# MODULE SPECIFICATION

**1) Title:** CO884 Logic and Logic Programming

**2) Department responsible:** Computer Science

**3) Start date:** September 2008

**4) Cohort of students (onwards) to which module will be applicable:** 2008-09

**5) Number of students:** 15

**6) Modules to be withdrawn:**
This is a replacement for CO813 and is based on the specification for that module

**7) Level:** M

**8) Number of credits:** 15

**9) Period taught:** Term 1.

**10) Prerequisite and co-requisite modules:**

(CO881 Object-Oriented Programming
*and* CO882 Advanced Object-Oriented Programming)
*or* CO871 Advanced Java for Programmers (co-requisite)

**11) Programs of study to which the module contributes:**

Portfolio of Taught Postgraduate Programmes in Computing

**12) Subject-specific learning outcomes:**

On successful completion of this module, students will be able to:

a) manipulate propositional and predicate logic and apply resolution.
b) write Prolog programs that make use of recursive data structures.
c) apply logic programming techniques to code search algorithms.
d) formulate suitable problems as state-space search problems and be able to select appropriate search strategies to solve these problems.
e) solve computationally complex problems by applying constraint propagation and systematic search.

The module contributes to the following subject-specific programme-level learning outcomes: A2, A3, C1, C3.

**13) Generic learning outcomes:**

On successful completion of this module students will have gained experience of:

a) Specifying, designing and implementing computer-based systems.
b) Dealing with complex issues systematically and creatively.
c) Identifying and analysing criteria and specifications appropriate to specific problems.
d) Modelling problems and their solutions with an awareness of any tradeoffs involved.

e) Evaluating methodologies and developing critiques of them.

The module contributes to the following generic programme-level learning outcomes:B1, B2, B3, B4, D1, D2.

**14) Synopsis of the curriculum:**

This module contains four main components, several of which are at the forefront of the academic discipline and are informed by research:

1) Propositional and predicate logic, and resolution.
2) Prolog programming
3) Search Techniques
4) Constraint Logic Programming

**15) Indicative Reading List:**

- Huth, M. & Ryan M., *Logic in computer science : modelling and reasoning about systems*, Cambridge University Press
- Nissanke, N., *Introductory logic and sets for computer scientists*, Addison Wesley Longman
- Bratko, I., *Prolog Programming for Artificial Intelligence*, Addison Wesley
- Clocksin, W.F. and Mellish, C.S., *Programming in Prolog*, Springer-Verlag
- Apt, Krzysztof R., *Principles of Constraint Programming*, Cambridge University Press
- Marriott, K. & Stuckey P.J., *Programming with Constraints*, MIT Press

**16) Learning & Teaching methods:**

This module represents a total of 150 hours of study, broken down approximately as follows:

- 55 (contact hours) lectures (33 lectures & 22 classes)
- 65 hours of private study (including exam revision)
- 30 hours to be spent on coursework

**17) Assessment methods:**

Students are graded on a percentage scale with 40% as the pass mark.

This module will be assessed by a mixture of coursework and examination. The weighting between coursework and examination will be 25:75.

The learning outcomes detailed under sections 12 and 13 will be assessed both by means of coursework and examination. Specifically, under section 12, learning outcome (a) will be assessed by means of an assessment on symbol manipulation, outcomes (b) to (e) will be assessed by means of 2 practical assignments in Prolog. The outcomes listed in section 13 apply to all 3 assessments.

**18) Implications for learning resources, including staff, library, IT and space:**

None.

**19) A statement confirming that, as far as can be reasonably anticipated, the curriculum, learning and teaching methods and forms of assessment do not present any non-justifiable disadvantage to students with disabilities.**

The department recognises and has embedded the expectations of SENDA, and supports students with a declared disability or special (educational) need in its teaching, through the establishment of Inclusive Learning Plans agreed between student, department and the Disability Support Unit. We will liaise with the Disability Support Unit in order to provide specialist support where needed.

**Statement by the Director of Learning and Teaching:** "I confirm I have been consulted on the above module proposal and have given advice on the correct procedures and required content of module proposals"

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Director of Learning and Teaching Date

**Statement by the Head of Department:** "I confirm that the Department has approved the introduction of the module and will be responsible for its resourcing"

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Head of Department Date

**29 February 2008**