KINGDOM OF SAUDI ARABIA
MINISTRY OF HIGHER EDUCATION

UMM AL-QURA UNIVERSITY
COLLEGE OF COMPUTER AND INFORMATION SYSTEMS
Computer Science Department

STUDY PLAN FOR UNDERGRADUATE PROGRAM 2016/1437H

MARCH 1, 2016

COMPUTER SCIENCE, BACHELOR OF SCIENCE

Mission:
The mission of the Department of Computer Science is to engage in education and research in order to serve society and industry in this era of rapidly changing computer technologies. We endeavor to supply graduates – to the computing industry, government, and academia – equipped with the skills that will enable them to provide technical leadership, explore new directions in computer technology and its applications, and succeed in the modern electronic age.

Program Educational Objectives:
1. Practice as computer professionals in designing, implementing, and maintaining commercial and/or research projects.
2. Appreciate the rapidly changing face of computing technology, and take the necessary actions to keep up-to-date in their specialties through self-directed learning and development, professional training, and further education.
3. Assume leadership positions in industry, academia and public service, and/or contribute positively to their growth and sustainability.

Degree offered:
Graduates of this department is offered the Bachelor degree in Computer Science.

Degree Requirements:
The Bachelor degree normally takes five-year of full-time study (ten semesters). There are total of **160** credit hours that students must complete to get the degree.

Study Plan:
The study plan takes into account the IEEE/ACM recommendations and fulfills ABET requirements. It fulfills the computing core requirements by including programming, discrete structures, data structures, algorithms,

databases, software engineering, operating systems, computer graphics, and computer networks courses.
The total of credit hours in each semester does not exceed 18, which is recommended by NCAAA. Five ABET accredited institutions are used as benchmarks.

The Summary of the Credit Hours:

	Credits
College (Preparatory Year) Requirements (CR)	**32**
University (Humanities) Requirements (UR)	**21**
Department Requirements (DR)	**95**
Department Electives (DE)	**12**
TOTAL	**160**

College (Preparatory Year) Requirements (CR)	**32**
4800170-6 English Language	6
4800171-4 Technical English	4
4800110-4 General Chemistry I	4
4800130-4 General Physics I	4
4800140-4 Introduction to Mathematics I	4
4800141-4 Introduction to Mathematics II	4
4800153-3 Computer Programming Skills	3
4800104-3 Learning Skills	3

University (Humanities) Requirements (UR)	**21**
102101-2 The Biography of Prophet Mohammad (pbuh)	2
501101-2 Arabic Language	2
601101-2 Islamic Culture I	2

601201-2 Islamic Culture II	2
601301-3 Islamic Culture III	3
601401-2 Islamic Culture IV	2
605101-2 The Holy Quran I	2
605201-2 The Holy Quran II	2
605301-2 The Holy Quran III	2
605401-2 The Holy Quran IV	2

Department Requirements (DR)	**95**
4042402-4 Linear Algebra	4
4042301-3 Introduction to Statistics and Probability	3
14011101-4 Computer Programming	4
14011801-3 Discrete Structures I	3
14031201-4 Digital Logic Design	4
14011102-4 Object Oriented Programming	4
14011802-3 Discrete Structures II	3
14032205-4 Computer Organization and Architecture	4
14032401-4 Numerical Methods for Computing	4
14012301-3 Database I	3
14012203-4 Operating Systems	4
14012401-3 Data Structures	3
14012501-3 Computer Graphics	3
14012109-3 Compilers Construction	3
14033103-4 Computer Networks	4
14012402-4 Algorithms	4
14013303-3 Software Engineering I	3
14013103-4 Advanced Programming	4
14013104-3 Internet Applications	3
14013701-4 Artificial Intelligence	4
14013304-3 Software Engineering II	3
14013602-3 Computer Security	3
14013204-3 Parallel Computing	3
14013502-3 User Interface Design	3
14013888-2 Summer Training	2
14014305-2 Computers and Society	2
14014902-4 Graduation Project I	4
14014903-4 Graduation Project II	4

Department Electives (DE)	**12**
14014105-3 Mobile Applications	3
14014205-3 Cloud Computing	3
14014305-3 Big Data Analytics	3
14014604-3 Introduction to Cryptography	3
14014404-3 Bioinformatics	3
14014308-3 Information Retrieval Systems	3
14014702-3 Artificial Neural Networks	3
14014302-3 Database II	3
14014803-3 Theory of Computing	3
14014503-3 Image Processing	3
14014306-3 Software Testing	3
14014703-3 Pattern Recognition	3
14014108-3 Game Programming	3
14014106-3 Programming Languages	3
14014110-3 Advanced Web Programming	3
14014307-3 Software Architecture	3
14014605-3 Forensics Computing	3
14014704-3 Natural Language Processing	3
14014905-3 Special Topics I	3
14014906-3 Special Topics II	3

ABET Science & Math Requirements (SMR)	**33**
4800140-4 Introduction to Mathematics I	4
4800141-4 Introduction to Mathematics II	4
4800130-4 General Physics I	4
4800110-4 General Chemistry I	4
4042402-4 Linear Algebra	4
4042301-3 Introduction to Statistics and Probability	3
14011801-3 Discrete Structures I	3
14011802-3 Discrete Structures II	3
14032401-4 Numerical Methods for Computing	4

	Code	Title	Lec	Lab	Credit	Pre-/Co-requisites	C
Semester 1	4800170-6	English Language	4	6	6		C
	4800153-3	Computer Programming Skills	2	2	3		C
	4800110-4	General Chemistry I	3	3	4		C
	4800140-4	Introduction to Mathematics I	4		4		C
	TOTAL				**17**		

	Code	Title	Lec	Lab	Credit	Pre-/Co-requisites	C
Semester 2	4800171-4	Technical English	4	6	4	4800170-6	C
	4800140-4	General Physics I	3	3	4		C
	4800104-3	Learning Skills	3		3		C
	4800141-4	Introduction to Mathematics II	4		4	4800140-4	C
	TOTAL				**15**		

	Code	Title	Lec	Lab	Credit	Pre-/Co-requisites	C
Semester 3	14011101-4	Computer Programming	3	3	4	4800153-3	D
	14011801-3	Discrete Structures I	2	2	3	4800141-4	D
	4042301-3	Introduction to Statistics and Probability	3		3	4800141-4	D
	14031201-4	Digital Logic Design	3	3	4	4800153-3	D
	605101-2	The Holy Quran I	2		2		U
	TOTAL				**16**		

	Code	Title	Lec	Lab	Credit	Pre-/Co-requisites	Cat.
Semester 4	14011102-4	Object Oriented Programming	3	3	4	14011101-4	DR
	14011802-3	Discrete Structures II	2	2	3	14011801-3, 14011101-4	DR
	14032205-4	Computer Organization and Architecture	3	3	4	14031201-4	DR
	4042402-4	Linear Algebra	4		4	4800141-4	DR
	TOTAL				**15**		

	Code	Title	Lec	Lab	Credit	Pre-/Co-requisites	Cat.
Semester 5	14032401-4	Numerical Methods for Computing	3	3	4	4042402-4, 14011101-4	DR
	14012301-3	Database I	2	2	3	14011102-4	DR
	14012203-4	Operating Systems	4		4	14011102-4, 14032205-4	DR
	14012401-3	Data Structures	2	3	3	14011102-4, 14011802-3	DR
	601101-2	Islamic Culture I	2		2		UR
	TOTAL				**16**		

	Code	Title	Lec	Lab	Credit	Pre-/Co-requisites	Cat.
Semester 6	14012501-3	Computer Graphics	2	2	3	4042402-4, 14011102-4	DR
	14012109-3	Compilers Construction	3		3	14012401-3	DR
	14033103-4	Computer Networks	3	3	4	14011802-3	DR
	14012402-4	Algorithms	3	3	4	14012401-3	DR
	605201-2	The Holy Quran II	2		2	605101-2	UR
	TOTAL				**16**		

	Code	Title	Lec	Lab	Credit	Pre-/Co-requisites	Cat.
Semester 7	14013303-3	Software Engineering I	2	2	3	14012301-3	DR
	14013103-4	Advanced Programming	3	3	4	14012301-3	DR
	14013104-3	Internet Applications	2	3	3	14011102-4	DR
	14013701-4	Artificial Intelligence	3	3	4	14012402-4	DR
	601201-2	Islamic Culture II	2		2	601101-2	UR
	TOTAL				**16**		

	Code	Title	Lec	Lab	Credit	Pre-/Co-requisites	Cat.
Semester 8	14013304-3	Software Engineering II	2	2	3	14013303-3	DR
	14013602-3	Computer Security	2	2	3	14033103-4	DR
	14013204-3	Parallel Computing	2	2	3	14012203-4, 14012401-3	DR
	14013502-3	User Interface Design	2	2	3	14013103-4	DR
	605301-2	The Holy Quran III	2		2	605201-2	UR
	14013888-2	Summer Training*	2		2	Level 7	DR
	TOTAL				**16**		

	Code	Title	Lec	Lab	Credit	Pre-/Co-requisites	Cat.
Semester 9	14014902-4	Graduation Project I	4		4	Level 8	DR
	14014881-3	Elective I			3	Department Approval	DE
	14014882-3	Elective II			3	Department Approval	DE
	14014305-2	Computers and Society	2		2	14013303-3	DR
	601301-3	Islamic Culture III	3		3	601201-2	UR
	605401-2	The Holy Quran IV	2		2	605301-2	UR
	TOTAL				**17**		

	Code	Title	Lec	Lab	Credit	Pre-/Co-requisites	C
Semester 10	14014903-4	Graduation Project II	4		4	14014902-4	D
	14014883-3	Elective III			3	Department Approval	D
	14014884-3	Elective IV			3	Department Approval	D
	601401-2	Islamic Culture IV	2		2	601301-2	U
	501101-2	Arabic Language	2		2		U
	102101-2	Biography of Prophet Muhammad (pbuh)	2		2		U
	TOTAL				**16**		

*Summer training is offered in the following summer semesters

رقم المقرر	اسم المقرر	وحدات نظري	وحدات عملي	وحدات معتمدة	متطلب سابق	متطلب
4800170-6	اللغة الانجليزية	4	6	6		كلية
4800153-3	مهارات برمجة الحاسب	2	2	3		كلية
4800110-4	الكيمياء العامة I	3	3	4		كلية
4800140-4	مقدمة في الرياضيات I	4		4		كلية
مجموع الساعات المعتمدة				17		

رقم المقرر	اسم المقرر	وحدات نظري	وحدات عملي	وحدات معتمدة	متطلب سابق	متطلب
4800171-4	اللغة الإنجليزية التقنية	4	6	4	4800170-6	كلية
4800140-4	فيزياء عامة I	3	3	4		كلية
4800104-3	مهارات التعلم	3		3		كلية
4800141-4	مقدمة في الرياضيات II	4		4	4800140-4	كلية
مجموع الساعات المعتمدة				15		

رقم المقرر	اسم المقرر	وحدات نظري	وحدات عملي	وحدات معتمدة	متطلب سابق	متطلب
14011101-4	برمجة الحاسب الآلي	3	3	4	4800153-3	قسم
14011801-3	هياكل متقطعة I	2	2	3	4800141-4	قسم
4042301-3	مقدمة في الإحصاء والاحتمالات	3		3	4800141-4	قسم
14031201-4	تحليل وتصميم منطقي	3	3	4	4800153-3	قسم
605101-2	القرآن الكريم I	2		2		جامعة
مجموع الساعات المعتمدة				16		

	رقم المقرر	اسم المقرر	وحدات نظري	وحدات عملي	وحدات معتمدة	متطلب سابق	متطلب
المستوى 4	14011102-4	برمجة كائنية التوجه	3	3	4	14011101-4	قسم
	14011802-3	هياكل متقطعة II	2	2	3	14011801-3, 14011101-4	قسم
	14032205-4	تنظيم وعمارة الحاسب	3	3	4	14031201-4	قسم
	4042402-4	الجبر الخطي	4		4	4800141-4	قسم
	مجموع الساعات المعتمدة				15		

	رقم المقرر	اسم المقرر	وحدات نظري	وحدات عملي	وحدات معتمدة	متطلب سابق	متطلب
المستوى 5	14032401-4	طرق التحليل العددي للحوسبة	3	3	4	4042402-4, 14011101-4	قسم
	14012301-3	قواعد البيانات I	2	2	3	14011102-4	قسم
	14012203-4	نظم التشغيل	4		4	14011102-4, 14032205-4	قسم
	14012401-3	هياكل البيانات	2	3	3	14011102-4, 14011802-3	قسم
	601101-2	الثقافة الإسلامية I	2		2		جامعة
	مجموع الساعات المعتمدة				16		

	رقم المقرر	اسم المقرر	وحدات نظري	وحدات عملي	وحدات معتمدة	متطلب سابق	متطلب
المستوى 6	14012501-3	الرسومات بالحاسب	2	2	3	4042402-4, 14011102-4	قسم
	14012109-3	تركيب المترجمات	3		3	14012401-3	قسم
	14033103-4	شبكات الحاسب	3	3	4	14011802-3	قسم
	14012402-4	خوارزميات	3	3	4	14012401-3	قسم
	605201-2	القرآن الكريم II	2		2	605101-2	جامعة
	مجموع الساعات المعتمدة				16		

	رقم المقرر	اسم المقرر	وحدات نظري	وحدات عملي	وحدات معتمدة	متطلب سابق	متطلب
المستوى 7	14013303-3	هندسة البرمجيات I	2	2	3	14012301-3	قسم
	14013103-4	برمجة متقدمة	3	3	4	14012301-3	قسم
	14013104-3	تطبيقات الانترنت	2	3	3	14011102-4	قسم
	14013701-4	الذكاء الاصطناعي	3	3	4	14012402-4	قسم
	601201-2	الثقافة الإسلامية II	2		2	601101-2	جامعة
	مجموع الساعات المعتمدة				16		

	رقم المقرر	اسم المقرر	وحدات نظري	وحدات عملي	وحدات معتمدة	متطلب سابق	متطلب
المستوى 8	14013304-3	هندسة البرمجيات II	2	2	3	14013303-3	قسم
	14013602-3	أمن الحاسب	2	2	3	14033103-4	قسم
	14013204-3	الحاسبات المتوازية	2	2	3	14012203-4, 14012401-3	قسم
	14013502-3	تصميم واجهات المستخدم	2	2	3	14013103-4	قسم
	605301-2	القرآن الكريم III	2		2	605201-2	جامعة
	14013888-2	التدريب الصيفي*	2		2	المستوى 7	قسم
	مجموع الساعات المعتمدة				16		

	رقم المقرر	اسم المقرر	وحدات نظري	وحدات عملي	وحدات معتمدة	متطلب سابق	متطلب
المستوى 9	14014902-4	مشروع تخرج I	4		4	المستوى 8	قسم
	14014881-3	مادة اختيارية I			3	موافقة القسم	قسم ١
	14014882-3	مادة اختيارية II			3	موافقة القسم	قسم ١
	14014305-2	الحاسب والمجتمع	2		2	14013303-3	قسم
	601301-3	الثقافة الإسلامية III	3		3	601201-2	جامعة
	605401-2	القرآن الكريم IV	2		2	605301-2	جامعة
	مجموع الساعات المعتمدة				17		

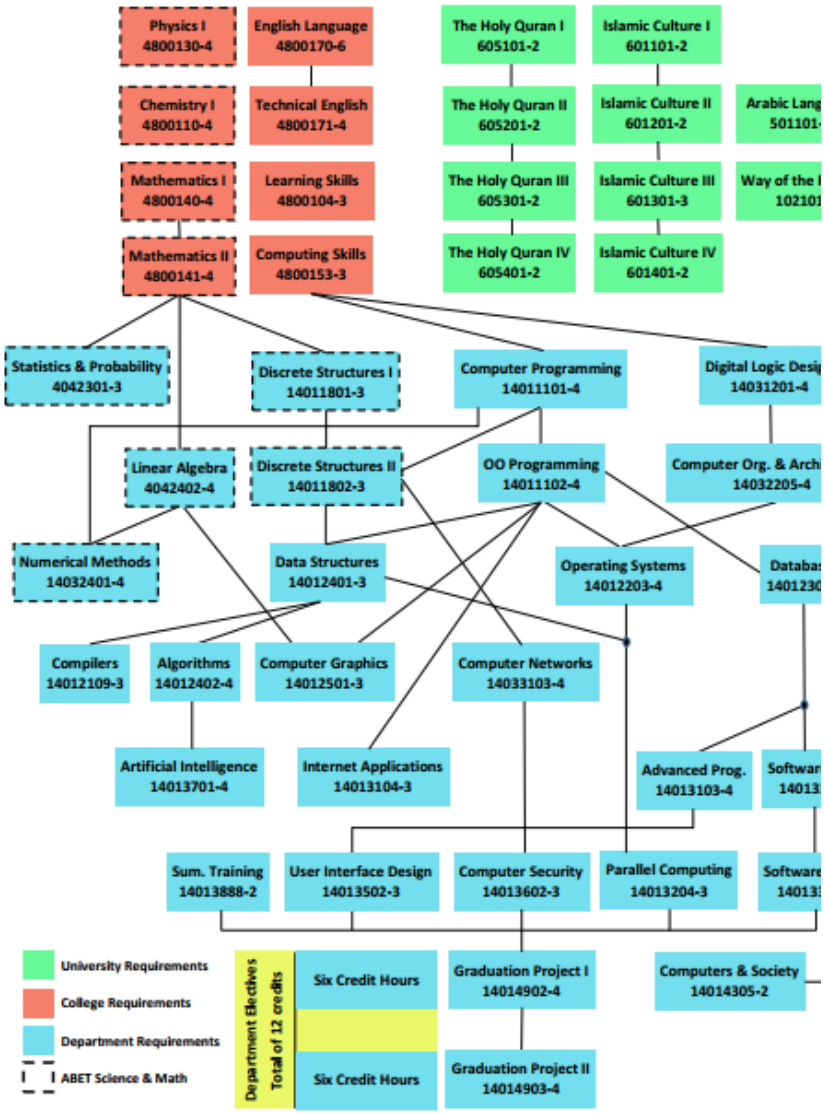
رقم المقرر	اسم المقرر	وحدات نظري	وحدات عملي	وحدات معتمدة	متطلب سابق	متطلب
14014903-4	مشروع تخرج II	4		4	14014902-4	قسم
14014883-3	مادة اختيارية III			3	موافقة القسم	قسم.ا
14014884-3	مادة اختيارية IV			3	موافقة القسم	قسم.ا
601401-2	الثقافة الإسلامية IV	2		2	601301-2	جامعة
501101-2	اللغة العربية	2		2		جامعة
102101-2	السيرة النبوية	2		2		جامعة
مجموع الساعات المعتمدة				16		

المستوى IU

لتدريب الصيفي متاح في الفصول الصيفية ما بعد هذا الفصل الدراسي

Department Electives / مواد اختيارية						
Code رقم المقرر	Title اسم المقرر		Credit وحدات معتمدة	Lec نظري	Lab عملي	Pre-/Co-requisites متطلب سابق
14014105-3	Mobile Applications	تطبيقات الجوال	3	2	2	14013104-3, 14014302-3
14014205-3	Cloud Computing	الحوسبة السحابية	3	2	2	14033103-4
14014305-3	Big Data Analytics	تحليلات البيانات الضخمة	3	2	2	14014302-3
14014604-3	Introduction to Cryptography	مقدمة في التشفير	3	2	2	14011802-3
14014404-3	Bioinformatics	المعلوماتية الحيوية	3	2	2	14012402-4
14014308-3	Information Retrieval Systems	نظم استرجاع المعلومات	3	3		14013103-4
14014702-3	Artificial Neural Networks	الشبكات العصبية الاصطناعية	3	2	2	14013701-4
14014302-3	Database II	قواعد البيانات II	3	3		14012301-3
14014803-3	Theory of Computing	نظرية الحوسبة	3	3		14011802-3
14014503-3	Image Processing	معالجة الصور	3	2	2	14012402-4
14014306-3	Software Testing	اختبار البرمجيات	3	2	2	14013304-3
14014703-3	Pattern Recognition	التعرف على الأنماط	3	2	2	14012402-4
14014108-3	Game Programming	برمجة الالعاب	3	2	2	14012501-3, 14013701-4
14014106-3	Programming Languages	لغات البرمجة	3	3		14013103-4
14014110-3	Advanced Web Programming	البرمجة المتقدمة على الشبكة العنكبوتية	3	2	2	14013104-3
14014307-3	Software Architecture	عمارة البرمجيات	3	2	2	14014110-3
14014605-3	Forensics Computing	الحوسبة الجنائية	3	2	2	14013602-3
14014704-3	Natural Language Processing	معالجة اللغات الطبيعية	3	2	2	14013701-4
14014905-3	Special Topics I	مواضيع مختارة I	3			Department Approval
14014906-3	Special Topics II	مواضيع مختارة II	3			Department Approval

The Prerequisite Chains for Computer Science Required Course



مصفوفة مخرجات تعلم البرنامج

عيّن في الجدول أدناه المقرراتُ التي من المفترض أن يكتسب الطالب من خلالها مخرجات تعلم البرنامج، ووفقًا لمستوى اللغة المستخدم في التدريس اكتب مخرجات تعلم البرنامج المدرّجة في الجدول السابق، وحدد المقررات التي يجدر بالطالب أن يكتسب من خلالها مخرجات التعلم، إضافة إلى مستوى اللغة التي تُدرّس بها هذه المقررات عن طريق إدراج أرقام مقررات البرنامج في الصف العلوي للجدول وتعبئة الخانات بالدرجة المناسبة على مقياس مستوى لغة التدريس الآتي :م= مبتدئ، ق=متقن، د=متقدم.

مقررات البرنامج																						مجالات التعلم ومخرجات علم المقرر وفقاً لمتطلبات المؤهلات الوطنية
14014903-4	14014902-4	14014305-2	14013901-2	14013502-3	14013204-3	14013602-3	14013304-3	14013701-4	14013104-3	14013103-4	14013303-3	14012402-4	14012109-3	14012501-3	14012401-3	14012203-4	14012301-3	14011802-3	14011102-4	14011801-3	14011101-4	
																						لمعارف
		A	I	I		I		P	P	A	P	I	P	P	I	A	I	A	P	I	I	a
A	A	P	P	P	A	I	P	I	A		P	P	A	I	I	A	P	A		I	I	j
		P		P		I		P	P	A		P	P	P	I	P	P	A	P	I		c
P	P		A		A				A	A			A			I		A	P	I	I	i
																						لمهارات الإدراكية
		P	P	I	A	I	P	A		P		I		P	I			A	P	I	I	b
P	P		I	P	A			A			P		P			A	P	A		I	I	g
P	P	A						P	A	P		P	A		I	P		A	P			h
																						هارات التعامل مع الأخرين تحمل المسؤولية
P	P								A						I				P			d
		I				I		P				P		I		A	I	A				e
																						مهارات التواصل، وتقنية لمعلومات، والمهارات لعددية
P	P	A		P			P		A		P		P	P	P	I	P	A	P	I	I	f
		P	P		A		P	I		A		P	A	I		A		A				k
																						لمهارات النفسحركية
					A					A		P		I		P	I	A	P	I	I	An ability to use current tools necessary for computing practices

Levels: I = Introduction P = Proficient A = Advanced

	مقررات البرنامج																						مجالات التعلم ومخرجات تعلم المقرر وفقاً لمتطلبات المؤهلات الوطنية	
	1401704-3	1401605-3	1401307-3	1401110-3	1401106-3	1401108-3	1401703-3	1401306-3	1401503-3	1401803-3	1401302-3	1401702-3	1401308-3	1401404-3	1401604-3	1401305-3	1401205-3	1401105-3		
																			المعارف	1.
	I	A	A		A	A	I	I	P		P	P	A	P	A	P	A	P	a	1.
	A	P		P	P	A	P	P	A	A	I	A		I	A	A		A	j	1.
	P	I		A	A	P	P	P	P		P	P	A	P		P	A		c	1.
						I			A	A		A	A			A	A		i	1.
																			المهارات الإدراكية	2.
	P		A		P			I		A	A		P	A	P		P	P	b	2.
	A	P		A	P	A	P		P	A	A			I				P	g	2.
		A	P			P		P	A		P	A	P		P	A	P		h	2.
																			مهارات التعامل مع الآخرين وتحمل المسؤولية	3.
	A			P	I							A		A		A			d	3.
		P	A	P		A	I	P			P							A	e	3.
																			مهارات التواصل، وتقنية المعلومات، والمهارات العددية	4.
		P	P	A		I	P		P			A				A			f	4.
	A		P	A		A		P	A	A	I		A	P	A		A		k	4.
																			المهارات التفسحركية	5.
								P		A	P		I				A	A	An ability to use current tools necessary for computing practices	5.

Levels: **I = Introduction P = Proficient A = Advanced**

Course Specifications

Institution Umm Al Qura University	Date 7 / 7 / 1437
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14013103-4 Advanced Programming
2. Credit hours 4
3. Program(s) in which the course is offered. Computer Science
4. Name of faculty member responsible for the course Curriculum Committee
5. Level/year at which this course is offered 3rd year / level 7
6. Pre-requisites for this course 14011102-4 Object Oriented Programming
7. Co-requisites for this course 14012301-3 Database I
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

By completing this course the students should be able to:

1. Students will be familiar with exception handling and input validation.
2. Students will gain knowledge about I/O file management and object persistence
3. Students will be able to develop GUI-based Java applications.
4. Students will learn how to use different types of collections provided in the standard library as well as the fundamental operations of the Arrays and Collections classes
5. Students will learn how to map java objects to database tables
6. Students will learn how to use Object Oriented concept to solve practical problems
7. Students will get the experience of working in groups to design and develop complete GUI-based Java application projects.

Deleted: <#>Students will learn about other advanced Java topics.¶

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

1. Increase the use of the latest Web-based reference material and textbooks.
2. Review and update the course materials as part of preparation to teach this course.
3. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives.
4. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Java and Object Oriented programming overview	2	2
Java Collections	2	2
Mapping Java Objects to Tables	2	2
Building GUI	3	2

Deleted: 1

Deleted: Recursion Techniques¶

Deleted: 1

Deleted: 2

Deleted: Java Collections ¶

Deleted: 2

Deleted: 2

Generic Programming	2	2
File I/O	2	2
Recursion Techniques	1	2
Introduction to Design patterns	1	2
Multi-threading and synchronization	1	2

Deleted: Building GUI ¶
Deleted: 2
Deleted: 2
Deleted: Java Database Connectivity (JDBC)¶
Deleted: 2
Deleted: 2
Deleted: 2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			
Credit	???	???	???			

3. Additional private study/learning hours expected for students per week. 6 hours

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Students will be familiar with exception handling and input validation.	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.2	Students will gain knowledge about I/O file management and object persistence	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation

1.3	Students will be able to develop GUI-based Java applications.	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.4	Students will learn how to use different types of collections provided in the standard library as well as the fundamental operations of the **Arrays** and **Collections** classes	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.5	Students will learn about other advanced Java topics.	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
2.0	**Cognitive Skills**		
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Improve the ability to work in a group	Projects	Project evaluation
4.2			
5.0	**Psychomotor**		
5.1	Demonstrate skills in using computer machines and software tools to solve computer problems	Lab exercise, lab demonstration	Lab. exams In-lab. evaluation
5.2	Perform a task with minimum assistance	Lab exercise	Lab. exams In-lab. evaluation

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**														
	1.1	**1.2**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**3.1**	**3.2**	**3.3**	**4.1**	**4.2**	**4.3**	**5.1**	**5.2**
1.1			**A**	**A**	**A**	**A**	**A**			**I**		**A**	**A**		
1.2			**A**	**A**	**A**	**A**	**A**			**I**		**A**	**A**		
1.3			**A**	**A**	**A**	**A**	**A**			**I**		**A**	**A**		
1.4			**A**	**A**	**A**	**A**	**A**			**I**		**A**	**A**		
1.5			**A**	**A**	**A**	**A**	**A**			**I**		**A**	**A**		
4.1								**P**		**I**	**P**				
5.1										**I**				**A**	**A**
5.2										**I**				**A**	**A**

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment

1	Assignments	-	0
2	Quiz 1	3	5
3	Quiz 2	7	5
4	Group Project/ practical exam	8	30
5	Midterm	9	20
6	Quiz 3	12	5
7	Quiz 4	14	5
8	Final	16	30

Deleted: 20

Deleted: 40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks Java: How to Program, 9e, Dietel and Dietel, Pearson 0273759760
2. List Essential References Materials (Journals, Reports, etc.) Lecture slides and notes
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Object-Oriented Analysis and Design: Undergraduate Topics in Computer Science, Sarnath Ramnath and Brahma Dathan, Springer, ISBN 978-1-84996-521-7 Head First Java, 2nd Edition by Kathy Sierra and Bert Bates, 2005
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. Java API - Oracle Documentation: http://docs.oracle.com/javase/7/docs/api/

The Java Tutorial: http://docs.oracle.com/javase/tutorial/ The Java Tutorials: http://docs.oracle.com/javase/tutorial/getStarted/index.html Language Basics: http://docs.oracle.com/javase/tutorial/java/nutsandbolts/index.html Java for Complete Beginners: http://www.homeandlearn.co.uk/java/java.html
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. The main textbook: Java example codes

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students) Overhead projector and internet connection
2. Computing resources (AV, data show, Smart Board, software, etc.) Integrated Development Environment (e.g., NetBeans, Eclipse, JBuilder). Java Development Kit (JDK)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
A student-feedback form is distributed at the end of the course.

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 7/7/1437
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014110-3 Advanced Web Programming			
2. Credit hours 3			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science			
4. Name of faculty member responsible for the course: Curriculum Committee			
5. Level/year at which this course is offered: 4th year / (level 9 or 10)			
6. Pre-requisites for this course (if any): 14013104-3 Internet Applications			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus: Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	X	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course? The goal of this course is to teach students to build professional web applications using industrial standards. 1. Students will review how to build basic web applications using HTML, CSS and JavaScript for building the application front-and and JavaServlet and JSP for building the application back end 2. Students will learn to use asynchronous JavaScript to build responsive web application 3. Students will learn to use session management and advanced caching techniques 4. Student will learn to use industrial framework such as Spring 5. Students will get the experience of working in groups to design and develop complete website projects.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) 5. As this subject domain is wide and updated regularly, the course objectives will be reviewed regularly to reflect the new trends in advanced web programming, technologies and applications. 6. Increase the use of the latest Web-based reference material and textbooks. 7. Review and update the course materials as part of preparation to teach this course. 8. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: This is a practical course that will enable students to develop advanced skills in multi-tier website development and administration, exploring front-end and back-end Web technologies such as HTML, CSS and Javascript, Servlets, JSP and integrations with relational databases. The course will focus also on building complete websites and issues related to session management, authentication, AJAX (Asynchronous Javascript And Xml) and CRUD (Create, Read, Update and Delete) database operations.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Revision on HTML , CSS and JavaScript	3	2
Object Oriented JavaScript and dynamic HTML	3	2
Servlet Programming, JSP, session management, database integration	3	2
XML/JSON (Extensible Mark-up Language/ JavaScript Object Notation)	1	2
AJAX (Asynchronous Javascript)-based web applications	2	2
Using web framework (such as Spring)	4	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30	0	0	60
Credit	3	0	1	0	0	4

3. Additional private study/learning hours expected for students per week. 4

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		

1.1	Students will review how to build basic web applications using HTML, CSS and JavaScript for building the application front-and and JavaServlet and JSP for building the application back end	Lectures, tutorial, labs	Quiz, lab evaluation, projects
1.2	Students will learn to use asynchronous JavaScript to build responsive web application	Lectures, tutorial, labs	Quiz, lab evaluation, projects
1.3	Students will learn to use session management and advanced caching techniques	Lectures, tutorial, labs	Quiz, lab evaluation, projects
1.4	Student will learn to use industrial framework such as Spring	Lectures, tutorial, labs	Quiz, lab evaluation, projects
2.0	**Cognitive Skills**		
2.1			
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Improve the ability to work in a group	Projects	Project evaluation
4.2			
5.0	**Psychomotor**		
5.1			
5.2			

	5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)						
Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**						
	1.2	**2.1**	**2.3**	**3.1**	**4.3**	**5.1**	**5.2**
1.1	A	P	P				
1.2	A	A	A	A	P	A	A
1.3	A	A	A	A	P	A	A
1.4	P	P	P	A	P	P	P
4.1				A			

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quiz 1	6	10
2	Quiz 2	13	10
3	Project 1	11	15
4	Project 2	15	15

5	Mid-term	12	20
6	Final	17	30

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks • HTML5 and CSS3, ElizabEth Castro, Bruce hyslop, 7th Edition, Peachpit Press, ISBN: 0321719611 • JavaScript: The Definitive Guide, David Flanagan, 6th Edition, O'Reilly, ISBN: 0596805527 • Java Servlet Programming, Jason Hunter, William Crawford, 2nd Edition, O'Reilly, ISBN: 0596000405 • Ajax: The Definitive Guide 1st Edition, Anthony Holdener III, O'Reilly, ISBN: 0596528388
2. List Essential References Materials (Journals, Reports, etc.) Lecture slides and notes
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students) Overhead projector and internet connection
2. Computing resources (AV, data show, Smart Board, software, etc.) Regular text editors Regular Web browsers Java Development Kit (JDK) Integrated Development Environment (e.g., NetBeans, Eclipse, JBuilder). MySQL database management system
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department

3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. The course materials will be regularly reviewed by the course instructor and the curriculum committee in order to keep it updated.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 14-April-2016
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14012402-4 Algorithms			
2. Credit hours 3			
3. Program(s) in which the course is offered. Computer Science (If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered Level 6			
6. Pre-requisites for this course (if any) 14012401-3 Data Structures			
7. Co-requisites for this course (if any)			
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course? The main purpose of this course is to introduce the classic algorithms in various domains, and techniques for designing efficient algorithms. Students will be able to practice their skills on many well-known algorithms and data structures designed to solve real-life problems.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) Students are given programming assignments to test the space and time complexity of various algorithms.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: The objective of this course is to study design and analysis of algorithms. Learning different algorithms design strategies such as divide and conquer, dynamic programming, and greedy approach. Applications involve: sorting and searching, trees/graph, geometric algorithms, and string matching algorithms. Analysis of algorithms is essential part of this course. Study worst case, average case, and amortized analysis- with an emphasis on the close connection between the time complexity of an algorithm and the underlying data structures.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Basic Concepts in Algorithmic Analysis	3	9
Searching & Sorting	2	6
Recurrence Relations and Recursion	2	6
Divide and Conquer	2	6
Dynamic Programming	2	6
Greedy Approach	2	6
String matching	2	6

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total

Contact Hours	45	0	45			90
Credit	3	0	1			4

3. Additional private study/learning hours expected for students per week.	3

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	The students will be able to understand various categories of algorithms such as divide and conquer, dynamic programming, and greedy approach	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	A combination of quizzes, exams, assignments, projects, etc.
1.2	The students will be able to design and implement efficient algorithms such as sorting and searching, string matching, etc.	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	A combination of quizzes, exams, assignments, projects, etc.
1.3	The students will be able to compare the efficiency of various algorithms and to choose the most appropriate ones for a given application	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	A combination of quizzes, exams, assignments, projects, etc.
2.0	**Cognitive Skills**		
2.1			
2.2			

3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	The students will be able to design and implement efficient algorithms such as sorting and searching, string matching, etc.	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	A combination of quizzes, exams, assignments, projects, etc.
4.2			
5.0	**Psychomotor**		
5.1	The students will be able to design and implement efficient algorithms such as sorting and searching, string matching, etc.	Lab. demonstrations Co-operative learning	Lab. exams In-lab. evaluation
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**											
	1.1	1.2	1.3	1.4	2.1	2.2	2.3	3.1	3.2	4.1	4.2	5.1
1.1			P	P								
1.2	I	P			I							
1.3	I	I	I		I							
4.1			P	P								
5.1												P

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Attendance & class participation	1-15	5%
2	Quiz 1	3	10%

3	Quiz 2	5	10%
4	Quiz 3	9	10%
5	Midterm	7	20%
6	Labs	2-13	10%
7	Final exam	16	35%
8			

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Faculty member has at least 6 hours per week. In addition to that appointment by email is also available.

E Learning Resources

1. List Required Textbooks Algorithms: Design Techniques and Analysis by M. H. Alsuwaiyel (latest edition)
2. List Essential References Materials (Journals, Reports, etc.) Introduction to Algorithms by Thomas H. Cormen and Charles E. Leiserson (latest edition)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Algorithms by Robert Sedgewick and Kevin Wayne
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. http://www.journals.elsevier.com/journal-of-discrete-algorithms/ http://talg.acm.org/

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. MATLAB C/C++ Compiler Java SDK

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 30 students) Computer lab (max 15 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) C/C++ and Java Development Environments APIs and IDEs
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) No

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Student Survey
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department

University Course and Instructor Survey
3 Processes for Improvement of Teaching Review of curriculum and course. Coordination of instructors to improve the teaching quality.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Course file review
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. There are curriculum committee and course committee to review the course effectiveness.

Name of Instructor: Murtaza Ali Khan

Signature: *Murtaza Ali Khan* Date Report Completed: 15-April-2016

Name of Course Instructor Murtaza Ali Khan

Program Coordinator: _____

Signature: _____ Date Received: _____

Course Specifications

Institution	Date
Umm Al Qura University	
College/Department Computer and Information Systems/ Computer Science	

A. Course Identification and General Information

1. Course title and code: 14013701-4 Artificial Intelligence
2. Credit hours 4
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science
4. Name of faculty member responsible for the course Curriculum Committee
5. Level/year at which this course is offered 3rd year/ Level 7
6. Pre-requisites for this course (if any) 14012402-4 Algorithms
7. Co-requisites for this course (if any) None
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

This course introduces basics of Artificial Intelligence, concept of Intelligent agents and various types of agents. It includes various search techniques, Propositional logic and First order logic. It further introduces the concept of knowledge engineering and inference systems.

1. Identify the type of an AI problem (search, inference, decision making under uncertainty, game theory, etc).
2. Formulate the problem as a particular type. (Example: define a state space for a search problem)
3. Compare the difficulty of different versions of AI problems, in terms of computational complexity and the efficiency of existing algorithms.
4. Implement, evaluate and compare the performance of various AI algorithms. Evaluation could include empirical demonstration or theoretical proofs.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

9. Increase the use of the latest Web-based reference material and textbooks.
10. Review and update the course materials as part of preparation to teach this course.
11. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives.
12. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.
13. Staff Seminars to make them up to date with the new trends in computer science hot topics, technically and theoretically.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction to AI	1	3
AI Domains	1	3
AI Applications	1	3
Intelligent Agents and Agent Environment	2	3
Structure of Different type of Agents	2	3

Problem Solving through search (Un-informed Search, Informed Search, and Local Search Algorithms)	2	3
Adversarial Search (Minimax Algorithm, Alpha Beta Pruning, Chance Minimax)	2	3
Logical Agents (knowledge based agents, propositional logic, First Order Logic, Knowledge representation)	2	3
Inference in First Order Logic	2	3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	42	0	30			
Credit						

3. Additional private study/learning hours expected for students per week. 4

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Students will learn basics of AI, Intelligent Agents and their different types and applications	Course lectures, labs, tutorials, assignments, and an individual project	Quizzes, Assignments, Midterm Exam

1.2	They will learn in detail different search techniques including uninformed search, heuristic search, adversarial search that can be used in Game playing and other AI applications	Course lectures, labs, tutorials, assignments, and an individual project	Quizzes, Assignments, Midterm Exam, Final Exam, Project
1.3	Students will learn logical agents, first order logic and first order inference system	Course lectures, labs, tutorials, assignments, and an individual project	Quizzes, Assignments, Midterm Exam, Final Exam, Project
2.0	**Cognitive Skills**		
2.1	Students will improve his/her logical thinking and reasoning in the context of artificial intelligence	Lectures, Project, Assignments, Exams	Project, Assignments and Exams
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1	Students will learn how to help others in the course	Encouragement to teach other students what you have learnt in the course	Project and Discussion
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Student will learn how to communicate their ideas to other students in the group and in the class	Group project	Group Project
4.2			
5.0	**Psychomotor**		
5.1	Demonstrate skills in using computer machines and software tools to solve computer problems.	Project and Lab assignments	Project and Lab assignments
5.2	Perform a task with minimum assistance	Project and Lab assignments	Project and Lab assignments

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	1.1	**1.2**	**2.1**	**2.3**	**3.1**	**4.2**					
1.1	P		A			**A**					
1.2	P	**I**	A	**P**	**I**	**A**					
1.3			P	**I**		**P**					

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignments	-	0
2	Quiz 1	3	10
3	Quiz 2	7	10
4	Group Project	8	20
5	Midterm	9	20
6	Final	16	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks Artificial Intelligence: A Modern Approach 3rd Edition, Russell & Norvig, 2009, Prentice Hall, ISBN 0136042597
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Artificial Intelligence: A Systems Approach by M. Tim Jones
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students) Overhead projector and internet connection
2. Computing resources (AV, data show, Smart Board, software, etc.) C++ or Java to program the assignments and project
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching 1. Feedback from the students about their understanding of the course 2. Current trends in the AI applications

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. The course materials will be regularly reviewed by the course instructor and the curriculum committee in order to keep it updated.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution	Date
Umm Al Qura University	
College/Department: Computer and Information Systems/ Computer Science	

A. Course Identification and General Information

1. Course title and code: 14014702-3 Artificial Neural Network			
2. Credit hours 3			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered 4th year / (level 9 or 10)			
6. Pre-requisites for this course (if any) 14012402-4 Algorithms			
7. Co-requisites for this course (if any) None			
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course? By the end of this course, student should be capable of:. 1. Understanding basic neural network architectures their applications. 2. Understanding learning algorithm and how to apply them. 3. Apply Neural Networks to solve practical problems.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) 14. Increase the use of the latest Web-based reference material and textbooks. 15. Review and update the course materials as part of preparation to teach this course. 16. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives. 17. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument. 18. Staff Seminars to make them up to date with the new trends in computer science hot topics, technically and theoretically.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: The course introduces the theory and practice of neural computation. It offers the principles of neurocomputing with artificial neural networks widely used for addressing real-world problems such as classification, regression, pattern recognition, data mining, time-series prediction, etc.. Two main topics are covered: supervised and unsupervised learning.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Introduction to Neural Networks	1	2
Revision on Math Concepts needed for Neural Networks	1	2

Perceptron, linear systems and their limitations	2	2
Multi-layer networks and back propagation	4	2
Supervising learning, optimization and over-fitting	2	2
Unsupervised learning	2	2
Reinforcement learning	2	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			
Credit	2		2			

3. Additional private study/learning hours expected for students per week. 4

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		

1.1	Students will learn basics of Neural Networks, Perceptron and Back-propagation neural network	Course lectures, labs, tutorials, assignments, and an individual project	Quizzes, Assignments, Midterm Exam
1.2	They will learn in detail Hopfield neural network, RBF, SOM architectures.	Course lectures, labs, tutorials, assignments, and an individual project	Quizzes, Assignments, Midterm Exam, Final Exam, Project
1.3	Students will learn how to implement neural network architectures in various applications like pattern classification, prediction etc	Course lectures, labs, tutorials, assignments, and an individual project	Quizzes, Assignments, Midterm Exam, Final Exam, Project
2.0	**Cognitive Skills**		
2.1	Students will improve his/her logical thinking and reasoning in the context of neural networks	Lectures, Project, Assignments, Exams	Project, Assignments and Exams
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1	Students will learn how to help others in the course	Encouragement to teach other students what you have learnt in the course	Project and Discussion
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Student will learn how to communicate their ideas to other students in the group and in the class	Group project	Group Project
4.2			
5.0	**Psychomotor**		
5.1	Demonstrate skills in using computer machines and software tools to solve computer problems.	Project and Lab assignments	Project and Lab assignments
5.2	Perform a task with minimum assistance	Project and Lab assignments	Project and Lab assignments

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	1.1	**1.2**	**2.1**	**2.3**	**3.1**	**4.2**					
1.1	P		A			**A**					
1.2	P	**I**	A	**P**	**I**	**A**					
1.3			P	**I**		**P**					

6. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignments	-	0
2	Quiz 1	3	10
3	Quiz 2	7	10
4	Group Project	8	20
5	Midterm	9	20
6	Final	16	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks Laurene V. Fausett, Fundamentals of Neural Networks: Architectures, Algorithms And Applications, Pearson (latest edition) Martin T Hagan, Neural Network Design, 2nd Edition, Martin Hagan, 2014 or latest edition
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) S. Haykin, Neural Networks: A Comprehensive Foundation 2nd edition, (Prentice Hall) latest edition
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students) Overhead projector and internet connection
2. Computing resources (AV, data show, Smart Board, software, etc.) C++ or Java to program the assignments and project
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching 3. Feedback from the students about their understanding of the course 4. Current trends in the AI applications

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. The course materials will be regularly reviewed by the course instructor and the curriculum committee in order to keep it updated.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date Apr 15th, 2016
College/Department College of Computers and Information Systems/ Computer Science	

A. Course Identification and General Information

1. Course title and code: Big Data Analytics 14014305-3
2. Credit hours 3
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science
4. Name of faculty member responsible for the course Mohamed Abdurrahman
5. Level/year at which this course is offered 4th year / (level 9 or 10)
6. Pre-requisites for this course (if any) 14014302-3 Database II
7. Co-requisites for this course (if any) N/A
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	☐	What percentage?	☐
b. blended (traditional and online)	☐	What percentage?	☐
c. e-learning	☐	What percentage?	☐
d. correspondence	☐	What percentage?	☐
f. other	☐	What percentage?	☐

Comments:

B Objectives

1. What is the main purpose for this course?
Storage, retrieval, analysis, and knowledge discovery using Big Data has made significant inroads in several domains in industry, research, and academia. In this course, we will look at the dominant software systems and algorithms for coping with Big Data. Topics covered include scalable computing models, large-scale non-traditional data storage frameworks including graph, key-value, and column-family storage systems; data stream analysis; scalable prediction models and in-memory storage systems
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Batch computing models for Big Data computing	1	2
Key-value storage systems	2	2
Scalable prediction models	2	2
Distributed file systems	3	2
Scalable data analytics	3	2
Data models	3	2
Realtime data stream analytics		
Frameworks for the graph data analytics In-memory distributed data storage systems		

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30		30			
Credit						

3. Additional private study/learning hours expected for students per week.	3

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1		Course lectures, tutorials, assignments	Quizzes Assignments Midterm Exam Final Exam
1.2			
2.0	**Cognitive Skills**		
2.1		Course lectures, tutorials, assignments	Quizzes Assignments Midterm Exam Final Exam
2.2			
3.0	**Interpersonal Skills & Responsibility**		

3.1		Course lectures, tutorials, assignments	Quizzes Assignments Midterm Exam Final Exam
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1		Course lectures, tutorials, assignments	Quizzes Assignments Midterm Exam Final Exam
4.2			
5.0	**Psychomotor**		
5.1			
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**								
	1.1	**1.2**		**2.1**		**3.2**		**4.1**	
1.1									
2.1									

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1			
2			
3			
4			
5			
6			

7			
8			

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Big Data, Data Mining, and Machine Learning: Value Creation for Business Leaders and Practitioners, 2014, Jared Dean Big Data, Mining, and Analytics: Components of Strategic Decision Making, 2014 Stephan Kudyba
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) Apache Hadoop cluster
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution	Date
Umm Al Qura University	
College/Department Computer and Information Systems/ Computer Science	

A. Course Identification and General Information

1. Course title and code: 14014404-3 Bioinformatics			
2. Credit hours 3			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered 4th year / (level 9 or 10)			
6. Pre-requisites for this course (if any) 14012402-4 Algorithms			
7. Co-requisites for this course (if any) None			
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course?

The objective of this course is to introduce students to the emerging field of bioinformatics and how computational techniques can be employed in this area. The course is aimed at computer science students to give them knowledge of

1. basic introduction to bioinformatics
2. biological databases
3. genes, genomes, mapping and DNA sequencing algorithms
4. visualization/clustering gene pattern
5. linking genes and disease

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

19. Increase the use of the latest Web-based reference material and textbooks.
20. Review and update the course materials as part of preparation to teach this course.
21. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives.
22. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.
23. Staff Seminars to make them up to date with the new trends in computer science hot topics, technically and theoretically.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction to bioinformatics, Gene and Genome	1	2
Biological Databases	2	2
Sequence alignment algorithms and dynamic programming	3	2
Patterns, Profiles, and Multiple Alignments	3	2
Prediction algorithms for protein structures	3	2
Microarray data analysis	2	2
Visualization/Clustering of Gene Patterns	1	2

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			
Credit						

3. Additional private study/learning hours expected for students per week.	4

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Students will learn basics of bioinformatics, Gene, Genome and biological databases	Course lectures, labs, tutorials, assignments, and an individual project	Quizzes, Assignments, Midterm Exam
1.2	They will learn in detail sequence alignment algorithms including patterns, profiles and multiple alignments.	Course lectures, labs, tutorials, assignments, and an individual project	Quizzes, Assignments, Midterm Exam, Final Exam, Project
1.3	Students will learn prediction algorithm for protein structures and microarray data analysis	Course lectures, labs, tutorials, assignments, and an individual project	Quizzes, Assignments, Midterm Exam, Final Exam, Project
2.0	**Cognitive Skills**		
2.1	Students will improve his/her logical thinking and reasoning in the context of neural networks	Lectures, Project, Assignments, Exams	Project, Assignments and Exams
2.2			

3.0	**Interpersonal Skills & Responsibility**		
3.1	Students will learn how to help others in the course	Encouragement to teach other students what you have learnt in the course	Project and Discussion
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Student will learn how to communicate their ideas to other students in the group and in the class	Group project	Group Project
4.2			
5.0	**Psychomotor**		
5.1	Demonstrate skills in using computer machines and software tools to solve computer problems.	Project and Lab assignments	Project and Lab assignments
5.2	Perform a task with minimum assistance	Project and Lab assignments	Project and Lab assignments

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	1.1	**1.2**	**2.1**	**2.3**	**3.1**	**4.2**					
1.1	P		A			**A**					
1.2	P	**I**	A	**P**	**I**	**A**					
1.3			P	**I**		**P**					

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignments	-	0
2	Quiz 1	3	10
3	Quiz 2	7	10
4	Group Project	8	20
5	Midterm	9	20
6	Final	16	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks M. Zvelebil and J. O. Baum, Understanding Bioinformatics, Garland Science (latest edition) Arthur Lesk, Introduction to Bioinformatics, 4th edition, Oxford University Press, 2014.
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Wing-kung sung, Algorithms in Bioinformatics: A Practical Introduction, Chapman & Hall/CRC Mathematical and Computational Biology (latest edition)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students) Overhead projector and internet connection
2. Computing resources (AV, data show, Smart Board, software, etc.) C++ or Java to program the assignments and project

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching 5. Feedback from the students about their understanding of the course 6. Current trends in the AI applications
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

The course materials will be regularly reviewed by the course instructor and the curriculum committee in order to keep it updated.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date Apr, 15th, 2016
College/Department College of Computers and Information Systems/ Computer Science	

A. Course Identification and General Information

1. Course title and code: Cloud Computing 14014502-3
2. Credit hours 3
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science
4. Name of faculty member responsible for the course Ashwag Maghraby
5. Level/year at which this course is offered 4th year / (level 9 or 10)
6. Pre-requisites for this course (if any) 14033103-4 Computer Networks
7. Co-requisites for this course (if any) N/A
8. Location if not on main campus
9. Mode of Instruction (mark all that apply) a. traditional classroom ☐ What percentage? ☐ b. blended (traditional and online) ☐ What percentage? ☐ c. e-learning ☐ What percentage? ☐ d. correspondence ☐ What percentage? ☐ f. other ☐ What percentage? ☐ Comments:

B Objectives

1. What is the main purpose for this course? This course aims to introduce the fundamental techniques, algorithms and designs of cloud systems. It covers traditional distributed system algorithms that form the basis of modern cloud computing, as well as touching on the architecture of big data platforms such as Hadoop.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Introduction	1	2
Gossip and Membership Protocols	2	2
P2P Systems	2	2
Distributed key-value stores	1	2
Time and Ordering	1	2
Snapshots, Multicast, Paxos Leader Election Concurrency and Replication Control	1 1 1	2 2 2
Stream and Graph Processing	3	2
Distributed File Systems	2	2

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30		30			
Credit						

3. Additional private study/learning hours expected for students per week.	3

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1		Course lectures, tutorials, assignments	Quizzes Assignments Midterm Exam Final Exam
1.2			
2.0	**Cognitive Skills**		
2.1		Course lectures, tutorials, assignments	Quizzes Assignments Midterm Exam Final Exam
2.2			
3.0	**Interpersonal Skills & Responsibility**		

3.1		Course lectures, tutorials, assignments	Quizzes Assignments Midterm Exam Final Exam
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1		Course lectures, tutorials, assignments	Quizzes Assignments Midterm Exam Final Exam
4.2			
5.0	**Psychomotor**		
5.1			
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**								
	1.1	**1.2**		**2.1**		**3.2**		**4.1**	
1.1									
2.1									

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1			
2			
3			
4			
5			
6			

7			
8			

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks
2. List Essential References Materials (Journals, Reports, etc.) Distributed Algorithms: An Intuitive Approach, 2013, Wan Fokkink
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students)
2. Computing resources (AV, data show, Smart Board, software, etc.)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

14012109-3 Compilers Construction

Institution : Umm Al-Qura University	Date : 14/4/2016
College/Department : College of Computers and Information Systems/Computer Science	

A. Course Identification and General Information

1. Course title and code: 14012109-3 Compilers Construction				
2. Credit hours : 3				
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science				
4. Name of faculty member responsible for the course Khaled Nasser ElSayed				
5. Level/year at which this course is offered 2nd year / (level 6)				
6. Pre-requisites for this course (if any)) 14012401-3 Data Structures				
7. Co-requisites for this course (if any) None				
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah				
9. Mode of Instruction (mark all that apply)				
a. traditional classroom	✓	What percentage?	100	
b. blended (traditional and online)		What percentage?		
c. e-learning		What percentage?		
d. correspondence		What percentage?		
f. other		What percentage?		
Comments: Mainly traditional classroom will dominant the mode on instruction. There is a need to apply some modes in some situations.				

B Objectives

1. What is the main purpose for this course?

1. Gain an understanding of how compilers translate source code to machine executable.
2. Utilize tools to automate compiler construction.
3. Comprehend how to perform parsing (top down and bottom up).
4. Understand how compilers generate code to manage memory during runtime.
5. Be familiar with techniques for simple code optimizations.
6. Have the knowledge to design, implement, and test a compiler for a simple language

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

24. Increase the use of the latest Web-based reference material and textbooks.
25. Review and update the course materials as part of preparation to teach this course.
26. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives.
27. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:
This Course should give a wide overview of compilers constructions including lexical, syntax, and semantic analysis and other phases of compilation process.

1 Topics to be Covered

List of Topics	No of Weeks	Contact hours per week
Introduction to compilers structure & goals	1	2
Arithmetic expression processing using a stack	1	2
Simple compiler structure	1	2
Grammar, parse tree, and ambiguous grammar	1	2
Translation schemes	1	2
Context-free grammar & parsing	1	2
Introduction to left recursion and right recursion	1	2
Lexical analyzer (language, errors, pattern specifications)	1	2
Operations on languages and regular expressions	1	2
Finite automata	2	2

Parsers and errors and sentential error	1	2
Left recursion and left factoring	1	2
FIRST, FOLLOW, and transition diagrams	1	2

2 Course components (total contact hours per semester):				
Lecture: 45	Tutorial: 0	Laboratory 0	Practical/Field work/Internship	Other:

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	45 h			0 h		45 h
Credit	3 h			0		3 h

3. Additional private study/learning hours expected for students per week.	4

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		

1.1	Description of the knowledge to be acquired	Course lectures, tutorials, assignments. Providing references and supporting reading materials for self-study.	Quizzes Assignments
1.2	Introduces the students to the basic techniques that underlie the practice of Compiler Construction.	Course lectures, tutorials, assignments Providing references and supporting reading materials for self-study.	Quizzes Assignments Midterm Exam Final Exam
1.3	Introduced the theory and tools that can be standardly employed in order to perform syntax-directed translation of a high-level programming language into an executable code.	Course lectures,, tutorials, assignments, and a group project. Providing references and supporting reading materials for self-study.	Quizzes Assignments Midterm Exam Project Final Exam
1.4	Discusses various aspects of the run-time environment into which the high-level code is translated.	Course lectures, tutorials, assignments, and a group project. Providing references and supporting reading materials for self-study.	Quizzes Project
1.5	Provides deeper insights into the more advanced semantics aspects of programming languages, such as recursion, dynamic memory allocation, types and their inferences, object orientation, concurrency and multi-threading.	Course lectures, labs, tutorials, assignments, and a group project. Providing references and supporting reading materials for self-study.	Quizzes Assignments Midterm Exam Project Final Exam
2.0	**Cognitive Skills**		
2.1	Students will be able to analyze varying perspectives regarding Compiler construction and phases	Seminars and open discussion and debates (groups)	Presentation, project, midterm, final exam
2.2	Students will be able to critically analyze issues of the different functions and process in the topics the studied locally and internationally	Seminars and open discussion and debates (groups)	Presentation, project, midterm, final exam
2.3	Students will propose creative solutions to local issues to the use of technology	Seminars and Term Papers	Presentation, project
3.0	**Interpersonal Skills & Responsibility**		
3.1	Leadership	Collaborative Project work	Project presentations Observation of collaborative work Campaign work development

		Project management skills should be implemented Communication skills with others via projects	
3.2	Group work	Collaborative Project work Public presenting via campaign Communication skills with others via projects	Project presentations Observation of collaborative work Success rate of group communication
3.3	Group communication skills	Collaborative Project work Communication skills with others via projects	Observation of collaborative work Success rate of group communication
3.4	Debate skills	Collaborative Project work Project management skills should be implemented	Observation of collaborative work Campaign work development
3.5	Public speaking	Public presenting via campaign Communication skills with others via projects	Project presentations Success rate of group communication
4.0	**Communication, Information Technology, Numerical**		
4.1	Leadership	Collaborative Project work Project management skills should be implemented Communication skills with others via projects	Project presentations Observation of collaborative work Campaign work development
4.2	Group work	Collaborative Project work	Project presentations Observation of collaborative work

		Public presenting via campaign Communication skills with others via projects	Success rate of group communication
4.3	Group communication skills	Collaborative Project work Communication skills with others via projects	Observation of collaborative work Success rate of group communication
4.4	Debate skills	Collaborative Project work Project management skills should be implemented	Observation of collaborative work Campaign work development
4.5	Public speaking	Public presenting via campaign Communication skills with others via projects	Project presentations Success rate of group communication
5.0	**Psychomotor**		
5.1	N/A	N/A	N/A
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**	**(g)**	**(h)**	**(i)**	**(j)**	**(k)**
1.1			**P**	**P**					**P**		
1.2			**P**	**A**					**A**		
1.3			**A**	**A**					**P**		
2.1			**P**	**P**					**P**		
2.2			**A**	**A**					**P**		
2.3			**P**	**A**					**P**		
3.1			**P**	**A**		**A**			**A**		
3.2			**P**	**A**		**A**			**A**		
3.3			**A**	**A**		**P**			**A**		
3.4			**P**	**A**		**A**			**P**		

3.5			**P**	**A**		**A**			**A**		
4.1			**P**	**P**					**A**		
4.2			**P**	**P**					**A**		
4.3			**A**	**P**					**P**		
4.4			**A**	**P**					**P**		
4.5			**A**	**P**					**A**		
5.1											

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	Homework 1	2	2.5
2	Quiz1	4	5
3	Midterm	10	20
4	Homework 2	12	2.5
5	Quiz 2	13	5
6	Group Project	14	15
7	Final	16	50

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Three Office Hours

E Learning Resources

1. List Required Textbooks

Compilers: Principles, Techniques, and Tools ,A. V. Aho, R. Sethi, J. D. Ullman; (c) 2010;

2. List Essential References Materials (Journals, Reports, etc.)

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3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

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4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

Slides and site for discussing compilers issues
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software --

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room Special studies space Library
2. Computing resources (AV, data show, Smart Board, software, etc.) Internet facility Web Journal access
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) PRINTERS MAC LABS (preferred for campaigns)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Questionnaires Individual and Group Meetings
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Comparisons of Assessments tools
3 Processes for Improvement of Teaching Workshops, Research of new issues
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Peer Reviews and Sample Second Marking Jury marking for campaign effectiveness
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. Monthly Progress Report tells the achievements and drawbacks may need improvement

Name of Instructor: Khaled Nasser ElSayed

Signature: _____ Date Report Completed: 14/2/2016

Name of Course Instructor Khaled Nasser ElSayed

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 14-April-2016
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14012501-3 Computer Graphics			
2. Credit hours 3			
3. Program(s) in which the course is offered. Computer Science (If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered Level 6			
6. Pre-requisites for this course (if any) 404343-3 Linear Algebra 14011102-4 Object Oriented Programming			
7. Co-requisites for this course (if any)			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course? The main purpose of Computer Graphics course is to prepare students for activities involving the design, development, and testing of modeling, rendering, and animation solutions to a broad variety of problems found in entertainment, sciences, and engineering.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) In addition to conventional graphics programming we introduced software used in the industry such as Blender, MotionBuilder, etc.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: The objective of this course is to provide a broad overview of the basic concepts of computer graphics. Topics include overview of graphics hardware, modeling and rendering techniques, curve and Spline, geometric transformations (translation, scaling, rotation, shearing, etc.), two dimensional and three dimensional viewing, illumination models, color models, and computer animation. The course also includes a computer graphics project to implement the graphics algorithms.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Mathematical Foundations of Computer Graphics	2	4
Graphics APIs and Programming	2	4
Computer Graphics Hardware	1	2
Modeling and Rendering	2	4
Curve and Spline	2	4
Transformations	2	4
Viewing	2	4
Illumination and Color Models	2	4

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			60
Credit	2	1				3

3. Additional private study/learning hours expected for students per week.	3

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Understand the foundation of the implementation of computer graphics modeling and rendering systems	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	A combination of quizzes, exams, assignments, projects, etc.
1.2	Understand the mathematical background of computer graphics	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	A combination of quizzes, exams, assignments, projects, etc.
1.3	Understand the handling of colors	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant	A combination of quizzes, exams, assignments, projects, etc.

		to content of the acquired knowledge	
1.4	Implementation of a graphics programming project	Teaching using Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	Evaluation of team work in course projects,
2.0	**Cognitive Skills**		
2.1			
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Implementation of a graphics programming project	lectures, labs, Q &A, online resources	Quizzes, Assignments, Project, Midterm Exam, Final Exam
4.2			
5.0	**Psychomotor**		
5.1	Implementation of a graphics programming project	lectures, labs, Q &A, online resources	Quizzes, Assignments, Project, Midterm Exam, Final Exam
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
1.1	P		I						I		
1.2	P									P	
1.3	P		I						I		
1.4	I		I	P					I	I	
4.1	P		I						I		
5.1	P		I						I		

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Attendance & class participation	1-15	5%
2	Quiz 1	3	10%
3	Quiz 2	5	10%
4	Quiz 3	9	10%
5	Midterm	7	20%
6	Group Project	8	10%
7	Final exam	16	35%
8			

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Faculty member has at least 6 hours per week. In addition to that appointment by email is also available.

E Learning Resources

1. List Required Textbooks
Fundamentals of Computer Graphics by Peter Shirley and Michael Ashikhmin (latest edition) Computer Graphics with OpenGL by Donald Hearn, M. Pauline Baker, and Warren (latest edition)
2. List Essential References Materials (Journals, Reports, etc.)
3D Computer Graphics by Alan Watt (latest edition)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Computer Graphics: Principles and Practice by John F. Hughes, Andries van Dam, Morgan McGuire, David F. Sklar, James D. Foley, Steven K. Feiner, Kurt Akeley
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. http://linkedin.siggraph.org/ https://twitter.com/siggraph
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. OpenGL API Java 2D and 3D API Blender Software

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 30 students) Computer lab (max 15 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) C++ and Java Development Environments APIs and IDEs
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) No

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Student Survey
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department University Course and Instructor Survey
3 Processes for Improvement of Teaching Review of curriculum and course. Coordination of instructors to improve the teaching quality.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Course file review
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. There are curriculum committee and course committee to review the course effectiveness.

Name of Instructor: Murtaza Ali Khan

Signature: *Murtaza Ali Khan* Date Report Completed: 14-April-2016

Name of Course Instructor Murtaza Ali Khan

Program Coordinator: _____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 15/4/2016
College/Department College of Computers and Information Systems/ Computer Science Department	

A. Course Identification and General Information

1. Course title and code: 14013602-3 Computer Security
2. Credit hours: 3
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course Sultan Almotiri
5. Level/year at which this course is offered 3rd Year Level 8
6. Pre-requisites for this course (if any) 14012601-4 Computer Networks.
7. Co-requisites for this course (if any)
8. Location if not on main campus : Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	80%
b. blended (traditional and online)		What percentage?	
c. e-learning	✓	What percentage?	20%
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

This course is the first level of computer and network security. The course will cover various topics related to computer security, data privacy, network protection against various attacks. The course gives students enough knowledge and a reasonable background to understand network security, active and passive attacks, Internet privacy, secure communications. Students are expected to practice biweekly homeworks, develop critical thinking about computer and network security, and apply learned materials in different contexts of various attacks, wireless and Internet security.

1. State the basic concepts in information security, including security policies, security models, and security mechanisms.
2. Explain concepts related to applied cryptography, including plain-text, cipher-text, the four techniques for crypto-analysis, symmetric cryptography, asymmetric cryptography, digital signature, message authentication code, hash functions, and modes of encryption operations.
3. Explain the concepts of malicious code, including virus, Trojan horse, and worms
4. Explain common vulnerabilities in computer programs, including buffer overflow vulnerabilities, time-of-check to time-of-use flaws, incomplete mediation
5. Outline the requirements and mechanisms for identification and authentication
6. Explain issues about password authentication, including dictionary attacks (password guessing attacks), password management policies, and one-time password mechanisms
7. Explain the requirements for trusted operating systems, and describe the independent evaluation, including evaluation criteria and evaluation process
8. Describe security requirements for database security, and describe techniques for ensuring database reliability and integrity, secrecy, inference control, and multi-level databases
9. Describe threats to networks, and explain techniques for ensuring network security, including encryption, authentication, firewalls, and intrusion detection
10. Explain the requirements and techniques for security management, including security policies, risk analysis, and physical threats and controls

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

This Course is one of the frequently revised courses by committee of study's scheduling and planning to ensure its follow-up to the up-to-date development major, from the following aspects:

1- Using up-to-date topic-related references
2- Revising scientific achievements that are related to course field.
3- Keeping track of activities for Associates and companies that are interested in course field.
4- Following-up outcomes from related scientific researches.
5- Attending Scientific conferences

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
1. Introduction Basic Concepts: Threats, Vulnerabilities, Controls; risk; confidentiality, integrity, availability, security policies, security mechanisms, assurance; prevention, detection, deterrence	1	3
2. Basic cryptography Basic cryptographic terms, Historical background, Symmetric crypto primitives, Modes of operation, Cryptographic hash functions, Asymmetric crypto primitives	2	4
3. Program security Flaws: Malicious code: viruses, Trojan horses, worms; Program flaws: buffer overflows, time-of-check to time-of-use flaws, incomplete mediation, Defenses: Software development controls, Testing techniques	2	4
4. Operating Systems Security Operating Systems Concepts, Operating Systems Security, File System Access Control, Buffer Overflow Attacks	2	6
5. Database management systems security Database integrity, Database secrecy, Inference control, Multilevel databases	2	4
6. Network security Network threats: eavesdropping, spoofing, modification, denial of service attacks, Introduction to network security techniques: firewalls, virtual private networks, intrusion detection,	2	4
7. Web security Basic web security model, Web application security , Session management and user authentication, HTTPS: goals and pitfalls	2	4

8. Management of security Security policies, Risk analysis, Physical threats and controls	1	3
9. Miscellaneous Legal aspects of security, Privacy and ethics	1	3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	35	0	10	0	2 office hour per week	75
Credit	35	0	10	0	2 office hour per week	75

3. Additional private study/learning hours expected for students per week. **3**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Appreciate the need for computer security and computer protection, including the tradeoffs between different security and protection methods	lectures, e-learning, assignments	Quizzes, Assignments, Midterm Exam, Final Exam
1.2	Able to apply concepts of public keys, private keys, cryptosystem, authentication, digital signatures to secure simple systems.	lectures, e-learning, assignments	Quizzes, Assignments, Midterm Exam, Final Exam

1.3	Implement some network security protocols such as SSL, MAC, and wireless security, WEP, WAP, and computer viruses, and Internet attacks, and utilize them in real applications to secure Internet traffic.	lectures, e-learning, assignments	Quizzes, Assignments, Midterm Exam, Final Exam
2.0	**Cognitive Skills**		
2.1	To enhance the students core ability to learn faster easier and better for new technology	lectures, e-learning, assignments	Quizzes, Assignments, Midterm Exam, Final Exam
2.2	Will acquire the ability to understand the threats and how to secure it	lectures, e-learning, assignments	Quizzes, Assignments, Midterm Exam, Final Exam
3.0	**Interpersonal Skills & Responsibility**		
3.1	Self-Learning which will help students manufacture their own body of knowledge by allowing them to experience learning through task based activities		
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Not applicable		
4.2			
5.0	**Psychomotor**		
5.1	Not applicable		
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**											
	1.1	**1.2**	**1.3**	**1.4**	**2.1**	**2.2**	**2.3**	**3.1**	**3.2**	**4.1**	**4.2**	**5.1**
1.1	I			I		I			I			
1.2	I											
1.3	I			I		I						

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Attendance and class participation	1-15	5%
2	Quiz 1	2	2.5%

3	Assignment 1	3	5%
4	Quiz 2	4	2.5%
5	Assignment 2	6	5%
6	Midterm	8	25%
7	Quiz 3	9	5%
8	Assignment 3	11	5%
9	Quiz 4	12	5%
10	Final exam	16	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Every class is assigned 2 office hours per week..

E Learning Resources

1. List Required Textbooks - Introduction to Computer Security, Michael T. Goodrich and Roberto Tamassia , Addison Wesley. 2011 - Charles P. Pfleeger and Shari L. Pfleeger. Security in Computing (3rd edition). Prentice-Hall. 2003. ISBN: 0-13-035548-8.
2. List Essential References Materials (Journals, Reports, etc.) Stallings, William, and Lawrie Brown. "Computer security." *Principles and Practice* (2008).
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Russell, Deborah, and G. T. Gangemi. *Computer security basics*. " O'Reilly Media, Inc.", 1991. Matt, Bishop. *Introduction to computer security*. Pearson Education India, 2006.
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. M. Bishop, "What is computer security?," in *IEEE Security & Privacy*, vol. 1, no. 1, pp. 67-69, Jan.-Feb. 2003.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Not Applicable

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) Data Show, Smart board,
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Firewall devices,

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department University Course and Instructor Survey
3 Processes for Improvement of Teaching Review of curriculum and course. Coordination of instructors to improve the teaching quality.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Course file review

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. There are curriculum committee and Quality Assurance committee to review the course effectiveness.

Name of Instructor: Dr. Sultan Almotiri

Signature: Dr. Sultan Almotiri Date Report Completed: 17th April 2016

Name of Course Instructor Dr. Sultan Almotiri

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 7 / 7 / 1437
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14011101-4 Computer Programming
2. Credit hours 4
3. Program(s) in which the course is offered. Computer Science
4. Name of faculty member responsible for the course Curriculum Committee
5. Level/year at which this course is offered 2nd year / level 3
6. Pre-requisites for this course 4800153-3 Computer Programming Skills
7. Co-requisites for this course
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

This course introduces students to the basics of writing software programs using the Java programming language. It focuses on how to use various Java languages constructs to develop high quality, working code that solves real problems. Topics covered include the Java programming language syntax, variables, data types, control structures, Input/output, methods, arrays, classes, objects, and general rules for writing good code. Students will develop and test Java programs using a commercial IDE.. In this course, the student will gain the ability to:

1. Analyze problems and develop computer algorithms to solve simple problems.
2. Write, document, test, and debug Java programs, making use of variables, expressions, selection and looping statements.
3. Use of professional programming coding style and comments to improve code readability and maintainability.
4. Organize program code into modules using methods following the software engineering principles of modularity and abstraction.
5. Assemble data and methods into classes at an introductory level following the software engineering principles of encapsulation and data hiding.
6. Make use of arrays to store and process lists of data.
7. Read, interpret, analyze, and explain introductory Java programs.

Deleted: (typically)

Deleted: NetBeans

Deleted: novel

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

28. Increase the use of the latest Web-based reference material and textbooks.
29. Review and update the course materials as part of preparation to teach this course.
30. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives.
31. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction (history/features of Java, how Java works, types of Java programs)	1	3
Edit, compile, debug, and run Java Programs	1	3
Variables, data types, assignment, expressions, and programming style	2	3
Methods (arguments/parameters, call by-value/reference, overloading, local/field variables, static class members, and return values)	2	3
Input/output via console and dialog boxes	1	3
Selection structure (if, if-else, and switch-case)	2	3
Repetition structure (for, while, and do-while)	2	3
Arrays (one-dimensional and multidimensional)	2	3
Object-based programming (classes/objects, instance class members, member access modifiers, constructors, set/get methods, and this reference)	2	3

Deleted: Methods (arguments/parameters, call by-value/reference, overloading, local/field variables, static class members, and return values)

Deleted: 2

Deleted: 3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	15	42			
Credit	???	???	???			

3. Additional private study/learning hours expected for students per week. 6 hours

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code	NQF Learning Domains	Course Teaching	Course Assessment

#	And Course Learning Outcomes	Strategies	Methods
1.0	**Knowledge**		
1.1	Basic understanding of the Java programming language	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.2	Gain the ability to design simple programs	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.3	Understand and use basic control structures	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.4	Understand and use arrays, Vectors and Hash tables	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.5	Gain the ability to design basic objects	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
2.0	**Cognitive Skills**		
2.1	Will acquire the ability to understand basic algorithm	Lectures, tutorial, labs	Quiz, lab evaluation, projects
2.2	Will acquire the ability to design basic algorithm	Lectures, tutorial, labs	Quiz, lab evaluation, projects
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Improve the ability to work in a group	Projects	Project evaluation
4.2			
5.0	**Psychomotor**		
5.1	Demonstrate skills in using computer machines and software tools to solve computer problems	Lab exercise, lab demonstration	Lab. exams In-lab. evaluation
5.2	Perform a task with minimum assistance	Lab exercise	Lab. exams In-lab. evaluation

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)														
	1.1	**1.2**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**3.1**	**3.2**	**3.3**	**4.1**	**4.2**	**4.3**	**5.1**	**5.2**
1.1			**I**	**I**	**I**	**I**	**I**			**I**		**I**	**I**		
1.2			**I**	**I**	**I**	**I**	**I**			**I**		**I**	**I**		
1.3			**I**	**I**	**I**	**I**	**I**			**I**		**I**	**I**		
1.4			**I**	**I**	**I**	**I**	**I**			**I**		**I**	**I**		
1.5			**I**	**I**	**I**	**I**	**I**			**I**		**I**	**I**		
2.1			**I**	**I**	**I**	**I**	**I**			**I**		**I**	**I**		
2.2			**I**	**I**	**I**	**I**	**I**			**I**		**I**	**I**		
4.1								**I**		**I**	**I**				
5.1										**I**				**I**	**I**
5.2										**I**				**I**	**I**

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignments	-	0
2	Quiz 1	5	10
3	Midterm	8	25
4	Project	11	10
5	Lab Exam	15	15
6	Final exam	16	40
7			
8			

Deleted: Quiz 2

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks Java: How to Program, 9e, Dietel and Dietel, Pearson 0273759760
2. List Essential References Materials (Journals, Reports, etc.) Lecture slides and notes
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Absolute Java, 4th Edition, Walter Savitch, Addison Wesley, 2009 Java Programming, 7th Edition, Joyce Farrell, 2013, 1285081951
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. The Java Tutorials: http://docs.oracle.com/javase/tutorial/getStarted/index.html Language Basics: http://docs.oracle.com/javase/tutorial/java/nutsandbolts/index.html Java for Complete Beginners: http://www.homeandlearn.co.uk/java/java.html
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. The main textbook: Java example codes

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students)

Overhead projector and internet connection
2. Computing resources (AV, data show, Smart Board, software, etc.) Integrated Development Environment (e.g., NetBeans, Eclipse, JBuilder). Java Development Kit (JDK)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

14014305-2 Computers and Society

Institution : Umm Al-Qura University	Date : 14/4/2016
College/Department : College of Computers and Information Systems/Computer Science	

A. Course Identification and General Information

1. Course title and code: 14014305-2 Computers and Society			
2. Credit hours : 2			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science			
4. Name of faculty member responsible for the course Khaled Nasser ElSayed			
5. Level/year at which this course is offered 4th Year / Level 9			
6. Pre-requisites for this course (if any)) 14013303-3 Software Engineering I			
7. Co-requisites for this course (if any) None			
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:
Mainly traditional classroom will dominant the mode on instruction. There is a need to apply some modes in some situations.

B Objectives

1. What is the main purpose for this course? 1. Explores basic cultural, social, legal and ethical issues inherent in the discipline of computing. 2. The course highlights the areas in which computers impact on the society in areas such as privacy, intellectual property, crime, change in society ethics and professional ethics. 3. Various Ethical codes are discussed such as ACM code and IEEE code to provide the students with a basic knowledge of how ethical codes safeguards the different societies from the impact of new technologies.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) 1. Every term new research papers are studied on the fields of social networking- Intellectual property cases- computer crimes. 2. Trips to different governmental organizations to analyze security techniques applied and provide feedback.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: This Course should give a wide overview of social implications and application of computing and Information Technologies and its ethics

1 Topics to be Covered		
List of Topics	No of Weeks	Contact hours per week
Overview of social implications of computing and information technologies	1	2
Social networking implications (privacy reduction, crime increase)	1	2
Ethical and legal basis for privacy protection	1	2
Technological and social awareness strategies for privacy protection	1	2
Cybercrime laws (limitations and barriers) implications.	1	2
Case studies on cybercrime	1	2
Foundations of intellectual property (copyrights, patents) and digital intellectual property	1	2
Case studies in Intellectual property cases	1	2

Software piracy and open source software implications	1	2
Professional ethics in computing (care, attention, responsibility). Importance of keeping up to date	1	2
Campaign week (impact of computers and technology on Saudi society)	1	2
Identifying and evaluating ethical choices in software design	1	2
Risk assessment and risk management; risk removal, risk reduction and risk control in computing discipline	1	2
Codes of ethics (ACM and IEEE), awareness of importance of maintaining ethical codes in different areas of computing fields	1	2
Review	1	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30 h			12 h		42 h
Credit	2 h			0		2 h

3. Additional private study/learning hours expected for students per week. 2

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		

1.1	Students will be aware of, and be able to identify, the social, ethical, legal, professional, and privacy issues related to computing	Lectures Student debates	Essay assignments, presentation ,campaign reports, questionnaires devising , statistical report design midterm, final exam
1.2	Understanding of professional, ethical, legal and social issues and responsibilities. A significant portion of course will be spent on educating students about professional, ethical, legal and social issues and responsibilities of a computing professional	Lectures Student debates	Essay assignments, presentation, campaign reports, questionnaires devising , statistical report design midterm, final exam
1.3	The effects of being an IEEE and ACM member towards their field of profession	Analytical thinking skills in research papers	presentation , campaign reports, questionnaires devising
2.0	**Cognitive Skills**		
2.1	Students will be able to analyze varying perspectives regarding ethical, social, and professional issues in computer science and engineering	Seminars and open discussion and debates (groups)	Presentation, project, midterm, final exam
2.2	Students will be able to critically analyze issues of the different issues in the topics the studied locally and internationally	Seminars and open discussion and debates (groups)	Presentation, project, midterm, final exam
2.3	Students will propose creative solutions to local issues to the use of technology	Seminars and Term Papers	Presentation, project
3.0	**Interpersonal Skills & Responsibility**		
3.1	Leadership	Collaborative Project work Project management skills should be implemented Communication skills with others via projects	Project presentations Observation of collaborative work Campaign work development
3.2	Group work	Collaborative Project work	Project presentations Observation of collaborative work

		Public presenting via campaign Communication skills with others via projects	Success rate of group communication
3.3	Group communication skills	Collaborative Project work Communication skills with others via projects	Observation of collaborative work Success rate of group communication
3.4	Debate skills	Collaborative Project work Project management skills should be implemented	Observation of collaborative work Campaign work development
3.5	Public speaking	Public presenting via campaign Communication skills with others via projects	Project presentations Success rate of group communication
4.0	**Communication, Information Technology, Numerical**		
4.1	Leadership	Collaborative Project work Project management skills should be implemented Communication skills with others via projects	Project presentations Observation of collaborative work Campaign work development
4.2	Group work	Collaborative Project work Public presenting via campaign Communication skills with others via projects	Project presentations Observation of collaborative work Success rate of group communication
4.3	Group communication skills	Collaborative Project work	Observation of collaborative work Success rate of group communication

		Communication skills with others via projects	
4.4	Debate skills	Collaborative Project work Project management skills should be implemented	Observation of collaborative work Campaign work development
4.5	Public speaking	Public presenting via campaign Communication skills with others via projects	Project presentations Success rate of group communication
5.0	**Psychomotor**		
5.1	N/A	N/A	N/A
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**	**(g)**	**(h)**	**(i)**	**(j)**	**(k)**
1.1					**P**	**P**					
1.2					**P**	**P**					
1.3					**P**	**P**					
2.1						**P**	**P**				
2.2						**P**	**P**				
2.3						**A**	**A**				
3.1								**P**			
3.2								**P**			
3.3								**A**			
3.4								**A**			
3.5								**P**			
4.1											
4.2											
4.3											
4.4											
4.5											
5.1											

6. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Class Participation	Every week	5
2	Two short papers ,each 2-3 pages long	3-5	10
3	In class-debate	7	5
4	Computer and society Campaign	10	15
5	Written term paper and oral presentation	12	15
6	Midterm Exam	7	20
7	Final exam	14	30

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Two Office Hours

E Learning Resources

1. List Required Textbooks A Gift of Fire: Social, Legal, and Ethical Issues for Computers and the Internet (3rd Edition) by Sara Baase
2. List Essential References Materials (Journals, Reports, etc.) 1. Computer Ethics, Deborah G. Johnson (2nd edition),2009 2. Ethics for the information age, Micheal.J. Quinn,(3rd edition), 2009. 3. Ethics in Information Technology,George.W.Reynolds,(3rd edition), 2010. 4. Introduction to information technology law ,6/E, David Bainbridge,2007.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) 1. The arrival of virtual office, Ira M.weinstein, August 2005. 2. Blown to bits :your life ,liberty, and happiness after the digital explosion, hal abeslon, ken ledeen ,harry lewis,2008. 3. Do good design :how designers can save the world, David berman,2009. IEEE Computers and Society Journal
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

The society for computer Law
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. ACM CODE of Ethics IEEE Code of Ethics

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room Computer Lab Special studies space Library
2. Computing resources (AV, data show, Smart Board, software, etc.) Internet facility Web Journal access
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) PRINTERS MAC LABS (preferred for campaigns)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Questionnaires Individual and Group Meetings
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Comparisons of Assessments tools
3 Processes for Improvement of Teaching Workshops, Research of new issues
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Peer Reviews and Sample Second Marking Jury marking for campaign effectiveness
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Monthly Progress Report tells the achievements and drawbacks may need improvement

Name of Instructor: Khaled Nasser ElSayed

Signature: _____ Date Report Completed: 14/2/2016

Name of Course Instructor Khaled Nasser ElSayed

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution	Umm Al Qura University	Date	April 14, 2016
College/Department	College of Computer and Information Systems		

A. Course Identification and General Information

1. Course title and code: 14012401-3 Data Structures			
2. Credit hours 3			
3. Program(s) in which the course is offered. Computer Science (If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered 2nd Year / Level 5			
6. Pre-requisites for this course (if any) 14011102-4 Object Oriented Programming 14011802-3 Discrete Structures II			
7. Co-requisites for this course (if any)			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course? The objective of this course is to provide theoretical and practical knowledge of fundamental computer science structures. Topics include arrays, linked-list, stacks, queues, trees, graphs, and traversal techniques such as depth-first-search and breadth-first-search. These data structures are explained using basic sorting and searching techniques with brief overview of recursion and memory management. The course also explores the implementation of a range of data structures in the Java programming language. The knowledge and practice of these structures are of utmost importance. It will make the students able to organize, represent and manipulate the data, which is central to computing.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) Developed by increased use of IT and wed based reference materials. Improvements are as a result of new research in the field.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: Topics include arrays, linked-list, stacks, queues, trees, graphs, and traversal techniques such as depth-first-search and breadth-first-search. These data structures are explained using basic sorting and searching techniques with brief overview of recursion and memory management. The course also explores the implementation of a range of data structures in the Java programming language.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Arrays and Linked List	3	2
Stacks and Queues	3	2
Trees and Traversals	3	2
Graphs	2	2
Traversal	2	2
Recursion and Memory Management	2	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30		30			60
Credit	1.8		1.2			3

3. Additional private study/learning hours expected for students per week. 3

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Understanding fundamental data structures such as: Arrays, Linked-Lists, Stack, Queues, Trees and Graphs	Lectures	Quizzes, Midterm, Final Exam
1.2	Java based implementations of fundamental data structures	Lab Practicals	Lab Exam
2.0	**Cognitive Skills**		
2.1	Designing (new) data structure to solve selected problems	Lectures, Lab Practical	Lab Assignments, Final Exam
3.0	**Interpersonal Skills & Responsibility**		
3.1			
4.0	**Communication, Information Technology, Numerical**		
4.1			
5.0	**Psychomotor**		

5.1			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	1.1	**1.2**	**1.3**	**1.4**	**2.1**	**2.2**	**2.3**	**3.1**	**3.2**	**4.1**	**4.2**
1.1		I	I	I							
1.2		I	I	I							
2.1					P						

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Lab Task Completion and Assignments	2-6	5%
2	Class Quiz	7	5%
3	Midterm	9	25%
4	Lab Task Completion and Assignments	10-14	5%
5	Class Quiz	15	5%
6	Lab Exam	17	15%
7	Final Exam	18	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks Data Structures and Algorithms in Java by Michael T. Goodrich, Roberto Tamassia (latest edition)
2. List Essential References Materials (Journals, Reports, etc.) Data Structures and Algorithm Analysis in Java by Mark A. Weiss (latest edition)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 30 students) with Multimedia Projector Computer lab (max 15 students) with Multimedia Projector
2. Computing resources (AV, data show, Smart Board, software, etc.) Java Development Environment and IDE such as Net Beans/Eclipse
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Student feedback forms distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 14/4/2016
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: Database I--14012301-3
2. Credit hours: 3
3. Program(s) in which the course is offered. Computer Science
4. Name of faculty member responsible for the course Shady Elsaid
5. Level/year at which this course is offered 2nd year / level 5
6. Pre-requisites for this course (if any) 14011102-4 Object Oriented Programming
7. Co-requisites for this course (if any)
8. Location if not on main campus Al-Abidia, Al-Zaher
9. Mode of Instruction (mark all that apply)

a. traditional classroom	√	What percentage?	100%
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

- The student will understand various different types of data modelling techniques and the supporting theoretical foundation.
- Create conceptual database Design for a given application using ER and relational database models.
- Describe characteristics of entity relationship components and explain how relationships between entities are defined.
- Be familiar with fundamental relational database concepts
- Use Relational algebra operators and SQL commands and function for data manipulation.
- Use normalization and normal forms to improve database design.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

The course includes some lab sessions where students use DBMS like Oracle to implement database and run SQL queries.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:
This course provides foundational database knowledge and covers topics related to the conceptual design of database based on the functional requirements for organizations. It presents the basics of information storage and management, from the conceptual modelling of an organization's data requirements using the relational model, through to the implementation of these requirements with tools such as SQL and techniques such as normalization.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
File Systems VS DB Systems	1	3
Data Modelling: Entity Relationship Diagram	2	6
ERD to Relational Mapping	1	3
Normalization: 1NF, 2NF, 3NF, BCNF	2	6
Relational Algebra Operations	2	6
SQL: Data Definition Language	2	6
SQL: Data Manipulation Language	3	9
Disk Storage, Basic File Structures, File Indexing Techniques	1	3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	28		15			
Credit	2		1			

3. Additional private study/learning hours expected for students per week. [ ]

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Explain difference between file systems and database systems	Lecture	Homework/Quizzes/Exams
1.2	Differentiate between ER and Normalization in relational model construction	Lecture	Homework/Quizzes/Exams

2.0	**Cognitive Skills**		
2.1	Create a Conceptual Data Model	Lecture	Homework/Quizzes/Exams
2.2	Design a Relational Database Model	Lecture	Homework/Quizzes/Exams
3.0	**Interpersonal Skills & Responsibility**		
4.0	**Communication, Information Technology, Numerical**		
4.1	Write SQL queries	Lab	Homework/Quizzes/Exams
5.0	**Psychomotor**		
5.1	Installing database servers	Lab	Homework/Quizzes/Exams

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**											
	1.1	**1.2**	**1.3**	**1.4**	**2.1**	**2.2**	**2.3**	**3.1**	**3.2**	**4.1**	**4.2**	**5.1**
1.1	I											
1.2	P											
2.1			P									
2.2			P									
4.1				P								
5.1											I	I

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Homework or Quiz	5	10%
2	Homework or Quiz	7	10%
3	Midterm	8	30%
4	Homework or Quiz	14	10%
5	Final exam	16	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) 6 office hours

E Learning Resources

1. List Required Textbooks **Fundamentals of Database Systems** By: Ramez Elmasri , Shamkant B. Navathe
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Modern Database Management By: Jeffrey A. Hoffer and Ramesh Venkataraman
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Classrooms, laboratories
2. Computing resources (AV, data show, Smart Board, software, etc.) SQL Server (e.g. MS SQL Server, MySQL), data show
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Network , Internet connection

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Questionnaire
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Questionnaire evaluation with respect to CLOs
3 Processes for Improvement of Teaching Continuous learning to be updated with modern teaching techniques
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Remarking of samples of students' work with another staff member with respect to a model answer and marking scheme.
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. A staff member feedback after midterm and final exams

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 14/4/2016
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014302-3 Database II
2. Credit hours: 3
3. Program(s) in which the course is offered. Computer Science
4. Name of faculty member responsible for the course Shady Elsaid
5. Level/year at which this course is offered 4th year / (level 9 or 10)
6. Pre-requisites for this course (if any) 14012301-3 Database I
7. Co-requisites for this course (if any)
8. Location if not on main campus Al-Abidia, Al-Zaher
9. Mode of Instruction (mark all that apply)

a. traditional classroom	√	What percentage?	100%
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? • Design and execute advanced queries. • Design application using EER model. • Describe components of database management systems. • Explain how queries are processed and simple query optimization techniques. • Define concepts like transaction processing, backup and recovery. • Understand advanced data modelling e.g. object oriented, distributed database, XML, data warehousing and data mining and the supporting theoretical foundation.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) Discussion sessions should be held to find out newest updates regarding topics being instructed.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: This course provides advanced database knowledge. It presents the basics of transactions, data mining and warehousing, query processing and optimization, database tuning, distributed and NoSQL databases

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
The Enhanced Entity-Relationship (EER) model	1	3
Transactions: failures, atomicity, consistency, isolation, durability	2	6
Query Processing and Query Optimization Techniques	2	6
Database Backup and Recovery	2	6
Object and Object-Relational Databases.	1	3
XML for Semi-Structured Data.	1	3
Distributed Databases (DDB).	2	6
Database Security.	1	3
Distributed and NoSQL Databases	1	3
Data Mining and Warehousing	1	3

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	42					
Credit	3					

3. Additional private study/learning hours expected for students per week.	

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Explain difference between ERD and EERD	Lecture	Homework/Quizzes/Exams
1.2	Explain advanced database topics like transaction control, OODB, distributed DB, etc.	Lecture	Homework/Quizzes/Exams
1.3	Explain usages of data mining and data warehousing	Lecture	Homework/Quizzes/Exams
2.0	**Cognitive Skills**		
2.1	Convert EER Model to a Relational Database Model	Lecture	Homework/Quizzes/Exams
2.2	Implements query optimization techniques	Lecture	Homework/Quizzes/Exams
3.0	**Interpersonal Skills & Responsibility**		
3.1	Explain state of the art topics regards advanced databases	Lecture	Presentation

4.0	**Communication, Information Technology, Numerical**
5.0	**Psychomotor**

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**											
	1.1	**1.2**	**1.3**	**1.4**	**2.1**	**2.2**	**2.3**	**3.1**	**3.2**	**4.1**	**4.2**	**5.1**
1.1	P											
1.2	P											
1.3	P			P								
2.1					P							
2.2			P									
3.1				P						P		

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Homework or Quiz	5	10%
2	Homework or Quiz	7	10%
3	Midterm	8	30%
4	Presentation	14	10%
5	Final exam	16	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

6 office hours

E Learning Resources

1. List Required Textbooks **Fundamentals of Database Systems** By: Ramez Elmasri , Shamkant B. Navathe
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Classrooms
2. Computing resources (AV, data show, Smart Board, software, etc.) SQL Server (e.g. MS SQL Server, MySQL), data show
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Questionnaire
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Questionnaire evaluation with respect to CLOs

3 Processes for Improvement of Teaching Continuous learning to be updated with modern teaching techniques
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Remarking of samples of students' work with another staff member with respect to a model answer and marking scheme.
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. A staff member feedback after midterm and final exams

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 7 / 7 / 1437
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14011801-3 Discrete Structures I			
2. Credit hours 3 (2 lecture, 2 lab,)			
3. Program(s) in which the course is offered. Computer Science			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered 1st Year / Level 3			
6. Pre-requisites for this course (if any) 4800141-4 Introduction to Mathematics II			
7. Co-requisites for this course (if any)			
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course?
This course covers the mathematical foundations of computer science and engineering. It introduces elementary concepts in mathematics such as definitions, logic, proofs, functions, relations and counting principles. The course also introduces students to elementary discrete structures such as sets, partial orders, graphs and trees. 1. Be able to construct simple mathematical proofs and possess the ability to verify them 2. Have substantial experience to comprehend formal logical arguments. 3. Be skillful in expressing mathematical properties formally via the formal language of propositional logic and predicate logic. 4. Be able to specify and manipulate basic mathematical objects such as sets, functions, and relations and will be able to verify simple mathematical properties that these objects possess. 5. Acquire ability to describe computer programs (e.g. recursive functions) in a formal mathematical manner. 6. Be able to apply basic counting techniques to solve combinatorial problems
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:
To introduce the student to the mathematical tools of logic and induction, and to the basic definitions and theorems concerning relations, functions, and sets. Later courses in the computer science curriculum build on the mathematical foundations covered here. Particular emphasis is placed on inductive definitions and proofs, with application to problems in computer science

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours

1. *Logic* a. *Propositional logic* b. *Truth tables* c. *Propositional Equivalence* d. *Implication, equivalence, converse, inverse, contrapositive and negation* e. *Predicates and quantifier* f. *Rules of inference*	1	4
2. *Sets* a. *Venn diagrams* b. *Sets operations* c. *Cartesian product* d. *Power sets* e. *Cardinality of finite sets* f. *Important numeric sets, notation and subset relations among them*	1	4
3. *Basic modular arithmetic* a. *Division and the division algorithm* b. *Congruence, properties and modular arithmetic* c. *Application of congruence*	1	4
4. *Functions* a. *Representation* b. *Surjections, injections and bijections* c. *Inverse* d. *Composition* e. *Important Numeric functions: floor, ceiling, log*	2	4
5. *Proofs* a. *Direct proofs* b. *Proof by contradiction* c. *Proof by contrapositive*	1	4
6. *Sequence and Sums (Basics, more in probability course)* a. *Arithmetic and geometric sequences* b. *Basic summation techniques and their visualization* c. *Linearity of summation* d. *Sums of powers of integers*	3	4
7. *Induction* a. *Mathematical Induction* b. *Weak and strong induction* c. *Recursive definitions of functions and sequences* d. *Recurrence relation*	2	4

8. *Relations* a. *Reflexivity, symmetry, transitivity* b. *Operations, union, intersection, complement, projection, join* c. *Composition and exponentiation* d. *Equivalence relations and equivalence classes*	3	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			
Credit						

3. Additional private study/learning hours expected for students per week. 3-4 hrs

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Become aware of the basic principles of logical reasoning.	Lectures, tutorial , exercises	Quizzes, Assignments, Midterm Exam,, Final Exam
1.2	Be able to follow elementary mathematical arguments	Lectures, tutorial, exercises	Quizzes, Assignments, Midterm Exam,, Final Exam

1.3	Understand how to analyze complexity of algorithms	Lectures, tutorial, exercises	Quizzes, Assignments, Midterm Exam,, Final Exam	
1.4	Synthesize elementary proofs	Lectures, tutorial, exercises	Quizzes, Assignments, Midterm Exam,, Final Exam	
2.0	**Cognitive Skills**			
2.1	Be able to reason mathematically to solve problems.	exercises	Quizzes, Assignments, Midterm Exam,, Final Exam	
2.2	Be able to define connections between mathematical concepts and concrete applications.	exercises	Quizzes, Assignments, Midterm Exam,, Final Exam	
3.0	**Interpersonal Skills & Responsibility**			
3.1				
3.2				
4.0	**Communication, Information Technology, Numerical**			
4.1	Be able to discuss mathematical ideas coherently with their fellow students.	exercises	Assignments	
4.2				
5.0	**Psychomotor**			
5.1	be able express themselves clearly when giving a proof	exercises	Quizzes, Assignments, Midterm Exam,, Final Exam	
5.2				

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**														
	1.1	**1.2**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**3.1**	**3.2**	**3.3**	**4.1**	**4.2**	**4.3**	**5.1**	**5.2**
1.1	I		I	I	I		I								
1.2	I		I	I	I		I								
1.3	I		I	I	I		I								
1.4	I		I	I	I		I								
2.1			I	I	I		I								
2.2			I	I	I		I								
4.1											I	I			
5.1											I	I			I

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quizzes	Every other week	20
2	Assignments	Twice per term	20
3	Midterm Exam	8	20
4	Final Exam	16	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks Discrete Mathematics and Its Applications, 7th Edition, By Kenneth Rosen
2. List Essential References Materials (Journals, Reports, etc.) Lecture slides
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) Data show, Smart Board Mathematical S/W tools.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Students usually fill in survey forms that inquiry to which degree the gained knowledge and practice meet the course specification.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department

Monitoring the variation in the performance of each student throughout the course.
3 Processes for Improvement of Teaching • Considering the variety of backgrounds and abilities of the students by: 1. Including review of basic logical principles when introducing new topics 2. Mingling straight-forward concepts with ones that are more challenging and abstract 3. Encouraging active participation of the students. 4. Providing frequent feedback on the students' work
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution	Umm Al Qura University Date 7 / 7 / 1437
College/Department	College of Computers and Information Systems

A. Course Identification and General Information

1. Course title and code: 14011802-3 Discrete Structures II			
2. Credit hours 3 (2 lecture, 2 lab)			
3. Program(s) in which the course is offered. Computer Science			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered 2rd year / level 4			
6. Pre-requisites for this course (if any) 14011801-3 Discrete Structures I 14011101-4 Computer Programming			
7. Co-requisites for this course (if any)			
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course?
This course covers the advanced mathematical foundations of computer science and engineering. It introduces elementary concepts in mathematics such. Discrete Probability, graph theory, advance counting and trees to solve real world problems. Be able to understand and use probability in practical problems Be able to synthesize advanced proofs Be able to apply concepts of graph theory and trees to solve real world problems
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: Introduces graph theory, probability theory and other discrete structures used in computer science, including graph representations, traversal and simple graph algorithms, trees, counting strategies, summations, and an introduction to finite probability, recursion, and finite state machine models.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
9. *Discrete Probability* a. *An Introduction to Discrete Probability* b. *Probability Theory* c. *Bayes' Theorem* d. *Expected Value and Variance*	3	4

10. Advanced Counting Techniques *a. Applications of Recurrence Relations.* *b. Solving Linear Recurrence Relations.* *c. Divide-and-Conquer Algorithms and Recurrence Relations.* *d. Generating Functions.* *e. Inclusion–Exclusion.* f. *Applications of Inclusion–Exclusion.*	3	4
11. Relations *a. Relations and Their Properties.* *b. n-ary Relations and Their Applications .* *c. Representing Relations.* *d. Closures of Relations.* *e. Equivalence Relations.* f. *Partial Orderings.*	2	4
12. Graphs *a. Graphs and Graph Models.* *b. Graph Terminology and Special Types of Graphs. .* *c. Representing Graphs and Graph Isomorphism.* *d. Connectivity.* *e. Euler and Hamilton Paths.* *f. Shortest-Path Problems.* *g. Planar Graphs* h. *Graph Coloring*	3	4
13. Trees *a. Introduction to Trees* *b. Applications of Tree* *c. Tree Traversal* *d. Spanning Trees* *e. Minimum Spanning Trees*	2	4
Linked List, Stack, and Queue	2	4
14. Induction *a. Mathematical Induction* *b. Weak and strong induction* *c. Recursive definitions of functions and sequences* *d. Recurrence relation*	2	4
15. Relations *a. Reflexivity, symmetry, transitivity* *b. Operations, union, intersection, complement, projection, join* *c. Composition and exponentiation* *d. Equivalence relations and equivalence classes*	3	4

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			
Credit						

3. Additional private study/learning hours expected for students per week.	3-4 hrs

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Understand and use probability in practical problems	Lectures, tutorial, exercises	Quizzes, Assignments, Midterm Exam,, Final Exam
1.2	Synthesize advanced proofs	Lectures, tutorial, exercises	Quizzes, Assignments, Midterm Exam,, Final Exam
1.3	Apply concepts of graph theory and trees to solve real world problems	Lectures, tutorial, exercises	Quizzes, Assignments, Midterm Exam,, Final Exam
2.0	**Cognitive Skills**		
2.1	Be able to reason mathematically to solve problems.	exercises	Quizzes, Assignments, Midterm Exam,, Final Exam

2.2	Be able to define connections between mathematical concepts and concrete applications.	exercises	Quizzes, Assignments, Midterm Exam,, Final Exam
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Be able to discuss mathematical ideas coherently with their fellow students.	exercises	Assignments
4.2			
5.0	**Psychomotor**		
5.1	be able express themselves clearly when giving a proof	exercises	Quizzes, Assignments, Midterm Exam,, Final Exam
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**														
	1.1	**1.2**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**3.1**	**3.2**	**3.3**	**4.1**	**4.2**	**4.3**	**5.1**	**5.2**
1.1	**A**		**A**	**A**	**A**		**A**								
1.2	**A**		**A**	**A**	**A**		**A**								
1.3	**A**		**A**	**A**	**A**		**A**								
2.1			**A**	**A**	**A**		**A**								
2.2			**A**	**A**	**A**		**A**								
4.1											**A**	**A**			
5.1											**A**	**A**			**A**

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quizzes	Every other week	20
2	Assignments	Twice per term	20
3	Midterm Exam	8	20

4	Final Exam	16	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks Discrete Mathematics and Its Applications, 7th Edition, By Kenneth Rosen
2. List Essential References Materials (Journals, Reports, etc.) Lecture slides
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) Data show, Smart Board Mathematical S/W tools.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Students usually fill in survey forms that inquiry to which degree the gained knowledge and practice meet the course specification.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Monitoring the variation in the performance of each student throughout the course.
3 Processes for Improvement of Teaching

• Considering the variety of backgrounds and abilities of the students by: 5. Including review of basic logical concepts when introducing new topics 6. Mingling straight-forward concepts with ones that are more challenging and abstract 7. Encouraging active participation of the students. 8. Providing frequent feedback on the students' work
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 15/4/2016
College/Department College of Computers and Information Systems/ Computer Science Department	

A. Course Identification and General Information

1. Course title and code: 14014605-3 Forensics Computing
2. Credit hours 3
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **Computer Science**
4. Name of faculty member responsible for the course Dr. Sultan Almotiri
5. Level/year at which this course is offered 4th year / (level 9 or 10)
6. Pre-requisites for this course (if any) 14013602-3 Computer Security
7. Co-requisites for this course (if any) None
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	80%
b. blended (traditional and online)		What percentage?	
c. e-learning	✓	What percentage?	20%
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?
Securing relevant evidence from computer systems and other electronic devices requires a range of skills and a deep understanding of how data is stored and organized electronically. This course serves as an introduction to the technologies relevant to computer forensics and provides the student with hands-on experience collecting and analyzing electronic data. Upon completing this course, students will: 1. Understand the fundamentals of computer forensics 2. Understand the legal aspects of forensics 3. Understand the relationship between IT and forensics 4. Learn best practices for incidence response
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) 32. Increase the use of the latest Web-based reference material and textbooks. 33. Review and update the course materials as part of preparation to teach this course. 34. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives. 35. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Introduction to Computer Forensics	1	3
• Understanding Computer Investigations • The Investigator's Office and Laboratory	1	3

Data Acquisition	1	3
Current Computer Forensics Tools	1	3
Processing Crime and Incident Scenes	1	3
Digital Evidence Controls	1	3
Working with Windows and DOS Systems	1	3
Macintosh and Linux Boot Processes and File Systems	1	3
Recovering Image Files	1	3
Computer Forensics Analysis	1	3
Cloud and Network Forensics	1	3
E-Mail and Social Media Investigations	1	3
Becoming an Expert Testimony	1	3
Reporting Results of Investigations	1	3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	35	0	10	0	2 office hour per week	75
Credit	35	0	10	0	2 office hour per week	75

3. Additional private study/learning hours expected for students per week.	3

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Understand the fundamentals of computer forensics	lectures, e-learning, assignments	Quizzes, Assignments, Midterm Exam, Final Exam
1.2	Understand the legal aspects of forensics	lectures, e-learning, assignments	Quizzes, Assignments, Midterm Exam, Final Exam
1.3	Understand the relationship between IT and forensics	lectures, e-learning, assignments	Quizzes, Assignments, Midterm Exam, Final Exam
1.4	Learn best practices for incidence response	lectures, e-learning, assignments	Quizzes, Assignments, Midterm Exam, Final Exam
2.0	**Cognitive Skills**		
2.1	To enhance the students core ability to learn faster easier and better	lectures, e-learning, assignments	Quizzes, Assignments, Midterm Exam, Final Exam
2.2	Will acquire the ability to understand the threats and how to	lectures, e-learning, assignments	Quizzes, Assignments, Midterm Exam, Final Exam
3.0	**Interpersonal Skills & Responsibility**		
3.1	Self-Learning which will help students manufacture their own body of knowledge by allowing them to experience learning through task based activities	lectures, e-learning, assignments	Quizzes, Assignments, Midterm Exam, Final Exam
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Not applicable		
5.0	**Psychomotor**		
5.1	Not applicable		

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)											
	1.1	**1.2**	**1.3**	**1.4**	**2.1**	**2.2**	**2.3**	**3.1**	**3.2**	**4.1**	**4.2**	**5.1**
1.1	I											
1.2	I					I						
1.3	I			I								
1.4	I			I					I		I	
2.1	I											
2.2	I											
3.1	I											

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Attendance and class participation	1-15	5%
2	Quiz 1	2	2.5%
3	Assignment 1	3	5%
4	Quiz 2	4	2.5%
5	Assignment 2	6	5%
6	Midterm	8	25%
7	Quiz 3	9	5%
8	Assignment 3	11	5%
9	Quiz 4	12	5%
10	Final exam	16	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Every class is assigned 2 office hours per week..

E Learning Resources

1. List Required Textbooks 1. "Digital Evidence and Computer Crime" (Third edition), Eoghan Casey, Elsevier Academic Press, 2011, ISBN 978-0-12-374268-1. 2. "Guide to Computer Forensics and Investigations: Processing Digital Evidence", (Fifth edition), Bill Nelson, Cengage Learning,2015, ISBN 978-1-285-06003-3
2. List Essential References Materials (Journals, Reports, etc.) Bunting, Steve, "EnCE - The Official EnCase Certified Examiner Study Guide," Sybex/Wiley Indianapolis, Third Edition, 2012, ISBN #978-0-470-90106-9
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) "Incident Response & Computer Forensics" (second edition), Kevin Mandia, Chris Prosise, and Matt Pepe, McGraw Hill/Osborne, 2003, ISBN 0-07-222696-X.
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. Forensic File System Analysis", Brian Carrier, through O'Reilly Safari: http://proquest.safaribooksonline.com/0321268172
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. None

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) Data Show, Smart board
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Various forensic tools

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department University Course and Instructor Survey
3 Processes for Improvement of Teaching Review of curriculum and course. Coordination of instructors to improve the teaching quality.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Course file review

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. There are curriculum committee and Quality Assurance committee to review the course effectiveness.

Name of Instructor: Dr. Sultan Almotiri

Signature: Dr. Sultan Almotiri Date Report Completed: 16th April 2016

Name of Course Instructor Dr. Sultan Almotiri

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 14-April-2016
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014108-3 Game Programming			
2. Credit hours 3			
3. Program(s) in which the course is offered. Computer Science (If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered 4th year/ Level 9 or 10			
6. Pre-requisites for this course (if any) 14012501-3 Computer Graphics 14013701-4 Artificial Intelligence			
7. Co-requisites for this course (if any)			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course? The main purpose of this course is to give the student thorough insight into game development from a programmers point of view. This includes the processes, mechanics, issues in game design, game engine development, build systems that employ common approaches to game AI, game physics, and game graphics.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) In addition to conventional graphics programming we introduced software used in the industry such as Blender, Corona SDK, Unity, etc.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: The aim of this course is to design and develop a computer game. Topics include game design, game mechanics, game strategies, game engine, UI design, 3D modeling, computer animation, graphics algorithms, and artificial intelligence. Project is an important component of this course. Students will work in small teams to design and develop an interactive and real-time three-dimensional game with multimedia elements such as animation, audio, video, etc. The course assumes that students have proficient programming skills in computer graphics (preferably in C++) and sufficient knowledge of user interface design.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Game Programming and Game Engine	3	2
Game Mechanics	3	2
Game Strategies	3	2
UI Design	2	2
3D Modeling and Animation	2	2
AI for Games	2	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			60
Credit	2	1				3

3. Additional private study/learning hours expected for students per week.	3

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	The students will be able to understand the common approaches to game AI, game physics, game graphics, and game engine.	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	A combination of quizzes, exams, assignments, projects, etc.
1.2	The students will be able to implement effective design, production and testing techniques (including appropriate project engineering and management) through all phases of game development as relevant to programmers/engineers	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	A combination of quizzes, exams, assignments, projects, etc.
1.3	The students will be able to efficiently use the power and resources of game hardware platforms and game engines	Teaching using boards, PowerPoint slides, Lab sessions, selected home works, and projects relevant to content of the acquired knowledge	A combination of quizzes, exams, assignments, projects, etc.
2.0	**Cognitive Skills**		

2.1			
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	The students will be able to implement effective design, production and testing techniques (including appropriate project engineering and management) through all phases of game development as relevant to programmers/engineers	lectures, labs, Q &A, online resources	A combination of quizzes, exams, assignments, projects, etc.
4.2			
5.0	**Psychomotor**		
5.1	The students will be able to implement effective design, production and testing techniques (including appropriate project engineering and management) through all phases of game development as relevant to programmers/engineers	Lab. demonstrations Co-operative learning	Lab. exams In-lab. evaluation
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**											
	1.1	1.2	1.3	1.4	2.1	2.2	2.3	3.1	3.2	4.1	4.2	5.1
1.1			I	I								
1.2	I	I	I	I				P			I	
1.3	I			P								
4.1			I	I								
5.1												I

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Attendance & class participation	1-15	5%

2	Quiz 1	3	10%
3	Quiz 2	5	10%
4	Labs	2-13	10%
5	Midterm	7	20%
6	Group Project	8	10%
7	Final exam	16	35%
8			

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Faculty member has at least 6 hours per week. In addition to that appointment by email is also available.

E Learning Resources

1. List Required Textbooks Game Coding Complete by Mike McShaffry and David Graham (latest edition) Programming Game AI By Example by Mat Buckland (latest edition)
2. List Essential References Materials (Journals, Reports, etc.) Mathematics for 3D Game Programming and Computer Graphics by Eric Lengyel (latest edition)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Game Programming Patterns by Robert Nystrom
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. http://www.gdmag.com/ http://gamasutra.com

http://www.rit.edu/gccis/gameeducationjournal/
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. OpenGL API Java 2D and 3D API Blender Software

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 30 students) Computer lab (max 15 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) C++ and Java Development Environments APIs and IDEs
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) No

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
Student Survey

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department University Course and Instructor Survey
3 Processes for Improvement of Teaching Review of curriculum and course. Coordination of instructors to improve the teaching quality.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Course file review
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. There are curriculum committee and course committee to review the course effectiveness.

Name of Instructor: Murtaza Ali Khan

Signature: *Murtaza Ali Khan* Date Report Completed: 15-April-2016

Name of Course Instructor Murtaza Ali Khan

Program Coordinator: _____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 8/ 7 / 1437
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014901-4 Graduation Project I			
2. Credit hours 4			
3. Program(s) in which the course is offered. Computer Science			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered level 9			
6. Pre-requisites for this course 1401312-3 – Fundamentals of Database Systems and 1401313-3 – Software Engineering			
7. Co-requisites for this course			
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course?

This course is the first semester of the required major design experience. In a two semester-long project, student teams will propose, design, produce and evaluate a software and/or hardware system. The project will culminate in the delivery of a working system, a formal public presentation, and written documentation. Oral and written progress reports are required.

8. Ability to apply knowledge of mathematics, computing, science, and engineering appropriate to the discipline.
9. Ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
10. Ability to function effectively on teams to accomplish a common goal.
11. Ability to communicate effectively.
12. Recognition of the need for, and an ability to engage continuing professional development.
13. Ability to use the current techniques, skills, and tools necessary for computing practice.
14. Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer based systems in a way that demonstrates comprehension of the trade-offs involved in design choices
15. Ability to apply design and development principles in the construction of software systems of varying complexity

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2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

36. Increase the use of textbooks.
37. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives.
38. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

This course is the first semester of the required major design experience. In a two semester-long project, student teams will propose, design, produce and evaluate a software and/or hardware system. The project will culminate in the delivery of a working system, a formal public presentation, and written documentation. Oral and written progress reports are required.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
N/A	N/A	N/A

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			
Credit						

3. Additional private study/learning hours expected for students per week.	4 hours

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
2.0	**Cognitive Skills**		
2.1	Ability to apply knowledge of mathematics, computing, science, and engineering appropriate to the discipline.	Project Supervision	Report. presentation
2.2	Ability to use the current techniques, skills, and tools necessary for computing practice.	Project Supervision	Report. presentation

2.3	Ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.	Project Supervision	Report. presentation
3.0	**Interpersonal Skills & Responsibility**		
3.1	Ability to function effectively on teams to accomplish a common goal.	Project Supervision	Report. presentation
3.2	Recognition of the need for, and an ability to engage continuing professional development.	Project Supervision	Report. presentation
4.0	**Communication, Information Technology, Numerical**		
4.1	Ability to communicate effectively.	Project Supervision	Report. presentation
4.2	Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer based systems in a way that demonstrates comprehension of the trade-offs involved in design choices	Project Supervision	Report. presentation
4.3	Ability to apply design and development principles in the construction of software systems of varying complexity	Project Supervision	Report. presentation
5.0	**Psychomotor**		

5. Map course Los with the program Los. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course Los #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**														
	1.1	**1.2**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**3.1**	**3.2**	**3.3**	**4.1**	**4.2**	**4.3**	**5.1**	**5.2**
2.1				**P**											
2.2						**P**									
2.3															
3.1								**P**							
3.2										**P**					
4.1											**P**				
4.2												**P**			
4.3													**P**		

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment

1	Process (Weekly Meetings)	Every Week	20%
2	Project Report	14	45%
3	Project Presentation	16	35%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks UQU Undergraduate Final Year Project Handbook
2. List Essential References Materials (Journals, Reports, etc.) Sample Reports from UQU Undergraduate Final Year Projects
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Software Engineering – Principle and Practice Hans Van Vliet
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. Sams Teach Yourself UML in 24 Hours
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. 1. IBM Rational Rose Enterprise Edition 2. MS Project by Microsoft

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

N/A
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) Separate Research Labs for Graduation Projects Students
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) 1. IBM Rational Rose Enterprise Edition 2. MS Project by Microsoft

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Weekly progress report about project should be submitted by students to their supervisors and also to the department.
3 Processes for Improvement of Teaching 1. Introductory Seminar for UQU Undergraduate Final Year Project. 2. Seminars about different domain of Software Engineering Projects. 3. Workshops for modern development environments like Android and IOS development
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Internal Seminars after four weeks to test the achievements/progress of students by Department.
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. Every End of Semester ask faculty members to provide their suggestions to make course more effective

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 8 / 7 / 1437
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014902-4 Graduation Project II			
2. Credit hours 4			
3. Program(s) in which the course is offered. Computer Science			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered : 4rd year / level 10			
6. Pre-requisites for this course 14014901-4 Graduation Project I			
7. Co-requisites for this course			
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:.			

B Objectives

1. What is the main purpose for this course?

This course is the first semester of the required major design experience. In a two semester-long project, student teams will propose, design, produce and evaluate a software and/or hardware system. The project will culminate in the delivery of a working system, a formal public presentation, and written documentation. Oral and written progress reports are required.

16. Ability to apply knowledge of mathematics, computing, science, and engineering appropriate to the discipline.
17. Ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
18. Ability to function effectively on teams to accomplish a common goal.
19. Ability to communicate effectively.
20. Recognition of the need for, and an ability to engage continuing professional development.
21. Ability to use the current techniques, skills, and tools necessary for computing practice.
22. Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer based systems in a way that demonstrates comprehension of the trade-offs involved in design choices
23. Ability to apply design and development principles in the construction of software systems of varying complexity
    .

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

39. Increase the use of textbooks.
40. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives.
41. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

This course is the second semester of the required major design experience. In a two semester-long project, student teams will propose, design, produce and evaluate a software and/or hardware system. The project will culminate in the delivery of a working system, a formal public presentation, demo and written documentation. Oral and written progress reports are required.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
N/A	N/A	N/A

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			
Credit						

3. Additional private study/learning hours expected for students per week. 4 hours

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
2.0	**Cognitive Skills**		
2.1	Ability to apply knowledge of mathematics, computing, science, and engineering appropriate to the discipline.	Project Supervision	Report. Presentation Demo Poster
2.2	Ability to use the current techniques, skills, and tools necessary for computing practice.	Project Supervision	Report. Presentation

			Demo Poster
2.3	Ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.	Project Supervision	Report. Presentation Demo Poster
3.0	**Interpersonal Skills & Responsibility**		
3.1	Ability to function effectively on teams to accomplish a common goal.	Project Supervision	Report. Presentation Demo Poster
3.2	Recognition of the need for, and an ability to engage continuing professional development.	Project Supervision	Report. Presentation Demo Poster
4.0	**Communication, Information Technology, Numerical**		
4.1	Ability to communicate effectively.	Project Supervision	Report. Presentation Demo Poster
4.2	Apply mathematical foundations, algorithmic principles, and computer science theory in the modelling and design of computer based systems in a way that demonstrates comprehension of the trade-offs involved in design choices	Project Supervision	Report. Presentation Demo Poster
4.3	Ability to apply design and development principles in the construction of software systems of varying complexity	Project Supervision	Report. Presentation Demo Poster
5.0	**Psychomotor**		

5. Map course Los with the program Los. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course Los #	Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)														
	1.1	1.2	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2
2.1				P											
2.2						P									
2.3															
3.1								P							
3.2										P					
4.1											P				
4.2												P			
4.3													P		

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Process (Weekly Meetings)	Every Week	20%
2	Project Report	14	30%
3	Project Presentation	16	20%
4	Demo	16	20%
5	Internal Seminar	14	5%
6	Poster	16	5%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks UQU Undergraduate Final Year Project Handbook
2. List Essential References Materials (Journals, Reports, etc.) Sample Reports from UQU Undergraduate Final Year old Projects
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Sawant, Abhijit A., Pranit H. Bari, and P. M. Chawan. "Software testing techniques and strategies." International Journal of Engineering Research and Applications (IJERA) 2.3 (2012): 980-986.
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. Merriam, Sharan B., and Elizabeth J. Tisdell. Qualitative research: A guide to design and implementation. John Wiley & Sons, 2015.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. 1. integrated development environment (IDE) 2. MS Project by Microsoft

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) Separate Research Labs for Graduation Projects Students
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) 1. IBM Rational Rose Enterprise Edition 2. MS Project by Microsoft

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Weekly progress report about project should be submitted by students to their supervisors and also to the department
3 Processes for Improvement of Teaching 1. Introductory Seminar for UQU Undergraduate Final Year Project. 2. Seminars about different domain of Software Engineering Projects. 3. Workshops for modern development environments like Android and IOS development
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Internal Seminars after four weeks to test the achievements/progress of students by Department.
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. Every End of Semester ask faculty members to provide their suggestions to make course more effective.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date April 18, 2016
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014503-3 Image Processing			
2. Credit hours 3			
3. Program(s) in which the course is offered. Computer Science (If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered 4th year / (level 9 or 10)			
6. Pre-requisites for this course (if any) 14012402-4 Algorithms			
7. Co-requisites for this course (if any)			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course? This course is an introduction to digital image processing. The goal of this course is to introduce fundamental concepts, principles and tools of image processing. It further emphasis to teach students how to apply them in solving practical and real-world problems of interest. The course include topics: Image sampling and quantization, color, point operations, segmentation, morphological image processing, linear image filtering, image transforms, noise reduction and restoration, feature extraction and recognition tasks. Students learn to apply material by implementing and investigating image processing algorithms in Matlab.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) Developed by increased use of IT and wed based reference materials. Improvements are as a result of new research in the field.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: The course include topics: Image sampling and quantization, color, point operations, segmentation, morphological image processing, linear image filtering, image transforms, noise reduction and restoration and compression.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Introduction and Image Processing Examples Digital Image Fundamentals (Sampling, Quantization) Point Operations Histograms	2	8
Image Enhancement Linear Image Processing and Filtering	3	12
Image transforms, noise reduction and restoration	3	12
Image Segmentation and Edge Detection	2	8
Image Compression	2	8
Morphological and Color Image Processing	2	8

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30		30			60
Credit	1.8		1.2			3

3. Additional private study/learning hours expected for students per week.	3-4

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy (I = Introduction P = Proficient A = Advanced)

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Students will learn image processing fundamentals and enhancements	Lectures and practice (lab) sessions	Quizzes, Homework, Lab works and Exams
1.2	learn some advanced image processing concepts of image transform, recovery and segmentations	Lectures and practice (lab) sessions	Quizzes, Homework, Lab works and Exams
	learn the concept of image compression, morphological and color image processing	Lectures and practice (lab) sessions	Quizzes, Homework, Lab works and Exams
2.0	**Cognitive Skills**		
2.1	ability to work on significant problems that require the understanding of key knowledge of the domain	Lectures and practice (lab) sessions	Projects
2.2			
3.0	**Interpersonal Skills & Responsibility**		
4.0	**Communication, Information Technology, Numerical**		

5.0	**Psychomotor**

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**								
	1.1	**1.2**	**1.3**	**1.4**	**2.1**	**2.2**	**3.1**	**3.1**	**4.1**
1.1	I			P					
1.2	P			A					
1.3	P			A					
2.1				A	A				

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quizzes	3, 7, 13	10%
2	Home works	4, 8, 12	10%
3	Midterm	9	30%
4	Project	14	10%
5	Final	17	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks Digital Image Processing by Rafael C. Gonzalez, Richard E. Woods (latest edition)
2. List Essential References Materials (Journals, Reports, etc.) Digital Image Processing Using MATLAB by Rafael C. Gonzalez, Richard E. Woods and Eddins (latest edition)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) C. Solomon and T. Breckon, Fundamentals of Digital Image processing: A Practical Approach with Examples in MATLAB, John Wiley & Sons, 2011.
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 30 students) with white board and multimedia projector Computer lab (max 15 students) with white board and multimedia projector
2. Computing resources (AV, data show, Smart Board, software, etc.) MATLAB Programming environment
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Student feedback forms distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department

3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 7/7/1437
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14013104-3 Internet Applications
2. Credit hours 4
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science
4. Name of faculty member responsible for the course: Curriculum Committee
5. Level/year at which this course is offered: 4th year / level 7
6. Pre-requisites for this course (if any): 14011102-4 Object Oriented Programming
7. Co-requisites for this course (if any): None
8. Location if not on main campus: Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah

9. Mode of Instruction (mark all that apply)

a. traditional classroom	X	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? This subject introduces students to Internet architecture and software development principles, using the World Wide Web as the system example. After successfully completing the subject, a student will be able to design and create web pages for web browsers, while applying knowledge of HTML5 technologies. 1. Students learn how to build static web sites using HTML and CSS 2. Students learn JavaScript 3. Students learn how to use Javascript to validate forms 4. Students learn how to use Javascript to manipulate html elements. 5. Students learn how to use Java Servlets to read information sent by the user and to create dynamic content 6. Students will get the experience of working in groups to design and develop complete website projects.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) 42. Increase the use of the latest Web-based reference material and textbooks. 43. Review and update the course materials as part of preparation to teach this course. 44. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives. 45. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: This is a practical course that will enable students to develop skills in website development and administration, exploring front-end Web technologies such as HTML, CSS and Javascript. The course will focus also on building complete websites and issues related to user input form validation.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Introduction to web programming	2	4
HTML5	3	6
Introduction to CSS	2	4
Introduction to JavaScript	3	6

Introduction to Servlets Programming	3	6
Introduction to JSP and multi-tier applications	2	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30	0	0	60
Credit	3	0	1	0	0	4

3. Additional private study/learning hours expected for students per week. 4

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Students learn how to build static web sites using HTML and CSS	Lectures, tutorial, labs	Quiz, lab evaluation, projects
1.2	Students learn JavaScript	Lectures, tutorial, labs	Quiz, lab evaluation, projects
1.3	Students learn how to use Javascript to validate forms	Lectures, tutorial, labs	Quiz, lab evaluation, projects
1.4	Students learn how to use Javascript to manipulate html elements.	Lectures, tutorial, labs	Quiz, lab evaluation, projects
1.5	Students learn how to use Java Servlets to read information sent by the user and to create dynamic content	Lectures, tutorial, labs	Quiz, lab evaluation, projects
2.0	**Cognitive Skills**		
2.1			
2.2			

3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Improve the ability to work in a group	Projects	Project evaluation
4.2			
5.0	**Psychomotor**		
5.1			
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**						
	1.2	**2.1**	**2.3**	**3.1**	**4.3**	**5.1**	**5.2**
1.1	A	P	P			P	P
1.2	A	A	A	A	P	A	A
1.3	A	A	A	A	P	A	A
1.4	P	P	P	A	P	P	P
1.5	P	P	P		I	P	P
4.1				A			

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quiz 1	6	10
2	Quiz 2	13	10
3	Project 1	11	15
4	Project 2	15	15
5	Mid-term	12	20
6	Final	17	30

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks • HTML5 and CSS3, ElizabEth Castro, Bruce hyslop, 7th Edition, Peachpit Press, ISBN: 0321719611 • JavaScript: The Definitive Guide, David Flanagan, 6th Edition, O'Reilly, ISBN: 0596805527 • Java Servlet Programming, Jason Hunter, William Crawford, 2nd Edition, O'Reilly, ISBN: 0596000405 • Robert Sebesta, Programming the World Wide Web, 2011, ISBN-10: 0132130815
2. List Essential References Materials (Journals, Reports, etc.) Lecture slides and notes
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. http://www.w3schools.com
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students) Overhead projector and internet connection
2. Computing resources (AV, data show, Smart Board, software, etc.) Regular text editors Regular Web browsers Java Development Kit (JDK) Integrated Development Environment (e.g., NetBeans, Eclipse, JBuilder).

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

The course materials will be regularly reviewed by the course instructor and the curriculum committee in order to keep it updated.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date : 16/04/2016
College/Department: College of Computers and Information Systems / Computer Science Dep.	

A. Course Identification and General Information

1. Course title and code: 14014604-3 Introduction to Cryptography
2. Credit hours: 3 (2 lecture, 2 lab,)
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Elective course in Computer Science program.
4. Name of faculty member responsible for the course Dr. Khaled Tarmissi
5. Level/year at which this course is offered: 5th year / level 9 or 10
6. Pre-requisites for this course (if any) 14011802-3 Discrete Structures II
7. Co-requisites for this course (if any) N/A
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	X	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? Cryptography provides important tools for ensuring the privacy, authenticity, and integrity of the increasingly sensitive information involved in modern digital systems. Nowadays, core cryptographic tools, including encryption, message authentication codes, digital signature, key agreement protocols, etc., are used behind millions of daily on-line transactions. In this course, we will unveil some of the "magic" of cryptography.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) • use some of the web based tools and material

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: This course introduces the basic theory of cryptograph; it is an introductory course on methods, algorithms, techniques, and tools of cryptography. It includes the history of cryptography, algorithmic and mathematical aspects of cryptographic methods and protocols, such as classical ciphers and their decryption, secret-key cryptography, public-key cryptography, hash functions.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
1. Introduction and Overview Classical Cryptography	2	6

2. Mathematics of Cryptography	1	3
3. More Classical ciphers :	1	3
4. Stream cipher	2	6
5. Block cipher	2	6
6. Public-key Cryptography	4	12
7. Hash Functions	1	3
8. Secret Sharing	1	3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	28		28			56
Credit	3					

3. Additional private study/learning hours expected for students per week. 0

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment

method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)			
Code #	**NQF Learning Domains And Course Learning Outcomes**	**Course Teaching Strategies**	**Course Assessment Methods**
1.0	**Knowledge**		
1.1	Students will be aware of, and be able to identify the concept of cryptography and computer security.		
1.2	Learn fundamental concepts in mathematics of cryptography.		
1.3	Understand basics of different cipher algorithm types.		
1.4			
1.5			
2.0	**Cognitive Skills**		
2.1	Ability to apply different cipher algorithm principles in the construction of crypto systems.		
2.2			
2.3			
3.0	**Interpersonal Skills & Responsibility**		
3.1	An understanding of professional, ethical, legal, security, and social issues and responsibilities		
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	An ability to apply design and development principles in the security systems .		
4.2			
5.0	**Psychomotor**		
5.1			
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)				
	Program Learning Outcomes			

Course LOs #	(Use Program LO Code #s provided in the Program Specifications)												
	1.1	1.2	1.3	1.4	2.1	2.2	2.3	3.1	4.1	4.2	5.1		
1.1	P												
1.2		P											
1.3		P	P										
2.1					P								
3.1					P			P					
4.1									P				

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignment 1	2	5
2	Assignment 2	4	5
3	Assignment 3	6	5
4	Assignment 4	10	5
5	Assignment 5	12	5
6	Mid Term	8	20
7	Project	9	15
8	Final Exam	16	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

4 Office hours per week

E Learning Resources

1. List Required Textbooks Cryptography and Network Security: Principles and Practice (5th Edition), by William Stallings (Jan 2010), PEARSON, ISBN-10: 0136097049
2. List Essential References Materials (Journals, Reports, etc.) Cryptography Theory & Practice by Douglas Stinson
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Applied Cryptography by Bruce Schneier
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. 1. Cryptography I - Stanford University | Coursera 2. Applied Cryptography and Encryption Class Online
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. https://www.cryptool.org/en/

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room Computer lab
2. Computing resources (AV, data show, Smart Board, software, etc.) data show
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: khaled Tarmissi

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 14/4/2016
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014308-3 Information Retrieval Systems
2. Credit hours: 3
3. Program(s) in which the course is offered. Computer Science
4. Name of faculty member responsible for the course Shady Elsaid
5. Level/year at which this course is offered 4th year / (level 9 or 10)
6. Pre-requisites for this course (if any) 14013103-4 Advanced Programming
7. Co-requisites for this course (if any)
8. Location if not on main campus Al-Abidia, Al-Zaher
9. Mode of Instruction (mark all that apply)

a. traditional classroom	√	What percentage?	100%
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

- Explain the concepts of indexing, vocabulary, normalization and dictionary in Information Retrieval
- Define a Boolean model and a vector space model, and explain the differences between them
- Explain the differences between classification and clustering
- Discuss the differences between different classification and clustering methods
- Choose a suitable classification or clustering method depending on the problem constraints at hand
- Implement classification in a Boolean model and a vector space model
- Implement a basic clustering method
- Give account of a basic spectral method
- Evaluate information retrieval algorithms, and give an account of the difficulties of evaluation

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

Discussion sessions should be held to find out newest updates regarding topics being instructed.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

The Internet is the world's largest collection of information. Search engines are the key enabling technology to help users to find useful material among the billions of available resources.
In this course a student will learn about the techniques used to retrieve useful information from repositories such as the Web.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Boolean retrieval	1	3
Term vocabulary and posting lists	2	6
Dictionaries and tolerant retrieval	2	6
Index construction and compression	2	6
Term scoring, weighting, and vector space model	1	3
Computing scores in a complete search systems	1	3
Information retrieval evaluation	1	3
XML Retrieval	2	6
Web search basics	2	6

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	42					
Credit	3					

3. Additional private study/learning hours expected for students per week. [ ]

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Explain the capabilities and limitations of information retrieval systems.	Lecture	Exams
1.2	Define the components of an information retrieval system.	Lecture	Exams
1.3	Identify current research problems in information retrieval	Lecture	Exams
2.0	**Cognitive Skills**		
2.1	Design and implement retrieval systems for text and other media	Lecture	Exams
2.2	Evaluate the performance of an information retrieval system	Lecture	Exams
3.0	**Interpersonal Skills & Responsibility**		
3.1	Report trends in the information retrieval and storage.	Lecture	Research Report
3.2	Report alternatives of retrieval techniques and output presentation.	Lecture	Research Report
4.0	**Communication, Information Technology, Numerical**		
5.0	**Psychomotor**		

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)											
	1.1	**1.2**	**1.3**	**1.4**	**2.1**	**2.2**	**2.3**	**3.1**	**3.2**	**4.1**	**4.2**	5.1
1.1	I	P										
1.2	P				P						P	
1.3				I						P		
2.1			P									
2.2			P							P		
3.1								P		P		
3.2								P		P		

6. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Research Report 1	7	15%
2	Midterm	8	30%
3	Research Report 2	14	15%
4	Final exam	16	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) 6 office hours

E Learning Resources

1. List Required Textbooks An Introduction to Information Retrieval Christopher D. Manning, Prabhakar Raghavan, Hinrich Schütze
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Classrooms
2. Computing resources (AV, data show, Smart Board, software, etc.) Data show
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Questionnaire
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Questionnaire evaluation with respect to CLOs
3 Processes for Improvement of Teaching Continuous learning to be updated with modern teaching techniques
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Remarking of samples of students' work with another staff member with respect to a model answer and marking scheme.
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. A staff member feedback after midterm and final exams

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 7 / 7 / 1437
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014105-3 Mobile Applications			
2. Credit hours 3			
3. Program(s) in which the course is offered. Computer Science			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered 4th year / (level 9 or 10)			
6. Pre-requisites for this course (if any) 14013104-3 Internet Applications 14014302-3 Database II			
7. Co-requisites for this course (if any)			
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course?

By completing this course the students should be able to:

7. Use the Java Programming skills to design and implement a complete mobile application for the Android platform.
8. Use built-in sensors, messaging, local database access and networking features to handle advanced mobile applications.
9. Publish android applications to the cloud.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

46. Increase the use of the latest Web-based reference material and textbooks.
47. Review and update the course materials as part of preparation to teach this course.
48. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives.
49. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

This course teaches students how to design, implement, test, debug and publish mobile applications. Topics include development environment, phone emulator, key programming paradigms, UI design including views and activities, data persistence, messaging and networking, embedded sensors, location based services (e.g., Google Maps), cloud programming, and publishing applications. Concepts are reinforced through a set of weekly programming assignments and group projects.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction to Mobile Applications Programming	1	2
Basics of Android Framework	1	2
Building First Android Application in Eclipse	1	2
Activities and Intents	1	2
Getting to know the Android User Interface	1	2
Designing User Interface Using Views	1	2
Displaying Pictures and Menus with Views	1	2

Data Persistence and SQLite Database Programming	2	2
Accessing built-in Sensors and Data Storage	2	2
Messaging and Networking	1	2
Location-Based Services	1	2
Developing Android Services and Testing through Android Emulator	1	2
Publishing Android Applications	1	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			60
Credit						

3. Additional private study/learning hours expected for students per week. 6

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Students will be able to use the Java Programming skills to design and implement a complete mobile application for the Android platform.	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.2	Students will be able to use built-in sensors, messaging, local database access and networking features to handle advanced mobile applications.	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.3			
2.0	**Cognitive Skills**		
2.1			
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1			
4.2			
5.0	**Psychomotor**		
5.1	Students will be able to publish android applications to the cloud.	tutorial, labs, assignments	lab evaluation, projects, assignment evaluation
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)										
	a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**
1.1	**P**	**A**	**A**	**A**	**I**				**A**	**A**	**I**
1.2	**A**	**P**	**A**	**P**	**P**				**A**	**A**	**P**
5.1	**A**	**A**	**A**	**A**	**A**	**P**	**P**		**A**	**A**	**A**

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment

1	Quiz1	4	5
2	Quiz 2	7	5
3	Quiz 3	9	5
4	Midterm	10	20
5	Group Project	14	25
6	Final	16	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Office hours between 4-6 hours per week.

E Learning Resources

1. List Required Textbooks Slides and lab documentation Bill Phillips, Chris Stewart, Brian Hardy, and Kristin Marsicano, Android Programming: The Big Nerd Ranch Guide, Big Nerd Ranch LLC, 2nd edition, 2015. The Busy Coder's Guide to Android Development, Mark L. Murphy, CommonsWare, LLC, 2014. Christian Keur and Aaron Hillegass, iOS Programming: The Big Nerd Ranch Guide, 5th edition, 2015.
2. List Essential References Materials (Journals, Reports, etc.) https://cloud.google.com/solutions/mobile/ https://aws.amazon.com/mobile/
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Professional Android Application Development, Reto Meier, ISBN-10: 1502311135, CreateSpace Independent Publishing Platform (September 9, 2014).

Professional Mobile Application Development, Jeff McWherter, Scott Gowell, ISBN: 978-1-118-20390-3, September 2012, Wrox, Wiley.

The Everything Guide to Mobile Apps: A Practical Guide to Affordable Mobile App Development for Your Business, Peggy Anne Salz, Jennifer Moranz, ISBN-10: 1440555338, Adams Media (March 18, 2013).

PhoneGap Build: Developing Cross Platform Mobile Applications in the Cloud, Bintu Harwani, ISBN 9781466589742, November 21, 2013, Auerbach Publications.

Beginning iOS 6 Development: Exploring the iOS SDK, David Mark, Jack Nutting, Jeff LaMarche, Fredrik Olsson, Apress (2013), ISBN 978-1430245124

Learn HTML5 and JavaScript for iOS: Web Standards-based Apps for iPhone, iPad, and iPod touch, Scott Preston, Apress (2012), ISBN 978-1430240389

Programming in Objective-C, Fifth Edition, Stephen G. Kochan, Pearson Education, Inc. (2013), ISBN 978-0321887283

Maximiliano Firtman, Programming the Mobile Web, 2nd ed., O'Reilly Media, 2013.

Mobile Cloud Computing: Architectures, Algorithms and Applications, Debashis De, ISBN 9781482242836, December 24, 2015, Chapman and Hall/CRC.

Beginning Android Application Development, Wrox, by Wei-Meng Lee; ISBN: 978-1-1180-1711-1, April 2011.

Java: How to Program, 9th Edition, Paul Deitel, Harvey Deitel, 2011

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

http://developer.android.com/index.html.

http://developer.android.com/sdk/index.html.

http://developer.android.com/resources/index.html.

http://developer.android.com/resources/browser.html?tag=tutorial.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

http://cs76.tv/2013/summer/

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students) Overhead projector and internet connection
2. Computing resources (AV, data show, Smart Board, software, etc.) Emulators for mobile applications Actual mobile phones (both Android and iOS) Mobile applications development tools
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) https://www.genymotion.com/

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching Adapting teaching style and material based on market trend, state of the art in mobile phone development and student feedback.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 9 / 7 / 1437
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014704-3 Natural Language Processing			
2. Credit hours 3			
3. Program(s) in which the course is offered. Computer Science (If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course Curriculum Committee			
5. Level/year at which this course is offered This course is from the department elictives			
6. Pre-requisites for this course (if any) 14013102-4 Object Oriented Programming 14013701-4 Artificial Intelligence			
7. Co-requisites for this course (if any)			
8. Location if not on main campus Al-Zaher campus (Girls), Makkah Al Mukarramah			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course? This course is to introduce key concepts and ideas in natural language processing. It covers both the algorithms available for the processing of linguistic information and the fundamental computational properties of languages. By completing this course the students should be able to: 8. Students will learn about the basic architecture of NLP systems. 9. Students will understand parsing principles and the role of regular grammar and CFGs in parsing different elements of text corpus. 10. Students will be familiar with the algorithms of different language proceeding tasks. 11. Students will study the different semantic models for natural languages. 12. Students will get hands-on experience using different NLP tools. 13. Students will be familiar with the NLP applications. More specifically, will learn more about the most common applications such as information retrieval (web search), information extraction, and question-answering systems and summarisation.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) 50. Increase the use of the latest Web-based reference material and textbooks. 51. Increase the number of labscripts for student to make them get robust understanding of the course's contents. 52. Review and update the course materials as part of preparation to teach this course. 53. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives. 54. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Introduction to natural language processing - Motivation - What is it? - State of the art - Applications	1	3
Linguistic Essentials; What NLE systems do - An overview of basic linguistic terms and concepts used in the module - A basic architecture for NL systems (levels of linguistic analysis)	1	3
Regular expressions + ***Labscript***	2	3
Finite State Automata, Finite State Transducers	1	3
Basic Notions of Probability Theory, Statistical NLP (n-gram, smoothing) + ***Labscript***	2	3
Part-of-speech tagging + ***Labscript***	2	3
Grammers + ***Labscript***	2	3
Complexity, Semantics	1	3

Information Retrieval, Information Extraction, Question-Answering	2	3
Web search	1	3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	33		12			
Credit						

3. Additional private study/learning hours expected for students per week. 4

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Basic understanding of how NLP systems work	Lectures, labs, assignments	Quiz, lab evaluation, assignment evaluation
1.2	Get hands-on experience using different NLP tools	Lectures, labs, assignments	Quiz, lab evaluation, assignment evaluation
1.3	Be familiar with state of the art systems and applications	Lectures, labs, assignments	Quiz, lab evaluation, assignment evaluation
1.4	Gain the ability to design and implement (built) an NLP system.	Lectures, labs, assignments	Quiz, lab evaluation, assignment evaluation
2.0	**Cognitive Skills**		

2.1			
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1			
5.0	**Psychomotor**		
5.1			
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**
1.1	P									P	
1.2			P						P		
1.3	P	P							P		
1.4						**p**					P

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quiz 1	4	5
2	Assignment 1	5	15
3	Midterm	9	20
4	Assignment 2	11	15
5	Quiz 4	14	5
6	Final	16	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks
D. Jurasfky and J. Martin, Speech and Language Processing Prentice-Hall (2008). It should be available from Waterstone's on campus; a few volumes are also on reserve in the library.
2. List Essential References Materials (Journals, Reports, etc.)
Lecture slides and notes
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
• Steven Bird, Ewan Klein, and Edward Loper Natural Language Processing with Python – Analyzing Text with the Natural Language Toolkit. O'Reilly (2009). • W. Bruce Croft, Donald Metzler, Trevor Strohman Search Engines: Information Retrieval in Practice. Addison Wesley (2009). • Ricardo Baeza-Yates and Berthier Ribeiro-Neto Modern Information Retrieval. Addison Wesley (2011). • Christopher D. Manning and Hinrich Schutze, Foundations of Statistical Natural Language Processing, 1999. ISBN 0-262-13360-1 • Christopher D. Manning, Prabhakar Raghavan and Hinrich Schütze, An Introduction to Information Retrieval. Cambridge University Press (2008).
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
• Chris Manning and Dan Jurafsky's NLP course on Coursera • Chris Manning's CS224 at Stanford

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students) Overhead projector and internet connection
2. Computing resources (AV, data show, Smart Board, software, etc.) Integrated Development Environment (e.g., NetBeans, Eclipse, JBuilder). Java Development Kit (JDK)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department

3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 7 / 7 / 1437
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14011102-4 Object Oriented Programming
2. Credit hours 4
3. Program(s) in which the course is offered. Computer Science
4. Name of faculty member responsible for the course Curriculum Committee
5. Level/year at which this course is offered 2nd year / level 4
6. Pre-requisites for this course 14011101-4 Computer Programming
7. Co-requisites for this course
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? By completing this course the students should be able to: 14. Students will be familiar with the key principles of object-oriented programming 15. Students will understand object oriented concepts including - classes, objects, inheritance, data abstraction, encapsulation, and polymorphism 16. Students will learn how to design applications using object oriented concepts 17. Students will appreciate the benefits of code reuse by learning how to make use of off-the-shelf Java librarie
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) 55. Increase the use of the latest Web-based reference material and textbooks. 56. Review and update the course materials as part of preparation to teach this course. 57. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives. 58. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

Deleted: such as the Java String.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Java and Object Oriented programming overview and class diagram	2	3
Object Oriented Programming Concepts: Classes and Objects, attributes, methods, constructors, methods overloading attributes scope (global and local variables) and using this	2	3
Java Inheritance: Interfaces, abstract classes, abstract methods, classes inheritance, methods overriding, using super	2	3

Extra Object Oriented Programming Concepts : Modifiers and static, packages, overriding utility methods(toString, equals and compareTo) Objects comparison and parameters passing	2	3
Collections (vector and ArrayList), generic collections and Wrapper Classes	2	3
Exception handling(try…catch) and Java API examples	2	3
UML(Use case diagram, Sequence diagram, Class diagram)	2	3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	15	42			
Credit	???	???	???			

3. Additional private study/learning hours expected for students per week. 6 hours

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Students will understand object oriented concepts including – classes, objects, inheritance, data abstraction, encapsulation, and polymorphism	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.2	Students will learn how to design applications using object oriented design methodology	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation

1.3	Students will appreciate the benefits of code reuse by learning how to make use of off-the-shelf Java libraries	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluat
2.0	**Cognitive Skills**		
2.1	Will acquire the ability to understand basic algorithm	Lectures, tutorial, labs	Quiz, lab evaluation, projects
2.2	Will acquire the ability to design basic algorithm	Lectures, tutorial, labs	Quiz, lab evaluation, projects
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Improve the ability to work in a group	Projects	Project evaluation
4.2			
5.0	**Psychomotor**		
5.1	Demonstrate skills in using computer machines and software tools to solve computer problems	Lab exercise, lab demonstration	Lab. exams In-lab. evaluation
5.2	Perform a task with minimum assistance	Lab exercise	Lab. exams In-lab. evaluation

Deleted: such as the Java String

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**														
	1.1	**1.2**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**3.1**	**3.2**	**3.3**	**4.1**	**4.2**	**4.3**	**5.1**	**5.2**
1.1			**P**	**P**	**P**	**P**	**P**			**I**		**P**	**P**		
1.2			**P**	**P**	**P**	**P**	**P**			**I**		**P**	**P**		
1.3			**P**	**P**	**P**	**P**	**P**			**I**		**P**	**P**		
2.1			**P**	**P**	**P**	**P**	**P**			**I**		**P**	**P**		
2.2			**P**	**P**	**P**	**P**	**P**			**I**		**P**	**P**		
4.1								**P**		**I**	**P**				
5.1										**I**				**P**	**P**
5.2										**I**				**P**	**P**

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignments	-	0

2	Quiz 1	3	5
3	Quiz 2	7	5
4	Group Project/ practical exam	8	~~30~~ Deleted: 20
5	Midterm	9	20
6	Quiz 3	12	5
7	Quiz 4	14	5
8	Final	16	~~30~~ Deleted: 40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks Java: How to Program, 9e, Dietel and Dietel, Pearson 0273759760
2. List Essential References Materials (Journals, Reports, etc.) Lecture slides and notes
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Object-Oriented Analysis and Design: Undergraduate Topics in Computer Science, Sarnath Ramnath and Brahma Dathan, Springer, ISBN 978-1-84996-521-7 Head First Java, 2nd Edition by Kathy Sierra and Bert Bates, 2005
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. Java API - Oracle Documentation: http://docs.oracle.com/javase/7/docs/api/ The Java Tutorial: http://docs.oracle.com/javase/tutorial/

The Java Tutorials: http://docs.oracle.com/javase/tutorial/getStarted/index.html Language Basics: http://docs.oracle.com/javase/tutorial/java/nutsandbolts/index.html Java for Complete Beginners: http://www.homeandlearn.co.uk/java/java.html
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. The main textbook: Java example codes

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students) Overhead projector and internet connection
2. Computing resources (AV, data show, Smart Board, software, etc.) Integrated Development Environment (e.g., NetBeans, Eclipse, JBuilder). Java Development Kit (JDK)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
A student-feedback form is distributed at the end of the course.

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 7/7/1437
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14012203-4 Operating Systems
2. Credit hours: 4
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science
4. Name of faculty member responsible for the course Curriculum Committee
5. Level/year at which this course is offered: 2nd year / level 5
6. Pre-requisites for this course (if any): 14032205-4 Computer Organization and Architecture 14011102-4 Object Oriented Programming
7. Co-requisites for this course (if any): None
8. Location if not on main campus: Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah
9. Mode of Instruction (mark all that apply)

a. traditional classroom	X	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?
An operating system defines an abstraction of hardware behavior with which programmers can control the hardware. It also manages resource sharing among the computer's users. The topics in this area explain the issues that influence the design of contemporary operating systems. Courses that cover this area will typically include a laboratory component to enable students to experiment with operating systems. 1. Explain the objectives and functions of modern operating systems. 2. Understand the main principles and techniques used to implement processes and threads, inter-process communication, CPU scheduling, process synchronization, and algorithms for process scheduling 3. Understand virtual memory abstractions in operating systems. 4. Have an understanding of disk organization and file system structure.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)
59. Increase the use of the latest Web-based reference material and textbooks. 60. Review and update the course materials as part of preparation to teach this course. 61. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:
This course provides an introduction to operating system design and implementation. It covers the major components of most operating systems, in particular process and thread management, CPU scheduling, process synchronization, deadlocks, memory management (segmentation, paging, swapping), virtual memory and file systems.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Introduction to Operating Systems	1	3
Process and thread management	2	3
CPU scheduling	2	3
Process Synchronization	2	3

Deadlocks	2	3
Memory management	2	3
Virtual Memory	2	3
File system	2	3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30	0	0	60
Credit	3	0	1	0	0	4

3. Additional private study/learning hours expected for students per week. 4

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Explain the objectives and functions of modern operating systems.	Lectures	Quiz, assignment evaluation
1.2	Understand the main principles and techniques used to implement processes and threads, inter-process communication, CPU scheduling, process synchronization, and algorithms for process scheduling	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.3	Understand virtual memory abstractions in operating systems.	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.4	Have an understanding of disk organization and file system structure.	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
2.0	**Cognitive Skills**		

2.1			
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1			
4.2			
5.0	**Psychomotor**		
5.1			
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**					
	1.2	**2.1**	**2.3**	**3.1**	**5.1**	**5.2**
1.1	I	I	I		I	I
1.2	A	A	A	A	A	A
1.3	A	A	A	A	A	A
1.4	P	P	P	A	P	P

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignment 1	4	10
2	Assignment 2	12	10
2	Quiz 1	3	5
3	Quiz 2	11	5
4	Group Project	14	20
5	Midterm	10	20
6	Final	16	30

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks Operating System Concepts, by Abraham Silberschatz, Peter Baer Galvin, and Greg Gagne, Eighth Edition, John Wiley & Sons, 2009. ISBN: 978-0-470-12872-5. Operating Systems: Internals and Design Principles, by William Stallings, Seventh Edition, Prentice Hall, 2011. ISBN 978-0-13-230998-1.
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. The main textbook CD

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students) Overhead projector and internet connection

2. Computing resources (AV, data show, Smart Board, software, etc.) Virtual machine that runs Linux operating system. Integrated Development Environment (e.g., NetBeans, Eclipse, JBuilder). Java Development Kit (JDK)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. The course materials will be regularly reviewed by the course instructor and the curriculum committee in order to keep it updated.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 16/4/2016
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14013204-3 Parallel Computing			
2. Credit hours 3			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science			
4. Name of faculty member responsible for the course Mohammad Ansari			
5. Level/year at which this course is offered 3th year / level 8			
6. Pre-requisites for this course (if any) : 14012203-4 Operating Systems, 14012401-3 Data Structures			
7. Co-requisites for this course (if any)			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	yes	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course?
This course examines the theory and practice of parallel computing. Topics covered: Introduction to Parallel computing, parallel architectures, Designing parallel program algorithms, managing different kind of parallel programming overheads, e.g. synchronization, communication, etc. Measuring and tuning the parallel performance, and programming for shared and distributed parallel architectures. 1. Ability to use the primitives needed to construct parallel programs. 2. Appreciate how parallel algorithms are designed and developed. 3. Appreciate the issues in distributing work and load balancing. 4. Ability to understand different performance bottlenecks and ability to tune the parallel performance to best exploit the underlying parallel hardware resources.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) Parallel computing is emerging as an important topic due to the rise of multi/many-cores. Specifically, Parallel architectures are increasingly hierarchal with increasing layers of heterogeneous cores e.g. the use of GPUs . As a result, there is not only a lot of new research, but also many new parallel languages, libraries, technologies, and books, and these are under review for improving the course.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Introduction + Multi-core and its implications on software engineers	1	2
Parallel architectures	2	4

Designing parallel program covering: Patterns, dependences, granularity, Data locality, Load balancing, Communication, Synchronization	2 - 3	6
Parallel Performance (Speedup, Scalability, Amdahl's Law)	1	2
Accessing shared data safely	1	2
Shared memory programming openMP	2	4
distributed memory programming openMP	2	4
some new technologies	1-2	2-4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			60
Credit						

3. Additional private study/learning hours expected for students per week. 6-9 hours

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		

1.1	Awareness of basic multiprocessor hardware taxonomy.	Course lectures, tutorials, assignments, labs	Quizzes Assignments Midterm Exam Final Exam Lab works
1.2	Ability to measure the performance, and knowledge of the major sources of performance loss in parallel programs.		
1.3	Ability to design and develop parallel program on shared and distributed memory machines.		
2.0	**Cognitive Skills**		
2.1	Ability to use basic software and hardware strategies for managing access to shared data (from locks, and barriers, to cache coherency)	Course lectures, tutorials, assignments, labs	Quizzes Assignments Midterm Exam Final Exam Lab works
2.2	Ability to apply general solutions to reducing performance loss		
2.3	Ability to use standard parallel programming APIs such as Pthreads, OpenMP, and MPI		
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1			
4.2			
5.0	**Psychomotor**		
5.1			
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course Los #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**														
	1.1	**1.2**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**3.1**	**3.2**	**3.3**	**4.1**	**4.2**	**4.3**	**5.1**	**5.2**
1.1		**A**	**A**												
1.2		**A**					**P**								
1.3		**A**		**A**				**P**				**A**	**A**	**A**	
2.1		**A**										**A**	**A**		
2.2		**A**										**A**	**A**		
2.3		**A**			**A**									**A**	

6. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	HW 1	3	5
2	HW 2	5	5
3	HW 3	7	5
4	Midterm	8	20
5	HW 4	9	5
6	project	12	20
7	Final	Exam week	40
8			

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks Introduction to Parallel Programming, Peter Pacheco, 2011
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

• The Art of Multiprocessor Programming by Maurice Herlihy and Nir Shavit • Parallel Programming: for Multicore and Cluster Systems by Thomas Rauber and Gudula Rünger • Patterns for parallel programming by Timothy G. Mattson • Parallel Programming in C with MPI and OpenMP by Michael J. Quinn • Parallel Programming in OpenMP by Rohit Chandra • Parallel Programming with MPI Peter S. Pacheco
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) Computer & Data Show
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Parallel computer

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Indirect feedback through end-of-semester per-course and general surveys
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Direct measurement of attainment via assessments (quizzes, exams, etc.).
3 Processes for Improvement of Teaching Teaching faculty member suggests improvements in areas where attainment is low, either in student feedback or in direct measurement results. Committee-based process for approving suggestions, implementing them in the next major offering of the course (annual) or as otherwise practical, and re-evaluating attainment.
4 Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) N/A.
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. Attainment results and improvement suggestions, if any, checked and approved by committee.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date April 15, 2016
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014703-3 Pattern Recognition
2. Credit hours: 3
3. Program(s) in which the course is offered: Computer Science (If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course: Curriculum Committee
5. Level/year at which this course is offered: 4th year / (level 9 or 10)
6. Pre-requisites for this course (if any): 14012402-4 Algorithms
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? This course introduces the fundamental concepts, theories and algorithms for pattern recognition and machine learning. It further aims to build theoretical foundation of pattern recognition and introduces its technical applications, as well. This field has undergone substantial development over the years. As a result, many new algorithms, techniques are tools are developed. They are used to analyze any physical phenomena and give some sort of the natural intelligence to the machine, as well. Its applications include learning, knowledge and reasoning, forecasting, optimizing, understanding natural languages, recognizing faces and speech and many more.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) Developed by increased use of IT and wed based reference materials. Improvements are as a result of new research in the field.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: This aim of this course is to study pattern recognition and machine learning techniques. Topics include modern statistical methodologies (Bayesian Decision Theory, Probability Theory), clustering (K-Means, Fuzzy Clustering), classifiers (Support Vector Machines, Decision Trees, Nearest Neighbour Classification), Parameter Estimation, Graphical Models (Markov Random Field), and Sequential Pattern Recognition.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Statistical Analysis	3	2
Classifiers	3	2
Clustering	3	2
Parameter Estimation	2	2
Graphical Models	2	2
Sequential Pattern Recognition	2	2

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30		30			30
Credit	1.8		1.2			3

3. Additional private study/learning hours expected for students per week.	3

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Understanding of the fundamental pattern recognition and machine learning theories and structures	Lectures	Quizzes, Midterm and Final Exams
1.2	Ability to implement fundamental certain important pattern recognition techniques	Practical (lab) sessions	Lab Assignments and Exams
2.0	**Cognitive Skills**		
2.1	Capability of applying the pattern recognition techniques to the application of interests	Lab Sessions	Course Project, Exams
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1			
4.0	**Communication, Information Technology, Numerical**		
4.1			
4.2			

5.0	**Psychomotor**		
5.1	Hands on experience of machine learning tools	Lab Sessions	Course Project

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	1.1	**1.2**	**1.3**	**1.4**	**2.1**	**2,2**	**3.1**	**3.2**	**4.1**	**4.2**	**5.1**
1.1	A	A									
1.2			I	P							
2.1					P						
5.1											A

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Lab Task Completion and Assignments	2-6, 10-14	10%
2	Class Quiz	7	2.5%
3	Midterm	9	25%
4	Team Project	10	10%
5	Class Quiz	15	2.5%
6	Lab Exam	17	10%
7	Final Exam	18	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks Pattern Recognition and Machine Learning by Christopher Bishop (latest edition)
2. List Essential References Materials (Journals, Reports, etc.) Pattern Recognition by Sergios Theodoridis and Konstantinos Koutroumbas (latest edition)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 30 students) with Multimedia Projector Computer lab (max 15 students) with Multimedia Projector
2. Computing resources (AV, data show, Smart Board, software, etc.) Programming environment (e.g., MATLAB, Java, C++) Machine Learning Tools (e.g. WEKA)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Student feedback forms distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

14014106-3 Programming Languages

Institution : **Umm Al-Qura University**	Date : 14/4/2016
College/Department : College of Computers and Information Systems/Computer Science	

A. Course Identification and General Information

1. Course title and code: 14014106-3 Programming Languages			
2. Credit hours : 3			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science			
4. Name of faculty member responsible for the course Khaled Nasser ElSayed			
5. Level/year at which this course is offered : 4th year / (level 9 or 10)			
6. Pre-requisites for this course (if any)) 14013103-4 Advanced Programming			
7. Co-requisites for this course (if any) None			
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments: Mainly traditional classroom will dominant the mode on instruction. There is a need to apply some modes in some situations.			

B Objectives

1. What is the main purpose for this course? 1. To learn the ways to evaluate among different programming languages. 2. To learn the basic of programming languages syntax description. 3. To learn the concepts of declaring data types and exception handling techniques. 4. Summary of the main learning outcomes for students enrolled in the course. 5. Apply concepts from prerequisite courses, especially formal languages and architecture courses, in the context of evaluating the features of programming languages. 6. Explain and evaluate design and implementation features of programming languages. 7. Apply conceptual knowledge of the syntax of languages, as well as the design of language 8. data structures and control statements, to the efficient implementation of a working language
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) 1. Increase the use of the latest Web-based reference material and textbooks. 2. Review and update the course materials as part of preparation to teach this course. 3. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: This Course should give a wide overview of social implications and application of computing and Information Technologies and its ethics

1 Topics to be Covered		
List of Topics	No of Weeks	Contact hours per week
Preliminaries: Reason for studying concepts of programming languages, Programming Domains, Language Evaluation Criteria Influences on Language Design, Language Categories, Language design Trade-Off, Implementation, Introduction of Object Oriented Programming.	2	3
Describing Syntax and Semantics: Introduction of Syntax and Semantics, The General Problems of Describing Syntax (Language Recognizers, Language Generator), Formal Methods of Describing Syntax.	2	3
Describing Syntax and Semantics: Attribute of Grammars: Static Semantics, Attribute & Grammars Defined, Intrinsic Attributes, Examples of Attribute Grammars, Computing Attribute Values, Evaluation, Describing the Meaning of Programs: Dynamic Semantics.	2	3
Data Types: Introduction of Data Types, Primitive Data Types, Character String Types, User-Defined Ordinal Types	1	3
Data Types: Types of Arrays, Associative Arrays, Record Types	1	3

Data Types: Union Types, Structure Types, Set Types, Pointer Types	1	3
Support of Object Oriented Programming Concepts: Design Issues for Object Oriented Languages, Support for Object Oriented Programming in C++,	2	3
Support of Object Oriented Programming Concepts: Support for Object Oriented Programming in Java, The Object Oriented Model of java Script	2	3
Exception Handling: Introduction to Exception Handling, Exception handling in PL/I, Exception Handling in C++, Exception Handling in Java	2	3
Preliminaries: Reason for studying concepts of programming languages, Programming Domains, Language Evaluation Criteria Influences on Language Design, Language Categories, Language design Trade-Off, Implementation, Introduction of Object Oriented Programming.	2	3
Describing Syntax and Semantics: Introduction of Syntax and Semantics, The General Problems of Describing Syntax (Language Recognizers, Language Generator), Formal Methods of Describing Syntax.	2	3
Describing Syntax and Semantics: Attribute of Grammars: Static Semantics, Attribute & Grammars Defined, Intrinsic Attributes, Examples of Attribute Grammars, Computing Attribute Values, Evaluation, Describing the Meaning of Programs: Dynamic Semantics.	2	3
Data Types: Introduction of Data Types, Primitive Data Types, Character String Types, User-Defined Ordinal Types	1	3
Data Types: Types of Arrays, Associative Arrays, Record Types	1	3
Data Types: Union Types, Structure Types, Set Types, Pointer Types	1	3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	45 h			0		45 h
Credit	3 h			0		3 h

3. Additional private study/learning hours expected for students per week. 3 h

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment

method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)			
Code #	**NQF Learning Domains And Course Learning Outcomes**	**Course Teaching Strategies**	**Course Assessment Methods**
1.0	**Knowledge**		
1.1	Apply concepts from prerequisite courses, especially formal languages and architecture courses, in the context of evaluating the features of programming languages.	lectures, assignments, and an individual project Providing references and supporting reading materials for self-study.	Assignments Quizzes Midterm Group Project Final Exam
1.2	Explain and evaluate design and implementation features of programming languages.	lectures, assignments, and an individual project Providing references and supporting reading materials for self-study. Open-communication with students – show willingness to assist and take questions from students and clarify explanations in the class	Assignments Quizzes Midterm Group Project Final Exam
1.3	Apply conceptual knowledge of the syntax of languages, as well as the design of language data structures and control statements, to the efficient implementation of a working language	lectures, assignments, and an individual project Open-communication with students – show willingness to assist and take questions from students and clarify explanations in the class	Assignments Quizzes Midterm Group Project Final Exam
2.0	**Cognitive Skills**		
2.1	Students will be able to analyze varying perspectives regarding programming languages and their categories and domains	Seminars and open discussion and debates (groups)	Presentation, project, midterm, final exam
2.2	Students will be able to critically analyze issues of the different issues in the topics the studied locally and internationally	Seminars and open discussion and debates (groups)	Presentation, project, midterm, final exam

2.3	Students will propose creative solutions to local issues to the use of technology	Seminars and Projects	Presentation, project
3.0	**Interpersonal Skills & Responsibility**		
3.1	Leadership	Collaborative Project work Project management skills should be implemented Communication skills with others via projects	Project presentations Observation of collaborative work Campaign work development
3.2	Group work	Collaborative Project work Public presenting via campaign Communication skills with others via projects	Project presentations Observation of collaborative work Success rate of group communication
3.3	Group communication skills	Collaborative Project work Communication skills with others via projects	Observation of collaborative work Success rate of group communication
3.4	Debate skills	Collaborative Project work Project management skills should be implemented	Observation of collaborative work Campaign work development
3.5	Public speaking	Public presenting via campaign Communication skills with others via projects	Project presentations Success rate of group communication
4.0	**Communication, Information Technology, Numerical**		
4.1	Leadership	Collaborative Project work	Project presentations Observation of collaborative work

		Project management skills should be implemented Communication skills with others via projects	Campaign work development
4.2	Group work	Collaborative Project work Public presenting via campaign Communication skills with others via projects	Project presentations Observation of collaborative work Success rate of group communication
4.3	Group communication skills	Collaborative Project work Communication skills with others via projects	Observation of collaborative work Success rate of group communication
4.4	Debate skills	Collaborative Project work Project management skills should be implemented	Observation of collaborative work Campaign work development
4.5	Public speaking	Public presenting via campaign Communication skills with others via projects	Project presentations Success rate of group communication
5.0	**Psychomotor**		
5.1	N/A	N/A	N/A
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**	**(g)**	**(h)**	**(i)**	**(j)**	**(k)**
1.1		**P**		**P**		**A**		**A**	**P**		
1.2		**P**		**P**		**A**		**A**	**A**		

1.3		**A**		**P**		**A**		**P**	**P**		
2.1		**P**		**P**		**A**		**P**	**P**		
2.2		**A**		**A**		**|P**		**P**	**P**		
2.3		**P**		**A**		**A**		**P**	**P**		
3.1		**P**		**A**		**A**		**P**	**A**		
3.2		**P**		**A**		**A**		**P**	**A**		
3.3		**A**		**A**		**P**		**A**	**A**		
3.4		**P**		**A**		**A**		**A**	**P**		
3.5		**P**		**A**		**A**		**P**	**A**		
4.1		**P**		**P**		**A**		**A**	**A**		
4.2		**P**		**P**		**P**		**A**	**A**		
4.3		**A**		**P**		**A**		**A**	**P**		
4.4		**A**		**P**		**A**		**A**	**P**		
4.5		**A**		**P**		**A**		**A**	**A**		
5.1											

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignments	-	0
2	Quiz-1	4	10
3	Midterm	8	20
5	Group Project	12	20
6	Quiz _2	13	10
7	Final exam	16	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Three Office Hours

E Learning Resources

1. List Required Textbooks

Sebesta R.W., Concepts of Programming Languages, 10th Edition, Addison-Wesley, 2012

2. List Essential References Materials (Journals, Reports, etc.)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Essentials Of Programming Languages, Daniel P. Friedman And Mitchell Wand, Third Edition
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. Web sites for all Programming languages
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room Computer Lab
2. Computing resources (AV, data show, Smart Board, software, etc.) Internet facility Web sites access
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) PRINTERS MAC LABS (preferred for campaigns)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Questionnaires Individual and Group Meetings
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Comparisons of Assessments tools
3 Processes for Improvement of Teaching Workshops, Research of new issues
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) Peer Reviews and Sample Second Marking Jury marking for campaign effectiveness

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. Monthly Progress Report tells the achievements and drawbacks may need improvement

Name of Instructor: Khaled Nasser ElSayed

Signature: _____ Date Report Completed: 14/2/2016

Name of Course Instructor Khaled Nasser ElSayed

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 7 / 7 / 1437
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014307-3 Software Architecture
2. Credit hours 3
3. Program(s) in which the course is offered. Computer Science
4. Name of faculty member responsible for the course Curriculum Committee
5. Level/year at which this course is offered 4th year (level 9 or 10)
6. Pre-requisites for this course 14014110-3 Advanced Web Programming
7. Co-requisites for this course
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? The goal of this course is to get the students to become more familiar with the different software architecture and to gain the knowhow on using these architecture 1. Students will learn the concept of virtual software bus 2. Students will learn the concepts of CORBA and how to use it 3. Students will learn the concepts of RMI/java and will gain hand on experience on how to program RMI applications 4. Students will learn the concepts of SOA, web services and will gain hand on experience on how to program use it 5. Student will learn the concepts of OAuth, trust, security and how to implement OAuth application. 6. Web bases attacks (SQL injections, session stealing, etc...) and how to protect your application 7. Student will learn how to store login information on the client machine using temporary tokens
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) 4. As this subject domain is wide and updated regularly, the course objectives will be reviewed regularly to reflect the new trends in advanced web programming, technologies and applications. 5. Increase the use of the latest Web-based reference material and textbooks. 6. Review and update the course materials as part of preparation to teach this course. 7. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives. 8. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Virtual bus concept	1	2
CORBA concepts and implementation	2	2
RMI/Java	1	2
SOA and web services	2	2
OAuth concepts and implementation	2	2
Multi-tier web applications and web framework (such as Spring)	2	2

Web bases attacks (SQL injections, session stealing, etc...) and how to protect your application	3	2
Student will learn how to use encryption and temporary token to improve security and provide advanced services	3	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30	0	30			
Credit	???	???	???			

3. Additional private study/learning hours expected for students per week. 4 hours

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Learn the concept of virtual software bus architectures such as CORBA, RMI and SOA and how to use them	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.2	Learn the concepts of OAuth, trust, security and how to implement OAuth application.	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
1.3	Learn Web bases attacks (SQL injections, session stealing, etc...) and how to protect your application	Lectures, tutorial, labs, assignments	Quiz, lab evaluation, projects, assignment evaluation
2.0	**Cognitive Skills**		

3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Improve the ability to work in a group	Projects	Project evaluation
4.2			
5.0	**Psychomotor**		
5.1	Demonstrate skills in using computer machines and software tools to solve computer problems	Lab exercise, lab demonstration	Lab. exams In-lab. evaluation

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**													
	1.1	**1.2**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**3.1**	**3.2**	**3.3**	**4.1**	**4.2**	**4.3**	**5.1**
1.1			**A**	**A**	**A**	**A**	**A**			**P**		**A**	**A**	
1.2			**A**	**A**	**A**	**A**	**A**			**P**		**A**	**A**	
1.3			**A**	**A**	**A**	**A**	**A**			**P**		**A**	**A**	
4.1								**A**		**P**	**A**			
5.1										**P**				**A**

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quiz every 2 weeks	every 2 weeks	20
2	Group Project #1	8	5
3	Practical Exam 1	9	20
4	Group Project # 2	12	5
5	Practical Exam 2	14	20
6	Final	16	30

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks • Java RMI, 1st Edition, William Grosso, O'Reilly, ISBN-10: 1565924525 • SOA with Java: Realizing Service-Orientation with Java Technologies, 1st Edition, Thomas Erl, Andre Tost, Satadru Roy, Philip Thomas, Raj Balasubramanian, David Chou, Thomas Plunkett, Prentice Hall, ISBN-10: 0133859037 • Getting Started with OAuth 2.0, 1st Edition, Ryan Boyd, O'Reilly, ISBN-10: 1449311601 • Web Security Testing Cookbook: Systematic Techniques to Find Problems Fast, 1st Edition, Paco Hope , Ben Walther, O'Reilly, ISBN-10: 0596514832
2. List Essential References Materials (Journals, Reports, etc.) Lecture slides and notes
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Object-Oriented Analysis and Design: Undergraduate Topics in Computer Science, Sarnath Ramnath and Brahma Dathan, Springer, ISBN 978-1-84996-521-7
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. The main textbook: Java example codes

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students) Overhead projector and internet connection
2. Computing resources (AV, data show, Smart Board, software, etc.) Integrated Development Environment (e.g., NetBeans, Eclipse, JBuilder). Java Development Kit (JDK)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution	Umm Al Qura University	Date 16/04/2016
College/Department	College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14013303-3 Software Engineering I
2. Credit hours 3
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science
4. Name of faculty member responsible for the course Dr Mohamed Nour
5. Level/year at which this course is offered 3rd year / level 7
6. Pre-requisites for this course (if any) Data base I
7. Co-requisites for this course (if any) N/A
8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. traditional classroom	x	What percentage?	100%
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

What is the main purpose for this course? The course presents an introduction to software engineering, in particular to the requirement analysis activities. The objectives of the module are

- show the need for professional discipline and effective management throughout the software development process
- show the importance of teamwork and good interpersonal skills in successful software development
- give an appreciation of the importance of requirements engineering as the first phase of the software development process

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

- increased use of web based reference material
- changes in content as a result of new research in the field

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

Overview of requirements engineering, requirements elicitation and analysis, requirements definition and specification, requirements validation, requirements management, overview of specification techniques. Management of the software development process, including: how projects arise, choosing the right project, human factors in project management, basic project management techniques (e.g. planning, estimating, monitoring progress), advanced project management techniques (e.g. risk management, configuration management, quality management, process improvement).

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction to software engineering	1	
Project genesis. How projects arise, choosing the right project, software life-cycles	2	
Basic project management techniques. Planning, estimating, monitoring progress	3	
Human factors in project management. Organizations and players in the game, interpersonal skills, project teams	2	
Risk management, configuration management, quality management, process improvement	2	
Introduction to requirements engineering, Requirements elicitation and analysis,	3	
Requirements validation, requirements management	3	

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	: 30	0	30			
Credit						

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods

1.0	**Knowledge**		
1.1	explain the importance of successful requirements definition in commercial software development, identifying the difficulties involved	Lectures	Examination, Continuous Assessment
1.2	explain and apply appropriate techniques which help to define clear and unambiguous requirements	Lectures	Examination, Continuous Assessment
1.3		Lectures	
2.0	**Cognitive Skills**		
2.1	Acquire ability to understand and model user requirements	Lectures-Project	Examination, Continuous Assessment
3.0	**Interpersonal Skills & Responsibility**		
3.1	Acquire skills to manage and perform the systems development process more effectively	Lectures-Project	Project
4.0	**Communication, Information Technology, Numerical**		
4.1	Work in teams and organize tasks	Project	
5.0	**Psychomotor**		
5.1	Perform a task with minimum assistance	Project	Continuous Assessment – Project

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**K**
1.1			P								
1.2			P								
2.1			P								P
3.1								**P**			
4.1				**P**		**P**					**P**
5.1											

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignment 1	3	10
2	Assignment 2	6	10

3	Mid Term	8	20
4	Project	9	20
5	Final Exam	16	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) 4 Office hours per week

E Learning Resources

1. List Required Textbooks Systems Analysis and Design, by Dennis, Wixom and Roth. ISBN-13: 978-0471722571, 6th Edition. 2014
2. List Essential References Materials (Journals, Reports, etc.) Software Engineering: A Practitioner's Approach, 8th Edition, 2014, Roger Pressman, Bruce Maxim
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Requirements Engineering: From System Goals to UML models to Software Specifications Axel van Lamsweerde John Wiley and Sons , 2010 Software Project Management (5th ed.) Bob Hughes and Mike Cotterell McGraw-Hill , 2009 Mastering the requirements process (2cnd ed.) Suzanne and James Robertson Addison-Wesley , 2006 Software Engineering (9th ed.) Ian Sommerville Addison-Wesley , 2011
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) Rational Rose Software tool
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Lecture slides and notes

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
A student-feedback form is distributed at the end of the course.

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Peer Review
3 Processes for Improvement of Teaching Review student feedback and marks with Program coordinator and quality department.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) check marking by an independent member teaching staff of a sample of student work
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. Submit course report and file at the end of each course offering.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution	Umm Al Qura University	Date 16/04/2016
College/Department	College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14013303-3 Software Engineering II
2. Credit hours 3
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science
4. Name of faculty member responsible for the course Dr Basem Al-Kazmi
5. Level/year at which this course is offered 3rd year / level 7
6. Pre-requisites for this course (if any) 14013303-3 Software Engineering I
7. Co-requisites for this course (if any) N/A
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	x	What percentage?	100%
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

What is the main purpose for this course? The course presents the design and architecture part of software engineering, in particular the course focuses on object oriented modelling and UML techniques for specifying software systems. The objectives of the module are • introduce agile method for managing software development • present standard UML software analysis and design • introduce key object-oriented design principles • introduce design patterns and demonstrate how they can facilitate the overall development process • Introduce enterprise architecture and SOA
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) • increased use of web based reference material • changes in content as a result of new research in the field

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: Overview of software lifecycle, software architectures: styles, quality attributes, design trade-offs, evaluation, specification and tools support; Object-oriented analysis and design using Unified Modelling Language (UML) and patterns.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours

Brief Overview of Software Lifecycle Agile Software Development	1	
Engineering OO Software with Unified Modelling Language (UML) - Introduction - Use case modelling - Scenarios - Activity diagrams - Class analysis and object diagrams - Interaction diagrams - State diagrams - Component and deployment	7	
Introduction to Software Architecture and Styles	2	
Introduction to Service-oriented Architecture and Cloud SaaS	2	
Software Maintenance and Quality assurance	2	
CMMI and Process Improvement	2	

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	: 30	0	30			
Credit						

3. Additional private study/learning hours expected for students per week.	

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		

1.1	Differentiate between different UML models and their syntax	Lectures	Examination, Continuous Assessment
1.2	explain the importance of architecture in distributed software systems, identify styles and patterns, and understand the design trade-offs involved	Lectures	Examination, Continuous Assessment
2.0	**Cognitive Skills**		
2.1	use UML in the analysis, architecture, design of software systems	Lectures-Project	Examination, Continuous Assessment
3.0	**Interpersonal Skills & Responsibility**		
3.1	Acquire skills to manage and perform the systems development process more effectively	Lectures-Project	Project
4.0	**Communication, Information Technology, Numerical**		
4.1	Work in teams and organize tasks	Project	
5.0	**Psychomotor**		

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**
1.1		P									p
1.2											P
2.1			P						P	P	
3.1	**P**										
4.1						**P**					

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignment 1	3	10
2	Assignment 2	6	10
3	Mid Term	8	20
4	Project	9	20

5	Final Exam	16	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) 4 Office hours per week

E Learning Resources

1. List Required Textbooks UML distilled
2. List Essential References Materials (Journals, Reports, etc.) Software Engineering: A Practitioner's Approach, 8th Edition, 2014, Roger Pressman, Bruce Maxim Systems Analysis and Design, by Dennis, Wixom and Roth. ISBN-13: 978-0471722571, 6th Edition. 2014
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Requirements Engineering: From System Goals to UML models to Software Specifications Axel van Lamsweerde John Wiley and Sons , 2010 Software Project Management (5th ed.) Bob Hughes and Mike Cotterell McGraw-Hill , 2009 Mastering the requirements process (2cnd ed.) Suzanne and James Robertson Addison-Wesley , 2006 Software Engineering (9th ed.) Ian Sommerville Addison-Wesley , 2011
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) Rational Rose Software tool
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Lecture slides and notes

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department

Peer Review
3 Processes for Improvement of Teaching Review student feedback and marks with Program coordinator and quality department.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) check marking by an independent member teaching staff of a sample of student work
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. Submit course report and file at the end of each course offering.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date 16/04/2016
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014306-3-Software Testing			
2. Credit hours 3			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science			
4. Name of faculty member responsible for the course Dr Mohamed Nour			
5. Level/year at which this course is offered 4th year / level 9 or 10			
6. Pre-requisites for this course (if any) 14013303-3 - Software Engineering II			
7. Co-requisites for this course (if any) N/A			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	x	What percentage?	100%
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

What is the main purpose for this course? This course provides an introduction to software testing and quality assurance. The relationship of software testing to quality is examined with an emphasis on testing techniques. The students completing this course will learn quality and testing concepts. They will also be able to write test plans, test design specifications, and test cases, apply use test metrics to manage the test process.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) • increased use of web based reference material • changes in content as a result of new research in the field

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: The relationship of software testing to quality is examined with an emphasis on testing techniques. Topics include module and unit testing, integration and acceptance testing, testing methods, defining test plans and strategies that map to system requirements. Testing principles, formal models of testing and software testing standards are also examined. The students completing this course will learn quality and testing concepts. They will also be able to write test plans, test design specifications, and test cases, apply use test metrics to manage the test process.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
SQA Concepts Basic notions: Quality Assurance, Detection vs. Prevention, Verification & Validation, testing	1	2
Testing Concepts :Definition, Types and Levels of testing, Black vs. White Box testing	1	2
Static Techniques	2	2

Specification-based or Black-box Techniques	3	2
Structure-based or White-box Techniques	3	2
Test Metrics : Pre-process metrics: Estimation In-process metrics: Process Management, End-process metrics: Process Improvement	2	2
Test Management : Test planning, resource management, test reporting, tools	2	2
Test Tools and Automation: What and How to automate	2	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	: 30	0	30			
Credit						

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Understand the effectively strategies of testing, the methods and technologies of software testing	Lectures	Examination, Continuous Assessment
2.0	**Cognitive Skills**		

2.1	Design test plan and test cases and Asses the software product correctly	Lectures-Assignments	Examination, Continuous Assessment
3.0	**Interpersonal Skills & Responsibility**		
3.1	Acquire skills to manage and perform the software testing and quality assurance activities	Lectures-Project	Project
4.0	**Communication, Information Technology, Numerical**		
5.0	**Psychomotor**		

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**
1.1									P		
2.1		P							P	P	
3.1		**P**									

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignment 1	3	10
2	Assignment 2	6	10
3	Mid Term	8	20
4	Project	9	20
5	Final Exam	16	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

4 Office hours per week

E Learning Resources

1. List Required Textbooks [Glenford, Myers & Badgett 11] Glenford J. Myers; Corey Sandler; Tom Badgett; "*The Art of Software Testing*", 3rd Edition; John Wiley & Sons;2011
2. List Essential References Materials (Journals, Reports, etc.) [Ammann&Offutt08] Paul Ammann; Jeff Offutt, *"Introduction to Software Testing*"; Cambridge University Press,2008
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) [Black16] Rex Black; "*Advanced Software Testing - Vol. 1*", 2nd Edition; Rocky Nook;2016 [Brian15] Brian; Peter; Angelina; Geoff; Peter "*Software Testing - An ISTQB-BCS Certified Tester Foundation guide"* 3rd edition; BCS Learning & Development Limited; 2015 [Bath08] Graham Bath, Judy McKay, "The Software Test Engineer's Handbook", Rocky Nook, 2008 [Vance,13] Stephen Vance; "*Quality Code: Software Testing Principles, Practices, and Patterns"*; Addison-Wesley Professional; 2013
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. [Web-1] www.testingstandards.co.uk [Web-2] http://www.nist.gov NIST National Institute of Standards and Technology, [Web-3] http://www.codeproject.com/KB/architecture/SWArchitectureReview.aspx
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students)
2. Computing resources (AV, data show, Smart Board, software, etc.) Rational Rose Software tool
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Lecture slides and notes

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Peer Review

3 Processes for Improvement of Teaching Review student feedback and marks with Program coordinator and quality department.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) check marking by an independent member teaching staff of a sample of student work
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. Submit course report and file at the end of each course offering.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution **Umm Al Qura University**	Date 8/7/1437
College/Department **College of Computers and Information Systems**	

A. Course Identification and General Information

1. Course title and code: 14013888-2 Summer Training
2. Credit hours 2
3. Program(s) in which the course is offered. Computer Science (If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course Summer Training Committee
5. Level/year at which this course is offered Year 3/ Level 8, Summer Term
6. Pre-requisites for this course (if any) completed Level 7
7. Co-requisites for this course (if any)
8. Location if not on main campus In industrial companies, governmental or private organizations, etc.
9. Mode of Instruction (mark all that apply) a. traditional classroom ☐ What percentage? ☐ b. blended (traditional and online) ☐ What percentage? ☐ c. e-learning ☐ What percentage? ☐ d. correspondence ☐ What percentage? ☐ f. other ☐ What percentage? ☐ Comments:

work experience in various sectors (industrial, governmental, academic, etc.).

B Objectives

1. What is the main purpose for this course?

The training experience provides students with hands-on work experience in various sectors (industrial, governmental, academic, etc.).

a. Help students to adapt to the work environment.
b. Help students to learn how to make decisions and to take responsibility.
c. Help students to apply theoretical concepts into concrete practical realities.
d. Help students to improve their communication skills.
e. Help students to enhance their skills in writing technical reports.
f. Apply ethical principles and commit to professional ethics, responsibilities and norms of computer science practice.
g. Give an opportunity to companies/organizations to identify distinctive cadres in order to recruit them after graduation.

The duration of training is 240 hours during the EIGHT weeks of Summer term. The students should be able to register for Summer training when they are in Level 8.

The department (Summer training committee) assigns a faculty member as a supervisor that should follow, advice, and evaluate the students' work.

At the end of Summer training, the students are required to submit a detailed report that shows their training experience and the gained knowledge. They are also required to give a presentation that presents their training experience

The Summer training committee carries out a rubric assessment based on the submitted report, presentation, employer evaluation letter, and supervisor evaluation.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

Using questionnaire to collect feedback from students and employers.

Reviewing Summer training programs of other universities to improve our proposed summer training program.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: The training experience provides students with hands-on work experience in various sectors (industrial, governmental, academic, etc.).

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
N/A		

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours				8 weeks during summer term		
Credit						

3. Additional private study/learning hours expected for students per week. N/A

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1			
1.2			
2.0	**Cognitive Skills**		
2.1	Ability to apply knowledge of mathematics, computing, science, and engineering appropriate to the discipline.	Field Supervision	Report
2.2	Ability to use the current techniques, skills, and tools necessary for computing practice.	Field Supervision	Report
	Ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.	Field Supervision	Report
3.0	**Interpersonal Skills & Responsibility**		
3.1	Ability to function effectively on teams to accomplish a common goal.	Field Supervision	Report.
3.2	Recognition of the need for, and an ability to engage continuing professional development.	Field Supervision	Report.
4.0	**Communication, Information Technology, Numerical**		
4.1	Ability to communicate effectively.	Field Supervision	Report.
5.0	**Psychomotor**		

5. Map course Los with the program Los. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course Los #	Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)														
	1.1	1.2	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2
2.1				P											
2.2						P									
3.1								P							
3.2										P					
4.1											P				

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Field supervisor report evaluation	Final	40%
2	Student report	Final	40%
3	Student presentation	Final	20%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

E Learning Resources

1. List Required Textbooks

N/A

2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
2. Computing resources (AV, data show, Smart Board, software, etc.)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Feedback through survey received from students.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department N/A
3 Processes for Improvement of Teaching N/A
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) a. The summer training committee may review and reevaluate the students achievement
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. N/A

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date April16, 2016
College/Department College of Computers and Information Systems	

A. Course Identification and General Information

1. Course title and code: 14014803-3 Theory of Computing
2. Credit hours: 3
3. Program(s) in which the course is offered. Computer Science (If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course: Curriculum Committee
5. Level/year at which this course is offered: 4th year / (level 9 or 10)
6. Pre-requisites for this course (if any): 14011802-3 Discrete Structures II
7. Co-requisites for this course (if any)
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? Presents the key concepts of theory of computation. Discusses automata and their relationship to regular, context-free and phrase-structure languages. The computability theory is presented, including Turing machines, and decidability. This field addresses mathematical laws that lead towards an efficient computation, govern to design computational models for any of the real-world problems. Its applications are not only in the field of computer science/engineering, but take their part to solve problems in applied mathematics, natural, life and social sciences, as well.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) Developed by increased use of IT and wed based reference materials. Improvements are as a result of new research in the field.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: Presents the key concepts of theory of computation. Discusses automata and their relationship to regular, context-free and phrase-structure languages. The computability theory is presented, including Turing machines, and decidability.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Finite Automata (DFA)	2	2
Non deterministic automata (NFA), Equivalence with DFA	2	2
Regular expression, Regular languages, Equivalence with DFA	2	2
Nonregular languages, Pumping Lemma	2	2
Context-free Grammar and Languages	2	2
Pushdown Automata (PDA)	2	2
Equivalence of PDA and CFG	1	2
Turing machines	1	2
Decidability and complexity	1	2

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	45					45
Credit	3					3

3. Additional private study/learning hours expected for students per week.	3

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Students will learn basics of finite automata as a modeling tool of computational problems.	Lectures	Quizzes, Homework, Midterm and Final Exam
1.2	Learn context-free languages and their limitations.	Lectures	Quizzes, Homework, Midterm and Final Exam
1.3	Understand the basis of theory of computation, in particular the role of key problems in defining classes of equivalent problems from a computational perspective.	Lectures	Quizzes, Homework, Midterm and Final Exam
1.4	Understand the limitations of computational procedures.	Lectures	Quizzes, Homework, Midterm and Final Exam
2.0	**Cognitive Skills**		
2.1			
3.0	**Interpersonal Skills & Responsibility**		
3.1			

4.0	**Communication, Information Technology, Numerical**		
4.1			
5.0	**Psychomotor**		
5.1			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**										
	1.1	**1.2**	**1.3**	**1.4**	**2.1**	**f**	**g**	**h**	**i**	**j**	**k**
1.1	I	I									
1.2	I	I		P							
1.3	I	I			P						
1.4				P	P						

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Homework 1, 2, 3 and 4	2, 5, 10, 13	15%
2	Quiz 1, 2, 3 and 4	4, 7, 12, 14	15%
3	Midterm	9	30%
4	Final	17	40%
5			

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks An Introduction to Formal Languages and Automata 2006 by Peter Linz
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Multimedia Projector
2. Computing resources (AV, data show, Smart Board, software, etc.)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Student feedback forms distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Course Specifications

Institution Umm Al Qura University	Date April 17th, 2016
College/Department College of Computers and Information Systems/ Computer Science	

A. Course Identification and General Information

1. Course title and code: User Interface Design 14013502-3
2. Credit hours 3
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Computer Science
4. Name of faculty member responsible for the course Curriculum Committee
5. Level/year at which this course is offered 3rd year / level 8
6. Pre-requisites for this course (if any) 14011102-4 Object Oriented Programming
7. Co-requisites for this course (if any) N/A
8. Location if not on main campus Al-Abidiyah campus (Boys) and Al-Zaher campus (Girls), Makkah Al Mukarramah

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

The main purpose of this course is to introduce students to the field of Human-Computer Interaction, Interaction Design and Usability. Specifically, the course provides students with a foundational understanding and practical experience on designing and evaluating usable interactive user interfaces. It will cover usability principles, design guidelines and heuristics, user-centered design and evaluation techniques, and key concepts and theories in HCI. Students who successfully complete this course will be capable of assessing and arguing the usability of a system front-end such as a mobile application or website, and designing more usable and intuitive interfaces. Course learning objectives include the following:

1. Understand the concept of Usability and design principles, and apply them to assess the usability of software user interfaces and other products.
2. Design an interaction strategy to solve a real world problem.
3. Apply user-centered design methods and techniques to design usable and useful interfaces.
4. Identify user needs and their user-interface implications.
5. Develop personas and use case scenarios for a set of user requirements and a targeted technology.
6. Design and refine low/high fidelity prototypes with the ability to justify every design decision.
7. Evaluate user-interfaces with and without users.
8. Identify and explain key HCI theories, Universal and Inclusive Design concepts.
9. Communicate effectively designed user interface and it's rational to stakeholders in a persuasive way using the developed prototype.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

N/A

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

The main purpose of this course is to introduce students to the field of Human-Computer Interaction, Interaction Design and Usability. Specifically, the course provides students with a foundational understanding and practical experience on

designing and evaluating usable interactive user interfaces. It will cover usability principles, design guidelines and heuristics, user-centered design and evaluation techniques, and key concepts and theories in HCI. Students who successfully complete this course will be capable of assessing and arguing the usability of a system front-end such as a mobile application or website, and designing more usable and intuitive interfaces. Course learning objectives include the following:

1. Understand the concept of Usability and design principles, and apply them to assess the usability of software user interfaces and other products.
2. Design an interaction strategy to solve a real world problem.
3. Apply user-centered design methods and techniques to design usable and useful interfaces.
4. Identify user needs and their user-interface implications.
5. Develop personas and use case scenarios for a set of user requirements and a targeted technology.
6. Design and refine low/high fidelity prototypes with the ability to justify every design decision.
7. Evaluate user-interfaces with and without users.
8. Identify and explain key HCI theories, Universal and Inclusive Design concepts.
9. Communicate effectively designed user interface and it's rational to stakeholders in a persuasive way using the developed prototype.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction to Human Computer Interaction, Interaction Design and Usability HCI History, Terminology and definitions, Norman's Design principles and action cycle	1	3
User Requirements Analysis User-centered design, Understanding users needs, context and design problem. Persona, Scenario, Task analysis	2	3
Design Conceptual and Physical design, Design principles, Interaction Styles, Design patterns	3	3
Prototyping Low-fidelity, high fidelity and The Wizards of Oz prototyping	2	3
Evaluation Techniques with/without users Cognitive Walkthrough, Usability Heuristics, Usability Testing	3	3
HCI Models and Theories: GOMS, MHP, Fitts' Law	1	3
Human Reliability and Error	1	3

Universal and Inclusive Design Accessibility, Multimodal interaction	2	3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	30		30			60
Credit						

3. Additional private study/learning hours expected for students per week. 6-9

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	To design, implement a prototype and evaluate with and without users the front-end of a system.	Lecture, Practical Project, Group discussions	Quizzes, Project deliverables, Oral Presentation and Written Reports
1.2	To be able to use the state of art user-centered design principles, techniques and tools.	Lecture, Practical Project, Group discussions	Quizzes, Project deliverables, Oral Presentation and Written Reports
2.0	**Cognitive Skills**		
2.1	To develop basic thinking skills in creative problem solving, innovation and human-centered design.	Lecture, Practical Project, Group discussions	Quizzes, Project deliverables, Oral Presentation and Written Reports

2.2	To develop attention to users needs, their design implications and impact on user experience.	Lecture, Practical Project, Group discussions	Quizzes, Project deliverables, Oral Presentation and Written Reports
3.0	**Interpersonal Skills & Responsibility**		
3.1	To work effectively and collaboratively in a teamwork setting.	Lecture, Practical Project, Group discussions	Quizzes, Project deliverables, Oral Presentation and Written Reports
3.2	To understand the designer ethical responsibility when interacting with users.	Lecture, Practical Project, Group discussions	Quizzes, Project deliverables, Oral Presentation and Written Reports
4.0	**Communication, Information Technology, Numerical**		
4.1	To use design language to communicate effectively designed user interface and it's rational to stakeholders in a persuasive way.	Lecture, Practical Project, Group discussions	Quizzes, Project deliverables, Oral Presentation and Written Reports
4.2	To write technical reports documenting different stages and components of the design and evaluation.	Lecture, Practical Project, Group discussions	Quizzes, Project deliverables, Oral Presentation and Written Reports
5.0	**Psychomotor**		
5.1	To use different forms of technology to develop prototypes	Lecture, Practical Project, Group discussions	Quizzes, Project deliverables, Oral Presentation and Written Reports

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	**Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)**								
	1.3	**1.4**	**2.1**	**2.2**	**3.1**	**3.2**	**4.1**	**4.2**	**5.1**
1.1	**I**								
1.2		**I**							
2.1			**I**						
2.2				**I**					
3.1					**I**				
3.2						**I**			
4.1							**I**		
4.2								**I**	
5.1									**I**

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Class participation and quizzes	All weeks	10%

2	Initial Project Definition	2	2%
3	Project Concept Document	3	3%
4	Design Brief	7	10%
5	Prototype Presentation and Report	8	10%
6	Expert evaluation report	10	10%
7	Usability testing report	12	10%
8	Final Project Demonstration, group report and peer-assessment	15	15%
7	Final Written Exam	16	30%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

- Faculty is expected to be available 2-4 hours/week for material specific Q/A or academic advice.
- Teaching staff will meet each project team 7 times over the semester for 40 minutes to discuss progress, give feedback on the project milestone of that week or answer any questions.

  Teaching staff total availability time in hours = 40 x (# of enrolled students / [4|5]) / 60

  e.g. if the number of enrolled students is 30 students, then TA(s) is/are expected to be available 4 hours/week only in weeks where there is a project deliverable.

E Learning Resources

1. List Required Textbooks
1.1 Yvonne Rogers, Helen Sharp, Jenny Preece. Interaction Design: Beyond Human - Computer Interaction
1.2 Lukas Mathis. Designed For Use

2. List Essential References Materials (Journals, Reports, etc.) 2.1 Don Norman. The Design of Everyday Things: Revised and Expanded Edition. 2.2. Course slides and notes. 2.3 Ten Usability Heuristics for User Interface Design: https://www.nngroup.com/articles/ten-usability-heuristics/
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) 3.1 Tohidi, Maryam, et al. "Getting the right design and the design right."*Proceedings of the SIGCHI conference on Human Factors in computing systems*. ACM, 2006. 3.2 Pruitt, John, and Jonathan Grudin. "Personas: practice and theory."*Proceedings of the 2003 conference on Designing for user experiences*. ACM, 2003.
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. 4.1 Paper Prototyping Helper Kit: http://www.userfocus.co.uk/resources/prototype.html 4.2 Designing the user experience poster from UPA: http://www.mprove.de/script/00/upa/_media/upaposter_11x17.pdf
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. 5.1 Android developing studio: http://developer.android.com/develop/index.html 5.2 Android Design Principles: http://developer.android.com/design/get-started/principles.html

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) 1.1 Classroom & Laboratory
2. Computing resources (AV, data show, Smart Board, software, etc.) 2.1 Data show 2.2 Internet access
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) 3.1 Android Tablets and smartphones for students to use during the semester in their Course Project.

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching 1.1 TA's will collect informal feedback from students through direct communication during project's group meetings. 1.2 Students self-reflection report evaluating their learning experience at the end of the semester.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department 2.1 Instructor's evaluation of students' performance improvement throughout the course. 2.2 Instructor's reflection on samples of students project deliverables with colleagues working in the same field. 2.3 Students evaluation of the course and instructor administrated by the department at the end of the semester.
3 Processes for Improvement of Teaching 3.1 Balancing theory and practice in course material.

3.2 Break project high level requirements into deliverables collected and assessed throughout the semester. 3.3 Provide one-to-one feedback on students project deliverables throughout the semester.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. As part of the preparation of the course, instructor(s) will annually: 1. Review and update the content of the course to include any significant advancement in HCI as needed. 2. Consider targeting new forms of interface technologies in the course project. 3. Incorporate any new opportunities to expose students to professional design settings or encourage their participation in a design competition. For example, visiting a nearby usability lab to see usability test tools and process in action OR aligning course design project specifications with a national or international competitions such as ACM CHI design competition.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____