



Mechanical and Manufacturing Engineering

# Course Outline

Semester 2 2017

**MANF9472**

## **PRODUCTION PLANNING AND CONTROL**

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# 1. Staff contact details

## Contact details and consultation times for course convenor

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Tel: (02) 9385 5757  
Email: [S.Kara@unsw.edu.au](mailto:S.Kara@unsw.edu.au)  
Moodle: <https://moodle.telt.unsw.edu.au/login/index.php>

## Contact details and consultation times for additional lecturers/demonstrators/lab staff

Name: Dr Bernard Kornfeld (Industry Lecturer)  
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Name; Ms Shiva Abdoli (Demonstrator)  
Room 301, Ainsworth Building  
Tel: (02) 9385 6851  
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Please see the course [Moodle](#).

## 2. Important links

- [Moodle](#)
- [UNSW Mechanical and Manufacturing Engineering](#)
- [Course Outlines](#)
- [Student intranet](#)
- [UNSW Mechanical and Manufacturing Engineering Facebook](#)
- [UNSW Handbook](#)

## 3. Course details

### Credit Points

This is a 6 unit-of-credit (UoC) course, and involves 3 hours per week (h/w) of face-to-face contact.

The UNSW website states “The normal workload expectations of a student are approximately 25 hours per semester for each UoC, including class contact hours, other learning activities, preparation and time spent on all assessable work. Thus, for a full-time enrolled student, the normal workload, averaged across the 16 weeks of teaching, study and examination periods, is about 37.5 hours per week.”

This means that 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.

There will be parallel teaching of MANF4615 – Production Planning & Control

### Contact hours

	Day	Time	Location
<b>Lectures</b>	Friday	6pm – 8 pm	Ainsworth G02 (K-J17-G02)
<b>Demonstrations</b>	Friday	8pm – 9pm	Ainsworth G02 (K-J17-G02)

Please refer to your class timetable for the learning activities you are enrolled in and attend only those classes.

### Summary and Aims of the course

This subject is primarily concerned with the efficient and effective management of materials flow through manufacturing organisations 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 aims firstly to give students grounding in the basic issues confronting production managers today and secondly to present a set of possible solution to those issues, in light of recent advances in computing and information technology.

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 organisation, an evaluation of the various production planning and control techniques available to optimise this flow and how effective production planning and control can contribute to a company's competitive advantage.

This course introduces students the dynamics of material flow through a manufacturing system, basic and advanced techniques of production planning and control and their realisation within a factory simulation model as well as matching different approaches to different manufacturing situations. Therefore, this course is an extension of the MANF6860 Manufacturing Strategy, which mainly deals with long term strategic planning process.

### Student learning outcomes

This course is designed to address the learning outcomes below and the corresponding Engineers Australia Stage 1 Competency Standards for Professional Engineers as shown. The full list of Stage 1 Competency Standards may be found in Appendix A.

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, PE2.2
3.	Understand the main PPC systems and appreciate the importance of capacity planning	PE1.1, PE2.2
4.	Understand the importance of controlling production activities	PE1.1, PE2.2

## 4. Teaching strategies

This course is included to give you the skills to appreciate and carry out the production planning in a manufacturing environment. The content reflects my experience as a lecturer as well as my practical experience as a production manager in manufacturing environment, and practical examples drawn from that experience are used throughout the lectures and tutorials.

Effective learning is supported when you are actively engaged in the learning process and by a climate of enquiry, and these are both an integral part of the lectures and demonstrations.

You become more engaged in the learning process if you can see the relevance of your studies to professional, disciplinary and/or personal contexts, and the relevance is shown in the lectures and assignments by way of examples drawn from industry.

Dialogue is encouraged between you, others in the class and the lecturers. Diversity of experiences is acknowledged, as some students in each class have prior industry experience. Your experiences are drawn on to illustrate various aspects, and this helps to increase motivation and engagement.

It is expected that assignments will be marked and handed back in the week following submission. You will have feedback and discussion while fresh in your mind to improve the learning experience.

## 5. Course schedule

<b>Week</b>	<b>Topic</b>	<b>Location</b>	<b>Suggested Readings</b>
1	Manufacturing Planning and Control	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book
2	Demand Management and Forecasting Techniques	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book
3	Sales and Operations Planning	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book
4	Enterprise Resource Planning	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book
5	Inventory Management	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book
6	Master Production Scheduling (MPS)	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book
7	Material Requirement Planning (MRP)	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book
8	Distribution Requirement Planning (DPR)	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book
9	Just-in-Time (JIT)	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book
10	Production Scheduling	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book
11	Production Scheduling	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book
12	Production Activity Control	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book
13	Review of Lecture Material	Ainsworth G02 (K-J17-G02)	Lecture Slides and relevant chapter in the text book

## 6. Assessment

### Assessment overview

Assessment	Length	Weight	Learning outcomes assessed	Assessment criteria	Due date and submission requirements	Deadline for absolute fail	Marks returned
Assignments 1, 2, and 3	1000 words each	10%	1 and 2	Understanding key points weeks 1 to 8	During week 3, 7 and 10	Midnight Sunday 1 <sup>st</sup> October	Two weeks after submission
Test 1	10 multiple choice	35%	1, 2 and 3	Lecture material from weeks 1 to 5.	During week 6	N/A	Two weeks after submission
Test 2	2 hours	35%	1, 2, 3, 4	Lecture material from weeks 6-11 inclusive.	During week 12	N/A	Two weeks after submission

Further information about the assignments will be provided on Moodle.

## **Assignments**

### *Presentation*

All non-electric 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 penalised 5 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](http://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*

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**

You must be available for all tests and examinations. Final examinations for each course are held during the University examination periods, which are June for Semester 1 and November for Semester 2.

Provisional Examination timetables are generally published on myUNSW in May for Semester 1 and September for Semester 2.

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](http://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 School Office or the Engineering Student Centre prior to the examination. Calculators not bearing an “Approved” sticker will not be allowed into the examination room.

### **Special consideration and supplementary assessment**

For details of applying for special consideration and conditions for the award of supplementary assessment, see the [School intranet](#), and the information on UNSW’s [Special Consideration page](#).

## **7. Attendance**

You are required to attend a minimum of 80% of all classes, including lectures, labs and seminars. It is possible to fail the course if your total absences equal to more than 20% of the required attendance. Please see the [School intranet](#) and the [UNSW attendance page](#) for more information.

## **8. Expected resources for students**

### **Textbook**

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

### **Other Reference Books**

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>

## **9. 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 more demonstrations and taking into account diverse student backgrounds through different demonstrations.

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

Further information on School policy and procedures in the event of plagiarism is available on the [intranet](#).

## 11. Administrative matters and links

All students are expected to read and be familiar with School guidelines and policies, available on the intranet. In particular, students should be familiar with the following:

- [Attendance, Participation and Class Etiquette](#)
- [UNSW Email Address](#)
- [Computing Facilities](#)

- [Assessment Matters](#) (including guidelines for assignments, exams and special consideration)
- [Academic Honesty and Plagiarism](#)
- [Student Equity and Disabilities Unit](#)
- [Health and Safety](#)
- [Student Support Services](#)

# Appendix A: Engineers Australia (EA) Competencies

## Stage 1 Competencies for Professional Engineers

	<b>Program Intended Learning Outcomes</b>
<b>PE1: Knowledge and Skill Base</b>	PE1.1 Comprehensive, theory-based understanding of underpinning fundamentals
	PE1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing
	PE1.3 In-depth understanding of specialist bodies of knowledge
	PE1.4 Discernment of knowledge development and research directions
	PE1.5 Knowledge of engineering design practice
	PE1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice
<b>PE2: Engineering Application Ability</b>	PE2.1 Application of established engineering methods to complex 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
<b>PE3: Professional and Personal Attributes</b>	PE3.1 Ethical conduct and professional accountability
	PE3.2 Effective oral and written communication (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