MANF9472

Production Planning and Control
1. STAFF CONTACT DETAILS

Contact details and consultation times for course convener

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Contact details and consultation times for additional lecturers and tutorial/laboratory teaching staff

Nil.

2. COURSE DETAILS

Units of credit

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.

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

At the conclusion of this course, it is expected that you will be able to:

- understand the strategic implications of the Production Planning and Control (PPC)
- appreciate the concept demand management and forecasting
- appreciate the link between demand management and Master Production Schedule
- understand the main PPC systems
- appreciate the importance of capacity planning
- understand the importance of controlling production activities.

Graduate attributes

UNSW’s graduate attributes are shown at [https://my.unsw.edu.au/student/atoz/GraduateAttributes.html](https://my.unsw.edu.au/student/atoz/GraduateAttributes.html). UNSW aspires to develop graduates who are rigorous scholars, capable of leadership and professional practice in a global community. The university has, thus, articulated the following Graduate Attributes as desired learning outcomes for ALL UNSW students. UNSW graduates will be

1. Scholars who are:
   
   (a) understanding of their discipline in its interdisciplinary context ✓
   (b) capable of independent and collaborative enquiry ✓
   (c) rigorous in their analysis, critique, and reflection
(d) able to apply their knowledge and skills to solving problems
(e) ethical practitioners
(f) capable of effective communication
(g) information literate
(h) digitally literate

2. Leaders who are:
   (a) enterprising, innovative and creative
   (b) capable of initiating as well as embracing change
   (c) collaborative team workers

3. Professionals who are:
   (a) capable of independent, self-directed practice
   (b) capable of lifelong learning
   (c) capable of operating within an agreed Code of Practice

4. Global Citizens who are:
   (a) capable of applying their discipline in local, national and international contexts
   (b) culturally aware and capable of respecting diversity and acting in socially just/responsible ways
   (c) capable of environmental responsibility

In this course, you will be encouraged to develop Graduate Attributes 1(a), 1(b), 1(d), and 4(a) by undertaking the selected activities and knowledge content. These attributes will be assessed within the prescribed assessment tasks, as shown in the assessment table on Page 6.

3. RATIONALE FOR INCLUSION OF CONTENT AND TEACHING APPROACH

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 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 tutorials.

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. **TEACHING STRATEGIES**

This course is included to give you the skills to appreciate and to 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 achieved in the lectures and tutorials by way of practical case studies.

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 all parts of 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 experience in manufacturing environment. 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 as soon as possible. You will have feedback and discussion, while the assignment is fresh in your mind, to improve the learning experience.

5. **ASSESSMENT**

**General**

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

The weighting of the individual assessment components will be as follows:

- **Assignment 1:**
  - 25% of final grade
  - Graduate attributes assessed: 1(a), 1(b), 1(d), and 4(a)
  - Learning outcomes assessed: Fundamentals of MPC; Demand Planning, Forecasting, and S&OP process.

- **Test 1:**
  - 25% of final grade
  - Graduate attributes assessed: 1(d), and 4(a)]
  - Learning outcomes assessed: How does the front end of the MPC come together; Demand Planning, Forecasting, the S&OP process and inventory management.

- **Assignment 2:**
  - 25% of final grade
  - Graduate attributes assessed: 1(a), 1(b), 1(d), and 4(a)
Learning outcomes assessed: The fundamental processes of MRP: Inventory Management, Master Production Scheduling and Material Requirements Planning.

Final Exam:
- 25% of final grade
- Graduate attributes assessed: 1(d), and 4(a)
- Learning outcomes assessed: Bringing it all together: The MPC framework, the mechanics of MRP and DRP, production scheduling and control.

Presentation

All submissions should have a standard School cover sheet available on the School website at [www.engineering.unsw.edu.au/mechanical-engineering/forms-and-guidelines](http://www.engineering.unsw.edu.au/mechanical-engineering/forms-and-guidelines). All submissions are expected to be neat, and clearly set out. All calculations should be shown as, in the event of incorrect answers, marks are awarded for method and understanding.

Criteria

The following criteria will be used to grade assignments:

For report and short answer assignments the following criteria will be used:
- Identification of key facts and the integration of those facts in a logical development.
- Demonstrate a clear understanding of the material
- Clarity of communication—this includes development of a clear and orderly structure and the highlighting of core arguments.
- Sentences in clear and plain English—this includes correct grammar, spelling and punctuation.
- Correct referencing in accordance with the prescribed citation and style guide.

All other assignments involve numerical calculations, for which the following criteria will be used:
- Accuracy of numerical answers.
- All working shown
- Use of diagrams, where appropriate, to support or illustrate the calculations.
- Use of graphs, were appropriate, to support or illustrate the calculations.
- Use of tables, where appropriate, to support or shorten the calculations.
- Neatness.
- Demonstrate and understanding of the results – does the result make sense and what does it mean in practical terms for the business?

Submission

Assignments are due on the scheduled day of the class in the week nominated below. Assignments should, preferably, be submitted direct to me in class, or under the door of my office, by 17:00 on that day (rather than via the assignment boxes at the School office).
Late submission of assignments attracts a penalty of ten percent per day, unless prior dispensation has been given; i.e. see me before the due date to avoid penalty. It is always worth submitting as, in the event of difficulty making a final grade (either to pass or higher), any penalties for late submission may be removed.

For more information on submission of assignments, see Administrative Matters for All Courses available on the School website.

Examination

There will be one three-hour examination at the end of the semester, covering all material in both Parts A and B for the whole semester. You will need to provide your own calculator, of a make and model approved by UNSW, for the examination. 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 for All Courses, available from the School website.

6. ACADEMIC HONESTY AND PLAGIARISM

Plagiarism is using the words or ideas of others and presenting them 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 booklet which provides essential information for avoiding plagiarism: https://my.unsw.edu.au/student/academiclife/Plagiarism.pdf

There is a range of resources to support students to avoid 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. Information is available on the dedicated website Plagiarism and Academic Integrity website: http://www.lc.unsw.edu.au/plagiarism/index.html
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 a 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 for All Courses, available on the School website.

7. COURSE SCHEDULE

All lectures and tutorials in this course are given by the course lecturer in CVEN G1 (K-H20-G1).

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<thead>
<tr>
<th>Date</th>
<th>Week</th>
<th>Topics</th>
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<tbody>
<tr>
<td>30/7</td>
<td>1</td>
<td>Manufacturing Planning and Control</td>
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<tr>
<td>6/8</td>
<td>2</td>
<td>Demand Management &amp; Forecasting Techniques</td>
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<td>13/8</td>
<td>3</td>
<td>Sales and Operation Planning</td>
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<td>20/8</td>
<td>4</td>
<td>Enterprise Resource Planning (ERP Assignment 1</td>
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<td>27/8</td>
<td>5</td>
<td>Inventory Management</td>
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<td>3/9</td>
<td>6</td>
<td>Master Production Scheduling</td>
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<td><strong>Mid-Semester Test 1</strong></td>
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<td>10/9</td>
<td>7</td>
<td>Material Requirement Planning</td>
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<td>17/9</td>
<td>8</td>
<td>Distribution Requirement Planning</td>
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<td>24/9</td>
<td>9</td>
<td>Just-in-Time</td>
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<td><strong>Assignment 2</strong></td>
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<td>1/10</td>
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<td>Mid-Session Break</td>
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<td>8/10</td>
<td>10</td>
<td>Production Scheduling</td>
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<td>15/10</td>
<td>11</td>
<td>Production Scheduling</td>
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<td>22/10</td>
<td>12</td>
<td>Production Activity Control</td>
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<tr>
<td>29/10</td>
<td>13</td>
<td><strong>Test 2</strong></td>
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The schedule shown may be subject to change at short notice to suit exigencies.

8. **RESOURCES FOR STUDENTS**

**Textbook:**

**Other Reference Books**

**List of required and suggested additional readings and availability (in bookshop, UNSW library, MyCourse)**
Other available literature in the area of production and operations management can be used for certain topics.

**Additional materials provided in Moodle**
Course will be administered by using Moodle. Therefore course administration and some lecture materials may be uploaded to Moodle. Students are advised to use Moodle for class communications.

**Recommended Internet sites**
None

9. **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 tutorial 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 are redesigning of assignments and readings.

10. **ADMINISTRATIVE MATTERS**

You are expected to have read and be familiar with *Administrative Matters for All Courses*, available on the School website. 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 2014*