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

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

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2. Course details

Credit Points:

This is a 6 unit-of-credit (UoC) course, and involves <insert hours> 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

Lectures	Day	Time	Location
	Wednesday	6pm - 9pm	Ainsworth Building 102 (K-J17-102)

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 MANF9471 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

4. 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.

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.

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.

5. Course schedule

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

Topic	Date	Location	Lecture Content	Suggested Readings
Manufacturing Planning and Control	29/7/15	Ainsworth Building 102 (K-J17-102)	Introduction to Production Planning and Control	Lecture Slides and relevant chapter in the text book
Demand Management and Forecasting Techniques	5/8/15	Ainsworth Building 102 (K-J17-102)	Methodologies for demand and management and forecasting	Lecture Slides and relevant chapter in the text book
Sales and Operations Planning	12/8/15	Ainsworth Building 102 (K-J17-102)	Top level planning and pyramid forecasting	Lecture Slides and relevant chapter in the text book
Enterprise Resource Planning	19/8/15	Ainsworth Building 102 (K-J17-102)	ERP framework	Lecture Slides and relevant chapter in the text book
Inventory Management	26/8/15	Ainsworth Building 102 (K-J17-102)	Inventory management techniques and safety stock	Lecture Slides and relevant chapter in the text book
Master Production Scheduling (MPS)	2/9/15	Ainsworth Building 102 (K-J17-102)	Introduction to MPS and methodologies for developing an MPS	Lecture Slides and relevant chapter in the text book
Material Requirement Planning (MRP)	9/9/15	Ainsworth Building 102 (K-J17-102)	Push Systems, MRP techniques and applications	Lecture Slides and relevant chapter in the text book
Distribution Requirement Planning (DPR)	16/9/15	Ainsworth Building 102 (K-J17-102)	DPR techniques and applications	Lecture Slides and relevant chapter in the text book
Just-in-Time (JIT)	23/9/15	Ainsworth Building 102 (K-J17-102)	Pull Systems, JIT philosophy, Kanban system	Lecture Slides and relevant chapter in the text book
Mid-session Break	30/9/15			

Production Scheduling	7/10/15	Ainsworth Building 102 (K-J17-102)	Scheduling techniques and applications 1	Lecture Slides and relevant chapter in the text book
Production Scheduling	14/10/15	Ainsworth Building 102 (K-J17-102)	Scheduling techniques and applications 2	Lecture Slides and relevant chapter in the text book
Production Activity Control	21/10/15	Ainsworth Building 102 (K-J17-102)	PPC implementation and control techniques	Lecture Slides and relevant chapter in the text
Review of Lecture Material	28/10/15	Ainsworth Building 102 (K-J17-102)	Selected lecture material review	N/A

6. 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**
Assignment 1	1000 words	10%	1,2	Understanding key points weeks 1 and 2	Week 3
Assignment 2	1000 words	10%	1,2	Understanding key points weeks 4,5 and 6	Week7
Assignment 3	1000 words	10%	1,2	Understanding key points weeks 7 and 8	Week 10
Mid-session Test	10 multiple choice	30%	1,2,3	Understanding of lecture material from week 1 to 4	Week 5
Final exam	3 hours	40%	1, 2,3, and 4	All course content from weeks 1-13	Exam period, date TBC

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 subject'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 https://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 Administrative Matters.

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 https://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 Administrative Matters, available on the School website and on Moodle, and 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 can be used for certain topics. http://info.library.unsw.edu.au/web/services/services.html

8. 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.

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: https://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:
http://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Further information on School policy and procedures in the event of plagiarism is presented in a School handout, Administrative Matters, available on the School website.

10. Administrative Matters

You are expected to have read and be familiar with *Administrative Matters*, available on the School website: https://www.engineering.unsw.edu.au/mechanical-engineering/sites/mech/files/u41/S2-2015-Administrative-Matters_20150721.pdf

This document contains important information on student responsibilities and support, including special consideration, assessment, health and safety, and student equity and diversity.

Prof. S. Kara
July 2015

Appendix A: Engineers Australia (EA) Professional Engineer Competency Standards

	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