

BNM899 OPERATIONS MANAGEMENT

Number of Aston Credits: 10

Number of ECTS Credits: 5

Staff Members Responsible for the Module:

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Or contact the Operations and Information Management Group Administrator John Morley, ABS266, Extension 3236

Pre-requisites for the Module:

None

Mode of Attendance:

On campus or Off campus

Module Objectives and Learning Outcomes:

The module aims to provide an understanding of the role of Operations Management (OM), and how it contributes to business competitiveness. The module will cover both operational and strategic levels of OM activities, and will cover the application of both quantitative and qualitative approaches for the key decision making areas in OM. Upon successful completion of this module, students will be able to:

- > Understand the process and techniques for developing new products and services efficiently and effectively;
- > Select and design appropriate layouts for various process types in both manufacturing and service sectors;
- > Apply total quality management and six sigma tools to provide high-quality products and services;

- > Evaluate and select appropriate quantitative models to maintain an optimal inventory level;
- > Recognise the importance of lean operations and Just in Time (JIT) concepts to a firm's competitiveness;
- > Recognise the differing competitive strategies for manufacturing and service operations;
- > Appreciate leading strategic practices within operations;
- > Understand the principles of operations strategy formation;
- > Apply a process for operations strategy formulation and deployment.

Module Content:

- Week 1** Introduction to OM, Product and Service Design
- Week 2** Process and Layout Design
- Week 3** Quality Management and Control
- Week 4** Inventory Management, Lean Operations, and JIT
- Week 5** Competitive and Operations Strategy
- Week 6** Strategic Practices with Operations
- Week 7** Operations Strategy Formulation
- Week 8** Operations Strategy Deployment
- Week 9** Conclusion, Review, and Revision
- Week 10** Examination

Corporate Connections:

In this module, several case studies of well-known corporate are used. Also, there are visits to local organisations e.g. Jaguar Cars and Land Rover.

International Dimensions:

The module introduces OM techniques from around the world, particularly Japanese JIT concepts.

Contribution of Research:

Professor Tim Baines specialises in the realisation of competitive operations. He has experience that covers a wide range of disciplines including manufacturing operations strategy, industrial engineering, and technology management. His career started with technician apprenticeship training and has progressed through a variety of industrial and academic positions, including that of Visiting Scholar within the Centre for Technology, Policy and Industrial Development at the Massachusetts Institute of Technology. He has recently completed a three month secondment to Caterpillar Inc, USA, where he has worked with CAT dealers and customers to explore the factors leading to the growth and productivity of technology based services. Professor Baines has produced over 170 research papers, managed a wide range of research staff, and has supervised 17 doctorate students to successful completion. He is also an active contributor to international conferences and workshops, and regularly makes research presentations abroad, especially in the USA.

Dr William Ho's field of expertise includes mathematical modeling, multi-attribute analytic algorithms, artificial intelligence algorithms, OM, and supply chain management. He has extensive experience in manufacturing process optimisation using mathematical modeling techniques and artificial intelligence algorithms. He has also developed a multi-attribute analytic framework, and successfully applied it in both public and private sectors for the supplier evaluation and logistics distribution network design problems. Since 2003, he has published 30+ research articles in the leading international journals, and two authored books. Latest findings of his research will be used as the teaching materials of the first four sections.

Method of Teaching:

The teaching method consists of lectures and tutorials. Lectures will be used to present basic concepts, to address common problems, and to suggest general decision-making tools. Tutorials will be available for the development of practical skills and for working through the details of ideas that have been presented formally. Assignments to be provided in tutorials include qualitative case studies, quantitative calculation problems, and journal article readings.

Method of Assessment and Feedback:

The assessment is via a two-hour closed book examination. The examination aims to assess whether students have understood the key techniques and can apply them to relevant examples within the context of OM. Examination will be held in Week 10.

Formative feedback will be given for the case studies and group discussions, whereas summative feedback for the examination will be put on Blackboard after the board of examiners' has met.

Learning Hours:

Contact and directed learning

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| Lectures and tutorials (three hours per week) | 27 hours |
| Examination | 2 hours |

Indirect learning

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| Reading | 25 hours |
| Tutorial preparation | 16 hours |
| Examination preparation | 30 hours |

Total **100 hours**

Essential Reading:

Heizer J & Render B (2010), *Operations Management*, 10th Edition, Prentice-Hall.

Hill TJ (2000), *Manufacturing strategy Text and Cases*, Palgrave.

Slack N & Lewis M (2002), *Operations Strategy*, Pearson Education.

Treacy M & Wiersema F (1995), *The Principles of Market Leaders*, Perseus books.

Indicative Bibliography:

Johnston R, Chambers S, Harland C, Harrison A & Slack N (2003), *Cases in Operations Management*, 3rd Edition, Prentice-Hall.

Russel RS & Taylor BW (2009), *Operations Management: Along the Supply Chain*, 6th Edition, New York: John Wiley & Sons.

Slack N, Chambers S & Johnston R (2010), *Operations Management*, 6th Edition, London: Prentice-Hall.

Stevenson WJ (2009), *Operations Management: International Student Edition with Global Readings*, 10th Edition, New York: McGraw-Hill.

Wheelwright SC & Hayes RH (1984), *Restoring Our Competitive Edge*, John Wiley & Sons.



Weekly Recommended Readings

- Week 1** Heizer & Render: Chapters 1, 2, & 5
- Week 2** Heizer & Render: Chapter 9
- Week 3** Heizer & Render: Chapter 6
- Week 4** Heizer & Render: Chapters 12 & 16
- Week 5** Treacy & Wiersema: Chapters 1 – 3
- Week 6** Slack N & Lewis: Part 2
- Week 7** Slack N & Lewis: Parts 1 & 3; Hill: Chapters 2 & 3
- Week 8** Slack N & Lewis: Parts 1 & 3; Hill: Chapters 2 & 3

Useful Online Sources:

- > <http://www.emerald-library.com>
- > <http://www.ingentaconnect.com>
- > <http://www.sciencedirect.com>

Many journal articles in the field of OM will help students on this module. Students can do a keyword search on their area of interest, e.g., product design, assembly line balancing, etc.

Further references will be provided during lectures, as appropriate.

