

MODULE SPECIFICATION

- 1 **The title of the module**
CO523 Fundamentals of Programming and Logic
- 2 **The department which will be responsible for management of the module**
Computer Science
- 3 **The start date of the module**
September 2005
- 4 **The cohort of students (onwards) to which the module will be applicable**
2010/2011
- 5 **The number of students expected to take the module**
15
- 6 **Modules to be withdrawn on the introduction of this proposed module and consultation with other relevant Departments and Faculties regarding the withdrawal**
This a revision to the existing CO523 module specification.
- 7 **The level of the module**
Level I
- 8 **The number of credits which the module represents**
15 credits
- 9 **Which term the module is to be taught in**
Autumn
- 10 **Prerequisite and co-requisite modules**
None
- 11 **The programmes of study to which the module contributes**
Computer Science and related programmes
- 12 **The intended subject specific learning outcomes and, as appropriate, their relationship to programme learning outcomes.**
It is expected that upon completion of the module students should be able to
 - Use advanced features of an object-oriented programming language to write programs. [A2]
 - Write programs with the support of an integrated development environment. [A2]
 - Structure data and information as class definitions. [A2]
 - Use object-oriented analysis, design and implementation to identify and solve practical programming problems. [A4, C1]
 - Test solutions to programming problems. [A4, C2]
 - Discuss the quality of solutions through consideration of issues such as encapsulation, cohesion and coupling. [C2]
 - Understand the basics of Propositional and Predicate Logic: their syntax (connectives, quantifiers) and their semantics (truth tables, logical equivalences). [A5]
 - Design appropriate interfaces between modular components. [B5]
 - Evaluate the quality of competing solutions to programming problems. [A4, C2]
 - Evaluate possible trade-offs between alternative solutions, for instance those involving time and space differences. [C2]Use effectively the local network facilities and a range of software development tools, such as an integrated development environment, text editor and compiler. [A3, C4]
 - Appreciate at an introductory level, the representation and structuring of information with XML as a preliminary to presentation in HTML; and also the wide range of applications of XML.
 - Understanding the computational model of object-oriented programming [B7].
- 13 **The intended generic learning outcomes and, as appropriate, their relationship to programme learning outcomes**
It is expected that upon completion of the module students should be able to
 - Exercise self-management of their own learning [D5].
 - Demonstrate comprehension of the trade-offs involved in design-choices. [B1]

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- Recognise and be guided by social, professional and ethical issues and guidelines and the general contexts in which they apply. [B6]
- Deploy appropriate theory and practices in their use of methods and tools. [B5]
- Make effective use of IT facilities for solving problems. [D3]
- Make effective use of a range of tools, such as a web browser and email client. [C4]

14 A synopsis of the curriculum

This module is designed to bring direct Stage 2 entrants, who already have a background in programming, up to an equivalent level in material covered in the Stage 1 modules CO320, CO321CO325 and CO520, plus use of the local computing environment. The module will cover:

- Object-oriented programming:
Fundamentals of classes and objects. Class libraries. Testing. Inheritance and polymorphism. Graphical-user interfaces (GUIs), exceptions, input-output
- Propositional Logic and Predicate Logic.
- Data and information representation using XML.
- Applications of XML.

15 Indicative Reading List

- Quentin Charatan, Aaron Kans, “Java in Two Semesters”
- David Barnes, Michael Kölling, “Objects First with Java”
- J.K. Truss, Discrete Mathematics for Computer Scientists

Other reading

- A.Kotok & D.R.R. Webber ebXML: the new global standard for doing business over the Internet New Riders, 2002
- E.T.Ray Learning XML 2nd edition, O-Reilly, 2003

16 Learning and Teaching Methods, including the nature and number of contact hours and the total study hours which will be expected of students, and how these relate to achievement of the intended learning outcomes

Acquisition is through two one-hour lectures per week, supported by a single one-hour supervised class per week. Self-directed learning is facilitated by directed reading and web-based material. 150 total study hours spent acquiring a practical facility and understanding of the syllabus material.

17 Assessment methods and how these relate to testing achievement of the intended learning outcomes

The module is 100% assessed through coursework. Assessment includes weekly exercises, class tests, and larger programming projects. Exercises and projects assess the ability to use software development tools and IT facilities. All coursework assesses the ability to design, write and test solutions to practical programming problems.

17 Implications for learning resources, including staff, library, IT and space.

Staff will be required to deliver this module, through teaching, supervision and marking. Materials from the reading list should be available through the library. IT resources will be required to support practical programming activities.

18 SENDA statement

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 and Dyslexia Support Unit. We will liaise with the 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

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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

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Date