tutorial	Problem Solving Teamwork Exercise

# Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

# Course Resources

## Prescribed Resources

Lecture material is suggested in Moodle for presented lectures.

## Recommended Resources

1. Thomas A. Salomone: "What every Engineer should know about CONCURRENT ENGINEERING", Marcel Dekker, 1995.
2. James L. Nevins, Daniel E. Whitney: "Concurrent Design of Products and Processes", A Strategy for the Next Generation in Manufacturing, McGraw-Hill Publishing Company, 1989. (good textbook but out of print)
3. Andrew Kusiak: "Concurrent Engineering", Automation, Tools, and Techniques, John Wiley & Sons Inc., 1993.
4. John Corbett, Mike Dooner, J. Meleka, C. Pym: "Design for Manufacture", Strategies, Principles, and Techniques, Addison-Wesley Publishing Company, 1991.
5. Paul G. Ranky: "Concurrent/Simultaneous Engineering", Methods, Tools and Case Studies.
6. CIMware Limited, Guildford, England, 1994.
7. Geoffrey Boothroyd, Peter Dewhurst, Winston Knight: "Product Design for Manufacture and Assembly", Marcel Dekker, 1994.
8. Geoffrey Boothroyd, Peter Dewhurst: "Product Design for Assembly", Handbook, Boothroyd Dewhurst Inc, 1991.

## Course Evaluation and Development

Feedback on the course is gathered periodically using various means, including the UNSW myExperience process, informal discussion in the final class for the course, and the School's Student/Staff meetings. Your feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback. In this course, recent improvements resulting from student feedback include new lecture and tutorial content and updated assessment procedure.

# Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Shiva Abdoli		Ainsworth Building (J17)	(02) 9385 6851	Consultation concerning this course is available on Tuesday 13:00 –17:00 whenever the lecturer is not otherwise engaged.	No	Yes

## Other Useful Information

### Academic Information

#### I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's [Special Consideration page](#).

#### II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- [Attendance](#)
- [UNSW Email Address](#)
- [Special Consideration](#)
- [Exams](#)
- [Approved Calculators](#)
- [Academic Honesty and Plagiarism](#)
- [Equitable Learning Services](#)

#### III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at

the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

#### **IV. Professional Outcomes and Program Design**

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: [https://www.unsw.edu.au/engineering/student-life/  
student-resources/program-design.](https://www.unsw.edu.au/engineering/student-life/student-resources/program-design)

*Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.*

#### **Academic Honesty and Plagiarism**

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: [student.unsw.edu.au/plagiarism](https://student.unsw.edu.au/plagiarism). The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also

be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

[www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf](http://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf)

## Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

## Faculty-specific Information

[Engineering Student Support Services](#) – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

[UNSW Exchange](#) – student exchange enquiries (for inbound students)

[UNSW Future Students](#) – potential student enquiries e.g. admissions, fees, programs, credit transfer

## **Phone**

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

## **School-specific Information**

### **Short Extensions**

Short extensions are not currently applicable to Mechanical and Manufacturing Engineering Courses.

### **Review of Results**

The purpose of a review of results is if there was a marking error. Review of results is for when you have cause to believe that there is a marking error. Review of Results cannot be used to get feedback. If you would like feedback for assessments prior to the final exam, you are welcome to contact the course convenor directly. No feedback will be provided on final exams.

### **Use of AI**

The use of AI is prohibited unless explicitly permitted by the course convenor. Please respect this and be aware that penalties will apply when unauthorised use is detected, such as through Turnitin. If the use of generative AI, such as ChatGPT, is allowed in a specific assessment, they must be properly credited, and your submissions must be substantially your own work.

## **School Contact Information**

### **Location**

UNSW Mechanical and Manufacturing Engineering

Ainsworth building J17, Level 1

Above Coffee on Campus

## Hours

9:00–5:00pm, Monday–Friday\*

\*Closed on public holidays, School scheduled events and University Shutdown

## Web

[School of Mechanical and Manufacturing Engineering](#)

[Engineering Student Support Services](#)

[Engineering Industrial Training](#)

[UNSW Study Abroad and Exchange](#) (for inbound students)

[UNSW Future Students](#)

## Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

(+61 2) 9385 4097 – School Office\*\*

\*\*Please note that the School Office will not know when/if your course convenor is on campus or available

## Email

[Engineering Student Support Services](#) – current student enquiries

- e.g. enrolment, progression, clash requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

[UNSW Exchange](#) – student exchange enquiries (for inbound students)

[UNSW Future Students](#) – potential student enquiries

- e.g. admissions, fees, programs, credit transfer

[School Office](#) – School general office administration enquiries

- NB: the relevant teams listed above must be contacted for all student enquiries. The School will only be able to refer students on to the relevant team if contacted

## Important Links

- [Student Wellbeing](#)
- [Urgent Mental Health & Support](#)
- [Equitable Learning Services](#)
- [Faculty Transitional Arrangements for COVID-19](#)
- [Moodle](#)
- [Lab Access](#)
- [Computing Facilities](#)
- [Student Resources](#)
- [Course Outlines](#)
- [Makerspace](#)
- [UNSW Timetable](#)
- [UNSW Handbook](#)