COLLEGE OF INFORMATION TECHNOLOGY

DEPARTMENT OF MULTIMEDIA SCIENCE

COURSE SYLLABUS/ SPECIFICATION

Course 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.

Objective:

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:

Instructor (s):

Office Telephone: **Email (s):**

Intended Learning Outcomes (ILOs):

A. Knowledge and Understanding		NQF Descriptor/ Level
A1	**Concepts and Theories:** Demonstrate critical understanding of concepts, and specialized theories relating to Entity Framework, Web API services and Cloud System like Windows Azure.	Knowledge: theoretical understanding [Level 8]

B. Subject-specific Skills		NQF Descriptor/ Level
B1	**Problem Solving:** Identify real life problems and Design the solution to a given problem. Gather, and organize material from various sources independently (including library, electronic and online resources), and critically evaluate its significance.	Knowledge: Practical Application [Level 8]
B2	**Modeling and Design:** Design the architecture of Applications and Web API services, Hosting on on-premises servers or Windows Azure that satisfy user specifications.	Knowledge: Practical Application [Level 8]
B3	**Application of Methods and Tools:** Apply appropriate advanced tools such as Dot Net Framework, Entity Framework, Widows Service, Windows Azure, IIS, Html 5, JQuery and SQL Server for creating dynamic web sites.	Knowledge: Practical Application [Level 8]

C. Critical-Thinking Skills		NQF Descriptor/ Level
C1	**Analytic skills:** Critically analyze source code in various scripts and remediate any bug found.	Generic Problem Solving & Analytical skills [Level 8]
C3	**Creative:** 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	**Communication:** Show ability to communicate technical information in appropriate oral and written forms to a variety of audiences.	Communication, ICT and Numeracy Skills [Level 7]

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,C 1,C3, D1	**Querying and manipulating data using Entity Framework**	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise
3	2	2	A1,B1,B2,B3,C 1,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,C 1,C3, D1	**Extending and securing ASP.NET Web API services**	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise
5	2	2	A1, B3, D1	**Creating WCF services**	Lecture/ lab Demonstration	Oral Inquiry
6	2	2	A1,B1,B2,B3,C 1,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,C 1,C3, D1	**Windows Azure Service Bus**	Lab Demonstration/ Supervised Work	In-Lab Exercise
9	2	2	A1,B1,B2,B3,C 1,C3, D1	**Hosting services**	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise
10	2	2	A1,B1, B3, C1	**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,C 1,C3, D1	**Monitoring and diagnostics**	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise
13	2	2	A1,B1,B2,B3,C 1,C3, D1	**Identity management and access control**	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise
14	2	2	A1,B1,B2,B3,C 1,C3, D1	**Identity management and access control**	Lecture/ Lab Demonstration/ Supervised Work	In-Lab Exercise
15	2	2	A1, B1,B2,B3,C1,C 3,D1	**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

* formative

Teaching Materials:

Textbook(s):	• Course 20487: Developing ASP.NET MVC 4 Web Applications, Microsoft Press Training Guide, 2013, ISBN: 978-0735677241
Handout(s):	-
Reference(s):	Microsoft Official Curriculum. https://www.microsoft.com/learning/en-us/course.aspx?ID=20487B

	- Ritesh Modi, "Azure for Architects: Implementing cloud design, DevOps, IoT, and serverless solutions on your public cloud", Packt Publishing, 2017, ISBN: 978-1788397391 - Greg Leonardo, "Hands-On Cloud Solutions with Azure: Architecting, developing, and deploying the Azure way", Packt Publishing, 2018, ISBN: 978-1786468659

Assessment

Method of Assessment	Description	Learning Outcomes	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 weak 6, each student will be asked to develop a small Application project.	B1,B2,B3,C1,C3,D1	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 %**

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

Ahlia University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.ahlia.edu.bh/integrity **for more information).**