Liverpool John Moores University

Title:	MANAGEMENT SCIENCE
Status:	Definitive
Code:	**5005MAR** (106018)
Version Start Date:	01-08-2016

Owning School/Faculty:	Maritime and Mechanical Engineering
Teaching School/Faculty:	Maritime and Mechanical Engineering

Team	Leader
Alan Wall	Y

Academic Level:	FHEQ5	**Credit Value:**	12	**Total Delivered Hours:**	38
Total Learning Hours:	120	**Private Study:**	82		

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	16
Tutorial	10
Workshop	10

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	1 x 2 hours	75	2
Essay	AS2	assignment	15	
Essay	AS3	assignment	10	

Aims

To introduce the major models of management science/operations research and indicate their application. To develop the concept of applying mathematical models to solve problems. To investigate significant algorithms in management science and relate these both to computer implementation and practical application to business problems.

Learning Outcomes

After completing the module the student should be able to:

1   Formulate maximisation/minimisation problems with constraints in terms of the linear programming (LP) model and solve LP problems graphically and by computer package, with interpretation of outputs.
2   Formulate and use transportation type problems.
3   Apply queue models to resource allocation problems.
4   Use the GANTT and PERT networks for project scheduling.
5   Demonstrate knowledge of broad application of management science to business environment

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

EXAM	1	2	3	4	5
CW	1	2			
CW	3	4			

Outline Syllabus

Discussion of mathematical formulation of decision problems under resource constraints.
Introduction of OR/MS models, in particular linear programming, networks analysis, queues. Statistical concepts in support of OR/MS modelling. Use of computer packages in solving OR problems; interpretation of output.
Application of OR/MS in business and its validity. Limited case study and evaluation.

Learning Activities

Lectures and computer laboratory tutorials. Module includes use of the MENTOR teaching package for student self-development

Notes

This module provides a comprehensive introduction to the methods and application of Management Science. Models are introduced and specific algorithms are used to illustrate problem solving strategies. The relationship is established between the various models and computer packages used in their solution. There are many other text books on the subject area in library numbers 625.4034, 519.7, 380.50184