UNSW AUSTRALIA

Never Stand Still | Engineering | Mechanical and Manufacturing Engineering

MANF9472

PRODUCTION PLANNING AND CONTROL

Contents

1. Staff contact details

Contact details and consultation times for course convenor

Name: Dr Bernard Kornfeld (Industry Lecturer)
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Name: Prof Sami Kara (Course convenor)
Office Location: 301A, Ainsworth Building
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Consultation concerning this course is available on Monday 1300 –1800 whenever the lecturer is not otherwise engaged.

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

Name: Ms Shiva Abdoli (Demonstrator)
Office Location: 301, Ainsworth Building
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2. 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.”

For a standard 24 UoC in the semester, this means 600 hours, spread over an effective 15 weeks of the semester (thirteen weeks plus stuvac plus one effective exam week), or 40 hours per week, for an average student aiming for a credit grade. Various factors, such as your own ability, your target grade, etc., will influence the time needed in your case. Some students spend much more than 40 h/w, but you should aim for not less than 40 h/w on coursework for 24 UoC.

This means that you should aim to spend not less than about 10 h/w on this course, i.e. an additional 7 h/w of your own time. This should be spent in making sure that you understand the lecture material, completing the set assignments, further reading about the course material, and revising and learning for the examination.

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

Contact hours

	Day	Time	Location
Lectures	Thursday	18:00-21:00	Ainsworth Bld, 102

Summary 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 speeded up, and customer requirements are met in a timely manner.

Aims of the course

This course aims firstly to give students a grounding in the basic issues confronting production managers today, and secondly to present a set of possible solution to those issues, in the light of recent advances in the computing and information technology.

This course enables you to investigate the basic issue related to Production Planning and Control that 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 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 realization 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 below learning outcomes 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

3. Teaching strategies

This course is intended to give you the skills to generate designs of vessels and propellers which will fulfil the requirements of the owner as well as the regulatory authorities. The content reflects my design experience in the drawing office as well as my practical experience on fishing vessels, and practical examples drawn from that experience are used throughout the lectures and demonstrations.

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 marine 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.

4. Course schedule

All lectures and demonstrations in this course are given by the course lecturer, Dr. Bernard Kornfeld

Topic	Date	Location	Lecture Content	Demonstration/ Lab Content	Suggested Readings
Manufacturing Planning and Control	28/7/16	Ainsworth Building 102 (K-J17-102)	Introduction to Production Planning and Control	N/A	Lecture Slides and relevant chapter in the text book
Demand Management and Forecasting Techniques	4/8/16	Ainsworth Building 102 (K-J17-102)	Methodologies for demand and management and forecasting	N/A	Lecture Slides and relevant chapter in the text book
Sales and Operations Planning	11/8/16	Ainsworth Building 102 (K-J17-102)	Top level planning and pyramid forecasting	N/A	Lecture Slides and relevant chapter in the text book
Enterprise Resource Planning	18/8/16	Ainsworth Building 102 (K-J17-102)	ERP framework	N/A	Lecture Slides and relevant chapter in the text book
Inventory Management	25/8/16	Ainsworth Building 102 (K-J17-102)	Inventory management techniques and safety stock	N/A	Lecture Slides and relevant chapter in the text book
Master Production Scheduling (MPS)	1/9/16	Ainsworth Building 102 (K-J17-102)	Introduction to MPS and methodologies for developing an MPS	N/A	Lecture Slides and relevant chapter in the text book
Material Requirement Planning (MRP)	8/9/16	Ainsworth Building 102 (K-J17-102)	Push Systems, MRP techniques and applications	N/A	Lecture Slides and relevant chapter in the text book
Distribution Requirement Planning (DPR)	15/9/16	Ainsworth Building 102 (K-J17-102)	DPR techniques and applications	N/A	Lecture Slides and relevant chapter in the text book

Just-in-Time (JIT)	22/9/16	Ainsworth Building 102 (K-J17-102)	Pull Systems, JIT philosophy, Kanban system	N/A	Lecture Slides and relevant chapter in the text book
Mid-session Break	29/9/16				
Production Scheduling	6/10/16	Ainsworth Building 102 (K-J17-102)	Scheduling techniques and applications 1	N/A	Lecture Slides and relevant chapter in the text book
Production Scheduling	13/10/16	Ainsworth Building 102 (K-J17-102)	Scheduling techniques and applications 2	N/A	Lecture Slides and relevant chapter in the text book
Production Activity Control	20/10/16	Ainsworth Building 102 (K-J17-102)	PPC implementation and control techniques	N/A	Lecture Slides and relevant chapter in the text
Review of Lecture Material	27/10/16	Ainsworth Building 102 (K-J17-102)	Selected lecture material review	N/A	N/A

5. Assessment

You are assessed by way of assignments and examinations which involve both descriptive material and hands on application of the lecture material.

Assessment task	**Length**	**Weight**	**Learning outcomes assessed**	**Assessment criteria**	**Due date, time, and submission requirements**	**Marks returned**
Assignment 1	1000 words	10%	1,2	Understanding key points weeks 1 and 2	Week 3, in the classroom	Two weeks after submission
Assignment 2	1000 words	10%	1,2	Understanding key points weeks 4,5 and 6	Week7, , in the classroom	Two weeks after submission
Assignment 3	1000 words	10%	1,2	Understanding key points weeks 7 and 8	Week 10, , in the classroom	Two weeks after submission
Mid-session Test	10 multiple choice	30%	1,2,3	Understanding of lecture material from week 1 to 4	Week 5, , in the classroom	Two weeks after submission

Final exam	3 hours	40%	1, 2,3, and 4	All course content from weeks 1-13	Exam period, date TBC	After release of results

Further information about the assignments will be provided on Moodle.

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. Presenting them 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. Where an assessment task is worth less than 20% of the total course mark and you have a compelling reason for being unable to submit your work on time, you must seek approval for an extension from the course convenor ***before the due date***. Special consideration for assessment tasks of 20% or greater 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.

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

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.

6. 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 (http://info.library.unsw.edu.au/web/services/services.html)

7. Course evaluation and development

Feedback on the course is gathered periodically using various means, including the Course and Teaching Evaluation and Improvement (CATEI) 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 background through different demonstrations.

8. 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 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

Further information on School policy and procedures in the event of plagiarism is available on the intranet.

9. Administrative matters

All students are expected to read and be familiar with School guidelines and polices, 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

Prof. S. Kara
10-7-2016

Appendix A: Engineers Australia (EA) 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