



COLLEGE OF INFORMATION TECHNOLOGY
DEPARTMENT OF MULTIMEDIA SCIENCE

COURSE SYLLABUS/SPECIFICATION

CODE & TITLE: ITMS 437: Cloud Services Development
WEIGHT: (2 - 2 - 3)
PREREQUISITE: ITMS 435

NQF Level Allocated: 8

NQF Notional Hours / Credits: 120 notional hours/ 12 NQF credit

DESCRIPTION: This course introduces students to learn how to design and develop services that access local and remote data from various data sources. Students will also learn how to develop and deploy services to hybrid environments, including on-premises servers and Windows Azure.

OBJECTIVES:

1. Query and manipulate data with Entity Framework.
2. Extend ASP.NET Web API services using message handlers, model binders, action filters, and media type formatters
3. Use Windows Azure Service Bus for relayed messaging and brokered messaging using queues and topics
4. Host services on on-premises servers, and on various Windows Azure environments, such as Web Roles, Worker Roles, and Web Sites
5. Create scalable, load-balanced advanced services.

SEMESTER:

ACADEMIC YEAR:

INSTRUCTOR:

OFFICE TEL:

EMAIL:

INTENDED LEARNING OUTCOMES (ILOs)

Upon successful completion of the course, students should be able to:

A. Knowledge and Understanding		NQF Descriptor/Level
A1	<u>Concepts and Theories:</u> <i>Demonstrate critical knowledge and understanding of concepts, and specialized theories relating to Entity Framework</i>	Knowledge: theoretical understanding [Level 8]
A2	<u>Contemporary Trends, Problems and Research:</u> NA	
A3	<u>Professional Responsibility:</u> NA	

B. Subject-Specific Skills		NQF Descriptor/Level
B1	<u>Problem Solving:</u> Use specialist Skills to identify and solve real life problems	Knowledge: Practical Application [Level 8]
B2	<u>Modeling and Design:</u> <i>Apply standard research to design the architecture of Applications and Web API services</i>	Knowledge: Practical Application [Level 8]
B3	<u>Application of Methods and Tools:</u> <i>Demonstrate creativity in application of appropriate advanced tools related to creating dynamic web sites.</i>	Knowledge: Practical Application [Level 8]

C. Thinking Skills		NQF Descriptor/Level
C1	<u>Analytic:</u> <i>Critically analyze</i> source code in various scripts and remediate any bug found	Generic Problem Solving & Analytical skills [Level 8]
C3	<u>Creative:</u> Demonstrate creativity in designing Web API Services, advanced dynamic websites and Manage Windows Azure.	Generic Problem Solving & Analytical skills [Level 8]

D. General and Transferable Skills (Other Skills Relevant to Employability and Personal Development)		NQF Descriptor/Level
D1	<u>Communication:</u> <i>Use special skills to</i> communicate technical information in appropriate oral and written forms to a variety of audiences.	Communication, ICT and Numeracy Skills [Level 8]
D2	<u>Teamwork and Leadership:</u> NA	
D3	<u>Organizational and Developmental Skills:</u> Demonstrate ability to organize ideas and effectively allocate time in given assignment.	Competence: Autonomy, Responsibility and Context [Level 8]
D4	<u>Ethical and Social Responsibility:</u> NA	

Course Structure (Outline)						
Week	Hours		ILOs	Topics	Teaching Method	Assessment Method
	Lec.	Lab				
1	2	2	A1	Overview of service and cloud technologies	Lecture/ lab Demonstration	-
2	2	2	A1,B1,B2,B3,C1, C3, D1	Querying and manipulating data using Entity Framework	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise
3	2	2	A1,B1,B2,B3,C1, C3, D1	Creating and consuming ASP.NET Web API services	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise
4	2	2	A1,B1,B2,B3,C1, C3, D1	Extending and securing ASP.NET Web API services	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise Quiz 1
5	2	2	A1, B3, D1	Creating WCF services	Lecture/ lab Demonstration	Oral Inquiry *
6	2	2	A1,B1,B2,B3,C1, C3, D1	Designing and extending WCF services	Lab Demonstration/ Supervised Work	In-Lab Exercise
7	2	2	A1, B3, D1	Implementing Security in WCF services	Lecture/ lab Demonstration	Oral Inquiry *
8	2	2	A1,B1,B2,B3,C1, C3, D1	Windows Azure Service Bus	Lab Demonstration/ Supervised Work	In-Lab Exercise Quiz 2

9	2	2	A1,B1,B2,B3,C1, C3, D1	Hosting services	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise
10	2	2	A1,B1, ,B2, C1,C3	Deploying Services	Lecture/ Lab Demonstration/ Supervised Work	Major Test
11	2	2	A1, B3, D1	Windows Azure Storage	Lecture/ lab Demonstration	Oral Inquiry *
12	2	2	A1,B1,B2,B3,C1, C3, D1	Monitoring and diagnostics	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise
13	2	2	A1,B1,B2,B3,C1, C3, D1	Identity management and access control	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise
14	2	2	A1,B1,B2,B3,C1, C3, D1	Identity management and access control	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise
15	2	2	A1, B1,B2,B3,C1,C3, D1,D3	Scaling Services	Lecture/ Presentation Of Projects By Students	Evaluation Of Project Presentations & Reports
16	2	2	A1, B1,B2, B3, C1,C3	All topic		Final Exam

TEACHING MATERIALS:

TEXTBOOK(S):	Course 20487: Developing ASP.NET MVC 4 Web Applications, Microsoft Press Training Guide, 2013, ISBN: 978-0735677241
HANDOUT(S):	PowerPoint slides available on Moodle i.e. http://www.ahlia.edu.bh/moodle

REFERENCE(S):	<p>Microsoft Official Curriculum.</p> <p>https://www.microsoft.com/learning/en-us/course.aspx?ID=20487B</p> <p>Ritesh Modi, "Azure for Architects: Implementing cloud design, DevOps, IoT, and serverless solutions on your public cloud", Packt Publishing, 2017, ISBN: 978-1788397391</p> <p>Greg Leonardo, "Hands-On Cloud Solutions with Azure: Architecting, developing, and deploying the Azure way", Packt Publishing, 2018, ISBN: 978-1786468659</p>
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ASSESSMENTS:

Type of Assessment	Description	ILOs ³	Weighting
Oral Inquiry	Students will be questioned orally to demonstrate their understanding and knowledge of the topics covered during class lectures and lab sessions.	A1, D1	Formative
Quizzes	The quizzes consist of essay, problem-solving and research based theoretical questions regarding topics in Web API, Windows Azure and Hosting. The purpose of the quizzes is to assess students individually where they have to demonstrate their extensive and detailed knowledge and critical understanding of key concepts of Services and cloud systems like Windows Azure.	A1,B1,B2,B3, C1,C3	10%
Major Test	The test will be an in-class 90 minute exam that will consist of short-answer, essay, and create web or windows application and cover the topics studied in the first 9 weeks.	A1,B1,B2,C1,C3	25%
In-Lab Exercises	Each practical exercise consists of a set of practical tasks to be implemented by students individually in lab as shown in the above weekly structure. Each of the exercises assesses the student's skills in the field of programming application. Students work will be observed and evaluated directly during the lab sessions.	B1,B2, B3,C1,C3, D1	5%

Project Report And Presentation	Starting from week 6, each student will be asked to develop a small Application project.	B1,B2,B3,C1,C3,D1,D3	20%
Final Exam	The final exam is comprehensive and practical, and will be of two hours duration. It will consist of short-answer, essay and problem-solving questions to be done on computers.	A1, B1,B2, B3, C1,C3	40%
Overall			100%

14. Admissions	
Pre-requisites	ITMS 435
Minimum number of students	8
Maximum number of students	20

