MANF9472

Production Planning and Control

Term Two // 2021

School of Mechanical and Manufacturing Engineering // UNSW Engineering

Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Sami Kara	S.Kara@unsw.edu.au	There will be Microsoft video chat hours scheduled prior to lecture from 5:00-6:00 pm prior to the online class .MsTeams channel should be used for all course related communication.	Ainsworth Building, Room 301A	+61-2-93855 757

Lecturers

Name	Email	Availability	Location	Phone
Sami Kara	S.Kara@unsw.edu.au	There will be Microsoft video chat hours scheduled prior to lecture from 5:00-6:00 pm prior to the online class .MsTeams channel should be used for all course related communication.	Ainsworth Building, Room 301A	+61-2-93855 757

Demonstrators

Name	Email	Availability	Location	Phone
Sepideh Moshrefi	s.moshrefi@unsw.edu.au		Ainsworth Building, Room 301	+61-(02)-938 5 6851

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

Course Details

Credit Points 6

Summary of the Course

This subject is primarily concerned with the efficient and effective management of materials flow through manufacturing organizations in such a way that wastage (particularly in the form of excess inventory) is reduced, materials throughput time is sped up, and customer requirements are met in a timely manner.

This course enables you to investigate the basic issue related to Production Planning and Control, which is how much of what material items to produce (or order) at what specific times in order to satisfy customer demand in an optimal way. The main thrust of this subject is a study of the dynamics of how materials flow through a manufacturing organization, an evaluation of the various production planning and control techniques available to optimize this flow, and how effective production planning and control can contribute to a company's competitive advantage.

Course Aims

This course aims firstly to give students grounding in the basic issues confronting production managers today and secondly to present a set of possible solutions to those issues, considering recent advances in computing and information technology. This course introduces students to the dynamics of material flow through a manufacturing system, basic and advanced techniques of production planning and control, and their realization. Therefore, this course is an extension of the MANF6860 Manufacturing Strategy, which mainly deals with long-term strategic planning process.

Course Learning Outcomes

After successfully completing this course, you should be able to:

Learning Outcome	EA Stage 1 Competencies
1. Understand the strategic implications of the Production Planning and Control (PPC)	PE1.1
2. Understand the concept demand management, forecasting and the link between demand management and MPS	PE1.1, PE2.1, PE2.2
3. Understand the main PPC systems and appreciate the importance of capacity planning	PE1.1, PE2.1, PE2.2
4. Understand the importance of controlling production activities	PE1.1, PE2.1, PE2.2

Teaching Strategies

There will be a live lecture via MsTeams each week from 6:00 to 8:00 pm. Lectures will also be made available as lecture recordings in MsTeams. There will also be a demonstration class from 8:00-9:00pm for selected weeks where it is necessary.

Assessment

Assessment Tasks

Assessment task	Weight	Due Date	Student Learning Outcomes Assessed
Production forecasting	30%	Monday, Week 4, by 11:59 PM	2
Master Production Schedule and Material requirement planning	30%	Tuesday, Week7, 11:59 PM	1, 2
Production Planning Game	40%	Tuesday, Week 11, by 11:59 PM	1, 2, 3, 4

Assessment Details

Assessment 1: Production forecasting

Start date: Tuesday, Week 2, 09:00 AM

Length: Maximum 1000 words

Details:

Assessment description: This assignment is a group assignment that covers week 1 and 2 lectures particularly focus on demand forecasting and management. Although the work will be done as a group of four, the assessment will be as an individual based on the % contribution. Assessments will be marked and returned within 2 weeks of the due date

Assessment criteria: A detailed assessment description and a rubric will be uploaded to Moodle.

Deadline for absolute fail: Midnight Saturday the 26 June 2021.

Additional details:

Further information about the assignments and assessment rubric will be provided on Moodle.

Submission notes: Submission will be done via Moodle

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

Assessment 2: Master Production Schedule and Material requirement planning

Start date: Tuesday, Week 5, 09:00 AM

Length: Maximum 1000 words

Details:

This assignment is an individual assignment that covers weeks 4, 5, and 6 with a particular emphasis on developing a master production schedule and converting it to material requirement planning.

Assessment description: This assignment is an individual assignment that covers weeks 4, 5, and 6 with a particular emphasis on developing a master production schedule and converting it to material requirement planning. Although the work will be done as a group of four, the assessment will be as an individual based on the % contribution. Assessments will be marked and returned within 2 weeks of the due date

Assessment criteria: A detailed assessment description and a rubric will be uploaded to Moodle.

Deadline for absolute fail: Midnight Sunday the 18 July 2021.

Additional details:

Further information about the assignments and assessment rubric will be provided on Moodle.

Submission notes: Submission will be done via Moodle

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

Assessment 3: Production Planning Game

Start date: Tuesday, Week 7, 09:00 AM

Length: Maximum 4000 words

Details:

Assessment description: This is a group assignment and a hands-on production planning simulation for students to apply all units from 1 -10. Although the work will be done as a group of four, the assessment will be as an individual based on the % contribution. Assessments will be marked and returned within 2 weeks of the due date

Assessment criteria: A detailed assessment description and a rubric will be uploaded to Moodle.

Deadline for absolute fail: Midnight Sunday the 15 August 2021.

Additional details:

Further information about the assignments and assessment rubric will be provided on Moodle.

Submission notes: Submission will be done via Moodle

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

Attendance Requirements

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

Course Schedule

View class timetable

Timetable

Date	Type	Content
O Week: 25 May - 28 May	Reading	Release of course outline and course requirements.
Week 1: 31 May - 4 June	Lecture	Introduction, demand management and forecasting techniques
Week 2: 7 June - 11 June	Lecture	Sales and Operational Planning
Week 3: 14 June - 18 June	Lecture	Enterprise Resource Planning (ERP)
Week 4: 21 June - 25 June	Lecture	Inventory Management
Week 5: 28 June - 2 July	Lecture	Master Production Scheduling (MPS)
Week 6: 5 July - 9 July	Lecture	Material and Distribution Requirements Planning (MRP and DRP)
Week 7: 12 July - 16 July	Lecture	Just in Time
Week 8: 19 July - 23 July	Lecture	Capacity Planning and Utilization
Week 9: 26 July - 30 July	Lecture	Production Scheduling
Week 10: 2 August - 6 August	Lecture	Production Activity Control

Resources

Prescribed Resources

Vollman, T. E., Berry, W., L., Whybark, D. C., Jacobs, F. R., “Manufacturing Planning & Control for Supply Chain Management”, McGraw-Hill, 2005.

Recommended Resources

Russel, R. S, and Taylor, B. W., (2000) “Operations Management”, Third edition, Prentice Hall, Inc., New York.

Other available literature in the area of production and operations management in the library can be used for certain topics

UNSW Library website: https://www.library.unsw.edu.au/

Moodle: https://moodle.telt.unsw.edu.au/login/index.php

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. As part of the course improvemetn strategy, special sessions will be allcoated for explaining assignemnts.

Submission of Assessment Tasks

Assessment submission and marking criteria

Should the course have any non-electronic assessment submission, these should have a standard School cover sheet.

All submissions are expected to be neat and clearly set out. Your results are the pinnacle of all your hard work and should be treated with due respect. Presenting results clearly gives the marker the best chance of understanding your method; even if the numerical results are incorrect.

Marking guidelines for assignment submissions will be provided at the same time as assignment details to assist with meeting assessable requirements. Submissions will be marked according to the marking guidelines provided.

Late policy

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of 20 percent (20%) 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.

Work submitted after the ‘deadline for absolute fail’ is not 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 are clearly indicated in the course outline, and such assessments receive a mark of zero if not completed by the specified date. Examples include:

1. Weekly online tests or laboratory work worth a small proportion of the subject mark, or
2. Online quizzes where answers are released to students on completion, or
3. Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date, or
4. Pass/Fail assessment tasks.

Examinations

You must be available for all quizzes, tests and examinations. For courses that have final examinations, these are held during the University examination periods: February for Summer Term, May for T1, August for T2, and November/December for T3.

Please visit myUNSW for Provisional Examination timetable publish dates. For further information on exams, please see the Exams webpage.

Special Consideration

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 submitting an assessment or sitting an exam.

UNSW now has a Fit to Sit / Submit rule, which means that if you attempt an exam or submit a piece of assessment, 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.

Please note that students will **not** be required to provide **any** documentary evidence to support absences from any classes missed **because of COVID-19 public health measures such as isolation**. UNSW will **not** be insisting on medical certificates from anyone deemed to be a positive case, or when they have recovered. Such certificates are difficult to obtain and put an unnecessary strain on students and medical staff.

Applications for special consideration **will** be required for assessment and participation absences – but no documentary evidence **for COVID 19 illness or isolation** will be required.

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. 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.

If plagiarism is found in your work when you are in first year, your lecturer will offer you assistance to improve your academic skills. They may ask you to look at some online resources, attend the Learning Centre, or sometimes resubmit your work with the problem fixed. However more serious instances in first year, such as stealing another student's work or paying someone to do your work, may be investigated under the Student Misconduct Procedures.

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) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Academic Information

Credit points

Course credit is calculated in Units-Of-Credit (UOC). The normal workload expectation for one UOC is approximately 25 hours per term. This includes class contact hours, private study, other learning activities, preparation and time spent on all assessable work.

Most coursework courses at UNSW are 6 UOC and involve an estimated 150 hours to complete, for both regular and intensive terms. Each course includes a prescribed number of hours per week (h/w) of scheduled face-to-face and/or online contact. Any additional time beyond the prescribed contact hours should be spent in making sure that you understand the lecture material, completing the set assignments, further reading, and revising for any examinations.

On-campus class attendance

Public distancing conditions must be followed for all face-to-face classes. To ensure this, only students enrolled in those classes will be allowed in the room. No over-enrolment is allowed in face-to-face classes. Students enrolled in online classes can swap their enrolment from online to a **limited** number of on-campus classes by Sunday, Week 1. Please refer to your course's Microsoft Teams and Moodle sites for more information about class attendance for in-person and online class sections/activities.

Your health and the health of those in your class is critically important. You must stay at home if you are sick or have been advised to self-isolate by NSW health or government authorities. Current alerts and a list of hotspots can be found here. **You will not be penalised for missing a face-to-face activity due to illness or a requirement to self-isolate.** We will work with you to ensure continuity of learning during your isolation and have plans in place for you to catch up on any content or learning activities you may miss. Where this might not be possible, an application for fee remission may be discussed. Further information is available on any course Moodle or Teams site.

In certain classroom and laboratory situations where physical distancing cannot be maintained or there is a high risk that it cannot be maintained, face masks will be considered **mandatory PPE** for students and staff.

For more information, please refer to the
FAQs: https://www.covid-19.unsw.edu.au/safe-return-campus-faqs

Guidelines

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

Important Links

- Moodle
- Lab Access
- Computing Facilities
- Student Resources
- Course Outlines
- Faculty Transitional Arrangements for COVID-19
- Makerspace
- UNSW Timetable
- UNSW Handbook
- Equitable Learning Services

Image Credit

https://supplychain-academy.net/smart-manufacturing-business-goals/

CRICOS

CRICOS Provider Code: 00098G

Acknowledgement of Country

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.

Appendix: Engineers Australia (EA) Professional Engineer Competency Standard

Program Intended Learning Outcomes	
Knowledge and skill base	
PE1.1 Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline	✓
PE1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline	
PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline	
PE1.4 Discernment of knowledge development and research directions within the engineering discipline	
PE1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline	
PE1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline	
Engineering application ability	
PE2.1 Application of established engineering methods to complex engineering problem solving	✓
PE2.2 Fluent application of engineering techniques, tools and resources	✓
PE2.3 Application of systematic engineering synthesis and design processes	
PE2.4 Application of systematic approaches to the conduct and management of engineering projects	
Professional and personal attributes	
PE3.1 Ethical conduct and professional accountability	
PE3.2 Effective oral and written communication in professional and lay domains	
PE3.3 Creative, innovative and pro-active demeanour	
PE3.4 Professional use and management of information	
PE3.5 Orderly management of self, and professional conduct	
PE3.6 Effective team membership and team leadership	