

## Module specification

1. Factual information			
<b>Module title</b>	<b>MT380 - Service oriented architecture</b>	<b>Level</b>	<b>3</b>
<b>Module tutor</b>	TBA	<b>Credit value</b>	<b>10</b>
<b>Module type</b>	Taught	<b>Notional learning hours</b>	<b>3</b>

### 2. Rationale for the module and its links with other modules

Service-Oriented Architecture (SOA) intends to explain the SOA and the related topics including Web Services and Cloud Computing. Web Services (such as KSOAP, REST) make use of the notion of a service-oriented architecture, they are independent of specific programming languages or operating systems. They rely on existing transport technologies, such as HTTP, and XML, for invoking the implementation. This outlines a range of new technologies for designing and implementing service-oriented applications that support machine-to-machine collaboration. It illustrates the rationale of SOA in how to construct and to build web service oriented applications, such as ASP.NET Web Service, Windows Communication Foundation (WCF), etc. to make use of knowledge about the research topics in SOA, and to discover future development trends.

### 3. Aims of the module

This Module discovers the concepts and technologies for the state of art topics: Service-Oriented Architecture (SOA) and Cloud Computing. It identifies a comprehensive and systematic understanding to the latest SOA and Cloud Computing technologies. Moreover, it examines practical experience in designing large-scale composite web service applications. After finishing successfully this Module you should be able to:

- ✓ Discover the benefit of using Service-Oriented Architecture to design modern software systems
- ✓ Interpret the key features and building blocks of Web Service including WSDL, SOAP and UDDI
- ✓ Develop programs using Microsoft .NET and C# language
- ✓ Apply service-based web application using ASP.NET and AJAX
- ✓ Create service-oriented application using Windows Communication Foundation build RESTful web service using Windows Communication Foundation
- ✓ Outline the relationship between Cloud Computing and SOA; compare different cloud computing services

### 4. Pre-requisite modules or specified entry requirements

Students are expected to have completed study of **M251**. The Module expects from students to have basic understanding of XML schema and XML namespaces. In addition, students should have acquired practical skills in developing Java applications. They should be familiar with some OO programming concepts. Moreover, the design discussion expects a basic knowledge of UML.

<b>5. Intended learning outcomes</b>	
<b>A. Knowledge and understanding</b>	<b>Learning and teaching strategy</b>
<p>Upon completing this Module, students will be able to have:</p> <p><b>A1.</b> Construct a well-founded knowledge in the field of study.  <b>A2.</b> Compare other disciplines that are related to the field of study.  <b>A3.</b> Develop international perspective on the field of study.</p>	<p>100% face-to-face tutorial sessions.  TMA, MTA and final exam.  Text Book and support material.</p>
<b>B. Cognitive skills</b>	<b>Learning and teaching strategy</b>
<p>Upon completing this Module, students will be able to:</p> <p><b>B1.</b> Collect, analyse and organise information and ideas and to convey those ideas clearly and fluently, in both written and spoken forms.  <b>B2.</b> Interact effectively with others in order to work towards a common outcome.  <b>B3.</b> Select and use the appropriate level, style and means of communication.  <b>B4.</b> Engage effectively and appropriately with information and communication technologies.</p>	<p>100% face-to-face tutorial sessions.  TMA, MTA and final exam.  Text Book and support material.</p>
<b>C. Practical and professional skills</b>	<b>Learning and teaching strategy</b>
<p>Upon completing this Module, students will be able to:</p> <p>C1. Develop programs using Microsoft .NET and C# and service-based web application using ASP.NET and AJAX  C2. Build service-oriented application using Windows Communication Foundation  C3. Build RESTful web service using Windows Communication Foundation</p>	<p>100% face-to-face tutorial sessions.  TMA, MTA and final exam.  Text Book and support material.</p>

D Key transferable skills	Learning and teaching strategy
<p>Upon completing this Module, students will be able to:</p> <p>D1. Work and learn independently.  D2. Generate ideas and adapt innovatively to changing environments.  D3. Identify problems creates solutions, innovate and improve current practices.</p>	<p>100% face-to-face tutorial sessions.  TMA, MTA and final exam.  Text Book and support material.</p>

6. Indicative content.
<p>Unit1: Introduction to the Module</p> <p>Unit2: Introduction to .NET Framework</p> <p>Unit2: Introduction to C#</p> <p>Unit3: Introduction to XML Web Service basic: SOAP, WSDL, UDDI</p> <p>Unit4: How to build Web Service with ASP.NET</p> <p>Unit5: How to build Web Service with ASP.NET AJAX</p> <p>Unit6: Introduction to Windows Communication Foundation</p> <p>Unit7: Introduction to REST and RESTful Web Service</p> <p>Unit8: Service-Oriented Architecture: advanced topics</p> <p>Unit9: Introduction to Cloud Computing</p>

7. Assessment strategy, assessment methods and their relative weightings
TMA Work: 20% ( 2 on-line TMA as practical session)
MTA: 30%
Final Exam: 50%

8. Mapping of assessment tasks to learning outcomes													
Assessment tasks	Learning outcomes												
	A1	A2	A3	B1	B2	B3	B4	C1	C2	C3	D1	D2	D3
TMA'S	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	
MTA	✓			✓			✓	✓	✓				✓
Final	✓			✓	✓	✓		✓	✓	✓	✓		

9. Teaching staff associated with the module
Name and contact details
TBA

10. Key reading list				
Author	Year	Title	Publisher	Location
<a href="#">Thomas Erl</a>	(December 22, 2016)	Service-Oriented Architecture: Analysis and Design for Services and Microservices (2nd Edition) (The Prentice Hall Service Technology Series from Thomas Erl) 2nd Edition	The Prentice Hall Service Technology Series from Thomas Erl	
Robert Daigneau (Author)	(November 4, 2011)	Service Design Patterns: Fundamental Design Solutions for SOAP/WSDL and RESTful Web Services	Addison-Wesley Professional; 1 edition	

11. Other indicative text (e.g. websites)
<a href="https://lms/arabou.edu.kw">https://lms/arabou.edu.kw</a>