MODULE SPECIFICATION

SECTION 1:

---

1. The title of the module

CO644 Semantic Web

2. The Department which will be responsible for management of the module

Computer Science

3. The Start Date of the Module

September 2007

4. The cohort of students (onwards) to which the module will be applicable.

2009/10

5. The number of students expected to take the module

50-100

6. Modules to be withdrawn on the introduction of this proposed module and consultation with other relevant Departments and Faculties regarding the withdrawal

None

7. The level of the module (eg Certificate [C], Intermediate [I], Honours [H] or Postgraduate [M])

H

8. The number of credits which the module represents

15

9. Which term(s) the module is to be taught in (or other teaching pattern)

Either

10. Prerequisite and co-requisite modules

CO520 (Further Object Oriented Programming) - *prerequisite*
CO525 (Dynamic Web) - *prerequisite*

11. The programmes of study to which the module contributes

BSc Computer Science
BSc Computer Science with Artificial Intelligence
BSc Web Computing
BSc Business Computing
BSc Computer Science and Management Science
BSc Computing and Business Administration
BSc Information Technology
BSc Business Information Technology
Applied Computing Joint Honours programmes
"Year in Industry" equivalents
Web Applications (proposed programme, Medway)

12. The intended subject specific learning outcomes and, as appropriate, their relationship to programme learning outcomes

Students successfully completing this module will

a) have acquired a systematic understanding of what the Semantic Web is and how it facilitates use of and reasoning about web resources [C2]
b) be able to make effective use of metadata and inferencing [A2, B3, B5, C3]
c) be able to deploy ontologies for classification and organisation of knowledge [A2, C3]
d) have developed a critical awareness of current research directions in the field of Semantic Web technologies [C2, D3]
e) have developed a critical awareness of state-of-the-art techniques for automated information gathering [C2, D3]
f) have gained a conceptual understanding of privacy and trust issues relating to the use of Semantic Web data [B6]

13. The intended generic learning outcomes and, as appropriate, their relationship to programme learning outcomes

Students successfully completing this module will

g) be able to make effective use of general IT facilities [D3]

h) be able to make effective use of internet-based information retrieval [D3]

i) be able to communicate technical issues clearly in a written format [D2]

j) be able to manage their own learning and development, including time management and organisational skills [D5]

14. Indicative synopsis of the curriculum

- Resource Description Framework (RDF) & RDF Schema:
  - Information representation and knowledge exchange on the web
  - Applications of RDF (e.g. Haystack, Creative Commons etc.)
- RDF Query and Inference Languages (e.g. SPARQL etc.)
- Web Ontology Language (OWL):
  - DAML+OIL
  - Publishing and sharing of ontologies
  - Advanced Web searching
  - Knowledge management, asset management, enterprise integration
  - Software agents, automated agents
  - Existing Shared Ontologies (e.g. FOAF, DOAC, SIOC, SKOS etc.)
- Dublin Core
- Data Mining (in relation to the Web) & Screen Scraping
- The Wider Picture:
  - Personal and corporate privacy issues
  - Data trust and proof issues
  - Computer law and professional issues
- The future of the Web *(these lists are not exhaustive)*
  - Web 2.0: data-driven; architecture of communication; web services; syndication; online communities; folksonmies; wikis; search engine optimisation; contextual & "pay per click" advertising etc.
  - Web 3.0: the Semantic Web; cognitive architecture; automated reasoning; distributed computing; composite applications; semantic wikis etc.
  - Aim to give students the tools to critically evaluate the Semantic Web (and alternative proposals)

15. Indicative Reading List

There is no specific textbook for this module. However students will be expected to read material provided in lectures, web-based articles and tutorials, as well as relevant texts. *The following list is by way of example only:*

- A Semantic Web Primer, *Grigoris Antoniou & Frank van Harmelen*, [MIT Press]
- Practical RDF, *Shelley Powers*, [O'Reilly Media, Inc]
- Owl: Representing Information Using the Web Ontology Language, *Lee W. Lacy*, [Trafford Publishing]

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

All learning outcomes will be achieved through a combination of lectures and private study, supported by reading guides and web-based material. Further assistance will be available electronically via newsgroups and the web. Achievement of the learning outcomes will additionally be facilitated by formative coursework assignments, supported through the same means. This module comprises of 150 hours of study, broken down approximately as follows:

- 22 hours of lectures
- 98 hours of private study (including exam revision)
- 30 hours spent on coursework

The lectures serve to introduce the relevant issues and terminology. Lectures will be accompanied by course notes and textbooks, with some topics supplemented by directed reading and exercise sheets.

The students will acquire the listed skills by participating in the exercises and assessments, and by using relevant software tools.

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

Assessment is through a combination of unseen written examination (50%) and assessed coursework (50%).

The coursework will be used to assess the students' practical skills, in many cases in conjunction with the use of tools. An indicative division is shown below. Indicative relationships to the subject-specific learning outcomes 'a' to 'f' (as given in section 12) are shown in square brackets:

- a practical exercise involving information representation on the Web *[a, b]*
- a practical exercise involving ontology design and use *[b, c]*
- a practical exercise involving automated information gathering and/or inferencing *[b, c, d, e]*

The written examination will test:

- those skills that have not been assessed in coursework already *[f]*
- the students' reflective understanding of the techniques and their applicability *[a-f]*
- the more theoretical foundations of the course *[a-f]*

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

Several members of the Computing Laboratory will be able to teach this module or parts of this module. A number of relevant software tools are available for free. Recommended books will need to be acquired for the library. The course will not require any additional teaching space.

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 liaise with the Disability Support Unit in order to provide specialist support where needed.

SECTION 2:

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"

....
Director of Learning and Teaching Date

……
Print Name

Statement by the Head of Department: "I confirm that the Department has approved the introduction of the module and, where the module is proposed by Departmental staff, will be responsible for its resourcing"

....
Head of Department Date

……
Print Name
