

SUMMARY OF INFORMATION ON EACH COURSE

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|--|--|---|---------|-----|-----------|-----|-----|---------------------------|-----|-----|----------|--|--|
| 1. | Name of Course | Semantic Web Technology | | | | | | | | | | | |
| 2. | Course Code | TSW3241 | | | | | | | | | | | |
| 3. | Status of Course [Applies to (cohort)] | Specialisation Core for B. IT(Hons) Artificial Intelligence | | | | | | | | | | | |
| 4. | MQF Level/Stage Note : Certificate – MQF Level 3 Diploma – MQF Level 4 Bachelor – MQF Level 6 Masters – MQF Level 7 Doctoral – MQF Level 8 | Bachelor – MQF Level 6 | | | | | | | | | | | |
| 5. | Version (State the date of the Senate approval – history of previous and current approval date) | Date of previous version : | | | June 2014 | | | Date of current version : | | | May 2016 | | |
| 6. | Pre-Requisite | TMA1211 Discrete Structures and Probability | | | | | | | | | | | |
| 7. | Name(s) of academic/teaching staff | Subarmaniam Kannan, Tan Shing Chiang | | | | | | | | | | | |
| 8. | Semester and Year offered | Trimester 2, Year 3 | | | | | | | | | | | |
| 9. | Objective of the course in the programme : The semantic web is an extension from the current World Wide Web (WWW). It aims to describe meaning (semantic) of the WWW contents in such a way that the semantic can be shared, reasoned with and re-used through machine-readable applications. This course is intended to provide the foundations of semantic web technologies. | | | | | | | | | | | | |
| 10. | Justification for including the course in the programme : Semantic web encodes knowledge for processing in computer systems. It becomes an important interdisciplinary area of computer science (in general) and artificial intelligence (in particular) that provides conceptual modelling and knowledge representation as well as reasoning on metadata in the Web environment. | | | | | | | | | | | | |
| 11. | Course Learning Outcomes : | Domain | Level | | | | | | | | | | |
| | LO1 Comprehend the essential ideas behind semantic web technologies | Cognitive | Level 2 | | | | | | | | | | |
| | LO2 Describe web resources in the Resource Description Framework | Cognitive | Level 2 | | | | | | | | | | |
| | LO3 Apply the syntax of the Web Ontology Language to represent knowledge for the semantic web | Cognitive | Level 3 | | | | | | | | | | |
| LO4 Comprehend a number of applications of semantic web technologies | Cognitive | Level 2 | | | | | | | | | | | |
| 12. | Mapping of Learning Outcomes to Programme Outcomes : | | | | | | | | | | | | |
| | Learning Outcomes | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | | | |

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|-----|--|---|-----|-----|------------------|--|------------|-----|--|
| | LO1 | 33.33 | | | | | 33.33 | 25 | |
| | LO2 | 33.33 | | | | | 33.33 | 25 | |
| | LO3 | 33.33 | | | | | 33.33 | 25 | |
| | LO4 | | | | | | | 25 | |
| 13. | Assessment Methods and Types : | | | | | | | | |
| | Method and Type | Description/Details | | | | | Percentage | | |
| | Quiz | Written quiz in the class | | | | | 10% | | |
| | Assignment | Written report, group project, with teamwork scores | | | | | 20% | | |
| | Test | Written examination | | | | | 20% | | |
| | Final Examination | Written examination | | | | | 50% | | |
| 14. | Mapping of assessment components to learning outcomes (LOs) | | | | | | | | |
| | Assessment Components | LO1 | LO2 | LO3 | LO4 | | | | |
| | Quiz | 10 | 10 | 10 | 33.3 | | | | |
| | Assignment | 20 | 20 | 20 | 66.7 | | | | |
| | Test | 20 | 20 | 20 | 0 | | | | |
| | Final Examination | 50 | 50 | 50 | 0 | | | | |
| 15. | Details of Course | | | | | | | | |
| | Topics | | | | Mode of Delivery | | | | |
| | | | | | Lecture | | | Lab | |
| | The Semantic Web Vision Introduction to the semantic web technologies, semantic web impacts, a layer approach to semantic web. | | | | 2 | | | 0 | |
| | Structured Web Documents in XML Introduction to the XML language, structuring, namespaces, addressing and querying XML documents. | | | | 4 | | | 4 | |
| | Describing Web Resources in Resource Description Framework (RDF) Basic ideas of RDF, basic concepts of RDF schema, the language of RDF schema, the namespaces of RDF and RDF schema, axiomatic semantics for RDF and RDFS, direct semantics based on inference rules, querying in RQL. | | | | 6 | | | 8 | |
| | Web Ontology Language (OWL) The OWL language, the OWL namespaces | | | | 6 | | | 6 | |
| | Logic and Inference Rules Monotonic rules, the syntax and the semantics of monotonic rules, description logic program, semantic web rule language, non-monotonic rules, the syntax of non-monotonic rules, rule markup language. | | | | 4 | | | 6 | |

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|-----|---|---------------------------------------|-----------------------------|
| | Applications Real-life examples of applications of semantic web technologies. E.g., Horizontal Information Products at Elsevier, Openacademia, Bibster, Data Integration at Audi, etc. | 2 | 0 |
| 16. | Total Student Learning Time (SLT) | Face to Face / Guided Learning | Independent Learning |
| | Lecture | 24 | 24 |
| | Tutorials | | |
| | Laboratory/Practical | 24 | 12 |
| | Quiz | | 1 |
| | Presentation | 1 | 2 |
| | Assignment | | 10 |
| | Mid Term Test | 1 | 4 |
| | Final Exam | 2 | 15 |
| | Sub Total | 52 | 68 |
| | Total SLT | 120 | |
| 17. | Credit Value | 3 | |
| 18. | Reading Materials : | | |
| | Textbooks | | |
| | 1. Grigoris Antoniou, Frank van Harmelen (2012). A Semantic Web Primer. The MIT Press. | | |
| | | | |
| | Reference Material (including 'Statutes' for Law) | | |
| | 1. Pascal Hitzler, Markus Krötzsch, Sebastian Rudolph (2009). Foundations of Semantic Web Technologies. Chapman & Hall/CRC. | | |
| | 2. John Hebel, Matthew Fisher, Ryan Blace, Andrew Perez-Lopez, Mike Dean (2009). Semantic Web Programming. Wiley Technology Publishing. | | |

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Appendix (to be compiled when submitting the complete syllabus for the programme) :

1. Mission and Vision of the University and Faculty
2. Programme Objectives or Programme Educational Objectives
3. Programme Outcomes (POs)
4. Mapping of POs to the 8 MQF domain
5. Summary of the Bloom's Taxonomy's Domain Coverage in all the Los in the format below :

| Subject | Learning Outcomes (please state the learning Outcomes) | Bloom's Taxonomy Domain | | |
|---------|---|-------------------------|-----------|-------------|
| | | Affective | Cognitive | Psychomotor |
| ABC1234 | Learning Outcome 1 | | | |
| | Learning Outcome 2 | | | |
| | Learning Outcome 3 | | | |
| | Learning Outcome 4 | | | |
| DEF5678 | Learning Outcome 1 | | | |
| | Learning Outcome 2 | | | |
| | Learning Outcome 3 | | | |
| | Learning Outcome 4 | | | |

6. Summary of LO to PO measurement
7. Measurement and Tabulation of result for LO achievement
8. Measurement Tabulation of result for PO achievement