



MANF9420

Operations and Supply Chain Management in
Engineering

Term Three // 2020

Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Dr. Shiva Abdoli	s.abdoli@unsw.edu.au	Consultation time on Tuesdays between 2:00 and 5:00 pm		

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

Course Details

Credit Points 6

Summary of the Course

Design, control, operation and management of supply chain systems; supply chain strategies; supply chain drivers and metrics, network design in supply chain; global supply chain networks; demand forecasting and aggregate planning in supply chain, economies of scale in supply chain; managing uncertainty in supply chain; transportation in a supply chain; sourcing decision in a supply chain, procurement and outsourcing strategies, price and revenue management in supply chain; information technology in a supply chain; sustainability in supply chain.

Course Aims

This course aims to provide both the strategic vision required to be effective as an operations and logistics manager and enough detail to allow you to learn about and apply the analytic tools and systems which support the vision. While some of the units cover topics common to other courses in the master program, you will find the ideas often described in terms of systems, processes, and customer focus. You will be provided an abundance of cases and examples to illustrate the concepts and demonstrate to you that what you learn is not just theory, but important perspectives on real world manufacturing practices.

To succeed in the global marketplace for now and in the future, organisations will have to operate according to the emerging developments in the manufacturing management area by considering:

- 1. A total commitment to continually increasing value for customers, investors, and employees.*
- 2. A firm understanding that market-driven means that quality is defined by customers, not the company.*
- 3. A commitment to leading people with a bias for continuous improvement and communication.*
- 4. A recognition that sustained growth requires the simultaneous achievement of customer satisfaction, cost leadership, effective human resources, flexibility and integration with the supplier base.*
- 5. A commitment to fundamental improvement through knowledge, skills, problem solving and teamwork.*

Companies that develop these characteristics will be those that fully implement the principles of manufacturing management through simultaneously improving both quality and productivity on a continual basis.

Accordingly, this course complements your knowledge that is gained in different disciplines, programs and courses and will equip you with the fundamental methodologies, modelling and analysis skills for the design and implementation of supply chain networks across a wide range of applications. It is designed to help you to learn how to take a broad managerial perspective emphasizing the strategic impact of decisions and the interfaces between operations and the other functional areas of the organization. It is aimed at providing you with an opportunity to apply their engineering knowledge in a real industry environment.

Course Learning Outcomes

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

Learning Outcome	EA Stage 1 Competencies
1. Analyse concepts such as the development of supply chain, integration and distribution strategies and interrelationships and value in highly responsive and flexible supply chains	PE1.1, PE1.3, PE1.6
2. Critically evaluate the key theories, concepts, tools and techniques in the fields of supply chain management and operations	PE1.1, PE1.3, PE1.6
3. Explain, analyse and discuss the concepts and methods of network planning, strategic inventory and global sourcing models and strategies	PE1.1, PE1.3, PE1.6
4. Further enhance problem-solving, inter-personal and critical thinking capabilities	PE3.2, PE3.3, PE3.4, PE3.6

Teaching Strategies

Lectures and demonstrations are designed to cover the core knowledge areas of the course to help you develop range of skills towards several Graduate Attributes set in the section above by creating an environment where information sharing, discussions, group work, communication, task completions will take place. Since each of you may have come from a different professional and academic background, your experiences are drawn on to illustrate various aspects of cases covered, and this helps to increase motivation and engagement. Lectures and demonstrations do not simply reiterate the texts, but build on the real life applications using examples and cases taken directly from industry to show how the theory is applied in practice and the details of when, where and how it should be applied.

You will be provided with feedback and discussion on the assignments so that concepts and problems are analyzed in greater depth. It is expected that assignments will be marked within two weeks. You will have continuous feedback from your lecturer and discussions throughout the demonstration, all aiming to improve your learning experience.

An informal, participative teaching and learning approach is adopted in this course. Comprehensive understanding of the concepts is followed by numerous real-life case study analysis and discussions. Teamwork is essential and “thinking aloud” is encouraged in the class.

Additional Course Information

This is a 6 unit-of-credit (UoC) course and involves 3 hours per week (h/w) of scheduled online contact. The normal workload expectations of a student are approximately 25 hours per term for each UOC, including class contact hours, other learning activities, preparation and time spent on all assessable work. You should aim to spend about 9 h/w on this course. The additional time should be spent in making sure that you understand the lecture material, completing the set assignments, further reading, and revising for any examinations.

Assessment

Assignments

Presentation

All submissions should have a standard School cover sheet, which is available from this course's Moodle page.

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.

Submission

Late submissions will be penalized 20% of the maximum marks per calendar day (including weekends). An extension may only be granted in exceptional circumstances. Special consideration for assessment tasks must be processed through student.unsw.edu.au/special-consideration.

It is always worth submitting late assessment tasks when possible. Completion of the work, even late, may be taken into account in cases of special consideration.

Where there is no special consideration granted, the 'deadline for absolute fail' in the table above indicates the time after which a submitted assignment will not be marked, and will achieve a score of zero for the purpose of determining overall grade in the course.

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.

Examinations

The Mid-semester test will include all material covered up to and including week 4.

The Final Exam will include all course content from week 1 to 10 inclusive.

You must be available for all tests and examinations. Final examinations for each course 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](#) section on the intranet.

Calculators

You will need to provide your own calculator, of a make and model approved by UNSW, for the examinations. The list of approved calculators is shown at

student.unsw.edu.au/exam-approved-calculators-and-computers

It is your responsibility to ensure that your calculator is of an approved make and model, and to obtain an “Approved” sticker for it from the [Engineering Student Support Services Centre](#) prior to the examination. Calculators not bearing an “Approved” sticker will not be allowed into the examination room.

Please visit myUNSW for Provisional Examination timetable publish dates.

For further information on exams, please see the [Exams](#) webpage.

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 submitting an assessment or sitting an exam.

Please note that UNSW now has a [Fit to Sit / Submit rule](#), which means that if you sit 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](#).

Assessment Tasks

Assessment task	Weight	Due Date	Student Learning Outcomes Assessed
Online quiz	N/A	30/09/2020 11:59 PM	1, 2, 3, 4
Mid-session test	30%	Not Applicable	1, 2, 3, 4
Group Project	30%	19/11/2020 11:59 PM	1, 2, 3, 4
Final Exam	40%	Not Applicable	1, 2, 3, 4

Assessment Details

Assessment 1: Online quiz

Start date: 23/09/2020 06:00 AM

Length: 10 Multiple choice questions

Details: This is a self evaluation online quiz

Turnitin setting: This is not a Turnitin assignment

Assessment 2: Mid-session test

Start date: 13/10/2020 06:00 PM

Length: 1.5 hour

Details:

Mid-session test includes multiple choice and descriptive questions.

Additional details:

Includes lecture material from weeks 1-4

Turnitin setting: This is not a Turnitin assignment

Assessment 3: Group Project

Start date: 05/11/2020 02:44 PM

Length: 5000 words

Details:

Teams of 4 will be formed to work on a project and submit a written report, which help to illustrate many of the concepts covered in the course.

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

Assessment 4: Final Exam

Start date: Not Applicable

Length: 2 hours

Details: Includes multiple choice and descriptive questions.

Additional details:

The Final Exam will include all course content from week 1 to 10 inclusive.

The final exam will happen during the exam period, date TBC

Turnitin setting: This is not a Turnitin assignment

Attendance Requirements

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

Course Schedule

[View class timetable](#)

Timetable

Date	Type	Content
Week 1: 14 September - 18 September	Lecture	Understanding the supply chain (Ch1)
Week 2: 21 September - 25 September	Lecture	Designing distribution networks (Ch 4)
Week 3: 28 September - 2 October	Lecture	Network design in the supply chain (Ch 5)
Week 4: 5 October - 9 October	Lecture	Designing global supply chain networks (Ch 6)
Week 5: 12 October - 16 October	Lecture	Aggregate planning (Ch 8)
Week 6: 19 October - 23 October	Lecture	Planning supply and demand in a supply chain (Ch 9)
Week 7: 26 October - 30 October	Lecture	Coordination in a supply chain (Ch 10)
Week 8: 2 November - 6 November	Lecture	Managing economies of scale: cycle inventory (Ch 11)
Week 9: 9 November - 13 November	Lecture	Transportation and sourcing decision in a supply chain (Ch 14 & 15)
Week 10: 16 November - 20 November	Lecture	Sustainability and the supply chain (Ch 17)

Resources

Prescribed Resources

Prescribed text

Chopra, S., and Meindl, P., Supply Chain Management: Strategy, Planning and Operation, Prentice Hall, 7th Edition, 2019

Supplementary Text

Simchi-Levi, D., Kaminsky, P., Simchi-Levi, E., Designing and Managing the Supply Chain, 3rd edition, McGraw Hill.

If you wish to explore any of the lecture topics in more depth, then other resources are available and assistance may be obtained from the UNSW Library.

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

This course uses UNSW Moodle, where you will find a list of assignments, answers to some of the numerical questions and case studies.

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

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

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

Recommended Resources

Not available

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 the changes in the number and nature of assessments.

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 in T3.

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. 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 T3 face-to-face classes. To ensure this, only students enrolled in those classes will be allowed in the room. Class rosters will be attached to corresponding rooms and circulated among lab demonstrators. No over-enrolment is allowed in face-to-face class. Students enrolled in online classes can swap their enrolment from online to other additional, **but 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 1.5 metres 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>

Other Matters

Guidelines

All students are expected to read and be familiar with UNSW guidelines and policies. 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](#)
- [Health and Safety](#)
- [Computing Facilities](#)
- [Student Resources](#)
- [Course Outlines](#)
- [Engineering Student Support Services Centre](#)
- [Makerspace](#)
- [UNSW Timetable](#)
- [UNSW Handbook](#)
- [UNSW Mechanical and Manufacturing Engineering](#)
- [Equitable Learning Services](#)

Image Credit

Synergies in Sound 2016

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	✓