The University of Southern Queensland

Course Specification

Description: Discrete Mathematics for Computing						
Subject	Cat-Nbr	Class	Term	Mode	Units	Campus
MAT	1101	10378	1, 2002	ONC	1.00	TWMBA

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

STAFFING

Examiner: Walter Spunde
Moderator: Sergey Suslov

RATIONALE

Discrete methods underlie the areas of data structures, computational complexity and the analysis of algorithms. Recent advances in technology - particularly in applications of computing - have enhanced the importance of discrete (or finite) mathematics as a basis for understanding the foundations of computing and for further studies in computer analysis and applications.

SYNOPSIS

This course introduces the basic elements of discrete mathematics which provide a foundation for an understanding of algorithms and data structures used in computing. Topics covered include number systems, logic, relations, functions, induction, recursion, Boolean algebra and graph theory.

OBJECTIVES

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

- demonstrate an understanding of a wide range of discrete methods;
- demonstrate proficiency at an introductory level in a wide range of discrete techniques;
- demonstrate understanding and proficiency in basic algorithmic techniques;
- demonstrate proficiency in mathematical reasoning and construction of proofs.

TOPICS

Description	Weighting (%)
1. Base Changes, Real Numbers and Computer Representation	15.00
2. Sets, Functions, Relations and Algorithms	20.00
3. Logic	15.00
4. Proof	15.00
5. Recursion	10.00
6. Boolean Algebra	10.00
7. Graphs and Trees	15.00

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.

Grossman, Peter, 1995 *Discrete Mathematics for Computing*, Macmillan, South Melbourne.

Introductory Book, 2002 *Course MAT1101 Discrete Mathematics for Computing*, USQ Distance Education Centre, Toowoomba.

Study Book, 2002 *Course MAT1101 Discrete Mathematics for Computing*, USQ Distance Education Centre, Toowoomba.

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.

Althoen, S.C. & Bumcrot, R.J. 1988 *Introduction to Discrete Mathematics*, PWS-Kent, Boston.

Dossey, J.A. et al. 1987 *Discrete Mathematics*, Scott Forseman, Glenview.

Epp, S. 1995 *Discrete Mathematics with Applications*, 2nd edn., Brooks Cole, California.

Gersting, J.L. 1993 *Mathematical Structures for Computer Science*, 3rd edn., Computer Science Press, New York.

Grimaldi, R.P. 1994 *Discrete and Combinatorial Mathematics*, Adison- Wesley, Reading, Mass.

Hirschfelder, R. & Hirschfelder, J. 1991 *Introduction to Discrete Mathematics*, Wadsworth, Belmont.

Molluzzo, J.C. & Buckley, F. 1986 *A First Course in Discrete Mathematics*, Wadsworth, Belmont.

Ross, K.A. & Wright, C.R.B. 1992 *Discrete Mathematics*, 3rd edn, Prentice-Hall.

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessment	15
Examinations	3
Lectures	42
Private Study	91
Tutorial	14

ASSESSMENT DETAILS

Description	Marks Out of	Wtg(%)	Required	Due Date
ASSIGNMENT 1	30.00	15.00	Y	04 Mar 2002 (see note 1)
ASSIGNMENT 2	30.00	15.00	Y	04 Mar 2002 (see note 2)
3 HOUR RESTRICTED EXAMINATION	70.00	70.00	Y	END S1 (see note 3)

NOTES:

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

OTHER REQUIREMENTS

1 Attendance: Students studying on campus are expected to attend all lectures in the course and one tutorial session each week. Students are expected to collect marked assignments in tutorial periods.

2 Minimum requirements to Pass the Course: To be certain of obtaining a pass in the course, students must gain at least 50% of the marks available for each assessment item.

3 Supplementary and Deferred Examinations: Supplementary and deferred examinations will be held at the same time as examinations for the next offering of the course, normally at the end of semester 3.

4 Assignments: In accordance with 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. Assignments submitted late without approved extension of time will be penalised 20% for each day late.

5 Examinations: Restricted Examination: a restricted examination is an examination where only those materials specified in the examination paper are permitted during the examination.
