Description: Management Science I

<table>
<thead>
<tr>
<th>Subject</th>
<th>Cat-nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
<th>Campus</th>
</tr>
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<tbody>
<tr>
<td>MGT</td>
<td>2100</td>
<td>72078</td>
<td>6, 2007</td>
<td>EXT</td>
<td>1.00</td>
<td>Toowoomba</td>
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Academic group: FOBUS
Academic org: FOB004
Student contribution band: 2
ASCED code: 080301

STAFFING
Examiner: Mehryar Nooriafshar
Moderator: Dom Pensiero

OTHER REQUISITES
Students are required to have access to a personal computer, e-mail capabilities and Internet access to USQConnect. Current details of computer requirements can be found at http://www.usq.edu.au/business/aboutfob.htm

SYNOPSIS
This course, together with MGT2102, covers the Operations Research techniques and algorithms which are most commonly used in business. These methods are presented primarily as applications, without neglecting the mathematical understanding of their operation. The emphasis is on formulation of problems, and the interpretation of solutions obtained from an appropriate computer software package.

OBJECTIVES
The course objectives define the student learning outcomes for a course. The assessment item/s that may be used to assess student achievement of an objective is/are shown in parentheses after each objective. On successful completion of this course, students should be able to:

1. formulate business problems in mathematical terms (Assignment 1, Assignment 2 and Examination)
2. choose the appropriate technique for a particular problem (Assignment 1, Assignment 2 and Examination)
3. identify the requirements for the use of the different techniques covered in this course, in terms of information (Assignment 1, Assignment 2 and Examination)
4. use software or calculation, as appropriate, to derive solutions to business-related problems (Assignment 1, Assignment 2 and Examination)
5. interpret the mathematical and computer solutions from the algorithms in business terms (Assignment 1, Assignment 2 and Examination)
6. present management reports incorporating the solutions and the information derived from the above (Assignment 1, Assignment 2 and Examination).

**TOPICS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>1. Linear programming. Problem formulation.</td>
<td>20.00</td>
</tr>
<tr>
<td>2. Problem solution by computers.</td>
<td>15.00</td>
</tr>
<tr>
<td>3. Interpretation of solution output. Sensitivity analysis and the use of duality.</td>
<td>20.00</td>
</tr>
<tr>
<td>4. Integer programming and mixed linear programming.</td>
<td>20.00</td>
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<tr>
<td>5. Special-case linear programming. Goal programming.</td>
<td>15.00</td>
</tr>
<tr>
<td>6. Other special cases. Network optimisation algorithms.</td>
<td>10.00</td>
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</table>

**TEXT and MATERIALS required to be PURCHASED or ACCESSED**

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at http://bookshop.usq.edu.au click 'Semester', then enter your 'Course Code' (no spaces).

(includes CD-ROM package)


**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.

Any text in management science or operations research will be useful.


STUDENT WORKLOAD REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
</tr>
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<tbody>
<tr>
<td>Assessment</td>
<td>45.00</td>
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<tr>
<td>Directed Study</td>
<td>33.00</td>
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<tr>
<td>Private Study</td>
<td>87.00</td>
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ASSESSMENT DETAILS

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks out of</th>
<th>Wtg(%)</th>
<th>Due date</th>
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</thead>
<tbody>
<tr>
<td>ASSIGNMENT 1</td>
<td>15.00</td>
<td>15.00</td>
<td>29 Oct 2007</td>
</tr>
<tr>
<td>ASSIGNMENT 2</td>
<td>35.00</td>
<td>35.00</td>
<td>10 Dec 2007</td>
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<tr>
<td>2 HOUR EXAMINATION</td>
<td>50.00</td>
<td>50.00</td>
<td>END S6 (see note 1)</td>
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</table>

NOTES

1. The examination is scheduled to be held in the end-of-semester examination period. Students will be advised of the official examination date after the timetable has been finalised.

IMPORTANT ASSESSMENT INFORMATION

1. Attendance requirements:
   It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.

2. Requirements for students to complete each assessment item satisfactorily:
   To satisfactorily complete an individual assessment item a student must achieve at least 50% of the marks. (Depending upon the requirements in Statement 4 below, students may not have to satisfactorily complete each assessment item to receive a passing grade in this course.)

3. Penalties for late submission of required work:
   If students submit assignments after the due date without prior approval of the examiner, then a penalty of 5% of the total marks gained by the student for the assignment may apply for each working day late up to ten working days at which time a mark of zero may be recorded.

4. Requirements for student to be awarded a passing grade in the course:
   To be assured of receiving a passing grade a student must achieve at least 50% of the total weighted marks available for the course.

5. Method used to combine assessment results to attain final grade:
   The final grades for students will be assigned on the basis of the aggregate of the weighted marks obtained for each of the summative assessment items in the course.

6. Examination information:
   This is a restricted examination. Candidates are allowed access to specific materials during the examination. The only materials that candidates may use in the restricted examination...
for this course are: writing materials (non-electronic and free from material which could
give the student an unfair advantage in the examination); calculators which cannot hold
textual information (students must indicate on their examination paper the make and model
of any calculator(s) they use during the examination).

7 Examination period when Deferred/Supplementary examinations will be held:
Any Deferred or Supplementary examinations for this course will be held during the next
examination period.

8 University Regulations:
Students should read USQ Regulations 5.1 Definitions, 5.6 Assessment, and 5.10 Student
Academic Misconduct for further information and to avoid actions which might contravene
university regulations. These regulations can be found at
http://www.usq.edu.au/corporateservices/calendar/part5.htm. Students should also read
the Faculty of Business Policies and Procedures which can be found at

ASSESSMENT NOTES

1 Assignments: (i) The due date for an assignment is the date by which a student must
despatch the assignment to the USQ. The onus is on the student to provide proof of the
despatch date, if requested by the examiner. (ii) Students must retain a copy of each
assignment submitted for assessment. This must be produced within 24 hours if required
by the examiner. (iii) In accordance with university policy, the examiner may grant an
extension of the due date of an assignment in extenuating circumstances.

2 Course weightings: Course weightings of topics should not be interpreted as applying to
the number of marks allocated to questions testing those topics in an examination paper.