UNSW SYDNEY | Australia's Global University

Mechanical and Manufacturing Engineering

Course Outline

Term 2 2019

MANF9472

PRODUCTION PLANNING AND CONTROL

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1. Staff contact details

Contact details and consultation times for course convenor

Name: Prof Sami Kara
Office location: Room: 301A Ainsworth Building,
Tel: (02) 9385 5757
Email: S.Kara@unsw.edu.au
Moodle: https://moodle.telt.unsw.edu.au/login/index.php

Moodle discussion should be used for all course related communication. For others, email should be used as an alternative.

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

Name: Dr Shiva Abdoli (Additional Lecturer/Demonstrator)
Office Location: Room 301, Ainsworth Building
Tel: (02) 9385 6851
Email: s.abdoli@unsw.edu.au

Please see the course Moodle.

2. Important links

- Moodle
- Lab Access
- Computing Facilities
- Student Resources
- Course Outlines
- Engineering Student Support Services Centre
- Makerspace
- UNSW Timetable
- UNSW Handbook
- UNSW Mechanical and Manufacturing Engineering

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 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.

Contact hours

	Day	Time	Location
Lectures	Monday	6pm - 8pm	Ainsworth 102
Demonstrations	Monday	8pm – 9pm	Ainsworth 102

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 solutions 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 to 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 concepts 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

Week	Topic	Location	Suggested Readings
1	Introduction, demand management and forecasting techniques	Ainsworth 102	Lecture Slides and relevant chapter in the text book
2	**Public Holiday**		
3	Sales and Operation Planning	Ainsworth 102	Lecture Slides and relevant chapter in the text book
4	Enterprise Resource Planning (ERP)	Ainsworth 102	Lecture Slides and relevant chapter in the text book
5	Inventory Management	Ainsworth 102	Lecture Slides and relevant chapter in the text book
6	Master Production Scheduling	Ainsworth 102	Lecture Slides and relevant chapter in the text book
7	Material and Distribution Requirements Planning	Ainsworth 102	Lecture Slides and relevant chapter in the text book
8	Just In Time	Ainsworth 102	Lecture Slides and relevant chapter in the text book
9	Capacity Planning and Utilization	Ainsworth 102	Lecture Slides and relevant chapter in the text book
10	Production Scheduling	Ainsworth 102	Lecture Slides and relevant chapter in the text book
11	Playing Production Planning Game	TBA	N/A

6. Assessment

Assessment overview

Assessment	Group Project? (4 Students per group)	Length	Weight	Learning outcomes assessed	Assessment criteria	Due date and submission requirements	Deadline for absolute fail	Marks returned
Individual assignment 1	No	1500 words	10%	1 and 2	Lecture material from week 1 and 2	Assignment will be released on Week 1 and will be due on week 3 during the lecture	Monday 24 June	Two weeks after the submission
Individual assignment 2	No	1500 words	20%	3 and 4	Lecture material from week 4 to 6	Assignment will be released on Week 4 and will be due on week 8 during the lecture	Monday 29 July	Two weeks after the submission
Mid-session Test	No	90min	35%	1, 2, and 3	Lecture material from week 1 to 8	During the week 9	N/A	Two weeks after the test
Group assignment	Yes (4)	5000 words	35%	1, 2, 3, 4	Lecture material from week 1 to 9	Group Assignment will be carried out on Week 10 in the classroom and the report will be due on Friday the 25 August 2019	Sunday 1 September	Two weeks after the test

Assignments

Further information about the assessments and the assessment criteria will be provided on Moodle.

Presentation

All non-electronic 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

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:

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

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: 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.

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 available 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 Supper Services Centre prior to the examination. Calculators not bearing an "Approved" sticker will not be allowed into the examination room.

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.

7. 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

8. 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 (1) scheduling a smaller classroom so that the microphone is not required, (2) preparing more challenging tutorial questions, and (3) providing more feedback for assignments.

9. 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

10. 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
- Computing Facilities
- Special Consideration
- Exams
- Approved Calculators
- Academic Honesty and Plagiarism
- Student Equity and Disabilities Unit
- Health and Safety
- Lab Access

Appendix A: Engineers Australia (EA) Competencies

Stage 1 Competencies for Professional Engineers

	Program Intended Learning Outcomes
PE1: Knowledge and Skill Base	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
PE2: Engineering Application Ability	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
PE3: Professional and Personal Attributes	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