Computer Science Program

Undergraduate Program

STUDY PLAN 38

UMM AL-QURA UNIVERSITY | Jamoum University College

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1 INTRODUCTION

1.1 DEPARTMENT MISSION

The mission of the department is to provide an excellent scientific environment that contributes to the preparation of national cadres who are qualified and specialized in different areas of research and development in computing in accordance with the needs of the society.

1.2 PROGRAM EDUCATIONAL OBJECTIVES

The program educational objectives (PEOs) are driven to support the department mission; therefore, they support the college and university missions. The PEOs are disseminated to students through different media outlets such as department websites, program catalogs and brochures, the department announcement boards, etc.

The CSJ undergraduate program educational objectives are that our graduates can:

1. Practice as computer scientists, designing, developing or maintaining technical projects in various areas of computing.
2. Enhance their skills and gain knowledge about new technologies through self-directed training, attending workshops, joining professional societies or post graduate education.
3. Progress successfully in their profession.

1.3 STUDENT OUTCOMES

The program has documented measurable outcomes that are based on the needs of the program's beneficiaries and administrative and responsible committees. The program enables students to achieve, by the time of graduation:

SOa. An ability to apply knowledge of computing and mathematics appropriate to the discipline;

SOb. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.

SOc. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.

SOd. An ability to function effectively on teams to accomplish a common goal.

SOe. An understanding of professional, ethical, legal, security, and social issues and responsibilities;

SOf. An ability to communicate effectively with a range of audiences.

SOg. An ability to analyze the local and global impact of computing on individuals, organizations and society.

SOh. Recognition of the need for, and an ability to engage in, continuing professional development.

SOi. An ability to use current techniques, skills, and tools necessary for computing practices.

SOj. An ability to 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 tradeoffs involved in design choices.

SOk. An ability to apply design and development principles in the construction of software systems of varying complexity.

1.4 STUDY PLAN DETAILS

1.4.1 Offered Degree

The graduates of this undergraduate program are offered the Bachelor Degree in Computer Science.

1.4.2 Degree Requirements

The offered degree is designed to contains 160 credit hours within 10 levels. Students should complete those credit hours, normally within 5 years, before their graduation.

1.4.3 Study Plan Design

The study plan is designed to follow the recommendations of the Computing Curricula 2005 and Computer Science Curricula 2013 documentations published by ACM and IEEE. In addition, the plan design process considered the requirements of the accreditation by ABET and NCAAA organizations as well as the UQU rules.

1.4.4 Credit Hours Summary

Requirements	Credit Hours
University Requirements (UR)	22
College Requirements (CR)	27
Department Requirements (DR)	103
Department Electives (DE)	9
Total	161

2 Study Plan

2.1 Study Plan By level

First Semester				Second Semester			
Course Number	**Course Name**	**Credit Hours**	**Pre-requisites**	**Course Number**	**Course Name**	**Credit Hours**	**Pre-requisites**
23161101-3	Introduction to Computer Science	3	–	23161102-3	Computer Programming	3	23161101-3
23161301-3	Introduction to Info. Systems	3	–	2304102-4	Calculus II	4	2304101-4
2304101-4	Calculus I	4	–	2306102-4	General Physics I	4	–
2301116-2	Quran 1	2	–	2302216-2	Islamic Culture 2	2	2302116-2
2302116-2	Islamic Culture 1	2	–	2310105-3	English Conversation	3	2310102-2
2310102-2	English Language	2	–				
	Total CH	**16**			**Total CH**	**16**	
Third Semester				**Fourth Semester**			
Course Number	**Course Name**	**Credit Hours**	**Pre-requisites**	**Course Number**	**Course Name**	**Credit Hours**	**Pre-requisites**
23162103-3	Structured Programming	3	23161102-3	23162104-3	Advanced Programming	3	2316204-3
23162201-3	Logic Analysis & Design	3	23161101-3	23162105-3	Discrete Structures	3	2304251-4
2304251-4	Introduction to Set Theory	4	–	23162106-3	Web Programming	3	23161102-3
2304131-3	Elementary Statistics & Probability Theory	3	2304102-4	23162202-3	Computer Organization & Assembly Programming	3	23162201-3
2309141-2	History of the Biography of the Prophet Muhammad (pbuh)	2	–	2301216-2	Quran 2	2	2301116-2
2303109-2	Arabic Language	2	–	2302316-3	Islamic Culture 3	3	2302216-2
	Total CH	**17**			**Total CH**	**17**	
Fifth Semester				**Sixth Semester**			
Course Number	**Course Name**	**Credit Hours**	**Pre-requisites**	**Course Number**	**Course Name**	**Credit Hours**	**Pre-requisites**
23163203-3	Computer Architecture	3	23162202-3	23163302-3	System Analysis & Design	3	23161301-3
23163416-3	Multimedia Systems	3	23162106-3	23163303-3	File Processing & Org.	3	23163108-4
23163107-3	Logic Programming	3	23162105-3	23163109-4	Programming Languages Design	4	23162104-3 23163107-3
23163108-4	Data Structures & Algorithms	4	23162104-3	2305102-3	General Chemistry	3	–
2301316-2	Quran 3	2	2301216-2	2301416-2	Quran 4	2	2301316-2
2302416-3	Islamic Culture 4	2	2302316-3				
	Total CH	**17**			**Total CH**	**15**	
Seventh Semester				**Eighth Semester**			
Course Number	**Course Name**	**Credit Hours**	**Pre-requisites**	**Course Number**	**Course Name**	**Credit Hours**	**Pre-requisites**
23164304-3	Operating Systems	3	23163203-3	23164402-3	Computer Graphics	3	2316316-3
23164305-3	Database Systems	3	23163302-3 23163303-3	23164403-3	Artificial Intelligence	3	2316415-3
23164306-3	Software Engineering	3	23163302-3	23164204-3	Parallel & Distributed Computer Systems	3	23164304-3 23164305-3
23164110-3	Computer Theory	3	23163303-3 23163109-4	23164307-3	Advanced Database Systems	3	23164305-3
23164111-3	Numerical Methods	3	2304102-4	23164112-3	Advanced Discrete Structures	3	23162105-3
	Total CH	**15**			**Total CH**	**15**	
Ninth Semester				**Tenth Semester**			
Course Number	**Course Name**	**Credit Hours**	**Pre-requisites**	**Course Number**	**Course Name**	**Credit Hours**	**Pre-requisites**
23165404-3	Internet App. Development	3	23163416-3	23165405-3	Computers & Society	3	–
23165113-3	Compiler Construction	3	23163109-4	23165406-3	Computer Security	3	23164304-3
23165205-3	Computer Networks	3	23164304-3	23165408-4	Graduation Project II	4	23165407-4
23165407-4	Graduation Project I	4	23164304-3 23164307-3	23165×××-3	Elective Course II	3	–
23165×××-3	Elective Course I	3	–	23165×××-3	Elective Course III	3	–
	Total CH	**16**			**Total CH**	**16**	

2.2 STUDY PLAN IN ARABIC

المستوى الأول		
رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية
23161101-3	مقدمة في علوم الحاسب الآلي	Introduction to Computer Science
23161301-3	مقدمة في نظم المعلومات	Introduction to Info. Systems
2304101-4	تفاضل وتكامل (١)	Calculus I
2301116-2	القرآن الكريم (١)	Quran 1
2302116-2	الثقافة الإسلامية (١)	Islamic Culture 1
2310102-2	اللغة الإنجليزية	English Language

المستوى الثاني		
رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية
23161102-3	برمجة الحاسب الآلي	Computer Programming
2304102-4	تفاضل وتكامل (٢)	Calculus II
2306102-4	فيزياء عامة (١)	General Physics I
2302216-2	الثقافة الإسلامية (٢)	Islamic Culture 2
2310105-3	مهارات التخاطب بالإنجليزية	English Conversation

المستوى الثالث		
رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية
23162103-3	البرمجة الهيكلية	Structured Programming
23162201-3	تحليل وتصميم منطقي	Logic Analysis & Design
2304251-4	المدخل إلى نظرية المجموعات	Introduction to Set Theory
2304131-3	إحصاء واحتمالات (١)	Elementary Statistics & Probability Theory
2309141-2	تاريخ السيرة النبوية	History of the Biography of the Prophet Muhammad (pbuh)
2303109-2	اللغة العربية	Arabic Language

المستوى الرابع		
رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية
23162104-3	برمجة متقدمة	Advanced Programming
23162105-3	هياكل متقطعة	Discrete Structures
23162106-3	البرمجة الشبكة العنكبوتية	Web Programming
23162202-3	تنظيم الحاسبات والبرمجة بلغة التجميع	Computer Organization & Assembly Programming
2301216-2	القرآن الكريم (٢)	Quran 2
2302316-3	الثقافة الإسلامية (٣)	Islamic Culture 3

المستوى الخامس		
رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية
23163203-3	عمارة الحاسب	Computer Architecture
23163416-3	نظم الوسائط المتعددة	Multimedia Systems
23163107-3	برمجة منطقية	Logic Programming
23163108-4	هياكل بيانات وخوارزميات	Data Structures & Algorithms
2301316-2	القرآن الكريم (٣)	Quran 3
2302416-3	الثقافة الإسلامية (٤)	Islamic Culture 4

المستوى السادس		
رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية
23163302-3	تحليل وتصميم النظم	System Analysis & Design
23163303-3	تنظيم ومعالجة الملفات	File Processing & Org.
23163109-4	لغات البرمجة	Programming Languages Design
2305102-3	كيمياء عامة	General Chemistry
2301416-2	القرآن الكريم (٤)	Quran 4

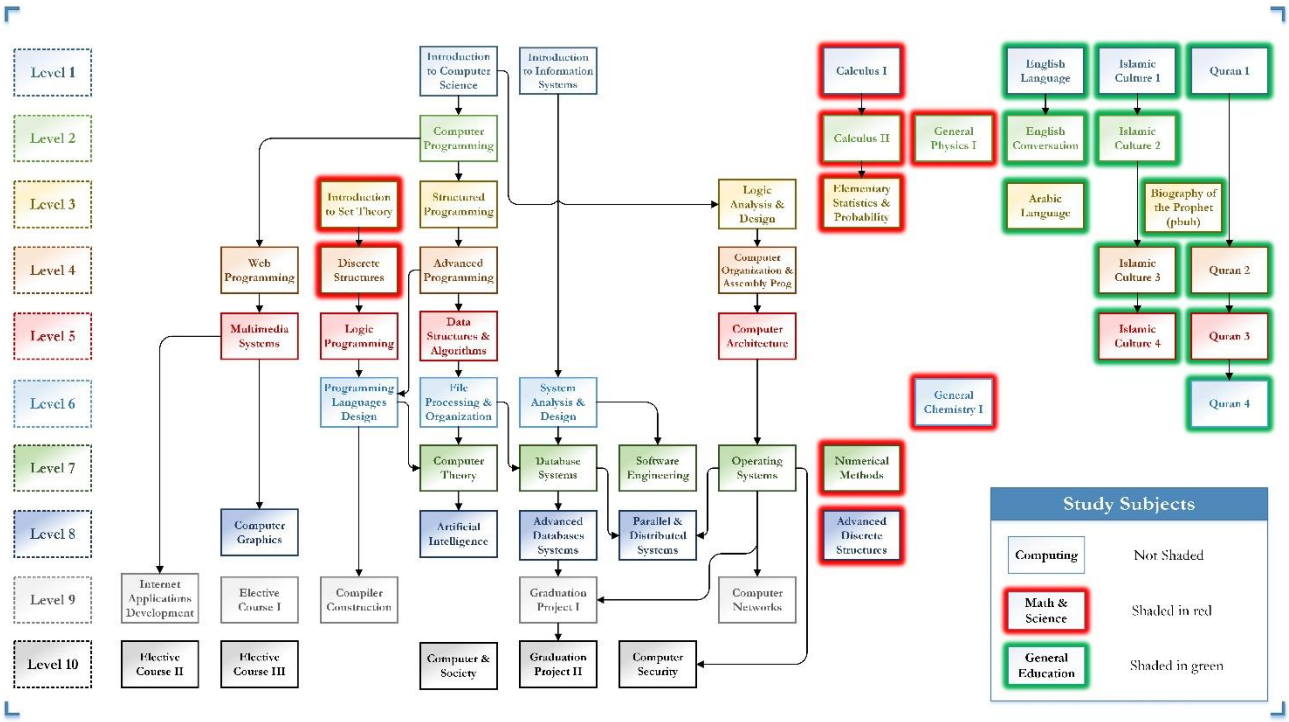
المستوى السابع		
رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية
23164304-3	نظم التشغيل	Operating Systems
23164305-3	مبادئ قواعد البيانات	Database Systems
23164306-3	هندسة البرمجيات	Software Engineering
23164110-3	نظرية الحاسبات	Computer Theory
23164111-3	طرق عددية	Numerical Methods

المستوى الثامن		
رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية
23164402-3	الرسومات بالحاسب	Computer Graphics
23164403-3	الذكاء الاصطناعي	Artificial Intelligence
23164204-3	نظم الحاسبات الموزعة والمتوازية	Parallel & Distributed Computer Systems
23164307-3	قواعد البيانات المتقدمة	Advanced Database Systems
23164112-3	هياكل البيانات المتقدمة	Advanced Discrete Structures

المستوى التاسع		
رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية
23165404-3	تطوير تطبيقات الإنترنت	Internet App. Development
23165113-3	تركيب المترجمات	Compiler Construction
23165205-3	شبكات الحاسب	Computer Networks
23165407-4	مشروع التخرج (١)	Graduation Project I
23165×××-3	مقرر اختياري (١)	Elective Course I

المستوى العاشر		
رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية
23165405-3	الحاسب والمجتمع	Computers & Society
23165406-3	أمن الحاسبات	Computer Security
23165408-4	مشروع التخرج (٢)	Graduation Project II
23165×××-3	مقرر اختياري (٢)	Elective Course II
23165×××-3	مقرر اختياري (٣)	Elective Course III

2.3 PREREQUISITE STRUCTURE



3 COURSES

The lists of courses by requirements of sub-majors are shown below. More details about the program courses and their specifications in the NCAAA format are attached in the appendix.

3.1 STUDY PLAN COURSE LIST BY REQUIREMENTS

3.1.1 University Requirements (UR)

- 2301116-2 Quran 1
- 2301216-2 Quran 2
- 2301316-2 Quran 3
- 2301416-2 Quran 4
- 2302116-2 Islamic Culture 1
- 2302216-2 Islamic Culture 2
- 2302316-3 Islamic Culture 3
- 2302416-3 Islamic Culture 4
- 2303109-2 Arabic Language
- 2309141-2 History of the Biography of Prophet Muhammad (pbuh)

3.1.2 College Requirements (CR)

- 2304101-4 Calculus I
- 2304102-4 Calculus II
- 2304251-4 Introduction to Set Theory
- 2304131-3 Statistics & Probability Theory
- 2305102-3 General Chemistry
- 2306102-4 General Physics I
- 2310102-2 English Language
- 2310105-3 English Conversation

3.1.3 Department Requirements (DR)

- 23161101-3 Introduction to Computer Science
- 23161102-3 Computer Programming
- 23161301-3 Introduction to Information Systems
- 23162103-3 Structured Programming
- 23162104-3 Advanced Programming
- 23162105-3 Discrete Structures
- 23162106-3 Web Programming
- 23162201-3 Logic Design & Analysis
- 23162202-3 Computer Organization & Assembly Programming
- 23163107-3 Logic Programming
- 23163108-4 Data Structures & Algorithms
- 23163109-4 Programming Languages Design
- 23163203-3 Computer Architecture
- 23163302-3 System Analysis & Design
- 23163303-3 File Processing & Organization
- 23163401-3 Multimedia Systems

- 23164110-3 Computer Theory
- 23164111-3 Numerical Methods
- 23164112-3 Advanced Discrete Structures
- 23164204-3 Parallel & Distributed Computers
- 23164304-3 Operating Systems
- 23164305-3 Database Systems
- 23164306-3 Software Engineering
- 23164307-3 Advanced Database Systems
- 23164402-3 Computer Graphics
- 23164403-3 Artificial Intelligence
- 23165113-3 Compiler Construction
- 23165205-3 Computer Networks
- 23165404-3 Internet Applications Development
- 23165405-3 Computers & Society
- 23165406-3 Computer Security
- 23165407-4 Graduation Project I
- 23165408-4 Graduation Project II

3.1.4 Department Electives (DE)

- 23165×××-3 Elective Course I
- 23165×××-3 Elective Course II
- 23165×××-3 Elective Course III

3.1.4.1 Elective Course List

- 23165409-3 Selected Topics I
- 23165410-3 Selected Topics II
- 23165411-3 Human-Computer Interaction
- 23165412-3 User Interface Design
- 23165413-3 Advanced Web Programming
- 23165414-3 Mobile Application Development
- 23165415-3 Software Testing
- 23165416-3 Big Data Analytics
- 23165417-3 Expert Systems
- 23165418-3 Neural Networks
- 23165419-3 Natural Language Processing
- 23165420-3 Image Processing
- 23165421-3 Pattern Recognition
- 23165422-3 Game Programming
- 23165423-3 Cloud Computing
- 23165424-3 Cryptography
- 23165425-3 Forensics Computing
- 23165426-3 Bioinformatics

3.2 COMPUTING COURSE LIST BY SUB-MAJOR

3.2.1 Programming & Algorithms Courses

- 23161101-3 Introduction to Computer Science
- 23161102-3 Computer Programming
- 23162103-3 Structured Programming
- 23162104-3 Advanced Programming
- 23162105-3 Discrete Structures
- 23162106-3 Web Programming
- 23163107-3 Logic Programming
- 23163108-4 Data Structures & Algorithms
- 23163109-4 Programming Languages Design
- 23164110-3 Computer Theory
- 23164111-3 Numerical Methods
- 23164112-3 Advanced Discrete Structures
- 23165113-3 Compiler Construction

3.2.2 Hardware Courses

- 23162201-3 Logic Design & Analysis
- 23162202-3 Computer Organization & Assembly Programming
- 23163203-3 Computer Architecture
- 23164204-3 Parallel & Distributed Computers
- 23165205-3 Computer Networks

3.2.3 Software Courses

- 23161301-3 Introduction to Information Systems
- 23163302-3 System Analysis & Design
- 23163303-3 File Processing & Organization
- 23164304-3 Operating Systems
- 23164305-3 Database Systems
- 23164306-3 Software Engineering
- 23164307-3 Advanced Database Systems

3.2.4 Applications Courses

- 23163401-3 Multimedia Systems
- 23164402-3 Computer Graphics
- 23164403-3 Artificial Intelligence
- 23165404-3 Internet Applications Development
- 23165405-3 Computers & Society
- 23165406-3 Computer Security
- 23165407-4 Graduation Project I
- 23165408-4 Graduation Project II
- 23165×××-3 Elective Course I
- 23165×××-3 Elective Course II
- 23165×××-3 Elective Course III

3.3 MATHEMATICS & SCIENCE COURSES (31 CREDIT HOURS)

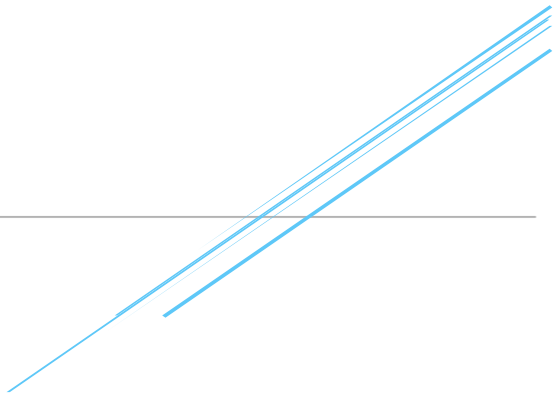
- 2304101-4 Calculus I
- 2304102-4 Calculus II
- 2304251-4 Introduction to Set Theory
- 2304131-3 Statistics & Probability Theory
- 2305102-3 General Chemistry
- 2306102-4 General Physics I
- 23162105-3 Discrete Structures
- 23164111-3 Numerical Methods
- 23164112-3 Advanced Discrete Structures

4 COURSE-OUTCOME MATRIX

Student outcomes (SOa) through (SOk) are inlaid in the program curriculum as shown in the following table. In this table, the matching between SOs and the program courses is given.

Courses		SOa	SOb	SOc	SOd	SOe	SOf	SOg	SOh	SOi	SOj	SOk	
Code	**Name**												
23161101-3	Introduction to Computer Science												Formative Assessment
23161102-3	Computer Programming												
23161301-3	Introduction to Information Systems					✓							
23162103-3	Structured Programming												
23162104-3	Advanced Programming												
23162105-3	Discrete Structures	✓											
23162106-3	Web Programming				✓				✓				
23162201-3	Logic Design & Analysis												
23162202-3	Computer Org. & Assembly Prog.									✓			
23163107-3	Logic Programming												
23163108-4	Data Structures & Algorithms		✓								✓		
23163109-4	Programming Languages Design												
23163203-3	Computer Architecture												
23163302-3	System Analysis & Design		✓	✓			✓	✓				✓	
23163303-3	File Processing & Organization												
23163401-3	Multimedia Systems												
23164110-3	Computer Theory	✓	✓										Summative Assessment
23164111-3	Numerical Methods												
23164112-3	Advanced Discrete Structures												
23164204-3	Parallel & Distributed Computers												
23164304-3	Operating Systems			✓						✓			
23164305-3	Database Systems												
23164306-3	Software Engineering		✓	✓	✓		✓					✓	
23164307-3	Advanced Database Systems												
23164402-3	Computer Graphics												
23164403-3	Artificial Intelligence												
23165113-3	Compiler Construction												
23165205-3	Computer Networks												
23165404-3	Internet Applications Development												
23165405-3	Computers & Society					✓		✓	✓				
23165406-3	Computer Security	✓				✓							
23165407-4	Graduation Project I				✓		✓	✓	✓		✓		
23165408-4	Graduation Project II				✓		✓			✓	✓	✓	
23165×××-3	Elective Course I												
23165×××-3	Elective Course II												
23165×××-3	Elective Course III												

APPENDICES



ملحق (١): قياس آراء المعنيين بالخطة

قياس آراء المعنيين بالخطة

الهدف:

قياس آراء المعنيين بالخطة بشأن استحداث خطة جديدة لبرنامج علوم الحاسب في ضوء ملاحظات زيارة الاعتماد الدولي (ABET).

وقد تم توزيع الاستبانة المرفقة على عدد من المعنيين وكانت النتائج كما يلي:

البيانات الأساسية:

الفئة	عضو هيئة تدريس	طالب / طالبة	مستفيد/صاحب عمل	إجمالي
عدد المشاركين	٢٠	١٨	٥	٤٣

أولاً: نتائج قياس الآراء حول زيادة مقررات الرياضيات والعلوم الطبيعية

الفئة		عضو هيئة تدريس	طالب / طالبة	مستفيد/صاحب عمل	إجمالي	
					عدد	نسبة
عدد المشاركين	موافق	٢٠	١٣	٥	٣٨	٨٨٪
	غير موافق	٠	٥	٠	٥	١٢٪
المقترحات	عدم حذف مقرر "مواضيع مختارة في علوم الحاسب ٢" – عدم إضافة مقرر "تحليل عددي" – إضافة مقرر "أحياء عامة" بدلاً من مقرر "كيمياء عامة"					

ثانياً: نتائج قياس الآراء حول تعديل مقررات المشروعات الطلابية

الفئة		عضو هيئة تدريس	طالب / طالبة	مستفيد/صاحب عمل	إجمالي	
					عدد	نسبة
عدد المشاركين	موافق	٢٠	١٦	٥	٤١	٩٥٪
	غير موافق	٠	٢	٠	٢	٥٪
المقترحات	—					

ثالثاً: ملاحظات أخرى

الفئة		عضو هيئة تدريس	طالب / طالبة	مستفيد/صاحب عمل	إجمالي	
					عدد	نسبة
عدد المشاركين	يوجد ملاحظات	١٠	١٥	١	٤١	٩٥٪
	لا يوجد ملاحظات	١٠	٥	٤	٢	٥٪
المقترحات	وجود مقررات اختيارية – إضافة ساعات عملية لبعض المقررات – تعديل مسمى بعض المقررات – زيادة ساعات التطبيقات والمشاريع للطلاب					

استبانة استحداث خطة جديدة لبرنامج علوم الحاسب

البيانات الأساسية:

☐ الاسم (اختياري)	☐		
☐ الفئة	☐ عضو هيئة تدريس	☐ طالب / طالبة	☐ مستفيد/صاحب عمل

نظراً لملاحظات زيارة الاعتماد الدولي (ABET) لبرنامج علوم الحاسب بالقسم فإن القسم بصدد مراجعة الخطة الدراسية للبرنامج واستحداث خطة جديدة تفي بمعايير الاعتماد، وكانت أبرز الملاحظات على الخطة الحالية:

أولاً: قلة ساعات مقررات الرياضيات والعلوم الطبيعية

عدد ساعات مقررات العلوم الطبيعية والرياضيات ٢٢ ساعة لذا وجب تعديل الخطة الدراسية حتى تصبح ساعات هذه المقررات ٣٠ ساعة طبقاً لشروط الاعتماد الدولي (ABET)، الرجاء استيفاء الاستبانة التالية بخصوص هذا الشأن علماً بأن التعديل المقترح من قبل لجنة المناهج لاستيفاء هذه الملاحظة هو حذف مقرر نظم تعريب الحاسب في الخطة الجديدة واستبداله بمقرر كيمياء عامة، وكذلك تحويل مقررات مواضيع مختارة إلى مقررات في الرياضيات المتقدمة.

١. رأيك في التعديل: ☐ موافق ☐ غير موافق

٢. إذا كنت غير موافق على التعديل السابق فما هي المقررات التي ترغب في حذفها من الخطة أو الأخرى التي ترغي في اضافتها:

المقررات التي تقترح حذفها	المقررات التي تقترح إضافتها
.....	.....

ثانياً: مقررات المشروعات الطلابية

نظراً لأهمية اكساب الطلاب المهارات المهنية اللازمة في تحليل وتصميم وتنفيذ واختبار وصيانة البر مجيات ونظم الحاسب، وهذه المهارات لا يمكن اكسابها للطالب بصورة ملائمة من خلال مشروع التخرج فقط لذلك فإن لجنة المناهج بالقسم ترى تحويل مقرر مشروع بحث إلى مشروع تطبيقي.

١. رأيك في التعديل: ☐ موافق ☐ غير موافق

إذا كنت غير موافق على هذا التعديل فما هي مبرراتك .....

.....

ثالثاً: ملاحظات أخرى

هل يوجد لأي ملاحظات أخرى يجب مراعاتها في الخطة الجديدة: ☐ نعم ☐ لا

إذا كانت إجابتك نعم فما هي ملاحظاتك .....

.....

ملحق (٢): توصيف المقررات

INTRODUCTION TO COMPUTER SCIENCE

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Introduction to Computer Science	23161101-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	1/1	
6. Pre-requisites for this course (if any)	—	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing this course, the student will have learned, through appropriate classroom and laboratory experiences, the basics of computers, networking, and software. Moreover, he should explain how computers store and manipulate information and understand what an operating system does, and give some examples of operating systems. Finally, he should also design simple algorithms and write their computer programs.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Overview of the computer and software components	1	4
Software: Basic Application Software – Specialized Application Software – System Software	2	8
Hardware: The System Unit - Input and Output - Secondary Storage - Communications and Networks	1	4
Windows Operating System	2	8
The Internet and the Web	1	4
Data representation and number systems	2	8
Programming and Languages	1	4
Algorithms and flowcharts	2	8

C++ Programming: Input and output statements – Operations – Selection Statements	3	12

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
30	**0**	**30**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand the fundamental topics in computer systems, including hardware architectures and operating systems, and use the basic computer terminology.
2. Understand the rules of using the Internet and its access and application software.
3. Demonstrate the basic knowledge of fundamentals algorithms design.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Practical sessions, Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Practical exams.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Use appropriate programming languages to design simple computer programs.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Practical sessions, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Practical exams.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain. 1. Demonstrate efficient IT capabilities.
(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Practical sessions, Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Practical exams.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester			
No	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Practical Exams	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- T.J. O'Leary, L.I. O'Leary, Computing Essentials 2012, McGraw Hill, 2012.

2. Essential References
- H.M. Deitel, P.J. Deitel, C++ How to Program, 9th Edition, Prentice Hall, 2012.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.

• UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • Software: C++ software, Basic applications.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students. • General computer laboratories (max 20 students per session).
2. Computing resources • Software: C++ software, Basic applications. • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

COMPUTER PROGRAMMING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Computer Programming	23161102-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	2/1	
6. Pre-requisites for this course (if any)	Introduction to Computer Science (23161101-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course introduces computer programming and problem solving in a structured program logic environment using the C and C++ languages. Emphasis is placed upon development of correct, efficient programs that are easy to maintain. Topics include language syntax, data types, problem analysis, program design, debugging, code comments, problem-solving methods, and logic control structures. Basic features of the C and C++ programming language such as data types, control structures, input/output statements, functions, and arrays are covered.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction Computer Programming	1	4
Input and output statements	1	4
Data Types	2	8
Operator precedence	1	4
Decision Structures and Boolean Logic	3	12
Loops and Repetition Structures	3	12
Functions	2	8
Arrays	2	8

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
30	**0**	**30**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand the basic terminology used in computer programming.
2. Explain the concept of data storage and named memory locations.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Practical sessions, Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Practical exams.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Write and incorporate functions to demonstrate program competence.
2. Write, compile and debug programs in C language.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Practical sessions, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Practical exams.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

1. Use different data types as variables and arrays in a computer program and apply decision and repetition structures in program design.

(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Practical sessions, Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Practical exams.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Practical Exams	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Tony Gaddis. Starting Out with C++ from Control Structures through Objects, Brief Version. Pearson, 2015.

2. Essential References
- H.M. Deitel, P.J. Deitel, C++ How to Program, 9th Edition, Prentice Hall, 2012.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations • Software: C++ software, Basic applications.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students. • General computer laboratories (max 20 students per session).
2. Computing resources • Software: C++ software, Basic applications. • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

INTRODUCTION TO INFORMATION SYSTEMS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Introduction to Information Systems	23161301-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	1/1	
6. Pre-requisites for this course (if any)	---	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon the completion of this course, the student will have learned, through appropriate classroom and laboratory experiences, the fundamentals of information systems and understand the principles of the flow of data and the use of computers to solve some of organizational issues.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Overview of Information Technology	1	3
The Internet, the Web, and Electronic Commerce	3	9
Communications and Networks	2	6
Privacy, Security, and Ethics	1	3
The basics and principles of information systems and organizations	3	9
Databases basics	3	9
New trends in information systems	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired The student will be able to: 1. Define the basic concepts and objectives of information systems. 2. Explain roles, components, and applications of information systems. 3. Apply the principles of effective information system management, information organization, and information-retrieval skills.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Tutorials, Discussion.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments, Presentation.
b. Cognitive Skills
(i) Description of cognitive skills to be developed • Students will be able to apply basic computing skills by the end of the course
(ii) Teaching strategies to be used to develop these cognitive skills • Lectures, Tutorials, Discussion.
(iii) Methods of assessment of student's cognitive skills • Written exams, Assignments, Presentation.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed • None
(ii) Teaching strategies to be used to develop these skills and abilities • None
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • None
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. Apply the principles of effective information system management.
(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Presentation.

e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester			
No	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Class Activity	3-16	10
4	Quizzes	16	10
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

Ralph Stair and George Reynolds, Fundamentals of Information Systems, 6th Edition, Cengage Learning, 2011.

2. Essential References

T. O'Leary, L.I. O'Leary, Computing Essentials 2012, McGraw-Hill 2011.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)

- **None.**

4- Electronic Materials, Web Sites etc.

- UQU e-learning portal.

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

- Software: Basic applications

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)

• Classroom with 35 seats for students.
2. Computing resources • Software: Basic applications • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

STRUCTURED PROGRAMMING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Structured Programming	23162103-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	3/2	
6. Pre-requisites for this course (if any)	Computer Programming (23161102-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course examines advanced features of modern programming languages such as pointers, files, modules. Upon the completion of this course, the student will have learned, through appropriate classroom and laboratory experiences, the essential of the concepts of the structured programming paradigm. They should identify the steps involved in creating a structured program and understand the nature and function, arrays, pointers and main file processing. They should also use these structures within a high-level language constructs and syntax (C++) to design, write and debug appropriate computer programs.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Functions	3	12
Recursion	1	4
Global Variables and Global Constants	1	4
Arrays and Vectors	3	12
Pointers	3	12
Files processing	2	8
Modules	2	8

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
30	**0**	**30**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand the advanced terminology and concepts of structured programming technique.
2. Demonstrate basic knowledge and understanding of functions, arrays and file streams.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Practical sessions, Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Practical exams.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

- None.

(ii) Teaching strategies to be used to develop these cognitive skills

- None.

(iii) Methods of assessment of student's cognitive skills

- None.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. Design, write and debug computer programs in C++ language within the structured programming paradigm.

(ii) Teaching strategies to be used to develop these skills and abilities

- Lectures, Tutorials, Practical sessions, Discussion.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- Written exams, Assignments, Practical exams.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

1. Interpret verbal problem specifications and algorithms into program code using C++ language.

(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Practical sessions, Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Practical exams.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Practical Exams	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Tony Gaddis. Starting Out with C++ from Control Structures through Objects, Brief Version. Pearson, 2015.

2. Essential References
- H.M. Deitel, P.J. Deitel, C++ How to Program, 9th Edition, Prentice Hall, 2012.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations • Software: C++ software, Basic applications.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students. • General computer laboratories (max 20 students per session).
2. Computing resources • Software: C++ software, Basic applications. • Internet Access. • Specialized computer laboratories (max 16 students per session).   ○ Free Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

ADVANCED PROGRAMMING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Advanced Programming	23162104-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	4/2	
6. Pre-requisites for this course (if any)	Structured Programming (23162103-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course is to study the fundamental concepts and techniques necessary to write high-quality programs, including basic concepts of Object-Oriented programming, exception handling, and class libraries. Students will learn how to use inheritance, interfaces, exception handling, and how to incorporate graphical user interfaces (GUIs) into their programming applications. Students will also learn how to apply object-oriented design and programming principles to their programs. Typical assignments and projects include using built-in and programmer-defined classes to develop full-featured, easy-to-use programs. All the mentioned concepts and techniques are studied using the Java language. It is important to note that this course is not a Java training course. The emphasis is on the concepts and techniques rather than the language itself.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to Object-Oriented concepts and design	1	4
Overview of Java programming	1	4
Data Types in Java	1	4
Classes and Objects	2	8
Exceptions and Input/Output	1	4
Extending Classes	1	4

Inheritance	2	8
Encapsulation	1	4
Graphical User Interface (GUI)	3	12
Events	2	8

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
30	**0**	**30**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Demonstrate an introductory understanding of graphical user interfaces, multi-threaded programming, and event-driven programming.
2. Write self-documenting code with an appropriate user interface that meets the style requirements for readability and usability.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Practical sessions, Projects, Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Practical exams, Reports, and Project Discussion.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Implement and design object-oriented programs that use advanced features and concepts such as encapsulation and inheritance.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Practical sessions, Projects, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Practical exams, Reports, and Project Discussion.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

• None.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. Demonstrate basic knowledge of software engineering concepts.
(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Practical sessions, Projects, Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Practical exams, Reports, and Project Discussion.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	15
2	Midterm Exam 2	12-13	15
3	Practical Exams	16	20
4	Projects	16	10
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

- Tony Gaddis, Starting Out with Java: From Control Structures through Objects, 6th Edition, 2015.

2. Essential References

• Harvey M. Deitel, Paul, J. Deitel, Java How to Program, 9th Edition, Prentice Hall, 2012.
3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List) • None.
4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • Software: Java software, Basic applications.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students. • General computer laboratories (max 20 students per session).
2. Computing resources • Software: Java software, Basic applications. • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

DISCRETE STRUCTURES

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Discrete Structures	23162105-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	4/2	
6. Pre-requisites for this course (if any)	Introduction to Set Theory (2304251-4)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing this course the student will have learned, through appropriate classroom and laboratory experiences, the fundamental mathematical methods for characterizing and analyzing discrete systems. In addition, he/she should understand the modern algebraic concepts, logic theory, set theory, algorithms, and the graph theory.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
The Mathematical Logic	3	9
Sequences, Induction and Recursion	3	9
Sets, Functions and Relations	3	9
Counting and Probabilities	2	6
Graphs and Trees	2	6
Analysis of Algorithms	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Demonstrate basic knowledge and understanding of a core of analysis, algebra and applied mathematics.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Tutorials, Discussion.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. Identify appropriate methods of problem modelling and solving. 2. Identify a range of solutions and critically evaluate and justify proposed design solutions. 3. Solve computer science related problems using sets, sequences, probabilities, logic and graphs.
(ii) Teaching strategies to be used to develop these cognitive skills • Lectures, Tutorials, Discussion.
(iii) Methods of assessment of student's cognitive skills • Written exams, Assignments.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed 1. Gain the skills of creative thinking.
(ii) Teaching strategies to be used to develop these skills and abilities • Lectures, Tutorials, Discussion.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Written exams, Assignments.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of students numerical and communication skills

• None.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Assignments	1-15	20
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.

- 2-4 office hours per weeks.
- E-mail communication.

E. Learning Resources

1. Required Text(s)

- Susanna S. Epp, Introduction to Discrete Structures with Applications, Cengage Learning, 4th Edition, 2010.

2. Essential References

- Walter Denis Wallis. A beginner's guide to discrete mathematics. Springer Science & Business Media, 2011.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)

- **None.**

4- Electronic Materials, Web Sites etc.

- UQU e-learning portal.

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

- None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • None.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

WEB PROGRAMMING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Web Programming	23162106-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	4/2	
6. Pre-requisites for this course (if any)	Computer Programming (23161102-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Introduction to the techniques and technologies for developing web sites. Topics include a web server, page layout with HTML and CSS, JavaScript, and web databases.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to the Internet	2	6
Introduction to HTML	3	9
Introduction to Cascading Style Sheets	3	9
Introduction to Scripting and JavaScript	4	12
Web Servers and Database	3	9

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired The student will be able to: 1. Understand a theoretical and practical design of web site. 2. Know a theoretical and practical web programming in JavaScript. 3. Design, implement, and maintain a typical web page. 4. Use HTML, CSS and Java Script in the development of web-based applications. 5. Interact websites with data files and databases.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Tutorials, Projects, Discussion.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments, Reports, Project Discussion and Demo, Presentation.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. Apply a theoretical and practical programming and design of a web site.
(ii) Teaching strategies to be used to develop these cognitive skills • Lectures, Tutorials, Projects, Discussion.
(iii) Methods of assessment of student's cognitive skills • Written exams, Assignments, Reports, Project Discussion and Demo, Presentation.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed • None.
(ii) Teaching strategies to be used to develop these skills and abilities • None.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • None.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. Use appropriate web programming languages to design a static web site.
(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Projects, Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Reports, Project Discussion and Demo, Presentation.
e. Psychomotor Skills (if applicable)

(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester			
No	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Class activity	3-16	10
4	Projects	16	10
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
Harvey M. Deitel, Paul J. Deitel, and Abbey Deitel. "Internet & world wide web: how to program." Prentice Hall, 5th Edition, 2011.

2. Essential References
Randy Connolly and Ricardo Hoar, Fundamentals ofWeb Development, Pearson, 2015.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- Software: Adobe and Macromedia Product

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)

• Classroom with 35 seats for students.
2. Computing resources • Software: Adobe and Macromedia Product • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

LOGIC ANALYSIS AND DESIGN

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Logic Analysis and Design	23162201-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	3/2	
6. Pre-requisites for this course (if any)	Introduction to Computer Science (23161101-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course gives the student an overview of the numbers and uses electronic, as well as how to represent binary codes, and logic gates.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Fundamentals of Electricity, main components and Introduction to Semiconductor Devices	3	9
Number System (Decimal, Octal, Hexadecimal)	2	6
Boolean Algebra and Logic gates	2	6
Simplification of Boolean Functions	2	6
Combinational Circuits	2	6
Medium Scale Integrated Circuits	2	6
Sequential Circuits	2	6

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Apply the knowledge of various number system in conversion and in arithmetic operations.
2. Apply the principles of Boolean Algebra to manipulate and minimize logic expressions and to design simple logic circuits as per requirement.
3. Understand the problem/requirement, do analysis and design, and implement on simulator as per requirement.
4. Demonstrate and carry out the mini project in a group on Simulator.
5. Design working model of combinational and sequential logic circuits and to integrate as per requirement.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Use appropriate logic and electrical circuits to design simple combinational and sequential circuit.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None

(ii) Teaching strategies to be used to develop these skills and abilities

- None

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None

d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. • Demonstrate efficient design capabilities.
(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Assignments	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Morris Mano, Digital Logic Design, Prentice Hall, 4th Edition, 2006
- Paul Horowitz , The Art of Electronics 3rd Edition, 2015.

2. Essential References
- None

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)

• **None.**
4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • None

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • None
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

COMPUTER ORGANIZATION & ASSEMBLY PROGRAMMING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Computer Organization & Assembly Programming	23162202-3
2. Credit hours:		
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	4/2	
6. Pre-requisites for this course (if any)	Logic Analysis & Design (23162201-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing this course, the students will be familiar with the computer organization, instruction execution details, memory organization, input/outputs, and simple assembly programming capabilities.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Addressing methods	2	6
CPU architecture	4	12
Memory architecture	4	12
Input/Output organization	2	6
Assembly Language Programming	3	9

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Students will be familiar with, and appreciate the trade-offs of, different instruction sets, addressing modes, address translation schemes, and processor designs. 2. Students will become familiar with various hardware/software interfaces 3. Students will gain basic assembly language programming skills.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Tutorials.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. Use assembly programming languages to design simple programs.
(ii) Teaching strategies to be used to develop these cognitive skills • Lectures, Tutorials.
(iii) Methods of assessment of student's cognitive skills • Written exams, Assignments.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed • None
(ii) Teaching strategies to be used to develop these skills and abilities • Lectures, Tutorials.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Written exams, Assignments.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. Demonstrate efficient hardware understanding.
(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments.
e. Psychomotor Skills (if applicable)

(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Assignments	All weeks	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
- 2-4 office hours per weeks.
- E-mail communication.

E. Learning Resources

1. Required Text(s)
- "Computer Organization," by Carl Hamacher, Zvonko Vranesic and Safwat Zaky. Fifth Edition McGraw-Hill, 2002.
- "The 80x86 IBM PC and Compatible Computers, Assembly Language, Design, and Interface", By Muhammed Ali Mazidi and Janice Gillisipie Mazidi.

2. Essential References
- None.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- None

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • None
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

LOGIC PROGRAMMING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Logic Programming	23163107-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	5/3	
6. Pre-requisites for this course (if any)	Discrete Structures (23162105-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course introduces the meta-theory of elementary logic. Following by the basics of notation and the use of classical logic as a representation language, we concentrate on the twin notions of models and proof. An axiomatic system of first order logic is introduced and proved complete for the standard semantics, and then we give a very brief overview of the basic concepts of proof theory. This course deals with logic programming paradigm and Prolog. We discuss the syntax and the semantics of Prolog, the working of a Prolog interpreter and various applications of Prolog.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Logic and Argument	1	4
Propositional Logic	1	4
Propositional Logic: Truth table	1	4
Propositional Logic: Logical Inference	2	8
Propositional Logic: Conditional Proof	2	8
Predicate Logic: Predicates and Variables	2	8
Predicate Logic: Quantifiers	2	8
Prolog: Introduction	1	4
Prolog: Terms and unification	1	4

Prolog: proof search	2	8

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand the syntax of Logic, the purpose of unification, resolution, negation, the potential applications of Logic programming.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Practical sessions, Projects.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Practical exams, Reports and Project Discussion.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Translate English sentences in logic, apply unification, resolution, and negation in programs to solve search problems.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Practical sessions, Projects.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Practical exams, Reports and Project Discussion.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

1. Use Logic programming to implement real deductive databases, show the completeness of the resolution procedure, apply Logic programming and implement efficiently in Logic Programming to solve real life search problems.
(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Practical sessions, Projects.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Practical exams, Reports and Project Discussion.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	15
2	Midterm Exam 2	12-13	15
3	Practical Exams	16	20
4	Projects	16	10
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

- F. H.-Snyder, D. Howard-Snyder, R. Wasserman, The Power of Logic, 5th Edition, McGraw-Hill, 2012.

2. Essential References

- J. Farrell, Programming Logic and Design – Comprehensive, 6th Edition, Cengage Learning, 2010.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List) • **None.**
4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • Software: Prolog software, Basic applications.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Software: Prolog software, Basic applications. • Internet Access. • Specialized computer laboratories (max 16 students per session).   ○ Free Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

DATA STRUCTURES & ALGORITHMS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Data Structures & Algorithms	23163108-4
2. Credit hours:	4	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	5/3	
6. Pre-requisites for this course (if any)	Advanced Programming (23162104-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing, the student will learned fundamental principles of computer programming, with an emphasis on basic concepts of data and their representations inside a computer (scalar, structured and dynamic). Moreover, he will be able to manipulate abstract data structures including arrays, linked lists, strings, stacks, queues, trees and graphs, implementations of sorting, searching algorithms, binary search trees and hash tables. Finally, he will learn all of the mentioned concepts and techniques using JAVA language.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Abstract Data Types, Arrays and Pointers	1	4
Classes and Recursion	1	4
Analysis of Algorithms	1	4
Linked Listes	3	12
Stack	1	4
Queue	1	4
Searching algorithms	2	8
Sorting algorithms	2	8
Trees, heaps and graphs	2	8
Hashing	1	4

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
60	**0**	**0**	**0**	**0**

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

4-5 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand the data structures: linked lists, trees, stacks and queues and write stacks, and queues applications.
2. Design and implement efficient algorithms for manipulating data structures.
3. Understand the characteristics of hash tables for access and retrieval.
4. Apply and analyze the learned data structures and algorithmic techniques to write efficient searching and sorting algorithms.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Projects, Oral exams and Discussions.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments and Project Discussions.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Use dynamic data structures and efficient algorithms to design advanced computer programs.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Projects and Discussions.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Oral exams and Project Discussion.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. Ability to work within a team during the project
2. Learn how to use developed data structures to write a program.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain. 1. Report writing and present reports, communicate orally, discuss and defend his ideas. 2. Work cooperatively and effectively in a group to prepare the projects
(ii) Teaching strategies to be used to develop these skills • Lectures, Projects and Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments and Project Discussion.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester			
No	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

- Michael T. Goodrich, Roberto Tamassiaand Michael H. Goldwasser, *Data Structures and Algorithms in Java*", 6th Edition, 2014.

2. Essential References

- Duane A. Bailey **, "**Java Structures, Data Structures in Java for the Principled Programmer", 7thedition, 2014.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)

- **None.**

4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • Software: JAVA software, Basic applications.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Software: JAVA software, Basic applications. • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

PROGRAMMING LANGUAGES DESIGN

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Programming Languages Design	23163109-4
2. Credit hours:	4	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	6/3	
6. Pre-requisites for this course (if any)	Advanced Programming (23162104-3) Logic Programming (23163107-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

The course aims to let students obtaining an understanding of programming languages, environments, translation, and implementation.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction	1	4
Computer Language History	1	4
Language Design	2	8
Syntax	2	8
Basic Semantics	2	8
Data Types and Memory Management	2	8
Control I: Expressions and Statements	2	8
Control II: Procedures and Environments	2	8
Programming Paradigms: Object-Oriented, Functional & Logic	1	4

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
60	0	0	0	0

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand the role of certain theoretical formalisms, and apply them in the context of programming languages.
2. Identify the differences between programming methodologies.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Projects, Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Reports and Project Discussion.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Apply the grammar attributes to specify context-sensitive conditions, compile-time analyses, and translational semantics.
2. Define the axiomatic semantics of simple imperative constructs, and using it to prove program properties.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Projects, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Reports and Project Discussion.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

1. Implement parts of simple interpreters and compilers.
2. Explain the operational semantics of programming languages.

(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Projects, Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Reports and Project Discussion.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- K. Louden, Programming Languages: Principles and Practice, Thompson, 2003.

2. Essential References
- J. Farrell, Programming Logic and Design – Comprehensive, 6th Edition, Cengage Learning, 2010.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

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

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Internet Access. • Specialized computer laboratories (max 16 students per session).   ○ Free Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

COMPUTER ARCHITECTURE

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Computer Architecture	23163203-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	5/3	
6. Pre-requisites for this course (if any)	Computer Organization & Assembly Programming (23162202-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

The goals of the course are to understand computer architecture, particularly processor architecture (the key computer component), in detail, to understand computer performance, memory hierarchies and input output organization and technique such that Programmed I/O, Interrupt driven I/O and Direct Memory Access, to understand Pipeline technique, RISC and CISC architecture and advanced processor.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to computer architecture	2	6
Performance: performance metrics, performance evaluation, and execution time	1	3
The Processor: Datapath & Control Unit	2	6
Memory System	2	6
Input–Output Design and Organization	1	3
Input–Output Techniques	2	6
Pipeline	1	3
RISC / CISC Architecture	1	3
Multicores, Multiprocessors, and Clusters	3	9

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand the basic components of the CPU including the Data-path and control unit.
2. Understand How to measure performance? Why does some hardware perform better than others for different programs do?

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Case study, and Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Reports, and Project Discussion.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Understand the design principles in instruction set design including the pipeline technique.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Projects, Case study, Research, Self-study, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Reports, and Project Discussion.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None

(ii) Teaching strategies to be used to develop these skills and abilities

- None

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

1. Appreciate the concept of advanced processor.

(ii) Teaching strategies to be used to develop these skills • Lectures, Case study, Research, Self-study, and Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Reports, and Project Discussion.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	15
2	Midterm Exam 2	12-13	15
3	Quizzes	16	10
4	Homework	4-10	10
5	Project/Report	16	10
6	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- John P. Hayes, Computer Architecture and Organization, McGraw Hill, 3rd Edition, 1997.

2. Essential References
- Wilkson, Computer Architecture Design and Performance, 2nd Edition, Prentice Hall, 1996.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.

• UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • None.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

SYSTEM ANALYSIS AND DESIGN

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	System Analysis & Design	23163302-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	6/3	
6. Pre-requisites for this course (if any)	Introduction to Information Systems (23161301-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Topics covered in this course include: systems, roles, and development methodologies, system development lifecycle, understanding and modeling organizational systems, project management and creating a feasibility report, information gathering, using data flow diagrams, process specification and structured decisions, and designing effective output and input.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Systems, Roles, and Development Methodologies	1	3
Understanding and Modeling Organizational Systems	2	6
Project Management	1	3
Information Gathering Techniques	2	6
Data Flow Modeling	3	9
Conceptual Modeling	2	6
Process Specifications and Structured Decisions	2	6
Designing Effective Input and Output	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	0	0	0	0

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Present fundamental concepts such as systems, requirements, events, and objects.
2. Establish the role of information systems in organizations, and how they are related to organizational objectives and structures.
3. Understand the system development life cycle and study its phases.
4. Develop of system requirements.
5. Study the analysis and design processes, and understand the transition from analysis to design.
6. Practice various diagrams used to construct system models.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Projects, Case study, Discussion, Role playing.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Oral exams, Reports, Project Discussion and Demo, Presentation.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Use appropriate diagrams and notations to express a system at the analysis level of the development lifecycle.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Projects, Case study, Discussion, Role playing.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Oral exams, Reports, Project Discussion and Demo, Presentation.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. Demonstrate efficient system analysis skills.
(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Projects, Case study, Discussion, Role playing.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Oral exams, Reports, Project Discussion and Demo, Presentation.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- K.E. Kendall and J.E. Kendall, Systems Analysis and Design, 9th Edition, Pearson, 2014.

2. Essential References
- N. Lambrou, M. Walkley, P. L. Weaver, Practical Business Systems Development Using SSADM: A Complete Tutorial Guide 3rd Edition, 2002.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)

• None.
4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • None.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

FILE ORGANIZATION AND PROCESSING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	File Organization and Processing	23163303-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	6/3	
6. Pre-requisites for this course (if any)	Data Structure & Algorithms (23163108-4)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course aims to introduce the topic of file structures design and discuss a number of advanced data structure concepts that are necessary for achieving high efficiency in file operations. In addition, students should develop important programming skills in an object-oriented language such as C++.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to file structures	1	3
Fundamental file processing operations	2	6
Secondary storage and system software	2	6
Organizing files for performance	2	6
File Compression	2	6
Indexing	2	6
Multi-level indexing and B-Trees	2	6
Hashing	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None

45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Describe how data is saved on secondary storages for achieving high efficiency in File Operations.
2. Understand how file organization allows applications to read, write and modify data.
3. Identify cost-based query optimization to find needed data that match some search criteria quickly.
4. Show practical programming skills to develop file processing and organizing applications.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Discussion,

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Simulation.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

- Understand how file organization allows applications to read, write and modify data.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Simulation.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

- None.

(ii) Teaching strategies to be used to develop these skills

- None.

(iii) Methods of assessment of students numerical and communication skills • None.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Michael J. Folk, Bill Zoellick and Greg Riccardi, File Structures: An Object-Oriented Approach with C++, Addison Wesley, 2nd Edition, 1998.

2. Essential References
- Daniel Grosshons, File Systems design and implementation, Prentice Hall, 2000.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • None.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

MULTIMEDIA SYSTEMS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Multimedia systems	23163401-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	5/3	
6. Pre-requisites for this course (if any)	Web Programming (23162106-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course covers the state-of-the-art technology for multimedia systems including aspects of the different media type images, animation, video, audio, graphics etc., and how they are used to create a non-linear multimedia project and understand the fundamental topics in compression algorithms.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to Multimedia	1	3
Multimedia Data Basics	2	6
Audio Fundamentals	2	6
Image Fundamentals	2	6
Video Fundamentals	2	6
Animation	1	3
Compression: Basic Algorithms	2	6
Compression: Images (JPEG)	2	6
Compression: Video (MPEG)	1	3

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	0	0	0	0

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Describe different realizations of multimedia tools
2. Understand how determine specifics of different multimedia elements and can explain basic techniques for presentation of multimedia.
3. Understand the range of technologies available to multimedia systems designers and integrators.
4. Demonstrate knowledge and skills in the use of compression algorithms for multimedia elements.
5. Design, develop and evaluate multimedia applications and their elements.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Projects.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Project Discussion and Demo, Presentation, Simulation.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Design and develop a nonlinear multimedia project and their elements.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Projects, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Reports, Project Discussion and Demo, Presentation, Simulation.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain. 1. Use the range of technologies available to multimedia systems designers and integrators.
(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Projects, Discussion, Workshops
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Reports, Project Discussion and Demo, Presentation, Simulation.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Class activity	3-16	10
4	Projects	16	10
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

Ze-Nian Li, Mark S. Drew, Fundamentals of Multimedia, Prentice Hall, 2th Edition, 2014.

2. Essential References

Tay Vaughan, Multimedia: Making It Work, 9th Edition, 2014.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List) • **None.**
4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • Software: Macromedia product

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Software: Macromedia product • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

COMPUTER THEORY

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Computer Theory	23164110-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	x/x	
6. Pre-requisites for this course (if any)	File Processing & Org. (23163303-3) Prog. Languages Design (23163109-4)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon the completion of this course, the student will have learned, through appropriate classroom lectures, what are the fundamental capabilities and limitations of computers, which problems can or cannot be computed, and how quickly can a problem be computed.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction	2	6
Finite Automata	3	9
Regular Languages	2	6
Context-Free Languages	2	6
Turing Machines	2	6
Complexity	2	6
P and NP Problems	2	6

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Demonstrate their understanding of key notions, such as algorithm, computability, decidability, and complexity through problem solving.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

2. Analyze and design finite automata, pushdown automata, Turing machines, formal languages, and grammars.
3. Prove the basic results of the Theory of Computation.
4. Explain the relevance of the problem complexity.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. Gain the skills of creative thinking.

(ii) Teaching strategies to be used to develop these skills and abilities

- Lectures, Tutorials, Discussion.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- Written exams, Assignments.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain

- None.

(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of students numerical and communication skills • None.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Assignments	1-15	20
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Michael Sipser, Introduction to the Theory of Computation, 3rd Edition, Cengage Learning, 2012.

2. Essential References
- Elaine Rich, Automata, computability and complexity: theory and applications. Upper Saddle River: Pearson Prentice Hall, 2008.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations • None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • None.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

NUMERICAL METHODS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Numerical Methods	23164111-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	7/4	
6. Pre-requisites for this course (if any)	Calculus II (2304102-4)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing this course the student will have learned, through appropriate classroom and laboratory experiences, how to utilize the computer to solve scientific computational problems including curve fitting, function approximation and interpolation, numerical differentiation and integration, and nonlinear equations. Moreover, he/she will gain skills of integrating programming and numerical methods to solve complex applied problems using mathematical software packages.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Floating-point arithmetic.	2	6
Systems of linear equations.	3	9
Nonlinear equations.	3	9
Interpolation and function approximation.	2	6
Numerical differentiation and integration.	2	6
Numerical algorithmic development using mathematical software packages.	3	9

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Demonstrate basic knowledge and understanding of a core of analysis, algebra and applied mathematics.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Determining errors present in numerical solutions to scientific computational problems.
2. Design numerical algorithms and develop programs to approximately solve mathematical problems.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Projects, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Project Discussion, Simulation.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. Gain the skills of creative thinking.

(ii) Teaching strategies to be used to develop these skills and abilities

- Lectures, Tutorials, Projects, Discussion.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- Written exams, Assignments, Project Discussion, Simulation.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain

1. Deploy effectively the software packages used for scientific applications.

(ii) Teaching strategies to be used to develop these skills

- Lectures, Tutorials, Projects, Discussion.

(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Project Discussion, Simulation.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	15
2	Midterm Exam 2	12-13	15
3	Assignments	1-15	15
4	Projects	16	15
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- A. Quarteroni, F. Saleri, P. Gervasio, Scientific Computing with MATLAB and Octave, Springer, 4th Edition, 2014.

2. Essential References
- R.L. Burden, J.D. Faires, A.M. Burden, Numerical Analysis, Cengage Learning, 10th Edition, 2015.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations • Software: Mathematical Software Packages.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students. • General computer laboratories (max 20 students per session).
2. Computing resources • Software: Mathematical Software Packages. • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

ADVANCED DISCRETE STRUCTURES

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Advanced Discrete Structures	23164112-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	8/4	
6. Pre-requisites for this course (if any)	Discrete Structures (23162105-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing this course the student will have learned, through appropriate classroom experiences, the advanced topics in graph theory, number theory and random algorithms, and their applications in computing.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Graph Theory	4	12
Graph Algorithms	3	9
Arithmetic Algorithms	3	9
Cryptography	3	9
Random Walks	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Demonstrate basic knowledge and understanding of a core of analysis, algebra and applied mathematics.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Tutorials, Discussion.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. Identify appropriate methods of problem modelling and solving. 2. Identify a range of solutions and critically evaluate and justify proposed design solutions. 3. Solve computer science related problems using sets, sequences, probabilities, logic and graphs.
(ii) Teaching strategies to be used to develop these cognitive skills • Lectures, Tutorials, Discussion.
(iii) Methods of assessment of student's cognitive skills • Written exams, Assignments.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed 1. Gain the skills of creative thinking.
(ii) Teaching strategies to be used to develop these skills and abilities • Lectures, Tutorials, Discussion.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Written exams, Assignments.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of students numerical and communication skills • None.

e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Assignments	1-15	20
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Susanna S. Epp, Introduction to Discrete Structures with Applications, Cengage Learning, 4th Edition, 2010.

2. Essential References
- Bernard Kolman, Robert Busby and Sharon C. Ross, Discrete Mathematical Structures, Pearson, 6th Edition, 2008.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)

• Classroom with 35 seats for students.
2. Computing resources • None.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

PARALLEL & DISTRIBUTED COMPUTER SYSTEMS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Parallel & Distributed Computer Systems	23164204-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	8/4	
6. Pre-requisites for this course (if any)	Operating Systems (23164304-3), Database Systems (23164305-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course introduces the principles, design and implementation of parallel and distributed systems. The lectures focus primarily on the principles and design of parallel and distributed systems, cover communication, distributed storage, naming, synchronization, fault tolerance, peer-to-peer systems and data centers. Developing a distributed systems middleware that provides high performance in large scale distributed and networked environment is discussed.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to parallel and distributed systems	2	6
Distributed systems architecture	2	6
Methods of communication in distributed systems	3	9
Naming	2	6
Synchronization in distributed systems	3	9
Fault Tolerance in distributed systems	3	9

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand what a distributed system is and why one would design a system as a distributed system
2. Know how to design a distributed system to benefit from its architecture in terms of performance, reliability and availability.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Case study, and Self-study.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, and Reports.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Adapt and design algorithms for execution in parallel and distributed settings, analyze the algorithms for correctness, reliability, security, and performance and to solve deadlocks problems in distributed systems.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Case study, Research, Self-study, and Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Reports, Project Discussion and Demo.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

- None.

(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of students numerical and communication skills • None.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	15
2	Midterm Exam 2	12-13	15
3	Quizzes	4-9	10
4	Homework	3-10	10
5	Projects/Term Paper	16	10
6	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Andrew S. Tanenbaum and Maarten Van Steen, Distributed Systems: Principles and Paradigms, Prentice Hall, 2nd Edition, 2006.

2. Essential References
- Coulouris, Dollimore, Kindberg and Blair, Distributed Systems: Concepts and Design, Addison-Wesley, 5th Edition, 2012.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

OPERATING SYSTEMS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Operating Systems	23164304-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	7/4	
6. Pre-requisites for this course (if any)	Computer Architecture (23163203-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course introduces the theory and practice behind modern computer operating systems. The teaching approach covers both a theoretical perspective; the abstractions and algorithms, as well as a practical one; the mechanisms and how they are built.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction	2	6
Operating System Structures	1	3
Processes	2	6
Threads	1	3
CPU Scheduling	2	6
Process Synchronization	2	6
Deadlocks	2	6
Main Memory	3	9

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand the design and function of an operating system.
2. Explain a process and how processes are synchronized and scheduled.
3. Know different approaches for memory management.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Research, and Self-study.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, and Reports.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Use appropriate programming languages to design simple O.S modules.

(ii) Teaching strategies to be used to develop these cognitive skills

- Projects, Case study, Research, Self-study, and Discussion.

(iii) Methods of assessment of student's cognitive skills

- Assignments, Reports, Demo, and Presentation.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. Learn how to search the literature for trends in modern O.S.

(ii) Teaching strategies to be used to develop these skills and abilities

- Case study, Research, Self-study, and Discussion.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- Reports, Project Discussion and Demo, and Presentation.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

1. Apply practical data structures and algorithms to implement simple OS modules.

(ii) Teaching strategies to be used to develop these skills

- Lectures, Case study, Research, Self-study, and Discussion.

(iii) Methods of assessment of students numerical and communication skills • Assignments, Reports, and Project Discussion and Demo.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	15
2	Midterm Exam 2	12-13	15
3	Quizzes	4-9	10
4	Homework	3-10	10
5	Survey Term Paper	16	10
6	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- J Peterson & A. Silberschatz, Operating System Concepts, 8th Edition, 2008.

2. Essential References
- Andrew S. Tanenbaum, Modern Operating Systems, 3rd Edition, 2007.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

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

- Software: Linux O.S.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)

- Classroom with 35 seats for students.

2. Computing resources

- Specialized computer laboratories (max 16 students per session).
  - Free Lab

3. Other resources

- None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Course evaluation surveys.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- None.

3. Processes for Improvement of Teaching

- Course action plans.

4. Processes for Verifying Standards of Student Achievement

- Student outcomes assessment.

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

- The student outcomes assessment process is carried every other year.

DATABASE SYSTEMS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Database Systems	23164305-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	7/4	
6. Pre-requisites for this course (if any)	System Analysis & Design (23163302-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon the completion of this course, the student will have learned, through appropriate classroom the basic concepts to design, create and implement database systems.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to database systems	1	3
Database System Concepts and Architecture	1	3
Data Modeling Using the Entity-Relationship (ER)	2	6
Enhanced Entity-Relationship (EER) Model	2	3
ER/EER to Relational Model Mapping	2	6
Functional Dependencies and Normalization for Relational Databases	2	6
Relational Algebra Operations	2	6
SQL: Data Definition Language	1	3
SQL: Data Manipulating Language	2	6

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
39	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand database concepts, applications and languages.
2. Understand data models, schemas and instances.
3. Implement the relational database design and data modeling using entity-relationship (ER) model.
4. Understand the concepts of constraints and relational algebra operations.
5. Implement SQL: Data definition, constraints, schema, queries and operations in SQL
6. Produce well-structured database using functional dependencies and normalization.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Discussion, Case Study.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

- Understand the concepts of data modeling and database design.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

- None.

(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of students numerical and communication skills • None.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- R. Elmasri and S.B. Navathe, Fundamentals of Database Systems, Addison-Wesley, 6th Edition, 2011.

2. Essential References
- T.M. Connolly, C. Begg and A.D. Stroahn, Database Systems: A practical to design, implementation and management, Course Technology, 10th Edition, 2012.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations • None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • None.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

SOFTWARE ENGINEERING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Software Engineering	23164306-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	7/4	
6. Pre-requisites for this course (if any)	System Analysis & Design (23163302-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Software engineering course prepares students to have background knowledge as well as core expertise in software engineering concepts, and to gain practical experiences of developing the software systems.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to Software Engineering	1	3
Project Management	2	6
Requirements Modeling	2	6
Control Flow Modeling	2	6
Behaviour Specifications	2	6
Architectural Design	2	6
Detailed Design	2	6
Software Testing	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Apply software engineering theory, principles, tools and processes to the development and maintenance of complex, scalable software systems. 2. Analyze, design, verify, validate, implement, apply, and maintain software systems. 3. Work in one or more significant application domains. 4. Manage the development of software systems. 5. Define and assess software quality and software development processes for appropriate applications in different domain areas.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Tutorials, Projects, Case study, Discussion, Role playing.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments, Oral exams, Reports, Project Discussion and Demo, Presentation.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. Use appropriate diagrams and notations to express a system at the analysis level and move it toward the design and implementation levels in the development lifecycle.
(ii) Teaching strategies to be used to develop these cognitive skills • Lectures, Tutorials, Projects, Case study, Discussion, Role playing.
(iii) Methods of assessment of student's cognitive skills • Written exams, Assignments, Oral exams, Reports, Project Discussion and Demo, Presentation.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed • None.
(ii) Teaching strategies to be used to develop these skills and abilities • None.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • None.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. Demonstrate efficient software design skills.

(ii) Teaching strategies to be used to develop these skills • Lectures, Projects, Case study, Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Reports, Project Discussion and Demo, Presentation.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	15
2	Midterm Exam 2	12-13	15
3	Projects	16	30
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Ian Sommerville, Software Engineering, 9th Edition, Addison-Wesley, 2011.

2. Essential References
- R. S. Pressman and B. Maxim, Software Engineering: A Practitioner's Approach, 8th Edition, 2014.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- None.

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations • None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • None.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

ADVANCED DATABASE SYSTEMS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Advanced Database Systems	23164307-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	7/4	
6. Pre-requisites for this course (if any)	Database Systems (23164305-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon the completion of this course, the student will have learned, through appropriate classroom the basic concepts to design, create and implement database systems.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Relational Calculus	1	3
Database System Concepts and Architecture	1	3
Relational Database Design by ER and EER-to-Relational Model Mapping	2	6
Practical Database Design Methodology using UML	2	3
XML: Extensible Markup Language	2	6
Object and Object-Relational Model Mapping	2	6
Algorithms for Query Processing and Optimization	2	6
Database Security	1	3
Distributed Database	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
39	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Construct simple and moderately advanced database queries using Structured Query Language (SQL). 2. Describe and discuss selected advanced database topics, such as object and distributed database systems. 3. Understand the concept of a database transaction and related database facilities, including concurrency control, journaling, backup and recovery, and data object locking and protocols 4. Understand and successfully apply advanced database design techniques. 5. Design and implement a database project.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Tutorials, Discussion, Case Study.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. Understand the concepts of data modeling and database design
(ii) Teaching strategies to be used to develop these cognitive skills • Lectures, Tutorials, Discussion.
(iii) Methods of assessment of student's cognitive skills • Written exams, Assignments.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed • None.
(ii) Teaching strategies to be used to develop these skills and abilities • None.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • None.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. • None.
(ii) Teaching strategies to be used to develop these skills • None.

(iii) Methods of assessment of students numerical and communication skills • None.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- R. Elmasri and S.B. Navathe, Fundamentals of Database Systems, Addison-Wesley, 6th Edition, 2011.

2. Essential References
- T.M. Connolly, C. Begg and A.D. Stroahn, Database Systems: A practical to design, implementation and management, Course Technology, 10th Edition, 2012.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • None.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

COMPUTER GRAPHICS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Computer Graphics	23164402-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	8/4	
6. Pre-requisites for this course (if any)	Multimedia Systems (23163401-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

The course offers an introduction to computer graphics, algorithms, and software. Topics include overview of graphics algorithms, 2D line drawing, 2D and 3D geometric transformations, 2D and 3D viewing, 2D and 3D clipping, 2D and 3D object representation.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to graphics	1	5
Mathematical Foundation for Graphics	2	10
2D graphics algorithms	3	15
2D and 3D Transformation and representation	3	15
2D viewing	2	10
3D Object Representations	3	15
3D viewing	1	5

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**30**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Develop and understanding of design fundamentals, classic themes and mechanisms, and different approaches of representation.
2. Understand the overall human context in which computer graphics activities take place.
3. Geometric Modeling, Problem Solving, Applying Technology, Graphic Designing, Computer Programming.
4. Develops skills and knowledge critical to all areas of computer graphics specialization.
5. Develop conceptual principles, processes, and techniques essential to all areas of computer graphics.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Practical sessions, Projects, Discussion, Workshops.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Practical exams, Reports, Project Discussion and Demo, Presentation, Simulation.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Use current computing and modeling/design tools such as BGI, OpenGL, Blender, etc.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Practical sessions, Projects, Discussion, Workshops.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Practical exams, Reports, Project Discussion and Demo, Presentation, Simulation.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

1. Geometric Modeling, Problem Solving, Applying Technology, Graphic Designing.

(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Practical sessions, Projects, Discussion, Workshops.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Practical exams, Reports, Project Discussion and Demo, Presentation, Simulation.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Practical Exams	16	10
4	Projects	16	10
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

Donald D. Hearn, M. Pauline Baker and Warren Carithers, Computer Graphics with OpenGL, 4rd edition, 2010.

2. Essential References

Steve Marschner, Peter Shirley, Fundamentals of Computer Graphics. Fourth Edition 4th Edition, 2015

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)

- **None.**

4- Electronic Materials, Web Sites etc.

• UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • Software: Microsoft visual studio

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students. • General computer laboratories (max 20 students per session).
2. Computing resources • Software: Microsoft visual studio • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

ARTIFICIAL INTELLIGENCE

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Artificial Intelligence	23164403-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	8/4	
6. Pre-requisites for this course (if any)	Computer Theory (23164110-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course introduces the basic concepts of Artificial Intelligence (AI) through covering a broad spectrum of AI concepts and methods, and apply them to solve AI problems.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction	1	3
Intelligent Agents	2	6
Solving Problems by Searching	3	9
Logical Agents	1	3
Planning	1	3
Knowledge Representation	2	6
Intelligent Systems	2	6
Machine Learning	3	9

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Identify the type of an AI problem such as search, inference, decision making under uncertainty, game theory, etc.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Tutorials, Projects, Discussion.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments, Reports, Project Discussion and Demo.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. Implement, evaluate and compare the performance of various AI algorithms. 2. Compare the difficulty of different versions of AI problems, in terms of computational complexity and the efficiency of existing algorithms.
(ii) Teaching strategies to be used to develop these cognitive skills • Lectures, Tutorials, Projects, Discussion.
(iii) Methods of assessment of student's cognitive skills • Written exams, Assignments, Reports, Project Discussion and Demo.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed 1. Students are required to act as a one team to design and implement a software project.
(ii) Teaching strategies to be used to develop these skills and abilities • Projects, Discussion.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Reports, Project Discussion and Demo.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. An ability to communicate effectively with a range of audiences and within a project team.
(ii) Teaching strategies to be used to develop these skills • Projects, Research, Discussion, Workshops.
(iii) Methods of assessment of students numerical and communication skills • Reports, Project Discussion and Demo, Presentation.

e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester			
No	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Midterm Exam 1	5-7	15
2	Midterm Exam 2	12-13	15
3	Assignments	1-15	15
4	Projects	16	15
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach, Prentice Hall, 3rd Edition, 2010.

2. Essential References
- David Poole and Alan Mackworth, Artificial Intelligence: Foundations of Computational Agents, Cambridge University Press, 2010.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- Software: Robot Programming.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Software: Robot Programming. • Internet Access. • Specialized computer laboratories (max 16 students per session).   ○ AI Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

COMPILER CONSTRUCTION

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Compiler Construction	23165113-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9/5	
6. Pre-requisites for this course (if any)	Programming Languages Design (23163109-4)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Students should learn the basic techniques that underlie the practice of compiler construction, and its phases. Moreover, they should be able to deal with compiler techniques and problems such as; ambiguous grammar, parsing types, and generating target codes, etc.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Overview of Compilation	1	3
Scanners	3	9
Parsers	3	9
Code generations	2	6
Runtime environments	2	6
Register allocation	2	6
Code optimization	2	6

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Recognize and use terminology and formalisms related to grammars for programming languages and compiler construction.
2. Understand the intermediate code representation, symbol tables, run-time structures, code generation, and compiler construction tools.
3. Identify and describe the concepts underlying the components of a compiler including a scanner, parser, and code generator.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Self-study, Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Define the basic components of a compiler including the scanner, parser, code generator, and symbol table.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Projects, Self-study, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Project Discussion.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. Demonstrate the ability to work effectively in teams.

(ii) Teaching strategies to be used to develop these skills and abilities

- Projects.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- Project Discussion.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain. 1. Demonstrate efficient programming skills.
(ii) Teaching strategies to be used to develop these skills • Projects.
(iii) Methods of assessment of students numerical and communication skills • Project Discussion.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
4	Projects	16	20
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Alfred V. Aho, Monica S. Lam, Ravi Sethi, and Jeffrey D. Ullman, Compilers: Principles, Techniques & Tools, Addison Wesley, 2nd Edition, 2007.

2. Essential References
- Keith Cooper, Linda Torczon, Engineering a Compiler, Morgan Kaufmann, 2nd Edition, 2011.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • C++ IDE.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Software: C++ IDE. • Internet Access. • Specialized computer laboratories (max 16 students per session). o Free Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

COMPUTER NETWORKS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Computer Networks	23165205-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9/5	
6. Pre-requisites for this course (if any)	23164304-3	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing this course, students should be able to understand fundamental network terminologies and concepts, e.g. protocols, Open System Interconnection (OSI), TCP/IP models, Ethernet, Internet Protocol (IP) addressing, routing protocols and network devices, such as routers and switches. Moreover, the students should understand the interconnections of various networks and to be able to design and configure small-scaled networks given some typical (customers) requirements.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction	1	3
Protocols and Layering.	1	3
OSI and Internet models.	2	6
The Physical Layer	1	3
The Data Link Layer	1	3
The Medium Access Control Sublayer	1	3
The Network Layer	1	3
Ethernet, Congestion control and Routing	2	6
Internet Protocol (IP)	1	3
The Transport Layer	1	3

UDP and TCP	1	3
The Application Layer	1	3
Telnet, FTP, SMTP,etc…	1	3

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand and analyze the hardware and software components of a network and the real implementations of these concepts.
2. Understand networking protocols and their hierarchical relationship hardware and software. Compare protocol models and select appropriate protocols for a particular design.
3. List 7 layers of the OSI Model and compare them to the layering used in the Internet model (TCP/IP).
4. Explain the differences between a hub, switch (bridge), and a router and the relationship between 802.1D bridge and a modern switch.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Projects, and Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments and Project Discussion.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

On completing the course, the student should be able to:

- Distinguish between the concepts and principles behind various Networking techniques.
- Distinguish between the concepts and principles, theories, and practices behind addressing, routing and congestion avoiding techniques.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Projects and Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Oral exams, Project Discussion and Demo.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities • None.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • None.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. • Demonstrate efficient IT capabilities.
(ii) Teaching strategies to be used to develop these skills • Lectures, Projects, Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Project Discussion and Demo.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

- Andrew S. Tanenbaum and David J. Wetheral. Computer Networks, Pearson, 5th Edition, 2010.

2. Essential References

- James F. Kurose &Keith W. Ross, Computer Networking: A Top-Down Approach (6th Edition) 6th Edition. 2012.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)

- **None.**

4- Electronic Materials, Web Sites etc.

- UQU e-learning portal.

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

- **None.**

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)

- Classroom with 35 seats for students.

2. Computing resources

- Internet Access.
- Specialized computer laboratories (max 16 students per session).
  - Network Lab

3. Other resources

- None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Course evaluation surveys.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- None.

3. Processes for Improvement of Teaching

- Course action plans.

4. Processes for Verifying Standards of Student Achievement

- Student outcomes assessment.

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

- The student outcomes assessment process is carried every other year.

INTERNET APPLICATIONS DEVELOPMENT

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Internet Applications Development	23165404-3
2. Credit hours:		
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9/5	
6. Pre-requisites for this course (if any)	Multimedia Systems (23163416-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

The course covers the essential topics in developing web applications. Explores the issues involved in designing and building enterprise web applications: client/server architectures, database access, and web services. The course ends with a group project.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to Internet Protocols	1	3
Dynamic Web Programming	3	9
Web App Development	2	6
Web Services	3	9
Web Search and Mining	3	9
Web Applications and Project	3	9

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Acquire skills necessary to develop web-based applications. 2. Acquire a theoretical and practical knowledge in web programming in PHP (server side).
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Projects.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments, Project Discussion.
b. Cognitive Skills
(i) Description of cognitive skills to be developed • None.
(ii) Teaching strategies to be used to develop these cognitive skills • None.
(iii) Methods of assessment of student's cognitive skills • None.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed 1. Demonstrate the ability to work effectively in teams.
(ii) Teaching strategies to be used to develop these skills and abilities • Projects.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Project Discussion.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. Design, implement, and maintain dynamic web sites and web-based applications. 2. Design and implement programs for web applications. 3. Use recent platforms for developing web applications.
(ii) Teaching strategies to be used to develop these skills • Projects.
(iii) Methods of assessment of students numerical and communication skills • Project Discussion.
e. Psychomotor Skills (if applicable)

(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
4	Projects	16	20
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Harvey M. Deitel, Paul J. Deitel, and Abbey Deitel, Internet & World Wide Web: How to Program. Prentice Hall, 5th Edition, 2011.

2. Essential References
- Randy Connolly and Ricardo Hoar, Fundamentals of Web Development, Pearson, 2015.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- Software: A PHP and database servers and an IDE.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)
- Classroom with 35 seats for students.

2. Computing resources • Software: A PHP and database servers and an IDE, • Internet Access. • Specialized computer laboratories (max 16 students per session).   ○ Free Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

COMPUTERS & SOCIETY

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Computers & Society	23165405-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	5/10	
6. Pre-requisites for this course (if any)	None	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing this course, the student will have learned the following topics: Historical Background, Communications and Internet, Computers in Education, Computer Ethics, Computer Privacy, Computer Security, Software Piracy, Computer in Aviation, Computer Crimes, and Popular Social Network Sites.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction and Historical Background	2	6
Communications and Internet	2	6
Computer Ethics	1	3
Computer Privacy	1	3
Computer Crimes	2	6
Software Piracy	2	6
Computer Security	3	9
Social Media Network	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	0	0	0	0

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand professional, ethical, legal, security and social issues and responsibilities.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Case study, Self-study, and Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Reports, and Presentation.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Analyze the local and global impact of computing on individuals, organizations, and society;
2. Recognize the need, and engage in, continuing professional development.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Case study, Self-study, and Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Reports, and Presentation.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

1. Communicate effectively with a range of audiences.

(ii) Teaching strategies to be used to develop these skills

- Lectures, Case study, Research, Self-study, and Discussion.

(iii) Methods of assessment of students numerical and communication skills

- Written exams, Reports, and Presentation.

e. Psychomotor Skills (if applicable)

(i) Description of the psychomotor skills to be developed and the level of performance required

- None.

(ii) Teaching strategies to be used to develop these skills

- None.

(iii) Methods of assessment of student's psychomotor skills

- None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Class Activities	16	10
4	Report & Presentation	16	10
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.

- 2-4 office hours per weeks.
- E-mail communication.

E. Learning Resources

1. Required Text(s)

- M. David Ermann and Michele S. Shauf. Computer, Ethics, and Society, 3rd Edition, Oxford University Press, 2002.

2. Essential References

- Giannis Stamatellos. Computer ethics: A global perspective. Jones and Bartlett Publishers, 2007.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)

- **None.**

4- Electronic Materials, Web Sites etc.

- UQU e-learning portal.

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

• None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

COMPUTER SECURITY

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Computer Security	23165406-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	10/5	
6. Pre-requisites for this course (if any)	Operating Systems (23164304-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing this course, the student should understand the fundamentals of computer security and cryptography. Moreover, he should explain computer security principles, mechanisms and implementations to ensure data protection, confidentiality and integrity. In addition, the student will know how to behave in case of software vulnerability, computer security threats, attacks, and authentication problem. Finally, he will learn the fundamental methodologies for how to design and analyze security critical systems.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction	1	
Power supplies security	1	
Data security	1	
Raid technologie	1	
Cryptography	2	
Data integrity	1	
Network security	1	
Malwares	2	
Propagation Vector and malware detection	1	
Worms	1	

Web Security	1	
Cross-site data export feature	1	
How to Protect Yourself	1	

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

The student will be able to:

1. Recognize vulnerabilities and select IT security products.
2. Understand current defenses techniques.
3. Understand and use encryption techniques.
4. Develop an effective security system.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Projects and Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments and Project Discussion and Demo.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Explain the various approaches and techniques for developing secure computer systems.
2. Critically analyze and evaluate security properties and threats in computer systems.
3. Explain the different stages of the risk management process and be able to choose the appropriate technique in every stage.
4. Evaluate and apply cryptographic functions and information in securing distributed systems.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Projects and Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments and Project Discussion and Demo.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None

(ii) Teaching strategies to be used to develop these skills and abilities

- None

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • None
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. • Carry out a wide range of principles and tools available to computer security
(ii) Teaching strategies to be used to develop these skills • Projects.
(iii) Methods of assessment of students numerical and communication skills • Project Discussion.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
4	Projects	16	20
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

- William Stallings, Network Security Essentials: Applications and Standards, 5th Edition, Pearson, 2013.

2. Essential References

- Dieter Gollmann, Computer Security 3rd Edition, Wiley, 2011.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)

- **None.**

4- Electronic Materials, Web Sites etc.

- UQU e-learning portal.

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

- **None.**

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)

- Classroom with 35 seats for students.

2. Computing resources

- Internet Access.
- Specialized computer laboratories (max 16 students per session).
  - Network Lab

3. Other resources

- None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Course evaluation surveys.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- None.

3. Processes for Improvement of Teaching

- Course action plans.

4. Processes for Verifying Standards of Student Achievement

- Student outcomes assessment.

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

- The student outcomes assessment process is carried every other year.

GRADUATION PROJECT I

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Graduation Project I	23165407-4
2. Credit hours:	4	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9/5	
6. Pre-requisites for this course (if any)	Operating Systems (23164304-3) and Advanced Database Systems (23164307-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing this course, students should be able to develop projects that demonstrate their intellectual, technical and creative abilities. Students should develop the projects under the direction and supervision of faculty members. Moreover, students should gain lifelong learning skills and interface to real life applications. The main practical skills are related to software development processes. Specifically, students should practice in project management, system analysis and design, and software development documentation and presentation.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Project Initialization - Survey and research component	5	20
System software analysis and design	5	20
Software develop documentation and project presentation	5	20

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
60	**0**	**0**	**0**	**0**

3. Additional private study/learning hours expected for students per week.
4-5 hours/week.

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Apply knowledge of computing appropriate to the discipline. 2. Analyze a problem, and identify and define the computing requirements appropriate to its solution. 3. Function effectively on teams to accomplish a common goal. 4. Understand professional, ethical, legal, security, and social issues. 5. Communicate effectively with a range of audiences. 6. Analyze the local and global impact of computing on individuals, organizations and society. 7. Use current techniques, skills, and tools necessary for computing practices. 8. Apply mathematical foundations, algorithmic principles, and computer theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices. 9. Apply design and development principles in the construction of software systems of varying complexity.
(ii) Teaching strategies to be used to develop that knowledge • Projects.
(iii) Methods of assessment of knowledge acquired • Project Discussion, Presentation and Posters.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. The use of scientific, engineering, and knowledgeable skills in the writing the proposed graduation project 2. How to choose the subject of the graduation project 3. Design and planning of the graduation project. 4. Participation in the one team groups to implement the objectives of the graduation project. 5. The student's ability to collect and analyze data, interpret and draw conclusions 6. The student's ability to develop scientific and practical thinking 7. Evaluate designs and the development of alternative solutions and find out their impact on the environment
(ii) Teaching strategies to be used to develop these cognitive skills • Projects and Discussion.
(iii) Methods of assessment of student's cognitive skills • Project Discussion and Demo, Presentation, Posters.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

• Ability to work within a team. • The ability to communicate with people outside of the project.
(ii) Teaching strategies to be used to develop these skills and abilities • Projects and Discussion.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Project Discussion and Demo, Presentation, Posters.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. The ability to read scientific literature and analysis. 2. The ability to write reports.
(ii) Teaching strategies to be used to develop these skills • Projects and Discussion.
(iii) Methods of assessment of students numerical and communication skills • Project Discussion and Demo, Presentation, Posters.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Discussion of literature review	5-7	15
2	Evaluating the proposed system analysis and design	12-13	15
3	Presentations and progress reports	16	15
4	Project submission	16	15
5	Project examination	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

- Ian Sommerville, Software Engineering, 9th Edition, Addison-Wesley, 2011.

2. Essential References

- M. Shooman, Software Engineering, Mcgraw-Hall, 2001.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)

- **None.**

4- Electronic Materials, Web Sites etc.

- UQU e-learning portal.

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

-

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)

- Classroom with 35 seats for students.

2. Computing resources

- Internet Access.
- Specialized computer laboratories (max 16 students per session)
  - Project Lab

3. Other resources

- None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Course evaluation surveys.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- None.

3. Processes for Improvement of Teaching

- Course action plans.

4. Processes for Verifying Standards of Student Achievement

- Student outcomes assessment.

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

- The student outcomes assessment process is carried every other year.

GRADUATION PROJECT II

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Graduation Project II	23165408-4
2. Credit hours:	4	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	10/5	
6. Pre-requisites for this course (if any)	Graduation Project I (23165407-4)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing this course, students should be able to students develop projects that demonstrate their intellectual, technical and creative abilities. Students develop the projects under the direction and supervision of faculty members. Moreover, students gain lifelong learning skills and interface to real life applications. The main practical outcomes are related to software development processes. Specifically, students should practice in project management, system restriction, system analysis and design, software implementation and testing, software development documentation and presentation, and project demonstration.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Project Initialization - Survey and research component	2	8
System software analysis and design	2	8
Software implementation and testing	11	44

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
60	**0**	**0**	**0**	**0**

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

4-5 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Apply knowledge of computing appropriate to the discipline.
2. Analyze a problem, and identify and define the computing requirements appropriate to its solution.
3. Design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.
4. Function effectively on teams to accomplish a common goal.
5. Understand professional, ethical, legal, security, and social issues.
6. Communicate effectively with a range of audiences.
7. Analyze the local and global impact of computing on individuals, organizations and society.
8. Use current techniques, skills, and tools necessary for computing practices.
9. Apply mathematical foundations, algorithmic principles, and computer theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
10. Apply design and development principles in the construction of software systems of varying complexity.

(ii) Teaching strategies to be used to develop that knowledge

- Projects.

(iii) Methods of assessment of knowledge acquired

- Project Discussion, Presentation and Posters.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Identify and formulate computer science problems.
2. Applying the computer science knowledge and skills learned throughout the program.
3. ability to analyze and design a system component with defined constraints.

(ii) Teaching strategies to be used to develop these cognitive skills

- Projects and Discussion.

(iii) Methods of assessment of student's cognitive skills

- Project Discussion and Demo, Presentation, Posters.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. Ability to work within a team.
2. The ability to communicate with people outside of the project.

(ii) Teaching strategies to be used to develop these skills and abilities

- Projects and Discussion.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Project Discussion and Demo, Presentation, Posters.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. The ability to read scientific literature and analysis. 2. The ability to implement a computer software. 3. The ability to write reports.
(ii) Teaching strategies to be used to develop these skills • Projects and Discussion.
(iii) Methods of assessment of students numerical and communication skills • Project Discussion and Demo, Presentation, Posters.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Discussion of literature review	5-7	15
2	Evaluating the proposed system analysis and design	12-13	15
3	Presentations of the implementation	16	15
4	Project submission	16	15
5	Project examination	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

• Ian Sommerville, Software Engineering, 9th Edition, Addison-Wesley, 2011.
2. Essential References • M. Shooman, Software Engineering, Mcgraw-Hall, 2001.
3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List) • **None.**
4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations •

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Internet Access. • Specialized computer laboratories (max 16 students per session)   ○ Project Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

SELECTED TOPICS I

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Selected Topics I	23165409-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9-10/5	
6. Pre-requisites for this course (if any)	Assigned by Curriculum Committee	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course introduces some up-to-date topics and skills which are recently appears in computer science areas.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
New topics in computer science (assigned by the curriculum committee and approved by the department council).	15	45

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	0	0	0	0

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired 1. Students understand and follow-up some new topics and skills which are recently appears in computer science areas.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Projects, Research, Self-study, Discussion, Workshops.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments, Reports, Project Discussion and Demo, Presentation.
b. Cognitive Skills
(i) Description of cognitive skills to be developed • None.
(ii) Teaching strategies to be used to develop these cognitive skills • None.
(iii) Methods of assessment of student's cognitive skills • None.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed 1. Students are required to act as a one team to design and implement a software project.
(ii) Teaching strategies to be used to develop these skills and abilities • Projects, Discussion.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Reports, Project Discussion and Demo.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. An ability to communicate effectively with a range of audiences and within a project team.
(ii) Teaching strategies to be used to develop these skills • Projects, Research, Discussion, Workshops.
(iii) Methods of assessment of students numerical and communication skills • Reports, Project Discussion and Demo, Presentation.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester			
No	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- To be assigned by the curriculum committee.

2. Essential References
- To be assigned by the curriculum committee.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- To be assigned by the curriculum committee.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)
- Classroom with 35 seats for students.

2. Computing resources
- To be assigned by the curriculum committee.

3. Other resources
- None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching
- Course evaluation surveys.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

SELECTED TOPICS II

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Selected Topics II	23165410-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9-10/5	
6. Pre-requisites for this course (if any)	Assigned by Curriculum Committee	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course introduces some up-to-date topics and skills which are recently appears in computer science areas.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
New topics in computer science (assigned by the curriculum committee and approved by the department council).	15	45

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	0	0	0	0

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired 1. Students understand and follow-up some new topics and skills which are recently appears in computer science areas.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Projects, Research, Self-study, Discussion, Workshops.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments, Reports, Project Discussion and Demo, Presentation.
b. Cognitive Skills
(i) Description of cognitive skills to be developed • None.
(ii) Teaching strategies to be used to develop these cognitive skills • None.
(iii) Methods of assessment of student's cognitive skills • None.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed 1. Students are required to act as a one team to design and implement a software project.
(ii) Teaching strategies to be used to develop these skills and abilities • Projects, Discussion.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Reports, Project Discussion and Demo.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. An ability to communicate effectively with a range of audiences and within a project team.
(ii) Teaching strategies to be used to develop these skills • Projects, Research, Discussion, Workshops.
(iii) Methods of assessment of students numerical and communication skills • Reports, Project Discussion and Demo, Presentation.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester			
No	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- To be assigned by the curriculum committee.

2. Essential References
- To be assigned by the curriculum committee.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- To be assigned by the curriculum committee.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)
- Classroom with 35 seats for students.

2. Computing resources
- To be assigned by the curriculum committee.

3. Other resources
- None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching
- Course evaluation surveys.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

HUMAN-COMPUTER INTERACTION

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Human-Computer Interaction	23165411-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	Elective	
6. Pre-requisites for this course (if any)	None	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing this course, the student will have learned, through lectures and assignments, how to design plausible users' interfaces in web pages and applications. Moreover, knowing the principles of design and evaluations.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to HCI	1	3
The People	1	3
The Computer	3	9
The Interaction	2	6
Interaction Design Basics	2	6
Design Rules	2	6
Evaluation Techniques	2	6
C Sharp examples	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None

45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Know key concepts in designing usable products.
2. Evaluate the usability of a given computer-based solution.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Projects.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Reports.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Use appropriate design rules to design an application.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Projects.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Reports.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

1. Demonstrate efficient design and evaluation capabilities.

(ii) Teaching strategies to be used to develop these skills

- Lectures, Tutorials, Projects.

(iii) Methods of assessment of students numerical and communication skills

- Written exams, Assignments, Reports.

e. Psychomotor Skills (if applicable)

(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Project and assignments	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Alan J. Dix, Gregory D. Abowd, Russell Beale, Janet E. Finley, Human-Computer Interface, Prentice Hall, 3rd Edition, 2003.

2. Essential References
- I. Scott MacKenzie, Human-Computer Interaction: An Empirical Research Perspective, Morgan Kaufmann, 2013.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- Software: C# software

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)

• Classroom with 35 seats for students.
2. Computing resources • Software: C# software • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

USER INTERFACE DESIGN

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	User Interface Design	23165412-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	Elective	
6. Pre-requisites for this course (if any)		
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course aim to teach students how to develop interactive systems, including for mobile / portable devices, with a strong focus on user-centered design and usability principles. He/she will learn what characteristics of a user interface can make it usable for users, and how to design user interfaces that take into account human capabilities and constraints. This course also introduces techniques for evaluating the usability of applications and systems.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
User interface importance	2	6
Characteristics of graphical, web and mobile user interfaces	3	9
User interface design process	5	15
User interface implementation and testing	5	15

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Design and implement a user interface, based on modeling or requirements specification.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Projects, Discussion.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments, Reports, Project Discussion and Demo, Presentation.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. Analyze and model requirements and constraints for the purpose of designing and implementing user interfaces for software applications.
(ii) Teaching strategies to be used to develop these cognitive skills • Lectures, Projects, Discussion.
(iii) Methods of assessment of student's cognitive skills • Written exams, Assignments, Reports, Project Discussion and Demo, Presentation.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed 1. Participate in a small team to design and implement a user interface, based on modeling or requirements specification.
(ii) Teaching strategies to be used to develop these skills and abilities • Projects.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Project Discussion and Demo, Presentation.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of students numerical and communication skills • None.
e. Psychomotor Skills (if applicable)

(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- W.O. Galitz, The Essential Guide to User Interface Design: An Introduction to GUI Design Principles and Techniques, Wiley, 3rd Edition (2007).

2. Essential References
- None.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)
- Classroom with 35 seats for students.

2. Computing resources • Internet Access. • Specialized computer laboratories (max 16 students per session).   ○ Free Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

ADVANCED WEB PROGRAMMING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Advanced Web Programming	23165413-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	8/4	
6. Pre-requisites for this course (if any)	Internet Applications Development (23165404-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This module will expand students' knowledge of up-to-the-minute advanced web programming and technologies, concepts of design and development of web sites that are accessible from a myriad of platforms and web browsers combinations, including Windows, Linux/Unix, Macintosh OSX, also including mobile platforms, such as Android, iOS, Windows Phone and Blackberry.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
web programming languages	2	6
web site related problems	1	3
web site tools	2	6
web application programming interfaces	3	9
development frameworks and environments	3	9
web server technologies	2	6
web site deployment	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None

45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Select the appropriate web technologies to solve a range of web site related problems, using dynamic techniques, such as integrating databases
2. Demonstrate an in depth understanding of the characteristics and limitations of web technologies and the importance of usability in web site tools.
3. Develop, test and deploy web site applications that use web application programming interfaces (APIs) and demonstrate current practice in web site deployment.
4. Evaluate the current professional and ethical issues, in particular those relating to security and privacy of user data, in regards to web sites.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Projects, Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Reports, Project Discussion and Demo, Presentation, Simulation.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Modern, web programming languages will be used in a hands-on laboratory setting, where students will create web sites with multiple features, for example accessibility features and security.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Projects, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Reports, Project Discussion and Demo, Presentation, Simulation.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain. 1. Written, oral and media communication skills. 2. Leadership, team working and networking skills. 3. Opportunity, creativity and problem solving skills. 4. Information technology skills.
(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Projects, Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Reports, Project Discussion and Demo, Presentation, Simulation.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Class activity	3-16	10
4	Projects	16	10
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

Jon Duckett, JavaScript & JQuery: Interactive Front-end Web Development, John Wiley & Sons. Jun 2014

2. Essential References

Larry Ullman, PHP and MySQL for Dynamic Web Sites: Visual QuickPro Guide (Visual QuickPro Guides), 4th edition, Peachpit Press. Sep 2011
3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List) • **None.**
4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • Software: Web Server, Macromedia Product, …. • OS: Linux/Unix, Macintosh OSX, …

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Software: Web Server, Macromedia Product, …. • OS: Linux/Unix, Macintosh OSX, … • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

MOBILE APPLICATION DEVELOPMENT

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Mobile Application Development	23165414-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9/5	
6. Pre-requisites for this course (if any)	--	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

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

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to mobile applications programming	1	3
Basics of Android framework	1	3
Building first Android application in Eclipse	1	3
Activities and intents	1	3
Getting to know the Android User Interface	1	3
Designing User Interface using Views	1	3
Displaying pictures and menus with Views	1	3
Data Persistence and SQLite Database Programming	2	6
Accessing built-in Sensors and Data Storage	2	6
Messaging and Networking	2	6

Publishing Android Applications	2	6

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

By completing this course the students should be able to:

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

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Practical sessions, Projects.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Practical exams, Reports, Project Discussion.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

- None.

(ii) Teaching strategies to be used to develop these cognitive skills

- None.

(iii) Methods of assessment of student's cognitive skills

- None.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of students numerical and communication skills • None.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
4	Projects	16	20
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Beginning Android Application Development, Wrox, by Wei-Meng; ISBN: 978-1180-1711-1, April 2011.

2. Essential References
- The Busy Coder's Guide to Android Development, Mark L. Murphy, CommonsWare, LLC, 2014.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- None.

4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students. • General computer laboratories (max 20 students per session).
2. Computing resources • Software: Emulators for mobile applications, Mobile applications development tools. • Internet Access. • Specialized computer laboratories (max 16 students per session).   ○ Free Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

SOFTWARE TESTING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Software Testing	23165415-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	8/4	
6. Pre-requisites for this course (if any)	Software Engineering (23164306-3)	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Introduction to software testing principles and practice as used in industry. Discusses practical software testing goals and approaches to testing software through all phases of the SDLC. Software quality assurance will be discussed as part of a dynamic process that is flexible and constantly turned to the changing needs of a project.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Fundamentals of Testing	1	3
Testing Throughout the Software Life Cycle	1	3
Static Techniques	2	6
Specification-based or black-box techniques	3	9
Quality Characteristics for Technical Testing	3	9
Test Management	2	6
Test Tools an Automation	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
42	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired • None.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Tutorials, Assignments,
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments.
b. Cognitive Skills
(i) Description of cognitive skills to be developed • None.
(ii) Teaching strategies to be used to develop these cognitive skills • None.
(iii) Methods of assessment of student's cognitive skills • None.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed • None.
(ii) Teaching strategies to be used to develop these skills and abilities • None.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • None.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of students numerical and communication skills • None.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required

• None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester			
No	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
4	Assignment	16	20
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Glenford, Myers & Corey Sandler, Tom Badgett; "The Art of Software Testing", 3rd Edition, John Wiley & Sons, 2011.

2. Essential References
- Paul Ammann, Jeff Offutt, "Introduction to Software Testing", Cambridge University Press, 2008.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- None.

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)
- Classroom with 35 seats for students.

2. Computing resources

• None.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

BIG DATA ANALYTICS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Big Data Analytics	23165416-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	10/5	
6. Pre-requisites for this course (if any)	23164307-3	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

The course is designed to equip students with specialist computing skills which focus on knowledge discovery from structured and unstructured big data stores. The course will provide research and technical skills necessary for the student to develop sophisticated data analysis and retrieval systems applied to big.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Data warehousing	3	9
Advanced databases for big data	3	9
Big data programming	3	9
Big data analysis	3	9
Data mining	3	9

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Provide the opportunity to upgrade existing skills to the state-of-the-art in areas data mining, programming for distributed processing systems, advanced databases, data analytics techniques and leveraging cloud computing platforms for big data analytics.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Projects, Research, Discussion, Workshops.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments, Reports, Project Discussion and Demo, Presentation.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. Training students in big data technology and methods.
(ii) Teaching strategies to be used to develop these cognitive skills • Projects, Research, Discussion, Workshops.
(iii) Methods of assessment of student's cognitive skills • Reports, Project Discussion and Demo, Presentation.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed • None.
(ii) Teaching strategies to be used to develop these skills and abilities • None.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • None.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of students numerical and communication skills • None.
e. Psychomotor Skills (if applicable)

(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- T. Erl, W. Khattak and P. Buhler, Big Data Fundamentals: Concepts, Drivers & Techniques, Prentice Hall, 1st edition (2016).

2. Essential References
- None.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- None.

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)
- Classroom with 35 seats for students.

2. Computing resources • Internet Access. • Specialized computer laboratories (max 16 students per session).   ○ Free Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

EXPERT SYSTEMS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Expert Systems	23165417-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	Elective	
6. Pre-requisites for this course (if any)		
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon completing this course, the student will have learned, through appropriate classroom and assignments, the basics of intelligent systems. Moreover, he/she could convert a simple real-life problem into input patterns suitable for the intelligent model.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Building a knowledge base	2	6
Logical reasoning systems	2	6
Expert systems design	2	6
Fuzzy logic	2	6
Neural networks	3	9
Genetic algorithms	3	9
Expert systems languages	1	3

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand expert systems fundamentals including knowledge types, engineering process activities and acquisition.
2. Apply a wide variety of representation and inference techniques to deal with the knowledge in expert systems.
3. Design and implement knowledge-based systems and production rules using appropriate programming languages.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Projects.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Reports.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Use appropriate method to solve a simple real-life problem using intelligent techniques.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Projects.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Reports.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None

(ii) Teaching strategies to be used to develop these skills and abilities

- None

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

1. Demonstrate efficient intelligent systems capabilities.

(ii) Teaching strategies to be used to develop these skills

- Lectures, Tutorials, Projects.

(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Reports.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- J. Giarratano and G. Riley, Expert Systems: Principles and Programming, PWS Publishing, 4th Edition, 2004.

2. Essential References
- A.B. Badiru and J. Cheung, Fuzzy Engineering Expert Systems with Neural Network Applications, Wiley-InterScience, 2002.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

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

- None

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)

- Classroom with 35 seats for students.

2. Computing resources

- None

3. Other resources

- None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Course evaluation surveys.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- None.

3. Processes for Improvement of Teaching

- Course action plans.

4. Processes for Verifying Standards of Student Achievement

- Student outcomes assessment.

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

- The student outcomes assessment process is carried every other year.

NEURAL NETWORKS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Neural Networks	23165418-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	Elective	
6. Pre-requisites for this course (if any)		
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

By the end of this course, the student should be capable of:

1. Understand basic neural network architectures and their applications.
2. Understand learning algorithms 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.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to neural networks	2	6
Math concepts needed for neural networks	2	6
Supervised neural networks and learning algorithms	4	12
Recurrent neural networks	2	6
Unsupervised neural networks	3	9
Reinforcement neural networks	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Explain the function of different types of neural networks. 2. Explain the difference between different types of neural networks. 3. Design and implementation for a simple real-life problem.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Tutorials, Practical sessions, Projects.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments, Practical exams, Simulation.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. Use appropriate simulations and hardware to demonstrate the applications of neural networks
(ii) Teaching strategies to be used to develop these cognitive skills • Lectures, Tutorials, Practical sessions, Projects.
(iii) Methods of assessment of student's cognitive skills • Written exams, Assignments, Practical exams, Simulation.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed • None.
(ii) Teaching strategies to be used to develop these skills and abilities • None.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • None.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of students numerical and communication skills • None.

e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- S. Haykin, neural Networks: A Comprehensive Foundation, 2nd Ed. 1999.

2. Essential References
- None.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- Software: Matlab or Ocatve

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)
- Classroom with 35 seats for students.

• General computer laboratories (max 20 students per session).

2. Computing resources
• Software: Matlab or Octave
• Internet Access.
• Specialized computer laboratories (max 16 students per session).
  ○ AI Lab
  ○ Free Lab

3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

NATURAL LANGUAGE PROCESSING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Natural Language Processing	23165419-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9,10/5	
6. Pre-requisites for this course (if any)	Artificial Intelligence 23164403-3	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon the completion of this course, the student will have learned, through appropriate classroom lectures and projects, the fundamental algorithms and models for Natural Language Processing (NLP), how you can use them to solve practical problems in dealing with language data wherever you encounter it.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction	1	3
Finite-state methods for NLP	3	9
Morphology	3	9
Word prediction	2	6
Language modeling	2	6
Parts of speech	1	3
Speech Synthesis	1	3
Automatic Speech Recognition	1	3
Project Defense	1	3

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand lexical, syntactic, semantic and pragmatic aspects of NLP.
2. Learn the algorithms and methods on the Natural Language Processing domain.
3. Understand basic concepts in Arabic language processing.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Associate statistical and machine learning approaches to NLP.
2. Acquire the skills for developing NLP tools/systems.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Case study, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Project Discussion.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. Demonstrate the ability to work effectively in teams.

(ii) Teaching strategies to be used to develop these skills and abilities

- Projects.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- Project Discussion.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain. 5. Demonstrate efficient programming skills using a proper programming language.
(ii) Teaching strategies to be used to develop these skills • Projects.
(iii) Methods of assessment of students numerical and communication skills • Project Discussion.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
4	Projects	16	20
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Daniel Jurafsky and James H. Martin. Speech and Language Processing: An introduction to natural language processing, Pearson Prentice Hall, 2nd Edition (May 26, 2008).

2. Essential References
- Anne Kao and Steve R. Poteet. Natural language processing and text mining. Springer, 2007.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.

• UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • Software: compiler of a language selected by the student.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Software: compiler of a language selected by the student. • Internet Access. • Specialized computer laboratories (max 16 students per session).   ○ Free Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

IMAGE PROCESSING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Image Processing	23165420-3
2. Credit hours:		
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9,10/5	
6. Pre-requisites for this course (if any)	Data Structures and Algorithms 23163108-4	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

The course is designed to introduce students to advanced theoretical concepts and practical issues associated with image processing. A special effort will be made to develop students' problem solving skills. New concepts are integrated with students' previous experience through use of systems theory.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Image Representation	2	6
Image Enhancement	2	6
Spectral Techniques	2	6
Filtering and Smoothing	2	6
Segmentation and Feature Extraction	3	9
Geometric Transformation	2	6
Image Compression	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Understand the concepts of image processing techniques. 2. Explain the advanced textbooks and research literature in the subject area.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Tutorials.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. Solve a wide range of problems related to various image processing techniques. 2. Create solutions of problems, develop designs, and be aware of the context of computer developments.
(ii) Teaching strategies to be used to develop these cognitive skills • Lectures, Tutorials, Projects.
(iii) Methods of assessment of student's cognitive skills • Written exams, Assignments, Project Discussion.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed 1. Demonstrate the ability to work effectively in teams.
(ii) Teaching strategies to be used to develop these skills and abilities • Projects.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Project Discussion.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. Carry out a wide range of principles and tools available to the image processing.
(ii) Teaching strategies to be used to develop these skills • Projects.
(iii) Methods of assessment of students numerical and communication skills • Project Discussion.
e. Psychomotor Skills (if applicable)

(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
4	Projects	16	20
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Gonzalez, Rafael C., and Richard E. Woods. "Digital image processing." Latest edition.

2. Essential References
- Marques, Oge. *Practical image and video processing using MATLAB*. John Wiley & Sons, 2011.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- Matlab /Octave

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)
- Classroom with 35 seats for students.

2. Computing resources • Software: Matlab /Octave • Internet Access. • Specialized computer laboratories (max 16 students per session).   ○ Free Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

PATTERN RECOGNITION

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Pattern Recognition	23165421-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9,10/5	
6. Pre-requisites for this course (if any)	Data Structures and Algorithms 23163108-4	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

The aim of this course is study pattern recognition techniques. These techniques include statistical methodologies, e.g. Bayesian Decision Theory, clustering techniques, e.g. k-means, classifiers, e.g. SVM, Parameter estimation, graphical models, MRF, and sequential pattern recognition.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Statistical Analysis	3	9
Clustering	2	6
Classification	4	12
Parameter Estimation	2	6
Graphical Models	2	6
Sequential Pattern Recognition	2	6

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	**0**	**0**	**0**	**0**

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

4. Development of Learning Outcomes in Domains of Learning
a. Knowledge
(i) Description of the knowledge to be acquired 1. Understand the concepts of pattern recognition techniques. 2. Explain the advanced textbooks and research literature in the subject area.
(ii) Teaching strategies to be used to develop that knowledge • Lectures, Tutorials.
(iii) Methods of assessment of knowledge acquired • Written exams, Assignments.
b. Cognitive Skills
(i) Description of cognitive skills to be developed 1. Solve a wide range of problems related to various pattern recognition techniques. 2. Create solutions of problems, develop designs, and be aware of the context of computer developments.
(ii) Teaching strategies to be used to develop these cognitive skills • Lectures, Tutorials, Projects.
(iii) Methods of assessment of student's cognitive skills • Written exams, Assignments, Project Discussion.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed 1. Demonstrate the ability to work effectively in teams.
(ii) Teaching strategies to be used to develop these skills and abilities • Projects.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Project Discussion.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. 1. Carry out a wide range of principles and tools available to the pattern recognition.
(ii) Teaching strategies to be used to develop these skills • Projects.
(iii) Methods of assessment of students numerical and communication skills • Project Discussion.
e. Psychomotor Skills (if applicable)

(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
4	Projects	16	20
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Bishop, C. "Pattern Recognition and Machine Learning" (Latest Edition).

2. Essential References
- Theodoridis, Sergios, and Konstantinos Koutroumbas. "Pattern Recognition" (Latest Edition).

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- Matlab /Octave

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)
- Classroom with 35 seats for students.

2. Computing resources • Software: Matlab /Octave • Internet Access. • Specialized computer laboratories (max 16 students per session).   ○ Free Lab
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

GAME PROGRAMMING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Game Programming	23165422-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9/5	
6. Pre-requisites for this course (if any)	Computer Graphics (23164402-3)	
7. Co-requisites for this course (if any)	Artificial Intelligence (23164403-3)	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

The module will cover game programming and game engine design. A fully featured game programming will be developed from first principles. Core technologies for modern game engine design will be covered, including: 3-D graphics, rendering and camera techniques, lighting and material theory, collision detection, particle systems, physics simulation, non-player character AI, and game logic.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to game programming	2	6
Game engine architecture 3-D graphics	1	3
Game Mechanisms	1	3
Rendering and camera techniques	2	6
Lighting and material theory	2	6
Collision detection	2	6
Physics simulation	2	6
Advanced game AI	3	9

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	0	0	0	0

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

Students will be required to use the skills learned in completing these tasks to implement a playable game demo exhibiting advanced properties of several of the components above, and document the demo to provide a rationale for their design decisions in the context of theory.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials, Projects, Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Reports, Project Discussion and Demo, Presentation, Simulation.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

- None.

(ii) Teaching strategies to be used to develop these cognitive skills

- None.

(iii) Methods of assessment of student's cognitive skills

- None.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- None.

(ii) Teaching strategies to be used to develop these skills and abilities

- None.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- None.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

- Define and implement 3-D game worlds.
- Implement physical simulations in game worlds.
- Implement a game AI system for NPC behavior.

• Design and implement a collision detection system.
(ii) Teaching strategies to be used to develop these skills • Lectures, Tutorials, Projects, Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Reports, Project Discussion and Demo, Presentation, Simulation.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Class Activity	3-16	10
4	Projects	16	10
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
McShaffry, M. 'Game Coding Complete, 4th Edition', Delmar, 2012.

2. Essential References
Benstead, L. 'Beginning OpenGL Game Programming' 2nd Edition, Delmar, 2009.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • Software: Microsoft visual studio, BGI, OpenGl.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.

2. Computing resources
• Software: Microsoft visual studio, BGI, OpenGl.
• Internet Access.
• Specialized computer laboratories (max 16 students per session).
  ○ AI Lab
  ○ HW Lab

3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

CLOUD COMPUTING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Cloud Computing	23165423-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	10/5	
6. Pre-requisites for this course (if any)	23164204-3, 23165205-3	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

The goal of this course is to introduce the students to the principles, foundations, and applications of cloud computing, and the way it presents significant technology trends to reshape information technology processes and the IT marketplace. In this course the different types of features, standards, services, and security issues in cloud computing will be discussed. This course offers students the opportunity to study this new paradigm of computing in which dynamically scalable and often virtualized resources are offered as services over the internet. The course will also cover some of the autonomic computing aspects which provide solutions to the challenges of cloud management.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Overview of Distributed Computing: Trends of computing, Introduction to distributed computing.	1	3
Introduction to Cloud Computing: What's cloud computing, Properties & Characteristics, Service models, Deployment models.	2	6
Infrastructure as a Service (IaaS): Introduction to IaaS, Resource Virtualization, Server, Storage, Network, Case studies.	2	6
Platform as a Service (PaaS): Introduction to PaaS, Cloud platform & Management, Computation, Storage, Case studies.	2	6

Software as a Service (SaaS): Introduction to SaaS, Web services Web 2.0, Web OS, Case studies	2	6
Cloud issues and challenges: Cloud provider Lock-in, Security.	2	6
Introduction to Hadoop: Typical Hadoop Cluster, Challenges, Hadoop Components, example.	1	3
Hadoop Distributed File System: Big data and hand hop introduction, Hdfs introduction, Hdfs definition, Hfds architecture, understanding the file system, Read and write in Hdfs.	3	9

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	0	0	0	0

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Demonstrate the knowledge of architecture, service models, economics, scaling and recovering of cloud computing.
2. Understand the core concepts of the cloud computing paradigm: how and why this paradigm shift came about and the influence of several enabling technologies in cloud computing.
3. Understand the technology infrastructure and network requirements for cloud computing.
4. Understand the legal, ethical, and managerial requirements of cloud computing.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Case study, and Self-study.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments, Reports, and Presentation.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Choose the appropriate technologies, algorithms, and approaches for the related issues.
2. Use the appropriate cloud computing solutions and recommendations according to the applications used.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Case study, and Self-study.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, and Reports.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed 1. Learn how to search for information through library and internet. 2. Present a short report in a written form and orally using appropriate scientific language.
(ii) Teaching strategies to be used to develop these skills and abilities • Research, Self-study, and Discussion.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Reports, and Presentation.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of students numerical and communication skills • None.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Homework	3-10	10
4	Term Paper and Presentation	16	10
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

- Ray J Rafaels, Cloud Computing: From Beginning to End, CreateSpace Independent Publishing Platform, April 1, 2015.

2. Essential References

- John Rhoton, Cloud Computing Explained: Implementation Handbook for Enterprises, Recursive Press, 2009.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)

- None.

4- Electronic Materials, Web Sites etc.

- UQU e-learning portal.

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

- None.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)

- Classroom with 35 seats for students.

2. Computing resources

- Internet Access.

3. Other resources

- None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Course evaluation surveys.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- None.

3. Processes for Improvement of Teaching

- Course action plans.

4. Processes for Verifying Standards of Student Achievement

- Student outcomes assessment.

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

- The student outcomes assessment process is carried every other year.

CRYPTOGRAPHY

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Cryptography	23165424-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9,10/5	
6. Pre-requisites for this course (if any)	23165408-3	
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Upon the completion of cryptography course, the student should be able to:

- learn fundamental of cryptography and its application to network security.
- Understand network security threats, security services, and countermeasures.
- Acquire background knowledge on well-known network security protocols.
- Address open research issues in network security.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to fundamental principles of cryptography	1	3
Introduction of the fundamental tools in cryptography	1	3
Cryptography and its application to network security.	1	3
Basic key distribution and management mechanisms.	1	3
Security handshake pitfalls and authentications.	2	6
Well known network security protocols such as Kerberos, IPSec, SSL, PGP& PKI, WEP.	3	9
Distributed certification authority and management in wireless networks.	2	6
Various threat models in wireless networks.	2	6

Energy-aware security protocols and mechanisms for wireless networks.	2	6

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
45	**0**	**0**	**0**	**0**

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

The course aims to make the student able to:

1. Apply the knowledge and the skills needed to study further concepts in Information Security.
2. Communicate and interpret ideas related to cryptography in Information Security applications.
3. Understanding random number generation and pseudorandom number.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Projects and Discussion.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments and Project Discussion and Demo.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

At the end of the course, the student will know:

1. How to compare and contrast a range of different cryptosystems from an applied viewpoint.
2. The differences between secret key and public key cryptosystems.
3. How to identify the different approaches to quantifying secrecy.
4. The ability to analyze information systems issues from a number of authentication protocol.
5. Plan strategic information systems.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Projects and Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Project Discussion and Demo.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

At the end of the course, the student will be able to:

1. Recognize the different modes of operation for block ciphers and their applications.
2. Understand and apply the role of hash functions in Information Security.

3. Design and undertake independently, a major original research project on a topic which relates to the forefront of the academic discipline of information technology security and reflect extensively and objectively on method, process and outcomes.
(ii) Teaching strategies to be used to develop these skills and abilities • Lectures, Projects and Discussion.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Written exams, Assignments, Project Discussion and Demo.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. Carry out a wide range of principles and tools available to cryptography.
(ii) Teaching strategies to be used to develop these skills • Lectures, Projects and Discussion.
(iii) Methods of assessment of students numerical and communication skills • Written exams, Assignments, Project Discussion and Demo.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s) Harold F. Tipton, Micki Krause, "Information Security Management Handbook", CRC Press, ISBN-10: 0849374952, 2007.
2. Essential References Johannes Buchmann , "Introduction to Cryptography", Springer, ISBN-10: 0387207562, 2004.
3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List) • None.
4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • None

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • None
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

FORENSICS COMPUTING

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:	Forensics Computing	23165425-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	9,10/5	
6. Pre-requisites for this course (if any)	None	
7. Co-requisites for this course (if any)	Computer Security 23165407-3	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course aims to develop students with Computer Forensics skills; which involves the analysis and interpretation of digital evidence from computers and associated devices. Computer forensics encompasses Forensic Science, through the evidential processing and analysis of exhibits, and computing, to develop an understanding of computers and their functioning.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction to Computer Forensics	1	3
Data Acquisition	1	3
Current Computer Forensics Tools	2	6
Processing Crime Scenes and Digital Evidence Controls	2	6
Recovering Image Files	2	6
Computer Forensics Analysis	2	6
Cloud and Network Forensics	2	6
E-mail and Social Media Investigation	3	6
Reporting Investigation Results	1	3

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	0	0	0	0

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Understand key aspects of computer forensics, including acquisition of coherent and detailed knowledge, at least some of which is at, or informed by, the forefront of the discipline
2. Acquire the ability to deploy accurately established techniques of analysis and design that encompass internationally recognized standards.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Tutorials.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Devise and sustain arguments and solve problems using ideas and techniques, some of which are at the forefront of Computer Forensics practice, and describe and comment upon particular aspects of current research, or equivalent advanced scholarship

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Tutorials, Discussion.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Assignments, Presentation.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. Undertake projects to a professional industry recognized standards, within Computer Forensics, by the consistent application and review of development, management and evaluation of methods and techniques.

(ii) Teaching strategies to be used to develop these skills and abilities

- Case study, Discussion.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- Presentation.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain. 1. Undertake research and critically evaluate arguments, assumptions, abstract concepts and data (that may be incomplete), to make judgments, and to frame appropriate questions to achieve a solution or identify a range of solutions to a problem.
(ii) Teaching strategies to be used to develop these skills and abilities • Case study, Discussion.
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Presentation.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	30
2	Midterm Exam 2	12-13	30
5	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)

- Nelson, Bill, Amelia Phillips, and Christopher Steuart. *Guide to computer forensics and investigations*. Cengage Learning, 2014.

2. Essential References

- Casey, Eoghan. Digital evidence and computer crime: Forensic science, computers, and the internet. Academic press, 2011.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)

• **None.**
4- Electronic Materials, Web Sites etc. • UQU e-learning portal.
5- Other learning material such as computer-based programs/CD, professional standards/regulations • None

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

BIOINFORMATICS

NCAAA Course Specification

Institution:	**Umm Al-Qura University**
College	**Jamoum University College**
Department	**Computers**

A. Course Identification and General Information

1. Course title and code:		23165426-3
2. Credit hours:		
3. Program(s) in which the course is offered:	Computer Science	
4. Name of faculty member responsible for the course:	The Course Coordinator (Assigned by Curriculum Committee)	
5. Level/year at which this course is offered	x/x	
6. Pre-requisites for this course (if any)		
7. Co-requisites for this course (if any)	None	
8. Location if not on main campus	Jamoum Campus	

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

This course focuses on developing and applying computationally intensive techniques (e.g., data mining, and machine learning algorithms) to biological problems. This let the student to deploy his knowledge of databases, algorithms, computational and statistical techniques, and theory to solve formal and practical problems arising from the management and analysis of biological data.

2. Briefly describe any plans for developing and improving the course that are being implemented.

- Increase learning opportunities by using the e-learning recourses of the UQU portal.
- Implementing the course evaluation process to update the course materials.

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours
Introduction	1	3
Molecular Biology Primer	3	9
Sequence Alignment Algorithms	2	6
Motif Discovery & Gene Prediction	2	6
DNA Sequencing	2	6
Pattern Matching	1	3
Gene Expression Analysis	1	3
Bioinformatics Databases	3	9

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
45	0	0	0	0

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

3-4 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

1. Knowledge of a range of bioinformatic concepts, tools and techniques and understand the principles behind these techniques.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures, Projects, Research, Self-study, Discussion, Workshops.

(iii) Methods of assessment of knowledge acquired

- Written exams, Reports, Project Discussion and Demo, Presentation.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Specify, test and replicate computational solutions in the analysis of biological data.
2. Apply the essential computing techniques to solve biological problems.

(ii) Teaching strategies to be used to develop these cognitive skills

- Lectures, Projects, Research, Self-study, Discussion, Workshops.

(iii) Methods of assessment of student's cognitive skills

- Written exams, Reports, Project Discussion and Demo, Presentation.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. Manage their own learning and to conduct independent and effective study.

(ii) Teaching strategies to be used to develop these skills and abilities

- Projects, Research, Self-study, Discussion, Workshops.

(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

- Reports, Project Discussion and Demo, Presentation.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

2. An ability to communicate effectively with a range of audiences and within a project team.

(ii) Teaching strategies to be used to develop these skills

- Projects, Research, Discussion, Workshops.

(iii) Methods of assessment of students numerical and communication skills • Reports, Project Discussion and Demo, Presentation.
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required • None.
(ii) Teaching strategies to be used to develop these skills • None.
(iii) Methods of assessment of student's psychomotor skills • None.

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Projects	16	20
4	Final Exam	17-18	40
		Total	100

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice.
   - 2-4 office hours per weeks.
   - E-mail communication.

E. Learning Resources

1. Required Text(s)
- Jones, Neil C., and Pavel Pevzner. An introduction to bioinformatics algorithms. MIT press, 2004.

2. Essential References
- Lesk, Arthur. Introduction to bioinformatics. Oxford University Press, 2013.

3- Recommended Books and Reference Material (Journals, Reports, etc.) (Attach List)
- **None.**

4- Electronic Materials, Web Sites etc.
- UQU e-learning portal.

5- Other learning material such as computer-based programs/CD, professional standards/regulations
- Software: Bioinformatics Packages.

F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.) • Classroom with 35 seats for students.
2. Computing resources • Software: Bioinformatics Packages. • Internet Access.
3. Other resources • None.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Course evaluation surveys.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • None.
3. Processes for Improvement of Teaching • Course action plans.
4. Processes for Verifying Standards of Student Achievement • Student outcomes assessment.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The student outcomes assessment process is carried every other year.

ملحق (٣): مصفوفة اتساق نواتج التعلم المتوقعة للبرنامج مع الإطار الوطني للمؤهلات والمقارنة المرجعية

مصفوفة اتساق نواتج التعلم المتوقعة للبرنامج مع الإطار الوطني للمؤهلات والمقارنة المرجعية

وجه المقارنة	الإطار الوطني	العلامة المرجعية	البرنامج المقترح	مدى الاتساق
المعرفة	أن يكون لديه معرفة شاملة وبشكل متكامل ومنظّم بمجال الدراسة، وبالمبادئ والنظريات الأساسية المتعلقة بذلك المجال. وأن يكون ملماً بالمعارف والنظريات في المجالات العلمية الأخرى المتصلة بمجاله، وملماً بالمجالات المهنية الأخرى ذات العلاقة إذا كان التخصص مهنياً. وأن يكون ملماً كذلك بأحدث التطورات في التخصصات التي يشتمل عليها مجال دراسته بما في ذلك الوعي العالي بالأبحاث الحديثة المتعلقة بإيجاد الحلول للقضايا وزيادة المعرفة في مجال التخصص. وفي البرامج التي تعدّ الطلبة للممارسة المهنية، يكون الخريجون على وعي بالأنظمة واللوائح التنظيمية للمهنة، وبالمتطلبات الفنية لها وكيفية تحسين ذلك عبر الزمن استجابة للتغيرات في الظروف المحيطة.	Computer Science Program at University of Connecticut	**SOa.** An ability to apply knowledge of computing and mathematics appropriate to the discipline. **SOi.** An ability to use current techniques, skills, and tools necessary for computing practices. **SOj.** An ability to 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 tradeoffs involved in design choices.	مطابق للإطار الوطني للمؤهلات
المهارات الإدراكية	أن يستطيع القيام بالاستقصاءات، وأن يفهم ويقوّم المعلومات والمفاهيم والأدلة الجديدة من مصادر متنوعة، ويطبق النتائج على نطاق واسعٍ من القضايا والمشكلات مع قدر بسيط من التوجيه. وأن يستطيع أن يبحث المشكلات المعقدة نسبياً مستخدماً أشكالاً متنوعة من تقنيات المعلومات والمصادر الأخرى، ويقترح حلولاً مبتكرة لها مع مراعاة المعارف النظرية والخبرات العملية ذات العلاقة وما يترتب على القرارات المتخذة. ويستطيع تطبيق هذه المهارات والمدركات في سياقات أكاديمية ومهنية متصلة بمجال دراسته. وأما في البرامج المهنية، فينبغي أن يكون قادراً على استخدام الطرق الإجرائية المعتادة (الروتينية) بشكل مناسب، مع تحديد المواقف التي تتطلب إيجاد حلولٍ مبتكرة والاستجابة بشكل يعتمد على خلفيته النظرية والعملية ذات العلاقة.	Computer Science Program at University of Connecticut	**SOb.** An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution. **SOc.** An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs. **SOk.** An ability to apply design and development principles in the construction of software systems of varying complexity.	مطابق للإطار الوطني للمؤهلات

وجه المقارنة	الإطار الوطني	العلامة المرجعية	البرنامج المقترح	مدى الاتساق
مهارات التعامل مع الآخرين وتحمل المسؤولية	يسهم في، ويعمل على تسهيل، الحلول البناءة للقضايا في المواقف الجماعية سواء أكان في مركز قيادي أم كان عضواً في جماعة. ويمكن أن يمارس قيادة الجماعة في مواقف متنوعة تتطلب استجابات مبتكرة. يقوم بالمبادرة في تحديد القضايا التي تتطلب عناية خاصة والتصدي بشكل مناسب لها سواءً أكان ذلك بشكل انفرادي أم من خلال العمل الجماعي. يتحمل مسؤولية تعلمه الذاتي ويستطيع أن يحدد ويستخدم وسائل إيجاد المعلومات الجديدة أو أساليب التحليل اللازمة لإنجاز المهام المسندة إليه. يتعامل مع القضايا الأخلاقية والمهنية التي لها علاقة بالقيم والأحكام الأخلاقية بطرق حساسة للآخرين ومتوافقة مع القيم الأساسية والأخلاقيات المهنية المتعارف عليها.		**SOd.** An ability to function effectively on teams to accomplish a common goal. **SOe.** An understanding of professional, ethical, legal, security, and social issues and responsibilities. **SOg.** An ability to analyze the local and global impact of computing on individuals, organizations and society.	مطابق للإطار الوطني للمؤهلات
مهارات التواصل، وتقنية المعلومات، والمهارات العددية	يمكن أن يحدد الأساليب الإحصائية والرياضية ذات العلاقة عند دراسة القضايا والمشكلات، وأن يطبقها بشكل إبداعي في تفسير المعلومات واقتراح الحلول. يمكن أن يتواصل بفعالية شفهياً وكتابياً، وأن يختار ويستخدم أشكال العرض المناسبة للقضايا المختلفة وللمتلقين المختلفين. يستخدم بشكل معتاد (روتيني) أكثر تقنيات المعلومات والاتصالات مناسبة في جمع، وتفسير، وإيصال المعلومات والأفكار.		**SOf.** An ability to communicate effectively with a range of audiences. **SOh.** Recognition of the need for, and an ability to engage in, continuing professional development.	مطابق للإطار الوطني للمؤهلات

ملحق (٤): مصفوفة البرنامج

مصفوفة البرنامج

| نواتج التعلم | المقررات | | |

ملحق (٥): نتائج مسح البرامج الدراسية النظيرة لبناء البرنامج الأكاديمي المستحدث

نتائج مسح البرامج الدراسية النظيرة لبناء البرنامج الأكاديمي المستحدث

الكلية: الكلية الجامعية بالجموم

القسم: قسم الحاسب الآلي

المقارنة بين البرامج المماثلة		البرنامج الأول		البرنامج الحالي	
إجمالي وحدات البرنامج والمقررات		الوحدات	المقررات	الوحدات	المقررات
		١٢٠	٣٩	١٦٠	٥٤
توزيع الوحدات والمقررات		الوحدات	المقررات	الوحدات	المقررات
متطلبات الجامعة		٢٤	٨	٢٢	١٠
متطلبات الكلية		١٥	٥	٢٧	٨
متطلبات القسم		٨١	٢٦	١١١	٣٦
متطلبات التخصص	الإجبارية	٨١		١٥١	
	المساعدة	٠		٠	
	الاختيارية	٣٩		٩	
	الرسالة	٠		٠	
	المشروع البحثي	٦		٨	
	الخبرة الميدانية	٠		٠	

البرامج الدراسية النظيرة

- برنامج علوم الحاسب (Computer Science Program at University of Connecticut)

http://www.cse.uconn.edu/undergraduate-studies/major-programs/computer-science/

ملحق (٦): مستلزمات تطبيق البرنامج

مستلزمات تطبيق البرنامج

الكلية: الكلية الجامعية بالجموم

القسم: قسم الحاسب الآلي

الموارد البشرية المتوفرة

	عدد أعضاء هيئة التدريس					عدد الإداريين ومؤهلاتهم	عدد الفنيين ومؤهلاتهم
	معيد	محاضر	أستاذ مساعد	أستاذ مشارك	أستاذ		
المتوفر	٤	١٠	٧	٣	–	١ بكالوريوس	١ بكالوريوس

الموارد البشرية (الحاجة الفعلية)

	عدد أعضاء هيئة التدريس					عدد الإداريين ومؤهلاتهم	عدد الفنيين ومؤهلاتهم
	معيد	محاضر	أستاذ مساعد	أستاذ مشارك	أستاذ		
المتوفر	٦	١٠	١٠	٥	٤	٤ بكالوريوس	٤ بكالوريوس

الإمكانيات المادية

	المتاح	المطلوب	التجهيزات المتاحة	التجهيزات المطلوبة
القاعات الدراسية	١٢	–	٩ قاعات مجهزة	٣ قاعات تحتاج إلى تجهيز
المعامل والمختبرات	٢٢	–	٢٢ معمل مجهز	٢ معمل للأجهزة تحتاج إلى عدد من الأجهزة
مكاتب أعضاء هيئة التدريس والإداريين	١٨	٦	١٨ غرفة مجهزة	٦ غرف تحتاج إلى تجهيز
المكتبة	٢	–	أثاث	عدد وافر من الكتب الدراسية

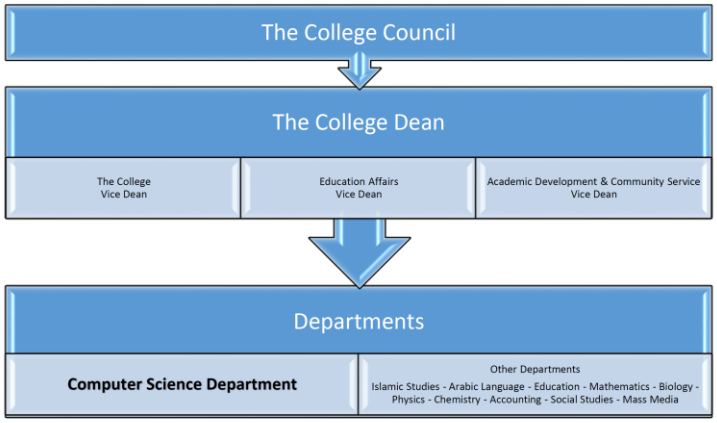
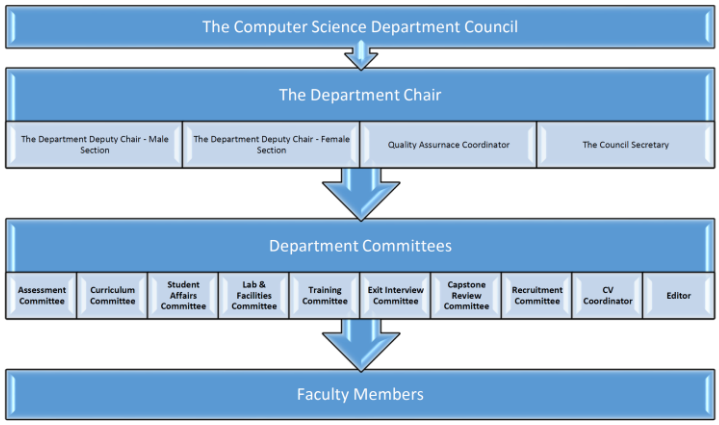
جهات العمل المتوقعة للخريجين

- شركات نظم وشبكات وخدمات الحاسب.
- جميع الجهات والمنظمات والهيئات الحكومية والخاصة والتي بها أنظمة حاسب أو معلومات.

ملحق (٧): توصيف البرنامج

COMPUTER SCIENCE BACHELOR PROGRAM

NCAAA Program Specification

Institution:	**Umm Al-Qura University**	**Date:**	**Dec. 2016**
College/Department:	**Jamoum University College / Computers**		
Dean/Department Head:	**Prof. Faisal Baghdadi / Dr. Youseef Alotaibi**		
College administrative flowchart:			
Department administrative flowchart:			
Branches offering this program:	**None**		

A. Program Identification and General Information

1. Program title and code:	Computer Science	Study Plan 38
2. Total credit hours needed for completion of the program:		160
3. Award granted on completion of the program:		Bachelor in Computer Science
4. Major tracks/pathways or specializations within the program:		None
5. Intermediate Exit Points and Awards:		None
6. Professional occupations for which graduates are prepared:		Computer Scientist - Computer Programmer - Computer Trainer - System Analyst and Designer - Software Engineer - Webmaster
7. a) New Program: ☐ Planned starting date: - b) Continuing Program: ☑ Year of most recent major program review: 2016. Organization involved in recent major review: Accreditation review by ABET.		

8. Name of program chair or coordinator.	Dr. Youseef Alotaibi
9. Date of approval by the authorized body (MOE).	

B. Program Context

1. Why the program was established.

a) Establishing reasons.
In order to prepare qualified national cadres in computer science.

b) The relevance of the program to the mission and goals of the institution.
The program objectives are consistent with the university's mission statement. Therefore, our graduates are capable of being contributing members that satisfy the college and university missions.

2. Relationship (if any) to other programs offered by the institution/college/department.

a) Does this program offer courses that students in other programs are required to take?
☐ Yes ☑ No

b) Does the program require students to take courses taught by other departments?
☑ Yes ☐ No

3. Do students who are likely to be enrolled in the program have any special needs or characteristics?
☐ Yes ☑ No

4. What modifications or services are you providing for special needs applicants?
None.

C. Mission, Goals and Objectives

1. Program Mission Statement.
The mission of the program is to prepare national cadres who are qualified and specialized in computer science in accordance with the needs of the society.

2. List Program Educational Objectives.
The program educational objectives are that our graduates be able to:

PEO1. Practice, as computer science professionals, designing, developing or maintaining technical projects in various areas of computing.

PEO2. Enhance their skills and gain knowledge related to new computing technologies through self-directed training, attending workshops, joining professional societies or post graduate education.

PEO3. Progress successfully in their profession.

3. List major objectives of the program within to help achieve the mission.
Not designed yet.

D. Program Structure and Organization

1. Program Description

Leve 1	Courses		Required or Elective	Prerequisite	Credit Hours	Teaching Department
	Code	Title				
Level 1	23161101-3	Introduction to Computer Science	Required	–	3	Computers
	23161301-3	Introduction to Info. Systems	Required	–	3	Mathematics
	2304101-4	Calculus I	Required	–	4	Islamic Studies
	2301116-2	Quran 1	Required	–	2	Education
	2302116-2	Islamic Culture 1	Required	–	2	Islamic Studies
	2310102-2	English Language	Required	–	2	Computers
Level 2	23161102-3	Computer Programming	Required	23161101-3	3	Computers
	2304102-4	Calculus II	Required	2304101-4	4	Mathematics
	2306102-4	General Physics I	Required	–	4	Islamic Studies
	2302216-2	Islamic Culture 2	Required	2302116-2	2	Education
	2310105-3	English Conversation	Required	2310102-2	3	Physics
Level 3	23162103-3	Structured Programming	Required	23161102-3	3	Computers
	23162201-3	Logic Analysis & Design	Required	23161101-3	3	Mathematics
	2304251-4	Introduction to Set Theory	Required	–	4	Computers
	2304131-3	Elementary Statistics & Probability Theory	Required	2304102-4	3	Education
	2309141-2	History of the Biography of the Prophet Muhammad (pbuh)	Required	–	2	Mathematics
	2303109-2	Arabic Language	Required	–	2	Arabic Language
Level 4	23162104-3	Advanced Programming	Required	2316204-3	3	Computers
	23162105-3	Discrete Structures	Required	2304251-4	3	Computers
	23162106-3	Web Programming	Required	23161102-3	3	Computers
	23162202-3	Computer Organization & Assembly Programming	Required	23162201-3	3	Islamic Studies
	2301216-2	Quran 2	Required	2301116-2	2	Computers
	2302316-3	Islamic Culture 3	Required	2302216-2	3	Islamic Studies
Level 5	23163203-3	Computer Architecture	Required	23162202-3	3	Computers
	23163416-3	Multimedia Systems	Required	23162106-3	3	Computers
	23163107-3	Logic Programming	Required	23162105-3	3	Computers
	23163108-4	Data Structures & Algorithms	Required	23162104-3	4	Islamic Studies
	2301316-2	Quran 3	Required	2301216-2	2	Computers
	2302416-3	Islamic Culture 4	Required	2302316-3	2	Islamic Studies
Level 6	23163302-3	System Analysis & Design	Required	23161301-3	3	Computers
	23163303-3	File Processing & Org.	Required	23163108-4	3	Computers
	23163109-4	Programming Languages Design	Required	23162104-3 23163107-3	4	Computers
	2305102-3	General Chemistry	Required	–	3	Computers
	2301416-2	Quran 4	Required	2301316-2	2	Islamic Studies
Level 7	23164304-3	Operating Systems	Required	23163203-3	3	Computers
	23164305-3	Database Systems	Required	23163302-3 23163303-3	3	Computers
	23164306-3	Software Engineering	Required	23163302-3	3	Computers
	23164110-3	Computer Theory	Required	23163303-3 23163109-4	3	Computers
	23164111-3	Numerical Methods	Required	2304102-4	3	Computers
Level 8	23164402-3	Computer Graphics	Required	2316316-3	3	Computers
	23164403-3	Artificial Intelligence	Required	2316415-3	3	Computers
	23164204-3	Parallel & Distributed Computer Systems	Required	23164304-3 23164305-3	3	Computers
	23164307-3	Advanced Database Systems	Required	23164305-3	3	Computers
	23164112-3	Advanced Discrete Structures	Required	23162105-3	3	Computers

Level 9	23165404-3	Internet App. Development	Required	23163416-3	3	Computers
	23165113-3	Compiler Construction	Required	23163109-4	4	Computers
	23165205-3	Computer Networks	Required	23164304-3	3	Computers
	23165407-4	Graduation Project I	Required	23164304-3 23164307-3	3	Computers
	23165×××-3	Elective Course I	Required	–	3	Computers
Level 10	23165405-3	Computers & Society	Required	–	3	Computers
	23165406-3	Computer Security	Required	23164304-3	3	Computers
	23165408-4	Graduation Project II	Required	23165407-4	3	Computers
	23165×××-3	Elective Course II	Required	–	3	Computers
	23165×××-3	Elective Course III	Required	–	4	Computers

2. Required Field Experience Component

None

3. Project or Research Requirements

a) Brief description.

The program has a year-long two-course capstone project that totals 8 credits. Students are required to work in teams of 3-5 students on a specific problem. In the first semester, teams focus on designing and developing a strong foundation for a solution to the problem. This includes surveying existing work, and developing a detailed design. In the second semester, teams focus on deep designing issues, implementation and evaluation of the solution. Each semester students are required to give a public oral presentation, and submit a significant written report. Each semester students must also submit weekly status reports, take minutes of meetings with their project supervisor, and develop and maintain a project management plan. Marks are distributed between project management, oral presentation, written technical reports and proposals, and other project outputs. Additionally, in the second semester a large portion of marks are given to a project demonstration where students demonstrate that their completed solution or prototype satisfies the project's requirements.

b) List the major intended learning outcomes of the project or research task.

SOa. An ability to apply knowledge of computing and mathematics appropriate to the discipline.

SOb. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.

SOc. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.

SOd. An ability to function effectively on teams to accomplish a common goal.

SOe. An understanding of professional, ethical, legal, security, and social issues and responsibilities.

SOf. An ability to communicate effectively with a range of audiences.

SOg. An ability to analyze the local and global impact of computing on individuals, organizations and society.

SOi. An ability to use current techniques, skills, and tools necessary for computing practices.

SOj. An ability to 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 tradeoffs involved in design choices.

SOk. An ability to apply design and development principles in the construction of software systems of varying complexity.

c) At what stage or stages in the program is the project or research undertaken?
Levels 9 and 10.

d) Number of credit hours.
Four hours per week.

e) Description of academic advising and support mechanisms provided for students to complete the project.
Capstone Review Committee is responsible for:

- Reviewing capstone project applications with respect to the department rules and regulations.
- Assigning the supervisor and evaluation committees for each project.

f) Description of assessment procedures.

Outcome	*Proposal, Process, Presentation and Report Parts*
SOa	Initial Systems Specification / External Design
SOb	Final Specifications / Internal Design
SOc	System Diagrams and System Constraints
SOd	Team Work
SOe	Project Impact
SOf	Introduction/Executive Summary/Presentation
SOg	Project Contributions
SOi	Detailed Design and Implementation
SOj	System Design
SOk	Implementation and System Constraints

4. Learning Outcomes in Domains of Learning, Assessment Methods and Teaching Strategy

a) Student Learning Outcomes

The program has documented measurable outcomes that are based on the needs of the program's beneficiaries and administrative and responsible committees. The program enables students to achieve, by the time of graduation:

SOa. An ability to apply knowledge of computing and mathematics appropriate to the discipline;
SOb. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;
SOc. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;
SOd. An ability to function effectively on teams to accomplish a common goal;
SOe. An understanding of professional, ethical, legal, security, and social issues and responsibilities;
SOf. An ability to communicate effectively with a range of audiences;

SOg. An ability to analyze the local and global impact of computing on individuals, organizations and society;

SOh. Recognition of the need for, and an ability to engage in, continuing professional development;

SOi. An ability to use current techniques, skills, and tools necessary for computing practices.

SOj. An ability to 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 tradeoffs involved in design choices;

SOk. An ability to apply design and development principles in the construction of software systems of varying complexity.

b) Program Learning Outcomes Mapping Matrix

The characteristics (SOa) through (SOk) are inlaid in the program curriculum as shown in the following table. In this table, the matching between SOs and the program courses is given.

Courses		SOa	SOb	SOc	SOd	SOe	SOf	SOg	SOh	SOi	SOj	SOk	
Code	**Name**												
23161101-3	Introduction to Computer Science												Formative Assessment
23161102-3	Computer Programming												
23161301-3	Introduction to Information Systems					✓							
23162103-3	Structured Programming												
23162104-3	Advanced Programming												
23162105-3	Discrete Structures	✓											
23162106-3	Web Programming				✓				✓				
23162201-3	Logic Design & Analysis												
23162202-3	Computer Org. & Assembly Prog.									✓			
23163107-3	Logic Programming												
23163108-4	Data Structures & Algorithms		✓								✓		
23163109-4	Programming Languages Design												
23163203-3	Computer Architecture												
23163302-3	System Analysis & Design		✓	✓			✓	✓				✓	
23163303-3	File Processing & Organization												
23163401-3	Multimedia Systems												
23164110-3	Computer Theory	✓	✓										Summative Assessment
23164111-3	Numerical Methods												
23164112-3	Advanced Discrete Structures												
23164204-3	Parallel & Distributed Computers												
23164304-3	Operating Systems			✓						✓			
23164305-3	Database Systems												
23164306-3	Software Engineering		✓	✓	✓		✓					✓	
23164307-3	Advanced Database Systems												
23164402-3	Computer Graphics												
23164403-3	Artificial Intelligence												
23165113-3	Compiler Construction												
23165205-3	Computer Networks												

23165404-3	Internet Applications Development												
23165405-3	Computers & Society					✓		✓	✓				
23165406-3	Computer Security	✓				✓							
23165407-4	Graduation Project I				✓		✓	✓	✓		✓		
23165408-4	Graduation Project II				✓		✓			✓	✓	✓	
23165×××-3	Elective Course I												
23165×××-3	Elective Course II												
23165×××-3	Elective Course III												

5. Admission Requirements for the program

Under normal circumstances, all students are registered automatically through the university computerized registration system, and follow a model study plan set by the department. This plan automatically enforces all pre-requisites. The system allows the student to make changes and adjustments that do not violate prerequisites, do not cause timetable clashes, and do not exceed the student's maximum allowed load. It is during the first week of a semester that students are allowed to make changes, such as add, drop, and change section through the guidance of the central advising committee.

Course withdrawals are permitted later in the semester, usually between weeks six and eight, subject to approval from the student's advisor and chair. A student cannot withdraw from more than two courses per semester except with the permission of the vice dean for academic affairs. Moreover, the total credit hours of the students should not be less his/her minimum allowed load of credits hours after the withdrawal, and the withdrawal course must be of higher level to the student's level. Course withdrawals do not show on the transcript. A student can withdraw from the entire semester late in the semester, usually during weeks 12 to 14, subject to the chair and vice dean for academic affairs approval. Semester withdrawal does show on the transcript.

E. Regulations for Student Assessment and Verification of Standards

Success in a course is based on a combination of grades awarded to course work and final examination. Each course has a total of 100 points. The grade for the course work is within 40-70% of the total mark, while the remainder is for the final examination. Most courses have two written exams, and several courses include a project. The pass mark in each course is 60%.

The CSJ department applies the UQU course registration system which has prerequisites violation restrictions. Therefore, a student is not permitted to register for a course unless all prerequisites identified in the registration system are met. However, this restriction may be violated if the course instructors approve an override of the system according to a decision of the "Curriculum Committee".

Academic advisors work closely with faculty and the student affair deanship to connect students to co-curricular opportunities such as cooperative education, internships, and study outside the university. These students often have special scheduling considerations and academic advisors help students devise a plan to complete degree requirements in a timely manner.

The grade of "Incomplete" (IC) is used to delay the grade of a course due to non-completion of its requirements with the permission of the instructor. However, this delay should be for no more than one semester, excluding the summer semester. If this delay lasts for more than one semester, the grade will automatically change to a "Fail" (F) grade.

The following table shows the grading system at Umm Al-Qura University. A student's grade point average (GPA) is determined by dividing the cumulative point value of all courses attempted by the number of units in the student's semester schedule.

Grading	Letter Grade	Points	GPA (out of 4)
Exceptional	A+	From 95 to 100	4.00
Excellent	A	From 90 to less than 95	3.75
Superior	B+	From 85 to less than 90	3.50
Very Good	B	From 80 to less than 85	3.00
Above Average	C+	From 75 to less than 80	2.50
Good	C	From 70 to less than 75	2.00
High-Pass	D+	From 65 to less than 70	1.50
Pass	D	From 60 to less than 65	1.00
Fail	F	Less than 60	0.00
In-Progress	IP	-	-
Incomplete	IC	-	-
Denile	DN	-	0.00
Withdrawn	W	-	-
Removed due to specialty change	T	-	-
External Equalization	P	-	-
No grade pass	NP	60 or more	-
No grade fail	NF	Less than 60	-

The semester and total GPAs are calculated using the following equations:

$$Student\ Semester\ GPA = \frac{\sum_{all\ semester\ courses} CourseCredit \times AchievedGPA}{\sum_{all\ semester\ courses} CourseCredit}.$$

$$Student\ Total\ GPA = \frac{\sum_{all\ courses} CourseCredit \times AchievedGPA}{\sum_{all\ courses} CourseCredit}.$$

Similarly, for all the semesters taken, the Cumulative Grade Point Average (CGPA) is calculated and the cumulative grade point value is translated as shown in the following table.

Cumulative GPA	Grade Point Value
3.50 or above	Excellent
From 2.75 and less than 3.50	Very good
From 1.75 and less than 2.75	Good
From 1.00 and less than 1.75	Pass

Students who acquire a CGPA of 3.75 or higher out of 4.00 are granted first class honors. Students who acquire a CGPA of 3.25 to less than 3.75 out of 4.00 are granted second class honors.

The following conditions must be met for a student to be granted honors:

- The student should not fail in any course taken at UQU or any other university.
- The student must fulfill the graduation requirements within the standard period for his program (which is 5 years for the computer science program).
- The student must study at least 60% of courses required for graduation at UQU.

F. Student Administration and Support

1. Student Academic Counselling

Academic advisors are meant to provide educational counseling for students. The academic advisor's primary responsibility is to evaluate the student's study plan to ensure it will satisfy university requirements while it meets each student's specific needs. To be effective, the advisor must recognize that each student has different abilities, interests, aspirations, needs, experiences, and problems so that his/her approach in dealing with students can be different from one student to another. Academic advising cannot, therefore, be a mechanical, routine matter. To fulfill this requirement, the general advising duties can be stated as follows:

- The advisor is expected to deal with students' academic, career, and personal problems.
- The advisor helps his/her advisee students examine the course offerings in their major and understand their graduation requirements.
- The advisor helps the student explore the career options within his/her major, and obtain related career information and survey job opportunities such as University Website.
- The advisor serves as a link between the student and the administration by counseling the student on matters of failure, on the procedures for dropping and adding courses, course scheduling, and academic progress.
- The advisor must alarm students of the exclusion procedure well in advance, and of any subsequent changes that might be enforced during the course of their studies.
- The advisor is responsible of making sure that the student follows the prerequisite requirements of different courses.
- The advisor helps the student selecting the topic of his/her graduation project.

2. Student Appeals

The major functions of the Student Affairs Committee are to deal with student appeals. The main responsibilities of this committee are:

- Development of student appeals/complaints procedures.
- Ensuring fair, consistent, an immediate resolving of student complaints.
- Advising the department council on managing appeals.

G. Learning Resources, Facilities and Equipment

1. Planning and acquisition resources processes for library, laboratories, and classrooms.

Faculty and senior student surveys are used to assess the acquisition of such resources. Then, the department committees are invoked to design, implement and follow-up improvement action plans.

2. Faculty evaluating process for the adequacy of textbooks, references and other resource provisions.

Faculty surveys and meeting discussions.

3. Student evaluating process for the adequacy of textbooks, references and other resource provisions.

Senior student surveys and complaints.

4. Textbook acquisition and approval process.

Design, implement and follow-up improvement action plans

H. Faculty and other Teaching Staff

1. Appointments.

According to UQU regulations.

2. Participation in Program Planning, Monitoring and Review.

a) Consultation with and involvement of teaching staff in monitoring program quality, annual review and planning for improvement:
All faculty are involved in the department quality committees.

b) Advisory Committee Process:
We have established an External Advisory Board (EAB) that convenes biannually to provide input to the program. The membership on the External Advisory Board reflects the first three categories of stakeholders. The purpose of the board is to provide feedback on the program educational objectives, curriculum, facilities, continuous improvement process, and future directions.

3. Professional Development.

a) Improvement of skills in teaching and student assessment:
Faculty members are responsible for improving their own professionalism by attending training courses, research, student projects, consultation, international conferences and other professional activities. The university encourages and supports professional development through the deanship of University Development and Quality, which organizes regular conferences and workshops related to faculty development to enhance the teaching and research skills of faculty members.

b) Other professional development including knowledge of research:
The computer science department consists of distinguished faculty members who are highly qualified for academic work. Many of them obtained their Ph.D. from highly ranked schools in North America, Europe, Japan, and Australia. Faculty members come from a wide variety of backgrounds and bring experience from education, research, and industry. Many are active researchers in their scientific fields and authors of high-quality research papers published in reputable international journals and conferences. Some of them have research projects funded by different funding organizations such as the Institute of Consulting Research and Studies, and King AbdulAziz City for Science and Technology. Many of our faculty members have experience in industry, consulting, and professional organizations.
Given the university's emphasis on serving the world-wide community, the diversity of the faculty is a strength of our program. Faculty members represent several different countries and nationalities, thus strengthening the global perspective of the program. All faculty members possess excellent oral and written communication skills. These attributes are considered in the hiring process.

4. Preparation of New Faculty and Teaching Staff.

Through training sessions and practice.

5. Part Time and Visiting Faculty and Teaching Staff.

According to UQU regulations.

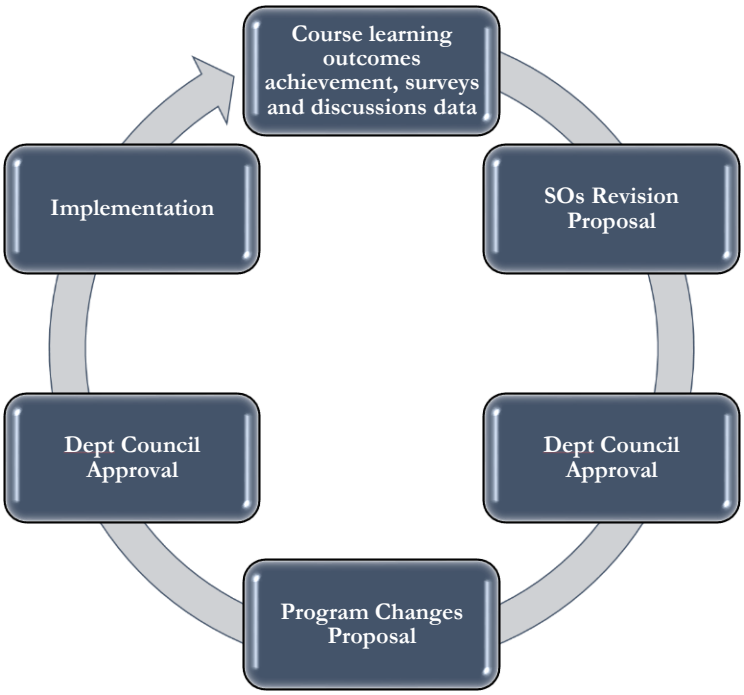
I. Program Evaluation and Improvement Processes

1. Effectiveness of Teaching.

a) QA procedures for developing and accessing learning outcomes:
Student outcomes (SOs) are broad statements describing the characteristics that computer science graduates should have acquired on the day of their graduation, and their assessment and revision is managed by the quality assurance committee. Student outcomes are the guiding principles upon which

the program is based, and consequently their revision requires feedback from the program's constituencies.

The following table illustrates the student outcomes revision process. Student outcomes are assessed and revised using data from course learning outcomes achievement, surveys of alumni and employers, and through discussion and feedback at the department council (faculty), and EAB meetings (alumni, employers, graduate schools).



The revision process is a loop consisting of the following steps:

1. The quality assurance committee gathers data from course learning outcomes achievement, surveys and discussions.
2. The quality assurance committee uses the data to propose changes to the student outcomes.
3. The department council discusses the changes to the student outcomes, and approves or rejects them.
4. The quality assurance committee and curriculum committee propose changes to the program (e.g., curriculum, data collection instruments, etc.) that may be needed due to the revision of the student outcomes.
5. The department council discusses the changes to the program, and approves or rejects them.
6. The changes to the student outcomes and program are implemented.

b) Processes used for evaluating the skills of faculty and teaching staff:
Annual reports.

2. Overall Program Evaluation.

a) Strategies used in the program for obtaining assessments of the overall quality of the program and achievement of its intended learning outcomes:
   i. from current students and graduates of the program:

	Senior student and graduate surveys.
ii.	from independent advisors and/or evaluator(s): External advisor board surveys and meeting.
iii.	from employers and other stakeholders. External advisor board surveys and meeting.

Attachments:

Course specifications for all program courses.

Authorized Signatures

Program Chair	Signature	Data
Dr. Yousef Alotaibi	……	……..

ملحق (٨): محضر لجنة المناهج بالقسم

محضر اجتماع لجنة المناهج والمقررات

قسم الحاسب الآلي – الكلية الجامعية بالجموم

اسم اللجنة:	لجنة المناهج والمقررات		
تاريخ الاجتماع:	يوم الأربعاء	رقم الاجتماع:	رقم (٢) للعام ١٤٣٧-١٤٣٨هـ
	١٤٣٨/٣/٢٢هـ	توقيت الاجتماع:	الساعة ١:٠٠ بعد الظهر
	٢٠١٦/١٢/٢١م	مكان الاجتماع:	مقر القسم بشطر الطلاب

	الحضور		التوقيع
١.	د. يوسف عايض العتيبي	الأستاذ المساعد ورئيس القسم – رئيساً	
٢.	د. خير الدين حاج بوعزة	الأستاذ المشارك بالقسم – أمين سر اللجنة	
٣.	د. عبد الرحمن حيدر أحمد	الأستاذ المشارك بالقسم – عضواً	
٤.	د. علاء عبد الحكيم علي	الأستاذ المشارك بالقسم – عضواً	
٥.	د. هشام حامد أمين	الأستاذ المساعد بالقسم – عضواً	
٦.	أ. أروى عبد الغني الفتني (مشاركة عبر الانترنت)	المعيدة بالقسم – عضواً	

بدأ الاجتماع بحمد الله عز وجل والثناء عليه والصلاة والسلام على رسول الله وآله وصحبه أجمعين، ثم استعرض سعادة رئيس اللجنة جدول الأعمال وتم اتخاذ التوصيات اللازمة لها حسب ما يلي.

جدول الأعمال	
١.	اعتماد خطة برنامج علوم الحاسب الجديدة

التوصيات

١. **اعتماد خطة برنامج علوم الحاسب الجديدة**

التوصية: بدراسة ملاحظات فريق زيارة الاعتماد الدولي (ABET) وكذلك توصيات خطط التحسين بالقسم بخصوص تطوير الخطة الدراسية لبرنامج علوم الحاسب، توصي اللجنة باعتماد خطة جديدة لبرنامج علوم الحاسب بإجراء التعديلات التالية على الخطة الحالية للبرنامج:

- زيادة ساعات مقررات الرياضيات والعلوم الأساسية بإضافة المقررات التالية: (كيمياء عامة ١ – طرق عددية – هياكل متقطعة متقدمة) بدلاً من المقررات: (نظم تعريب الحاسب – مواضيع مختارة ١ – مواضيع مختارة ٢).
- تحويل المقررات: (اتصال الانسان بالحاسب – نظم الخبرة – اتصال الانسان بالحاسب) إلى مقررات اختيارية: (مقرر اختياري ١ – مقرر اختياري ٣ – مقرر اختياري ٣) واضافة عدد من المقررات المتقدمة التي يتطلبها سوق العمل إلى قائمة هذه المقررات الاختيارية.
- تعديل مسمى مقرر (مشروع بحث) ليصبح (مشروع تخرج ١) ويكون مشروعاً تطبيقياً يشمل تنمية مهارات الطالب البحثية والتطبيقية في مراحل تحليل وتصميم وتنفيذ البرمجيات ونظم الحاسب، وتعديل مسمى مقرر (مشروع تخرج) ليصبح (مشروع تخرج ٢).
- تعديل مسميات المقررات التالية:

اسم المقرر	اسم المقرر بعد التعديل
مقدمة الذكاء الاصطناعي	الذكاء الاصطناعي
مبادئ قواعد البيانات	نظم قواعد البيانات
قواعد بيانات متقدمة	نظم قواعد البيانات المتقدمة

- الاهتمام بتنمية المهارات المهنية والتطبيقية للطلاب بإضافة بعض الساعات العملية للمقررات التالية، حيث تشمل هذه المقررات ٣ ساعات نظرية وستصبح بعد التعديل ساعتين نظريتين وساعتين عمليتين: (برمجة الشبكة العنكبوتية – تحليل وتصميم النظم – نظم قواعد البيانات – هندسة البرمجيات – تطوير تطبيقات الانترنت).

ملحق (٩): محضر مجلس القسم

سعادة رئيس قسم الحاسب الآلي **سلمه الله**

السلام عليكم ورحمة الله وبركاته **أما بعد:**

أسأل الله لكم العون والتوفيق

أشير إلى خطابكم رقم بدون وبتاريخ ١٤٣٨/٣/٢٣هـ بخصوص محضر الجلسة السابعة لمجلس قسمكم والتي عقدت يوم الخميس بتاريخ ١٤٣٨/٣/٢٣هـ .

أخبركم بالمصادقة على المحضر – ما لم تكن – هناك أنظمة أو قرارات أو تعليمات تنفيذية أو إجرائية أو تعاميم تتعارض مع هذه المصادقة فتعتبر غير نافذة ، مع ملاحظة الآتي:

- بشأن الموضوع الأول آمل التكرم بالرفع بكامل الأوراق إلى أمين مجلس الكلية.

وتقبلوا تحياتي وتقديري ،،،

عميد الكلية الجامعية بالجموم

أ.د.فيصل بن عبد القادر بغدادي

سعادة الأستاذ الدكتور/ عميد الكلية الجامعية بالجموم **وفقه الله**

السلام عليكم ورحمة الله وبركاته **وبعد ...**

نسأل الله لكم التوفيق والعون والسداد

نرفق لسعادتكم أصل محضر اجتماع مجلس قسم الحاسب الآلي في جلسته رقم (٧) للعام الدراسي ١٤٣٧-١٤٣٨هـ والمنعقد في يوم الخميس الموافق ١٤٣٨/٣/٢٣هـ

نأمل من سعادتكم التكرم بالاطلاع واتخاذ ما ترونه مناسباً نحو المصادقة عليه والتوجيه بما يلزم.

وتقبلوا فائق تحياتي وتقديري.

رئيس قسم الحاسب الآلي

د. يوسف عايض العتيبي

الرقم : ..... التاريخ : ..... المشفوعات : .....

محضر اجتماع مجلس قسم الحاسب الآلي
في جلسته رقم (٧) للعام الدراسي ١٤٣٧-١٤٣٨هـ

تم بعون الله وتوفيقه انعقاد مجلس قسم الحاسب الآلي السابع للعام الدراسي ١٤٣٧/١٤٣٨هـ في يوم الخميس الموافق ١٤٣٨/٣/٢٣هـ في الساعة الحادية عشر في القاعة المخصصة بقسم الحاسب الآلي بالكلية الجامعية بالجموم **برئاسة سعادة الدكتور / يوسف بن عايض العتيبي** وبحضور كل من:

د. يوسف عايض العتيبي	الأستاذ المساعد بالقسم – رئيساً للمجلس
د. هشام حامد أمين	الأستاذ المساعد بالقسم – أمين سر المجلس
د. خير الدين بوعزة	الأستاذ المشارك بالقسم – عضواً
د. عبد الرحمن حيدر أحمد	الأستاذ المشارك بالقسم – عضواً
د. علاء الدين عبد الحكيم علي	الأستاذ المشارك بالقسم – عضواً
د. جمال أحمد رشدي السيد	الأستاذ المساعد بالقسم – عضواً
د. صلاح عبد العظيم محمد فياض	الأستاذ المساعد بالقسم – عضواً
د. وائل عبد الرحمن دعبس	الأستاذ المساعد بالقسم – عضواً
د. محمد محمد عثماني	الأستاذ المساعد بالقسم – عضواً
د. أحمد فيصل سبحي	الأستاذ المساعد بالقسم – عضواً

وبمشاركة عضوات هيئة التدريس بشطر الطالبات عبر شبكة الاتصال وهن:

د. جميلة بحر	الأستاذ المساعد بالقسم – عضواً

جدول الأعمال

١. **مناقشة اعتماد خطة برنامج علوم الحاسب.**

وقد بدأ المجلس سعادة الدكتور/ يوسف العتيبي رئيس القسم بحمد الله تعالى بما هو أهله ثم الصلاة والسلام على رسول الله صلى الله عليه وسلم ثم شكر جميع أعضاء هيئة التدريس على تلبية الدعوة وحضور الاجتماع.

ثم قام سعادة الدكتور / يوسف العتيبي رئيس القسم باستعراض المواضيع المدرجة في جدول أعمال القسم وهي على النحو التالي:

الموضوع الأول: مناقشة اعتماد خطة برنامج علوم الحاسب.

تقدم سعادة الدكتور/ يوسف عايض العتيبي رئيس القسم بعرض الموضوع الأول على السادة الحاضرين وهو مناقشة اعتماد خطة برنامج علوم الحاسب، وبعرض توصية لجنة المناهج والمقررات بالقسم نحو تطوير خطة برنامج علوم الحاسب حسب ملاحظات فريق زيارة الاعتماد الدولي (ABET) وكذلك توصيات خطط التحسين بالقسم، وقد وضعت اللجنة خطة معدلة للبرنامج شملت الآتي:

محضر اجتماع مجلس قسم الحاسب الآلي
في جلسته رقم (٧) للعام الدراسي ١٤٣٧-١٤٣٨هـ

- زيادة ساعات مقررات الرياضيات والعلوم الأساسية بإضافة المقررات التالية: (كيمياء عامة ١ – طرق عددية – هياكل متقطعة متقدمة) بدلاً من المقررات: (نظم تعريب الحاسب – مواضيع مختارة ١ – مواضيع مختارة ٢).
- تحويل المقررات: (اتصال الانسان بالحاسب – نظم الخبرة – اتصال الانسان بالحاسب) إلى مقررات اختيارية واضافة عدد من المقررات المتقدمة التي يتطلبها سوق العمل إلى قائمة هذه المقررات الاختيارية.
- تعديل مسمى مقرر (مشروع بحث) ليصبح (مشروع تخرج ١)، وتعديل مسمى مقرر (مشروع تخرج) ليصبح (مشروع تخرج ٢).
- تعديل مسميات بعض المقررات.
- الاهتمام بتنمية المهارات المهنية والتطبيقية للطلاب بإضافة بعض الساعات العملية للمقررات التالية: (برمجة الشبكة العنكبوتية – تحليل وتصميم النظم – نظم قواعد البيانات – هندسة البرمجيات – تطوير تطبيقات الانترنت).

القرار: بعد الاطلاع على تقرير لجنة المناهج وخطة برنامج علوم الحاسب المرفقة وتوصيف البرنامج والمقررات بها والتأكد من استيفاءها لمعايير الخطط الدراسية المعمول بها في الجامعة وتقارير لجان المراجعة، يوصي القسم باعتماد خطة برنامج علوم الحاسب المرفقة.

المستند النظامي: صلاحية مجلس القسم.

الإجراء المطلوب: رفع المعاملة للمستوى الأعلى لاستكمال الاجراءات.

هذا وقد انتهى الاجتماع بحمد الله تعالى في الساعة الثانية عشر ظهراً وبنفس المكان.

رئيس قسم الحاسب الآلي

د / يوسف بن عايض العتيبي

محضر اجتماع مجلس قسم الحاسب الآلي
في جلسته رقم (7) للعام الدراسي 1437-1438هـ

أعضاء مجلس القسم

م	الاسم	التوقيع
1	د. خير الدين حاج بوعزة	
2	د. عبد الرحمن حيدر أحمد	
3	د. علاء الدين عبد الحكيم علي	
4	د. جمال أحمد رشدي السيد	
5	د. هشام حامد أبو الحسن	
6	د. وائل عبد الرحمن دعبس	
7	د. صلاح عبد العظيم فياض	
8	د. محمد محمد الأديب عثماني	
9	د. أحمد فيصل سبحي	
10	د. جميلة عبد القادر بحر	عبر شبكة الانترنت

رئيس قسم الحاسب الآلي

د / يوسف عايض العتيبي

الرقم : ..... التاريخ : ..... المشفوعات : .....

ملحق (١٠): تحكيم الخطة الدراسية

External Arbitration (1)

- **General Information**

University:	Umm Al-Qura University
Collage:	University College in Al-Jamoum
Department:	Computer Science
Programme Title:	Computer Science
Plane No.:	38

- **Items**

	Yes	No
• **Appropriateness of program's objective**	(✓)	( )
Please state the reasons, if the answer is No 1) 2)		
• **Appropriateness of program's outcomes**	(✓)	( )
Please state the reasons, if the answer is No 1) 2)		
• **Does the program cover all cognitive and academic sides required?**	(✓)	( )
Please state the reasons, if the answer is No 1) 2)		
• **Does the program cope up with latest updates of the specialization it offers?**	( )	(✓)
Please state the reasons, if the answer is No 1) Increase the credit hours of the graduation project. 2)		
• **Does the program provide diversity in specialization?**	(✓)	( )
Please state the reasons, if the answer is No 1) 2)		
• **Does the program provide updated curricula?**	(✓)	( )
Please state the reasons, if the answer is No 1) 2)		
• **Is the program equivalent to programs of leading higher education institution?**	(✓)	( )
Please state the reasons, if the answer is No 1) 2)		
• **Are there any curricula you think should be added to the program?**	( )	(✓)
Please state the reasons, if the answer is Yes 1) 2)		
• **Are there any curricula you think should be taken away from the program?**	( )	(✓)
Please state the reasons, if the answer is Yes		

1) 2)		
• **Are there any curricula you think should be merged in the program?**	( )	(✓)
Please state the reasons, if the answer is Yes 1) 2)		
• **Are the credit hours provided by the program suitable?**	(✓)	( )
Please state the reasons, if the answer is No 1) 2)		
• **Are the program references appropriate?**	(✓)	( )
Please state the reasons, if the answer is No 1) 2)		
• **Does the program cover all standards mandated by the Accreditation Commission?**	(✓)	( )
Please state the reasons, if the answer is No 1) 2)		
• **Is training provided in the program enough?**	(✓)	( )
Please state the reasons, if the answer is No 1) 2)		
• **Is there anything else you would like to add?**	( )	(✓)

- **The final result**

Excellent Program	( )
Very Good Program	(✓)
Good Program	( )
The program is unsatisfactory and needs to be re-examined	( )

- **Arbitrator information**

Name:	**Prof. Reda Ammar**
Rank:	(✓) Professor ( ) Associate Professor
Major:	**Computer Science and Engineering**
Minor:	**Parallel and Distributed Computing**
Department:	**Computer Science and Engineering Department**
Collage:	**School of Engineering**
University:	**University of Connecticut**
Country:	**USA**

- **Head of Department at the University of Umm Al-Qura**

Name: Dr. Youseef A. Alotaibi

Signature: .....Youseef..... .....

المملكة العربية السعودية
وزارة التعليم
جامعة أم القرى
وكالة الجامعة للشؤون التعليمية
وحدة المناهج والخطط الدراسية

رقم المعاملة: ----------
التاريـــــــــخ: ٠٠/٠٣/١٤٣٨هـ
المشفوعـــات: ----------

نموذج التحكيم رقم (١)

- **البيانات الأساسية**

الجامعة:	جامعة أم القرى
الكلية:	الكلية الجامعية بالجموم
القسم:	الحاسب الآلي
مسمى البرنامج:	علوم الحاسب
رقم التوصية:	٣٨

- **محاور البرنامج**

	نعم	لا
• **ملائمة أهداف البرنامج**	(✓)	( )
إذكر الأسباب، إذا كانت الإجابة بـ لا ١) ٢)		
• **ملائمة مخرجات البرنامج**	(✓)	( )
إذكر الأسباب، إذا كانت الإجابة بـ لا ١) ٢)		
• **هل يغطي البرنامج الجوانب المعرفية والأكاديمية المطلوبة؟**	(✓)	( )
إذكر الأسباب، إذا كانت الإجابة بـ لا ١) ٢)		
• **هل يواكب البرنامج أحدث المستجدات في التخصص؟**	(✓)	( )
إذكر الأسباب، إذا كانت الإجابة بـ لا ١) ٢)		
• **هل يوفرالبرنامج التنوع المطلوب في التخصص؟**	(✓)	( )
إذكر الأسباب، إذا كانت الإجابة بـ لا ١) ٢)		
• **هل يمتاز البرنامج بحداثة المقررات المطروحة؟**	(✓)	( )
إذكر الأسباب، إذا كانت الإجابة بـ لا ١) ٢)		
• **هل يعد البرنامج موازياً للبرامج التعليمية الأكاديمية الرائدة عالمياً؟**	(✓)	( )
إذكر الأسباب، إذا كانت الإجابة بـ لا ١) ٢)		
• **هل هناك مقررات ترى حاجة لإضافتها للبرنامج؟**	( )	(✓)
إذكر المواد، إذا كانت الإجابة بـ نعم ١) ٢)		
• **هل هناك مقررات ترى حاجة لحذفها من البرنامج؟**	( )	(✓)
إذكر المواد، إذا كانت الإجابة بـ نعم ١)		

٢)		
• **هل عدد الساعات المقترحة للبرنامج مناسب؟**	(✓)	( )
اذكر الأسباب، إذا كانت الإجابة بـ لا ١) ٢)		
• **هل هناك مقررات ترى دمجها؟**	( )	(✓)
إذكر المواد، إذا كانت الإجابة بـ بنعم ١) ٢)		
• **هل المراجع المخصصة للمقررات مناسبة؟**	(✓)	( )
إذكر الأسباب، إذا كانت الإجابة بـ لا ١) ٢)		
هل البرنامج يغطي متطلبات الجودة والإعتماد الأكاديمي؟	(✓)	( )
إذكر الأسباب، إذا كانت الإجابة بـ لا ١) ٢)		
هل هناك كفاية في متطلبات التدريب؟	( )	( )
إذكر الأسباب، إذا كانت الإجابة بـ لا ١) ٢)		
أي إضافة تود طرحها؟	( )	( )

- **النتيجة النهائية**

( )	البرنامج ممتاز
(✓)	البرنامج جيد جداً
( )	البرنامج جيد
( )	البرنامج غير مرضي ويحتاج إلى إعادة دراسة

- **بيانات المحكم الأول**

الإسم:	أ.د. عادل أبو المجد سويسي
المرتبة العلمية:	(✓) أستاذ ( ) أستاذ مشارك
التخصص العام:	علوم حاسب
التخصص الدقيق:	معالجة الصور
القسم:	علوم حاسب
الكلية:	الحاسبات والمعلومات
الجامعة:	جامعة أسيوط
الدولة:	جمهورية مصر العربية

- **رئيس القسم المختص بجامعة أم القرى**

الإسم: د. يوسف عايض العتيبي

التوقيع: .....

ملحق (١١): محضر لجنة المناهج بالكلية

محضر اجتماع لجنة المناهج والمقررات

الكلية الجامعية بالجموم

اسم اللجنة:	لجنة المناهج والخطط الدراسية		
تاريخ الاجتماع:	يوم الأحد	رقم الاجتماع:	الثاني للعام ١٤٣٧-١٤٣٨هـ
	١٤٣٨/٣/٢٣هـ	توقيت الاجتماع:	الساعة العاشرة صباحاً
	٢٠١٦/١٢/٢٢م	مكان الاجتماع:	مقر الكلية بالجموم

الحضور		
١	د. توفيق علي الشريف	
٢	د. عبد الملك عيسى سكتاوي	
٣	أ.د. أحمد عبد المجيد خليفة	
٤	د. خير الدين حاج بوعزة	
٥	د. حسام محمد الجبالي	
٦	د. علاء أحمد غبور	

بدأ الاجتماع بحمد الله عز وجل والثناء عليه والصلاة والسلام على رسول الله وآله وصحبه أجمعين. ثم استعرض سعادة رئيس اللجنة جدول الأعمال وتم اتخاذ التوصيات اللازمة لها حسب ما يلي.

جدول الأعمال	
١	اعتماد خطة برنامج علوم الحاسب بقسم الحاسب الآلي

التوصيات

١. **اعتماد خطة برنامج علوم الحاسب بقسم الحاسب الآلي**

بمناقشة محضر لجنة المناهج بقسم الحاسب الآلي بخصوص تطوير خطة برنامج علوم الحاسب حسب ملاحظات فريق زيارة الاعتماد الدولي (ABET) وكذلك حسب توصيات خطط التحسين بالقسم، وقد وضع قسم الحاسب الآلي خطة معدلة للبرنامج شملت الآتي:

- زيادة ساعات مقررات الرياضيات والعلوم الأساسية بإضافة المقررات التالية: (كيمياء عامة ١ – طرق عددية – هياكل متقطعة متقدمة) بدلاً من المقررات: (نظم تعريب الحاسب – مواضيع مختارة ١ – مواضيع مختارة ٢).
- تحويل المقررات: (اتصال الانسان بالحاسب – نظم الخبرة – اتصال الانسان بالحاسب) إلى مقررات اختيارية واضافة عدد من المقررات المتقدمة التي يتطلبها سوق العمل إلى قائمة هذه المقررات الاختيارية.
- تعديل مسمى مقرر (مشروع بحث) ليصبح (مشروع تخرج ١)، وتعديل مسمى مقرر (مشروع تخرج) ليصبح (مشروع تخرج ٢).
- تعديل مسميات بعض المقررات.
- الاهتمام بتنمية المهارات المهنية والتطبيقية للطلاب بإضافة بعض الساعات العملية للمقررات التالية: (برمجة الشبكة العنكبوتية – تحليل وتصميم النظم – نظم قواعد البيانات – هندسة البرمجيات – تطوير تطبيقات الانترنت).

التوصية: بعد الاطلاع على محضر مجلس قسم الحاسب الآلي ومحضر لجنة المناهج بقسم الحاسب الآلي بخصوص خطة برنامج علوم الحاسب المرفقة وتوصيف البرنامج والمقررات بها والتأكد من استيفاءها لمعايير الخطط الدراسية المعمول بها في الجامعة ومراجعة تقارير لجان المراجعة للخطة، توصي اللجنة باعتماد خطة برنامج علوم الحاسب المرفقة.

ملحق (١٢): محضر مجلس الكلية

سـري

الموضـوع : المصـادقة على محضـر الكليـة الجامعيـة بـالجموم السـادس المنعقد بتاريخ ١٤٣٨/٠٣/٢٧هـ.

سعادة عميد الكلية الجامعية بالجموم **سلمه الله**

السلام عليكم ورحمة الله وبركاته ...

نشـير إلى خطـابكم رقـم (٤٣٨٠٠٤٨١٨٦) وتـاريخ ١٤٣٨/٠٣/٢٩هـ المرفـق بـه محضـر مجلس الكلية السادس للعام الجامعي (١٤٣٨/١٤٣٧هـ) المنعقد بتاريخ ١٤٣٨/٠٣/٢٧هـ.

نخبركم بالآتي:

أولاً: لم يتم ذكر الموضوع السادس في المحضر مع أنه دوِّن في جدول الموضوعات.

ثانياً: المصادقة على توصية الموضوعات من الأول وحتى الخامس ومن السابع وحتى العاشر من المحضر ـ ما لم تكن ـ هناك أنظمة أو قرارات أو تعليمات تنفيذية أو إجرائية أو تعاميم تتعارض مع هذه المصادقة فتعتبر غير نافذة مع ملاحظة الآتي:

١) إحالة توصية الموضوعات الأول والثامن والتاسع والعاشر لعمادة القبول والتسجيل لإكمال اللازم نظاماً.

٢) إحالة توصية الموضوع السابع لسعادة وكيل الجامعة للشؤون التعليمية رئيس اللجنة الدائمة للمناهج والخطط الدراسية لإكمال اللازم نظاماً.

وتقبلوا أطيب تحيـــاتي ،،،

مدير الجامعة

د. بكري بن معتوق بكري عساس

الحجيلي ...

الرقم : ٤٧١ /م/س التاريخ : ٥/ ٤ /١٤٣٨هـ المشفوعات : محضر

مجلس الكلية الجامعية

بمحافظة الجموم

الجلسة رقم (٦)

المنعقدة بتاريخ ٢٧/٠٣/١٤٣٨هـ

(سري)

محضر مجلس الكلية الجامعية بمحافظة الجموم المنعقدة بتاريخ ٢٠ /٠٣/ ١٤٣٨هـ في جلسته (السادسة) للعام الدراسي ١٤٣٧ هـ/١٤٣٨ هـ

بعون الله وتوفيقه عقد الاجتماع السادس لمجلس الكلية الجامعية بمحافظة الجموم في تمام الساعة العاشرة والنصف صباحاً من يوم الاثنين الموافق ١٤٣٨/٠٣/٢٧هـ برئاسة عميد الكلية وبحضور كل من :-

١. الأستاذ الدكتور / فيصل بن عبد القادر بغدادي	رئيس المجلس .
٢. الدكتور / توفيق بن على أحمد الشريف	وكيل الكلية للشؤون التعليمية وأمين المجلس
٣. الدكتور / عبد الملك بن محمد سكتاوي	وكيل الكلية للتطوير وخدمة المجتمع .
٤. الدكتور / يوسف بن عايض دغلوب العتيبي	وكيل الكلية ورئيس قسم الحاسب الآلي.
٥. الدكتورة / مها بنت عبد الله محمد الشريف	وكيلة الكلية للشؤون التعليمية فرع الطالبات .
٦. الدكتور / عبد الله بن حميد أحمد الجابري	رئيس قسم التربية .
٧. الدكتور / عمر بن صالح عمر المالكي	رئيس قسم الإعلام .
٨. الأستاذ الدكتور / فوزي بن صلاح طرابيه	المشرف على قسم الفيزياء
٩. الدكتور / سمير بن حسن محمد قاري	رئيس قسم الأحياء .
١٠. الدكتور / سامي بن عبد الله ضيف الله الحربي	رئيس قسم الكيمياء .
١١. الأستاذ / أشرف بن محمد أحمد اللهيبي	رئيس قسم الرياضيات .

بدأ الاجتماع بحمد الله عز وجل والثناء عليه والصلاة والسلام على رسول الله وآله وصحبه أجمعين ،

ثم استعرض سعادة رئيس المجلس جدول الأعمال واتخذ بشأنها التوصيات التالية :-

موضوعات مجلس الكلية الجامعية بمحافظة الجموم في جلسته (السادسة)
المنعقد يوم الاثنين الموافق ١٤٣٨/٠٣/٢٧ هـ
للفصل الدراسي الأول ١٤٣٧/١٤٣٨هـ

- **الموضـــوع الأول :** اعـداد القبـول بشـطري (الطـلاب – الطالبـات) بالكليـة الجامعيـة بالجمـوم للعـام الجـامعي ١٤٣٨/١٤٣٩هـ .
- **الموضـــوع الثـــاني :** الطلب المقـدم مـن سـعادة الـدكتور / **علـــي جـــابر الثبيتـــي** عضـو هيئـة التـدريس بقسـم الدراســات الإســلامية ، والــذي يطلــب فيــه الموافقــة علــى تقريــر إجــازة التفــرغ العلمــي ، وقــد أدرج موضــوعة بمحضر القسم الجلسة الثالثة بتاريخ ١٤٣٨/٠٣/٢٢هـ وتمت الموافقة على طلبه.
- **الموضوع الثالث :** الطلب المقدم من سعادة الدكتور / **حامد محمد حمدي الصاعدي** عضو هيئة التدريس بقسم الكيمياء ، والذي يطلب فيه الموافقة على تقرير إجازة التفرغ العلمي ، وقد أدرج موضوعة بمحضر القسم الجلسة الثالثة بتاريخ ١٤٣٨/٠١/٢٠هـ وتمت الموافقة على طلبه.
- **الموضوع الرابع :** الطلب المقدم من المحاضر / **حمدان عتيق بن عتيق الزهراني** عضو هيئة التدريس بقسم الأحياء المبتعث إلى جامعة هل لدراسة الدكتوراه بما فيها دراسة اللغة ببريطانيا ، والذي يطلب فيه الموافقة على تمديد فترة دراسة اللغة لمدة ستة أشهر اعتباراً من ٢٠١٦/١٠/٠٤م علماً أنه التمديد الثاني له لمرحلة اللغة ، وقد أدرج موضوعة بمحضر القسم الجلسة ٣ بتاريخ ١٤٣٨/٠٣/١٢هـ وتمت الموافقة على طلبه.
- **الموضوع الخامس :** الطلب المقدم من المحاضرة / **منـال عبدالعزيز سليمان الحميد** عضو هيئة التدريس بقسم الرياضيات المبتعثة إلى جامعة الملك عبدالعزيز لدراسة الدكتوراه ، والذي تطلب فيه الموافقة على تمديد فترة دراسة الدكتوراه لمدة سنة اعتباراً من الفصل الدراسي الاول للعام الجامعي١٤٣٨/١٤٣٩هـ علماً أنه التمديد الأول لها وقد أدرج موضوعة بمحضر القسم الجلسة ٣ بتاريخ ١٤٣٨/٠٣/٠٧هـ وتمت الموافقة على طلبه.
- **الموضوع السادس :** الطلب المقدم من الدكتورة / **رباب شرف جساس** (تخصص كيمياء عضوية) عضو هيئة التدريس بقسم الكيمياء بكلية العلوم التطبيقية ، والذي تطلب فيه الموافقة على نقلها الى قسم الكيمياء وقد أدرج طلبها بمحضر القسم الجلسة ٦ بتاريخ ١٤٣٨/٠٣/٢٠هـ وتمت الموافقة على طلبه.
- **الموضوع السابع : الطالب المقدم من قسم الحاسب بالكلية بشأن الموافقة على توصية اعتماد برنامج علوم الحاسب بالقسم .**
- **الموضوع الثامن :** إعادة قيد لطالب واحد بقسم الرياضيات
- **الموضوع التاسع :** إعادة اختبار لعدد من طلاب وطالبات الانتظام .
- **الموضوع العاشر :** إعادة اختبار لطالب انتساب .

تابع لاجتماع مجلس الكلية الجامعية بمحافظة الجموم
الجلسة رقم (٦) المنعقدة بتاريخ ١٤٣٨/٠٣/٢٧هـ

الموضوع السابع : الطالب المقدم من قسم الحاسب بالكلية بشأن الموافقة على توصية اعتماد برنامج علوم الحاسب الآلي بالقسم .

التوصية السابعة :

بعد اطلاع المجلس على محضر القسم رقم (٧) بتاريخ ١٤٣٨/٠٣/٢٣هـ . وتوصيته على اعتماد برنامج علوم الحاسب الالي

و بعد الاطلاع على محضر اجتماع لجنة المناهج والمقررات بالكلية وبعد اطلاعها على خطة البرنامج وتوصيف البرنامج والمقررات والتأكد من استيفاءها لمعايير الخطط الدراسية المعمول بها في الجامعة ، أوصى المجلس باعتماد برنامج علوم الحاسب في القسم .

المستند النظامي المؤيد للتوصية :

المادة الرابعة والثلاثون : من نظام مجلس التعليم العالي والجامعات .

مع التقيد بما يقتضي به هذا النظام وغيره من الأنظمة وما يقرره مجلس التعليم العالي أو مجلس الجامعة يختص مجلس الكلية أو المعهد بالنظر في الامور التي تتعلق بالكلية أو المعهد وله على الخصوص .

١. اقتراح تعيين أعضاء هيئة التدريس ، والمعيدين ، والمحاضرين وإعارتهم ، وندبهم ، وترقياتهم .
٢. **اقتراح خطط الدراسة أو تعديلها مع التنسيق بين الأقسام .**
٣. **اقتراح المناهج الدراسية والكتب المقررة والمراجع في أقسام الكلية أو المعهد .**
٤. تشجيع إعداد البحوث العلمية وتنسيقها بين أقسام الكلية أو المعهد والعمل على نشرها .

تابع لاجتماع مجلس الكلية .. الجلسة رقم (٦) المنعقدة بتاريخ ١٤٣٨/٠٣/٢٧هـ هذا وقد انتهى الاجتماع بمثل ما بدء به من حمد الله عز وجل والثناء عليه والصلاة والسلام على رسول الله وآله وصحبه أجمعين .

توقيع أعضاء المجلس :-

د. عبد الملك بن محمد سكتاوي	وكيل الكلية للتطوير الأكاديمي وخدمة المجتمع ورئيس قسم المحاسبة	
د. يوسف عايض العتيبي	وكيل الكلية ورئيس قسم الحاسب الآلي	
د. مها عبد الله الشريف	وكيلة الكلية للشؤون التعليمية شطر الطالبات	
د. عبد الله بن حميد الجابري	رئيس قسم التربية	
د. عمر صالح المالكي	رئيس قسم الإعلام	
د. سامي عبد الله الحربي	رئيس قسم الكيمياء	
د. سمير حسن قاري	رئيس قسم الأحياء	
أ د. فوزي صلاح طرابية	المشرف على قسم الفيزياء	
أ. أشرف محمد اللهيبي	رئيس قسم الرياضيات	
وكيل الكلية للشؤون التعليمية وأمين المجلس د. توفيق بن علي الشريف	عميد الكلية - رئيس المجلس أ د. فيصل بن عبد القادر بغدادي	

الرقم : ..... التاريخ : ..... المشفوعات : .....