The University of Southern Queensland

Course Specification

Description: Operations Research A						
Subject	Cat-Nbr	Class	Term	Mode	Units	Campus
MAT	4200	10370	1, 2002	ONC	1.00	TWMBA

Academic Group: FOSCI
Academic Org: FOS003
HECS Band: 2
ASCED Code: 010101

STAFFING

Examiner: Ashley Plank
Moderator: Peter Dunn

OTHER-REQUISITES

Recommended Pre-requiste: MAT3201

RATIONALE

The course seeks to strengthen students' mathematical understanding of Linear Programming, as well as introduce students to further topics in Operations Research.

SYNOPSIS

This course deals with more advanced topics in Linear Programming and Integer Programming and introduces students to Non-Linear Programming, Game Theory and Heuristic Problem Solving.

OBJECTIVES

On successful completion of this course students should be able to:

- demonstrate an understanding of the mathematical basis of linear programming;
- use a variety of methods for solving LP and IP problems;
- demonstrate an understanding of and apply elementary game theory;
- demonstrate an understanding of the elements of non-linear programming
- demonstrate an understanding of the use of heuristic problem solving;
- investigate a new topic in Operations Research, explain this topic in his/her own words, and apply it.

TOPICS

Description	Weighting (%)
1. Mathematics of Linear Programming	15.00
2. Advanced Topics in Linear Programming	20.00
3. Integer Programming	15.00
4. Game Theory	15.00
5. Non-Linear Programming	15.00
6. Heuristic Problem Solving	20.00

TEXT and MATERIALS required to be PURCHASED or ACCESSED:

Books can be ordered by fax or telephone. For costs and further details use the 'Book Search' facility at http://bookshop.usq.edu.au by entering the author or title of the text.

Winston, W.L. 1994 *Operations Research: Applications and Algorithms*, 3rd edn, Duxbury Press, Belmont Calif.

REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Daellenbach, H.G. & George, J.A. 1983 *Introduction to Operations Research Techniques*, 2nd edn, Allyn and Bacon, Boston.

Hillier, F.S. & Lieberman, G.J. 1995 *Introduction to Operations Research*, 6th edn, McGraw Hill, New York.

Reeves, C.R. (Ed). 1993 *Modern Heuristic Techniques for Combinatorial Problems*, John Wiley, New York.

Taha, H.A. 1992 *Operations Research - An Introduction*, 5th edn., Macmillan, New York.

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessment	18
Lectures	26
Private Study	76
Project Work	50

ASSESSMENT DETAILS

Description	Marks Out of	Wtg(%)	Required	Due Date
ASSIGNMENT 1	999.00	12.00	Y	04 Mar 2002 (see note 1)
ASSIGNMENT 2	999.00	12.00	Y	04 Mar 2002 (see note 2)
ASSIGNMENT 3	999.00	12.00	Y	04 Mar 2002 (see note 3)
PROJECT	999.00	30.00	Y	04 Mar 2002 (see note 4)
3 HOUR RESTRICTED EXAMINATION	999.00	34.00	Y	END S1 (see note 5)

NOTES:

1. Further details about the due dates are detailed in the assessment section of the Course Specifications.
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3. Further details about the due dates are detailed in the assessment section of the Course Specifications.
4. Further details about the due dates are detailed in the assessment section of the Course Specifications.
5. Examination dates will be available during the Semester. Please refer to Examination timetable when published.

OTHER REQUIREMENTS

1 Attendance: (i) It is the students' responsibility to actively participate in all classed scheduled for them, and to study all material provided to them or required to be accessed by them to maximize their chance of meeting the objectives of the course and to be informed of course-related activities and administration.

2 Minimum Requirements to Pass the Unit: To be certain of gaining a passing grade in this course, a student must gain at least 50% of the total assignment marks available; at least 50% of the marks available for the project, and at least 50% in the final examination.

3 Grading: Final grades for students will be determined by the addition of the marks obtained in each assessment item, weighted as in the Assessment Details and by considering the level of achievement of the objectives of the course.

4 Supplementary and Deferred Examinations: (i) Students who obtain an overall passing mark, but who do not perform satisfactorily in an examination, may, at the discretion of the examiner, be granted a supplementary examination. (ii) Students will be granted a deferred examination only if they perform satisfactorily in all other aspects of assessment. (iii) Any supplementary or deferred examinations for this course will be held during the examination period at the end of the semester 3 following this course offering.

5 Assignments: (i) Students must retain a copy of each item submitted for assessment. This must be produced within 24 hours if required by the examiner. (ii) In accordance with the University's Policy on Assignments (Regulation 5.6.1), the examiner of a course may grant an extension of the due date of an assignment in extenuating circumstances. This policy may be found in the USQ Handbook, the Distance Education Student Guide and the Faculty of Sciences' Orientation Handbook for new on-campus students. All students are advised to study and follow the guidelines associated with this policy. (iii) An assignment submitted after the due date without an extension approved by the examiner will attract a penalty of up to 20 percent of the assigned mark for each day (or part thereof) that the assignment is late. (iv) No further assignments will be accepted for assessment purposes after marked assignments or model solutions have been released.

6 Examinations: (i) Candidates should be aware that the University has policies and regulations (Regulation 5.6.2.2) about the use of unfair means and electronic devices in an examination and they should refer to them to determine whether or not actions they intend to take are acceptable to the University. (ii) Restricted Examination: Candidates will be allowed access to specific materials in a restricted examination. Written materials, books, calculators and mathematical tables are permitted in the examination for this course, but computers may not be used.
