University of the West of Scotland

Module Descriptor

Session: 2023/24

Last modified: 17/03/2023 10:18:56
Status: Proposal

Title of Module: Service Oriented Development

Code: COMP11042	**SCQF Level: 11** (Scottish Credit and Qualifications Framework)	**Credit Points: 20**	**ECTS: 10** (European Credit Transfer Scheme)
School:	School of Computing, Engineering and Physical Sciences		
Module Co-ordinator:	Ying Liang		

Summary of Module

This module focuses on system architectures with business, services, data, applications, and technologies. It in particular covers service-related technologies (SOA, MDA, WS, etc.) that enable to develop service-oriented enterprise software systems or computer systems. It explains the structure of system components, their inter-relationships, and the principles and guidelines governing their design and evolution over time with SOA. It shows a process of evolution from business architecture at the high level to software components at the low level throughout the development process. It addresses a set of enterprise viewpoints and covers different aspects of service-oriented systems in terms of a set of models with SOA including the business context model, the business process model, the business scenario model with events and services, the semantic information model with business entities and data, the service interface model with service communication and information transformation, SOA model with implementation components, and data security.

In practice, it demonstrates use of industry architecture frameworks and development tools to build models and design the structure of a service-oriented system for an enterprise or the other user. It also discusses how to integrate existing applications in a new service-oriented system as demanded by changes of business.

Undertaking this module will develop a range of graduate attributes. Service concpets and principles will be understood and used for service-oriented software development. Case studies will develop problem solving skills with service-otiented method and technology. Service oriented architectures will be reviewed and compared critically.

Module Delivery Method

Face-To-Face	Blended	Fully Online	HybridC	HybridO	Work-based Learning
				✓	

Face-To-Face
Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.

Blended
A mode of delivery of a module or a programme that involves online and face-to-face delivery of learning, teaching and assessment activities, student support and feedback. A programme may be considered “blended” if it includes a combination of face-to-face, online and blended modules. If an online programme has any compulsory face-to-face and campus elements it must be described as blended with clearly articulated delivery information to manage student expectations

Fully Online
Instruction that is solely delivered by web-based or internet-based technologies. This term is used to describe the previously used terms distance learning and e learning.

HybridC
Online with mandatory face-to-face learning on Campus

HybridO
Online with optional face-to-face learning on Campus

Work-based Learning
Learning activities where the main location for the learning experience is in the workplace.

Campus(es) for Module Delivery						
The module will **normally** be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit)						
Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
✓						

Term(s) for Module Delivery					
(Provided viable student numbers permit).					
Term 1	✓	Term 2		Term 3	

Learning Outcomes: (maximum of 5 statements)

On successful completion of this module the student will be able to:

L1. Demonstrate an understanding of architectural principles, architecture evolution processes, development methods with SOA, strengths and difficulties of service-oriented system development, data security

L2. Demonstrate an understanding of the development process of service-oriented systems, and service-related technologies used for the development

L3. Model and design a service-oriented system using architectural principles, development methods with SOA and service-related technologies systematically and effectively

L4. Critically evaluate and apply development methods with SOA and service-related technologies in service-oriented system development

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	During completion of this module, there will be an opportunity to achieve core skills in:
Knowledge and Understanding (K and U)	SCQF Level 11. Systematically understanding principles, methods, process, strategy and data security for using new technologies in development of systems for enterprises or other users. Identifying and using suitable development methods and technologies for enterprise software system, or computer system, development. Understanding modern paradigms, architectures, and technologies for the system development.
Practice: Applied Knowledge and Understanding	SCQF Level 11. Developing an enterprise software system, or a computer system, following a taught method with new technologies. Modeling and designing the system using appropriate development methods and technologies systematically and effectively. Showing originality and innovation in the application of knowledge and techniques. Critically evaluating the system developed and aspects of the domain such as architectural principles, business value, and services.
Generic Cognitive skills	SCQF Level 11. Understanding the role of key issues in contributing to the effective analysis, design, implementation and usability of enterprise software systems or computer

	systems. Being able to use the taught system development technologies to communicate with the user and other members of a team.
Communication, ICT and Numeracy Skills	SCQF Level 11. Being able to critically evaluate methods and technologies used for the system development. Using problem solving skills appropriate to problem identification and creatively forming solutions for complex enterprise software systems, or computer systems. Reflecting critically on the relationship between theory and practice in developing solutions for enterprises' problems, or other problems.
Autonomy, Accountability and Working with others	SCQF Level 11. Demonstrating an ability to work on a project.

Pre-requisites:	Before undertaking this module the student should have undertaken the following:	
	Module Code:	**Module Title:**
	Other:	
Co-requisites	**Module Code:**	**Module Title:**

* Indicates that module descriptor is not published.

Learning and Teaching	
Following lectures, practical sessions are used to apply knowledge and skills taught to a set of defined tasks in terms of case studies with business requirements in practice.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture/Core Content Delivery	20
Tutorial/Synchronous Support Activity	14
Laboratory/Practical Demonstration/Workshop	14
Independent Study	152
	200 Hours Total

****Indicative Resources: (eg. Core text, journals, internet access)**

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

1. Service-Oriented Development Course Notes, University of the West of Scotland.

2. Applied SOA: Service-Oriented Architecture and Design Strategies, M. Rosen, B. Lublinsky, K.T. Smith and M.J. Balger, John Wiley & Sons, 2008.

3. Next Generation SOA: A Concise Introduction to Service Technology & Service-Orientation, T. Erl et al. Prentice Hall, 2014

4. Service-Oriented Modelling: Service Analysis, Design, and Architecture, Michael Bell, John Wiley & Sons, 2008.

5. Busniess Process Model and Notation (BPMN) 2.0, Object Management Group (OMG) (http://www.bpmn.org).

6. Developing applications with a service-oriented architecture, Student Notebook (version 1.3), IBM, 2009.

Software:
CASE tools, e.g. StarUML.

Module References:
BCS CITP, TOGAF.

(**N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Engagement Requirements

In line with the Academic Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on the relevant learning platform, and complete assessments and submit these on time. Please refer to the Academic Engagement Procedure at the following link: Academic engagement procedure

Supplemental Information

Programme Board	Computing
Assessment Results (Pass/Fail)	No
Subject Panel	Business & Applied Computing
Moderator	Tony Gurney
External Examiner	C Luo
Accreditation Details	BCS
Changes/Version Number	2.15 Amended module delivery method. Amended learning outcomes. Amended employability skills and personal development planning (PDP) skills. Amended student learning hours.

Assessment: (also refer to Assessment Outcomes Grids below)

Coursework (100%)

(N.B. (i) **Assessment Outcomes Grids** for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed.
(ii) An **indicative schedule** listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Handbook.)

Assessment Outcome Grids (Footnote A.)

Component 1

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Dissertation/ Project report/ Thesis	✓	✓	✓	✓	100	0
				Combined Total For All Components	100%	0 hours

Footnotes
A. Referred to within Assessment Section above

B. Identified in the Learning Outcome Section above

Note(s):
1. More than one assessment method can be used to assess individual learning outcomes.
2. Schools are responsible for determining student contact hours. Please refer to University Policy on contact hours (extract contained within section 10 of the Module Descriptor guidance note).
   This will normally be variable across Schools, dependent on Programmes &/or Professional requirements.

Equality and Diversity

This module is appropriate for any student. The learning activities include case studies by tutorial.
UWS Equality and Diversity Policy

(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)