Description: Optimisation Applications II

<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>
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<tr>
<td>MGT</td>
<td>2102</td>
<td>34165</td>
<td>2, 2004</td>
<td>EXT</td>
<td>1.00</td>
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Academic group: FOBUS  
Academic org: FOB002  
Student contribution band: 2  
ASCED code: 080301

STAFFING
Examiner: Mehryar Nooriafshar
Moderator: Dom Pensiero

REQUISITES
Pre-requisite: MGT2100

RATIONALE
This course is very closely associated with Operations Research. Operations research is a multi-faceted discipline which enables a logical approach to be taken to the solution of complex and seemingly ambiguous problems OR allows the ambiguity to be removed so organisations can see the essence of the problem and make decisions accordingly.

SYNOPSIS
This course requires students to be capable of applying managerial control techniques to the outputs of projects; to understand the concept of decision theory; to formulate and solve dynamic and goal programming models; to model and solve queuing problems; to be aware of the technique of simulation and to understand where it can be applied.

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

1. apply project management techniques for business related problems;
2. construct models to aid the making of decisions under uncertainty and use such models in reaching decisions;
3. show knowledge of formulating and solving dynamic programming models;
4. demonstrate an understanding of Markov process models, by formulating and solving examples applied to business;
5. demonstrate an understanding of, and apply queuing theory to the solution of problems; and
6. understand the concept of Monte Carlo simulation.

**TOPICS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tr>
<td>1. Project management techniques, work breakdown structures, Network Diagrams and Gantt Charts</td>
<td>25.00</td>
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<tr>
<td>2. Decision theory</td>
<td>10.00</td>
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<tr>
<td>3. Dynamic programming</td>
<td>25.00</td>
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<td>4. Markov process/Brand switching</td>
<td>15.00</td>
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<tr>
<td>5. Queueing theory</td>
<td>15.00</td>
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<tr>
<td>6. Simulation</td>
<td>10.00</td>
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**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).


**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>
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<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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<tbody>
<tr>
<td>Assessment</td>
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<td>Directed Study</td>
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<td>Private Study</td>
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ASSESSMENT DETAILS

<table>
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<tr>
<th>Description</th>
<th>Marks out of</th>
<th>Wtg(%)</th>
<th>Due date</th>
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<tr>
<td>ASSIGNMENT 1</td>
<td>15.00</td>
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<td>09 Aug 2004</td>
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<td>ASSIGNMENT 2</td>
<td>35.00</td>
<td>35.00</td>
<td>13 Sep 2004</td>
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<td>3 HOUR EXAMINATION</td>
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<td>50.00</td>
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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:
   If you are an international student in Australia you are advised to attend all classes at your campus. Failure to attend may infringe the conditions of your student visa. For all other students, there are no attendance requirements for this course. However, it is the students' responsibility 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 complete the assignment satisfactorily, students must attempt all assignment questions and obtain a weighted mark of 50% for the assignment items. To complete the examination satisfactorily, students must attempt all examination questions and obtain at least 50% of the marks.

3. Penalties for late submission of required work:
   If students submit assignments after the due date without prior approval then a penalty of 10% of the total marks available for the assignment will apply for each working day late.

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 available weighted marks for the summative assessment items.

5. Method used to combine assessment results to attain final grade:
   The final grades for students will be assigned on the basis of the weighted aggregate of the marks (or grades) 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 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL http://www.usq.edu.au/corporateservices/calendar/part5.htm. Students should also read the Faculty of Business Guide to Policies and Procedures of the Faculty which can be found at the URL http://www.usq.edu.au/handbook/current/buspolproc.html.

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 item submitted for assessment. This must be produced within five days if required by the Examiner. (iii) The Examiner may grant an extension of the due date of an assignment in extenuating circumstances. Students may apply for an extension through the DEC before the due date or by including an application with the submitted assignment after the due date. Such applications should be in writing and include supporting documentary evidence. The authority for granting extensions rests with the relevant Examiner.

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.

3 Deferred Work: Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded: IDS (Incomplete - Deferred Examination); IDM (Incomplete Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).

OTHER REQUIREMENTS

1 E-mail and Internet Access: Students will require access to e-mail and Internet access to USQConnect for this course.