Computer Science Program

Undergraduate Program

STUDY PLAN 39

CONTENTS

قائمة الملاحق

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 DEPARTMENT VISION

The vision of the department is to access the department to excellence at the local and regional levels to be a reference for its specialization.

1.3 PROGRAM EDUCATIONAL OBJECTIVES

The program educational objectives (PEOs) are driven to support the department mission. The undergraduate program educational objectives are that our graduates can:

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

1.4 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. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

SOb. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

SOc. Communicate effectively in a variety of professional contexts.

SOd. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

SOe. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

SOf. Apply computer science theory and software development fundamentals to produce computing-based solutions.

1.5 STUDY PLAN DETAILS

1.5.1 Offered Degree

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

1.5.2 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.

1.5.3 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.

1.5.4 Credit Hours Summary

The categories of requirements and their share of credit hours are shown in Table 1.

Table 1. Requirement Categories

Requirements	Credit Hours
University Requirements (UR)	21
College Requirements (CR)	36
Department Requirements (DR)	91
Department Electives (DE)	12
Total	160

1.5.5 Course Coding System

The courses are coded, as illustrated in Figure 1, to contain the following codes:

- The department code which is 2316 (Computers Department at Jamoum University College),
- The level code (X_1) which is a number from 1 to 5,
    - $X_1 = 1$, for levels 1 and 2.
    - $X_1 = 2$, for levels 3 and 4.
    - $X_1 = 3$, for levels 5 and 6.
    - $X_1 = 4$, for levels 7 and 8.
    - $X_1 = 5$, for levels 9 and 10.
- The sub-major code (X_2) which is a number from 1 to 5,
    - $X_2 = 1$, for Programming & Algorithms courses.
    - $X_2 = 2$, for Hardware courses.
    - $X_2 = 3$, for Software courses.
    - $X_2 = 4$, for Applications courses.
    - $X_2 = 5$, for Project and Training courses.
- The course serial number (X_3) which is a two-digit number according to the course order inside its sub-major.
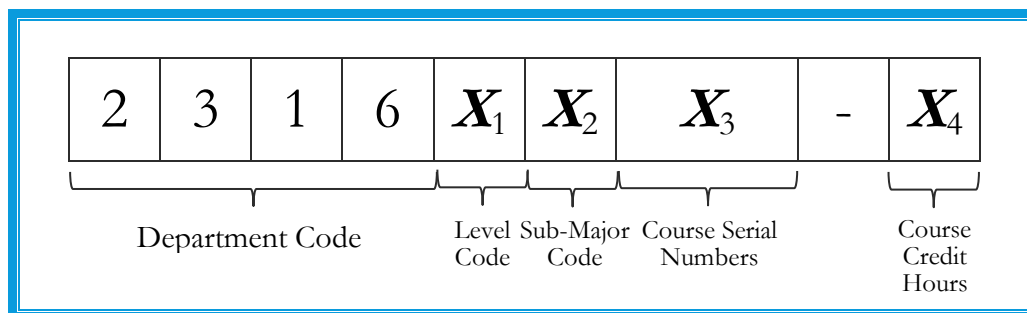- The course credit hours (X_4).

| 2 | 3 | 1 | 6 | X_1 | X_2 | X_3 | - | X_4 |

Department Code   Level Code   Sub-Major Code   Course Serial Numbers   Course Credit Hours

Figure 1. Course Coding System

2 STUDY PLAN

2.1 STUDY PLAN BY LEVEL (ARABIC)

The levels and courses of the CS study plan are shown in Table 2, and the list of the plan elective courses is given in Table 3.

Table 2. Study Plan Levels & Courses

رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية	رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية
المستوى الأول (١٧ ساعة معتمدة)			**المستوى الثاني (١٥ ساعة معتمدة)**		
23161101-3	مهارات برمجة الحاسب الآلي	Computer Programming Skills	2304102-4	تفاضل وتكامل (٢)	Calculus II
2304101-4	تفاضل وتكامل (١)	Calculus I	23061101-4	فيزياء عامة (١)	General Physics I
23051101-4	الكيمياء عامة	General Chemistry	2309xxxx-4	اللغة الإنجليزية التقنية	Technical English Language
2309xxxx-6	اللغة الإنجليزية	English Language	23091112-3	مهارات التعلم	Learning Skills
المستوى الثالث (١٦ ساعة معتمدة)			**المستوى الرابع (١٥ ساعة معتمدة)**		
23162102-4	برمجة الحاسب الآلي	Computer Programming	23162104-4	البرمجة الشيئية	Object-Oriented Programming
23162103-3	هياكل متقطعة (١)	Discrete Structures I	23162105-3	هياكل متقطعة (٢)	Discrete Structures II
23162201-4	التصميم الرقمي المنطقي	Digital Logic Design	23162202-4	تنظيم وعمارة الحاسب	Computer Organization & Architecture
2304231-3	مبادئ الاحصاء والاحتمالات	Elementary Statistics & Probability	23042243-4	الجبر الخطي (١)	Linear Algebra I
2301116-2	القرآن الكريم (١)	Quran I			
المستوى الخامس (١٦ ساعة معتمدة)			**المستوى السادس (١٦ ساعة معتمدة)**		
23163106-3	هياكل بيانات	Data Structures	23163108-4	خوارزميات	Algorithms
23163107-4	طرق عددية	Numerical Methods	23163109-3	تركيب المترجمات	Compiler Construction
23163301-4	نظم التشغيل	Operating Systems	23163203-4	شبكات الحاسب	Computer Networks
23163302-3	قواعد البيانات (١)	Database I	23163401-3	الرسومات بالحاسب	Computer Graphics
2302116-2	الثقافة الإسلامية (١)	Islamic Culture I	2301216-2	القرآن الكريم (٢)	Quran II
المستوى السابع (١٦ ساعة معتمدة)			**المستوى الثامن (١٦ ساعة معتمدة)**		
23164110-4	برمجة متقدمة	Advanced Programming	23164111-3	الحوسبة المتوازية	Parallel Computing
23164303-3	هندسة البرمجيات (١)	Software Engineering I	23164304-3	هندسة البرمجيات (٢)	Software Engineering II
23164402-4	الذكاء الاصطناعي	Artificial Intelligence	23164305-3	تصميم واجهات المستخدم	User Interface Design
23164403-3	تطبيقات الإنترنت	Internet Applications	23164404-3	أمن الحاسبات	Computer Security
2302216-2	الثقافة الإسلامية (٢)	Islamic Culture II	23164501-2	التدريب الصيفي	Summer Training
			2301316-2	القرآن الكريم (٣)	Quran III
المستوى التاسع (١٧ ساعة معتمدة)			**المستوى العاشر (١٦ ساعة معتمدة)**		
23165405-2	الحاسب والمجتمع	Computers & Society	23165503-4	مشروع التخرج (٢)	Graduation Project II
23165502-4	مشروع التخرج (١)	Graduation Project I	23165×××-3	مقرر اختياري (٣)	Elective Course III
23165×××-3	مقرر اختياري (١)	Elective Course I	23165×××-3	مقرر اختياري (٤)	Elective Course IV
23165×××-3	مقرر اختياري (٢)	Elective Course II	2302416-2	الثقافة الإسلامية (٤)	Islamic Culture IV
2301416-2	القرآن الكريم (٤)	Quran IV	2303109-2	اللغة العربية	Arabic Language
2302316-3	الثقافة الإسلامية (٣)	Islamic Culture III	2309142-2	السيرة النبوية	Prophet Muhammad's Biography (PBUH)

Table 3. Elective Courses List

اسم المقرر باللغة الإنجليزية	اسم المقرر باللغة العربية	رقم المقرر	اسم المقرر باللغة الإنجليزية	اسم المقرر باللغة العربية	رقم المقرر
			قائمة المقررات الاختيارية		
Neural Networks	الشبكات العصبية	23165408-3	Advanced Web Programming	البرمجة العنكبوتية المتقدمة	23165112-3
Natural Language Processing	معالجة اللغات الطبيعية	23165409-3	Computer Theory	نظرية الحاسب	23165113-3
Image Processing	معالجة الصور	23165410-3	Programming Languages	لغات البرمجة	23165114-3
Pattern Recognition	التعرف على الأنماط	23165411-3	Introduction to Cryptography	مقدمة في التشفير	23165115-3
Game Programming	برمجة الألعاب	23165412-3	Cloud Computing	الحوسبة السحابية	23165204-3
Forensics Computing	الحوسبة الجنائية	23165413-3	Database II	قواعد البيانات (٢)	23165306-3
Bioinformatics	المعلوماتية الحيوية	23165414-3	Software Testing	اختبار البرمجيات	23165307-3
Information Retrieval Systems	نظم استرجاع المعلومات	23165415-3	Software Architecture	عمارة البرمجيات	23165308-3
Selected Topics I	مواضيع مختارة (١)	23165416-3	Mobile Applications	تطبيقات الجوال	23165406-3
Selected Topics II	مواضيع مختارة (٢)	23165417-3	Big Data Analytics	تحليلات البيانات الضخمة	23165407-3

Table 3. Elective Courses List

2.2 STUDY PLAN WITH PREREQUISITES

The course prerequisites for the CS study plan are presented in Table 4 and Table 5.

Table 4. Courses & Prerequisites

First Semester				Second Semester			
Course Number	Course Name	Credit Hours	Pre-requisites	Course Number	Course Name	Credit Hours	Pre-requisites
23161101-3	Computer Programming Skills	3	—	2304102-4	Calculus II	4	2304101-4
2304101-4	Calculus I	4	—	23061101-4	General Physics I	4	—
23051101-4	General Chemistry	4	—	2309xxxx-4	Technical English Language	4	2309xxxx-6
2309xxxx-6	English Language	6	—	23091112-3	Learning Skills	3	—
	Total CH	**17**			**Total CH**	**15**	
Third Semester				**Fourth Semester**			
Course Number	Course Name	Credit Hours	Pre-requisites	Course Number	Course Name	Credit Hours	Pre-requisites
23162102-4	Computer Programming	4	23161101-3	23162104-4	Object-Oriented Programming	4	23162102-4
23162103-3	Discrete Structures I	3	—	23162105-3	Discrete Structures II	3	23162102-4 23162103-3
23162201-4	Digital Logic Design	4	23161101-3	23162202-4	Computer Organization & Architecture	4	23162201-4
2304231-3	Elementary Statistics & Probability	3	2304101-4	23042243-4	Linear Algebra I	4	—
2301116-2	Quran I	2	—				
	Total CH	**16**			**Total CH**	**15**	
Fifth Semester				**Sixth Semester**			
Course Number	Course Name	Credit Hours	Pre-requisites	Course Number	Course Name	Credit Hours	Pre-requisites
23163106-3	Data Structures	3	23162104-4 23162105-3	23163108-4	Algorithms	4	23163106-3
23163107-4	Numerical Methods	4	23162102-4 23042243-4	23163109-3	Compiler Construction	3	23163106-3
23163301-4	Operating Systems	4	23162104-4 23162202-4	23163203-4	Computer Networks	4	23162105-3 23163301-4
23163302-3	Database I	3	23162104-4	23163401-3	Computer Graphics	3	23162104-4 23042243-4
2302116-2	Islamic Culture I	2	—	2301216-2	Quran II	2	2301116-2
	Total CH	**16**			**Total CH**	**16**	
Seventh Semester				**Eighth Semester**			
Course Number	Course Name	Credit Hours	Pre-requisites	Course Number	Course Name	Credit Hours	Pre-requisites
23164110-4	Advanced Programming	4	23163302-3	23164111-3	Parallel Computing	3	23163106-3 23163301-4
23164303-3	Software Engineering I	3	23163302-3	23164304-3	Software Engineering II	3	23164303-3
23164402-4	Artificial Intelligence	4	23163108-4	23164305-3	User Interface Design	3	23164110-4
23164403-3	Internet Applications	3	23162104-4 23163302-3	23164404-3	Computer Security	3	23163203-4
2302216-2	Islamic Culture II	2	2302116-2	23164501-2	Summer Training	2	—
				2301316-2	Quran III	2	2301216-2
	Total CH	**16**			**Total CH**	**16**	
Ninth Semester				**Tenth Semester**			
Course Number	Course Name	Credit Hours	Pre-requisites	Course Number	Course Name	Credit Hours	Pre-requisites
23165405-2	Computers & Society	2	23164303-3	23165503-4	Graduation Project II	4	23164304-3 23165502-4
23165502-4	Graduation Project I	4	Level 8	23165×××-3	Elective Course III	3	See Table 5
23165×××-3	Elective Course I	3	See Table 5	23165×××-3	Elective Course IV	3	See Table 5
23165×××-3	Elective Course II	3	See Table 5	2302416-2	Islamic Culture IV	2	2302316-3
2301416-2	Quran IV	2	2301316-2	2303109-2	Arabic Language	2	—
2302316-3	Islamic Culture III	3	2302216-2	2309142-2	Prophet Muhammad's Biography (PBUH)	2	—
	Total CH	**17**			**Total CH**	**16**	

Table 5. Elective Courses & Prerequisites

Elective Course							
Course Number	Course Name	Credit Hours	Pre-requisites	Course Number	Course Name	Credit Hours	Pre-requisites
23165112-3	Advanced Web Programming	3	23164403-3	23165408-3	Neural Networks	3	23164402-4
23165113-3	Computer Theory	3	23162105-3	23165409-3	Natural Language Processing	3	23164402-4
23165114-3	Programming Languages	3	23164110-4	23165410-3	Image Processing	3	23163108-4 23163401-3
23165115-3	Introduction to Cryptography	3	23162105-3	23165411-3	Pattern Recognition	3	23163401-3 23164402-4
23165204-3	Cloud Computing	3	23163203-4	23165412-3	Game Programming	3	23163401-3 23164402-4
23165306-3	Database II	3	23163302-3	23165413-3	Forensics Computing	3	23164404-3
23165307-3	Software Testing	3	23164304-3	23165414-3	Bioinformatics	3	23163108-4
23165308-3	Software Architecture	3	23164304-3	23165415-3	Information Retrieval Systems	3	23164110-4
23165406-3	Mobile Applications	3	23165306-3 23164403-3	23165416-3	Selected Topics I	3	Topics Dependent
23165407-3	Big Data Analytics	3	23165306-3	23165417-3	Selected Topics II	3	Topics Dependent

2.3 PREREQUISITES MAP

The mappings between each course and its prerequisite courses are illustrated in Figure 2.
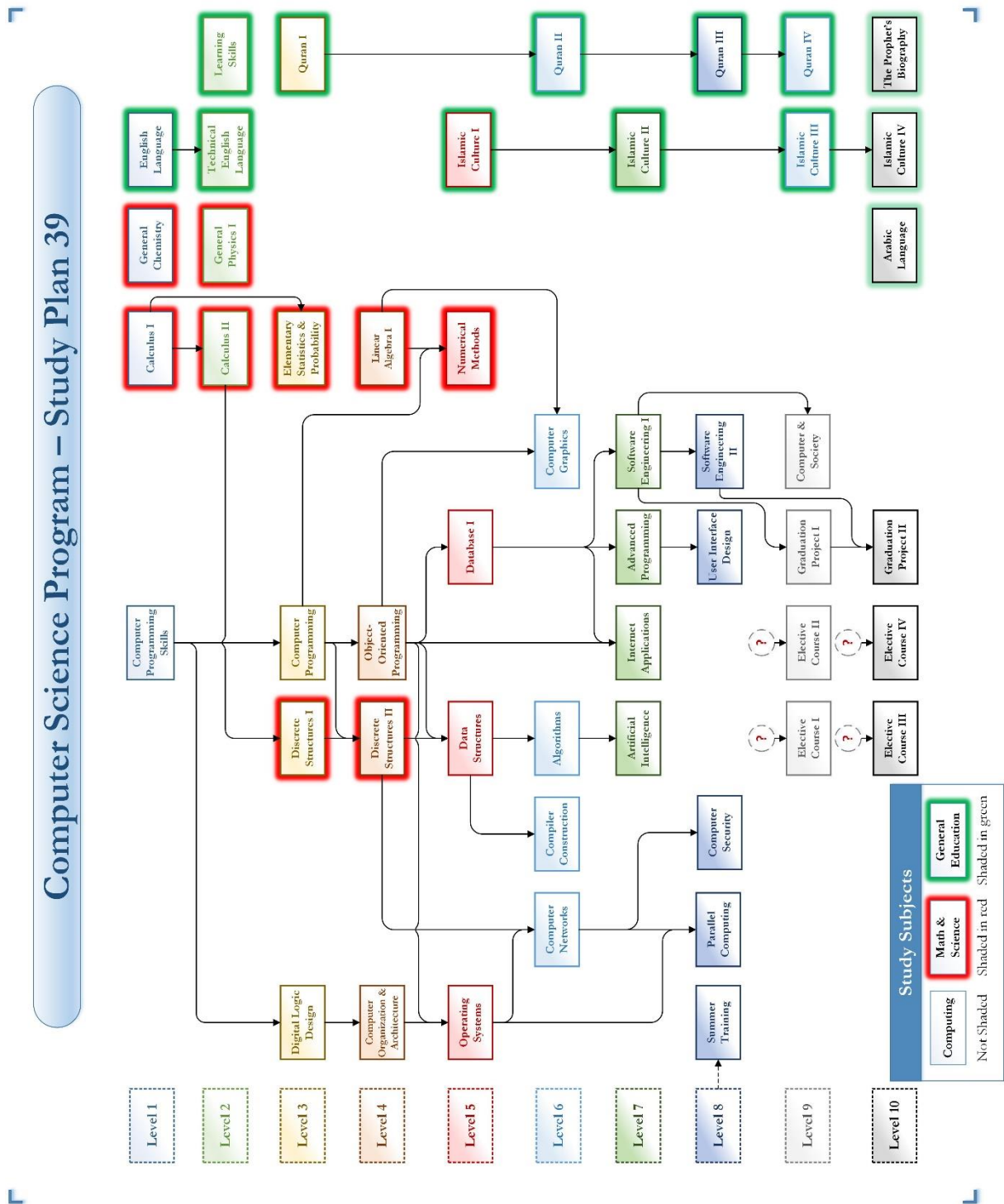

Figure 2. Courses & Prerequisites Map

2.4 STUDY PLAN WITH WEEKLY CONTACT HOURS

The numbers of weekly contact hours of each course are given in Table 6.

Table 6. Weekly Contact Hours Distributions

Course No.	Course Name	Credit	Lecture	Practical	Course No.	Course Name	Credit	Lecture	Practical
Level 1					**Level 2**				
23161101-3	Computer Programming Skills	3	2	2	2304102-4	Calculus II	4	4	–
2304101-4	Calculus I	4	4	–	23061101-4	General Physics I	4	3	3
23051101-4	General Chemistry	4	3	3	2309xxxx-4	Technical English Language	4	4	–
2309xxxx-6	English Language	6	6	–	23091112-3	Learning Skills	3	3	–
Level 3					**Level 4**				
23162102-4	Computer Programming	4	3	2	23162104-4	Object-Oriented Programming	4	3	2
23162103-3	Discrete Structures I	3	3	–	23162105-3	Discrete Structures II	3	3	–
23162201-4	Digital Logic Design	4	3	2	23162202-4	Computer Organization & Architecture	4	3	2
2304231-3	Elementary Statistics & Probability	3	3	–	23042243-4	Linear Algebra I	4	4	–
2301116-2	Quran I	2	2	–					
Level 5					**Level 6**				
23163106-3	Data Structures	3	2	2	23163108-4	Algorithms	4	3	2
23163107-4	Numerical Methods	4	3	2	23163109-3	Compiler Construction	3	3	–
23163301-4	Operating Systems	4	3	2	23163203-4	Computer Networks	4	3	2
23163302-3	Database I	3	2	2	23163401-3	Computer Graphics	3	2	2
2302116-2	Islamic Culture I	2	2	–	2301216-2	Quran II	2	2	–
Level 7					**Level 8**				
23164110-4	Advanced Programming	4	3	2	23164111-3	Parallel Computing	3	2	2
23164303-3	Software Engineering I	3	2	2	23164304-3	Software Engineering II	3	2	2
23164402-4	Artificial Intelligence	4	3	2	23164305-3	User Interface Design	3	2	2
23164403-3	Internet Applications	3	2	2	23164404-3	Computer Security	3	3	–
2302216-2	Islamic Culture II	2	2	–	23164501-2	Summer Training	2	–	–
					2301316-2	Quran III	2	2	–
Level 9					**Level 10**				
23165405-2	Computers & Society	2	2	–	23165503-4	Graduation Project II	4	1	5
23165502-4	Graduation Project I	4	1	5	23165×××-3	Elective Course III	3	3	–
23165×××-3	Elective Course I	3	3	–	23165×××-3	Elective Course IV	3	3	–
23165×××-3	Elective Course II	3	3	–	2302416-2	Islamic Culture IV	2	2	–
2301416-2	Quran IV	2	2	–	2303109-2	Arabic Language	2	2	–
2302316-3	Islamic Culture III	3	3	–	2309142-2	Prophet Muhammad's Biography (PBUH)	2	2	–

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 I
- 2301216-2   Quran II
- 2301316-2   Quran III
- 2301416-2   Quran IV
- 2302116-2   Islamic Culture I
- 2302216-2   Islamic Culture II
- 2302316-3   Islamic Culture III
- 2302416-2   Islamic Culture IV
- 2303109-2   Arabic Language
- 2309142-2   Prophet Muhammad's Biography (PBUH)

3.1.2 College Requirements (CR)

- 2304101-4   Calculus I
- 2304102-4   Calculus II
- 2304231-3   Elementary Statistics & Probability
- 23042243-4   Linear Algebra I
- 23051101-4   General Chemistry
- 23061101-4   General Physics I
- 23091112-3   Learning Skills
- 2309xxxx-6   English Language
- 2309xxxx-4   Technical English Language

3.1.3 Department Requirements (DR)

- 23161101-3   Computer Programming Skills
- 23162102-4   Computer Programming
- 23162103-3   Discrete Structures I
- 23162104-4   Object-Oriented Programming
- 23162105-3   Discrete Structures II
- 23162201-4   Digital Logic Design
- 23162202-4   Computer Organization & Architecture
- 23163106-3   Data Structures
- 23163107-4   Numerical Methods
- 23163108-4   Algorithms
- 23163109-3   Compiler Construction
- 23163203-4   Computer Networks
- 23163301-4   Operating Systems
- 23163302-3   Database I
- 23163401-3   Computer Graphics

- 23164110-4   Advanced Programming
- 23164111-3   Parallel Computing
- 23164303-3   Software Engineering I
- 23164304-3   Software Engineering II
- 23164305-3   User Interface Design
- 23164402-4   Artificial Intelligence
- 23164403-3   Internet Applications
- 23164404-3   Computer Security
- 23164501-2   Summer Training
- 23165405-2   Computers & Society
- 23165502-4   Graduation Project I
- 23165503-4   Graduation Project II

3.1.4 Department Electives (DE)

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

3.1.4.1 Elective Course List

- 23165112-3   Advanced Web Programming
- 23165113-3   Computer Theory
- 23165114-3   Programming Languages
- 23165115-3   Introduction to Cryptography
- 23165204-3   Cloud Computing
- 23165306-3   Database II
- 23165307-3   Software Testing
- 23165308-3   Software Architecture
- 23165406-3   Mobile Applications
- 23165407-3   Big Data Analytics
- 23165408-3   Neural Networks
- 23165409-3   Natural Language Processing
- 23165410-3   Image Processing
- 23165411-3   Pattern Recognition
- 23165412-3   Game Programming
- 23165413-3   Forensics Computing
- 23165414-3   Bioinformatics
- 23165415-3   Information Retrieval Systems
- 23165416-3   Selected Topics I
- 23165417-3   Selected Topics II

3.2 COMPUTING COURSE LIST BY SUB-MAJOR

3.2.1 Programming & Algorithms Courses
- **Required Courses**
  - 23161101-3   Computer Programming Skills serial numbers
  - 23162102-4   Computer Programming
  - 23162103-3   Discrete Structures I
  - 23162104-4   Object-Oriented Programming
  - 23162105-3   Discrete Structures II
  - 23163106-3   Data Structures
  - 23163107-4   Numerical Methods
  - 23163108-4   Algorithms
  - 23163109-3   Compiler Construction
  - 23164110-4   Advanced Programming
  - 23164111-3   Parallel Computing
- **Elective Courses**
  - 23165112-3   Advanced Web Programming
  - 23165113-3   Computer Theory
  - 23165114-3   Programming Languages
  - 23165115-3   Introduction to Cryptography

3.2.2 Hardware Courses
- **Required Courses**
  - 23162201-4   Digital Logic Design
  - 23162202-4   Computer Organization & Architecture
  - 23163203-4   Computer Networks
- **Elective Courses**
  - 23165204-3   Cloud Computing

3.2.3 Software Courses
- **Required Courses**
  - 23163301-4   Operating Systems
  - 23163302-3   Database I
  - 23164303-3   Software Engineering I
  - 23164304-3   Software Engineering II
  - 23164305-3   User Interface Design
- **Elective Courses**
  - 23165306-3   Database II
  - 23165307-3   Software Testing
  - 23165308-3   Software Architecture

3.2.4 Applications Courses
- **Required Courses**
  - 23163401-3   Computer Graphics
  - 23164402-4   Artificial Intelligence
  - 23164403-3   Internet Applications
  - 23164404-3   Computer Security
  - 23165405-2   Computers & Society
- **Elective Courses**
  - 23165406-3   Mobile Applications

- o 23165407-3   Big Data Analytics
- o 23165408-3   Neural Networks
- o 23165409-3   Natural Language Processing
- o 23165410-3   Image Processing
- o 23165411-3   Pattern Recognition
- o 23165412-3   Game Programming
- o 23165413-3   Forensics Computing
- o 23165414-3   Bioinformatics
- o 23165415-3   Information Retrieval Systems
- o 23165416-3   Selected Topics I
- o 23165417-3   Selected Topics II

3.2.5 Project and Training Courses
- **Required Courses**
  - o 23164501-2   Summer Training
  - o 23165502-4   Graduation Project I
  - o 23165503-4   Graduation Project II

3.3 MATHEMATICS COURSES (25 CREDIT HOURS)
- 2304101-4   Calculus I
- 2304102-4   Calculus II
- 2304231-3   Elementary Statistics & Probability
- 23042243-4   Linear Algebra I
- 23162104-3   Discrete Structures I
- 23162105-3   Discrete Structures II
- 23163107-4   Numerical Methods

3.4 NATURAL SCIENCE COURSES (8 CREDIT HOURS)
- 23051101-4   General Chemistry
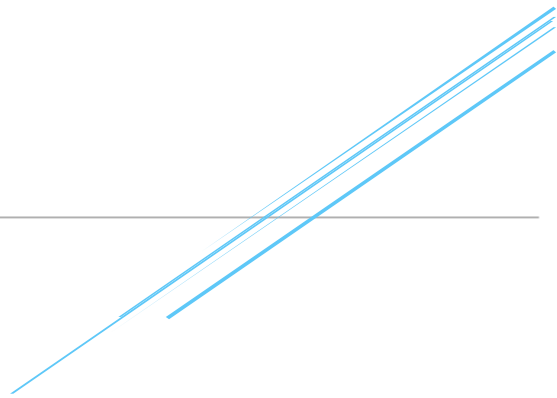- 23061101-4   General Physics I

4 COURSE-OUTCOME MATRIX

Student outcomes (**SOa**) through (**SOf**) are inlaid in the program curriculum as shown in the following table. In this table, the matching between the student outcomes and the program courses is given in Table 7.

Table 7. Course-Outcome Matrix

Courses		SOa	SOb	SOc	SOd	SOe	SOf	
Code	**Name**							
23161101-3	Computer Programming Skills							
23162102-4	Computer Programming							
23162103-3	Discrete Structures I							
23162104-4	Object-Oriented Programming		✓					
23162105-3	Discrete Structures II							
23162201-4	Digital Logic Design							
23162202-4	Computer Organization & Architecture							
23163106-3	Data Structures							Formative Assessment
23163107-4	Numerical Methods							
23163108-4	Algorithms	✓						
23163109-3	Compiler Construction							
23163203-4	Computer Networks				✓			
23163301-4	Operating Systems			✓				
23163302-3	Database I							
23163401-3	Computer Graphics					✓		
23164110-4	Advanced Programming	✓				✓		
23164111-3	Parallel Computing	✓						
23164303-3	Software Engineering I			✓		✓		
23164304-3	Software Engineering II		✓				✓	
23164305-3	User Interface Design		✓					
23164402-4	Artificial Intelligence	✓						
23164403-3	Internet Applications			✓			✓	Summative Assessment
23164404-3	Computer Security				✓			
23164501-2	Summer Training							
23165405-2	Computers & Society				✓			
23165502-4	Graduation Project I			✓		✓	✓	
23165503-4	Graduation Project II		✓		✓		✓	
23165×××-3	Elective Course I							
23165×××-3	Elective Course II							
23165×××-3	Elective Course III							
23165×××-3	Elective Course IV							

APPENDICES

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قياس آراء المعنيين بالخطة

الهدف:

قياس آراء المعنيين بالخطة بشأن تطوير خطة جديدة لبرنامج علوم الحاسب واستحداث برنامج في نظم المعلومات.

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

البيانات الأساسية:

إجمالي	مستفيد/صاحب عمل	خريج	طالب / طالبة	عضو هيئة تدريس	الفئة
٣٤	٤	٦	٩	١٥	عدد المشاركين

أولاً: خطة برنامج علوم الحاسب

	موافق	٢٩	٨٥٪
المشاركين	غير موافق	٥	٥٪
أهم مبررات القبول	○ التطور السريع لمجالات الحوسبة يتطلب تطوير البرامج الدراسية لمواكبة سوق العمل. ○ بعض المقررات تحتاج إلى تعديل. ○ وجود مجالات واهتمامات واحتياجات جديدة لدى سوق العمل. ○ تحسين الخطة الحالية واستيفاء شروط الاعتماد. ○ الخطة الحالية تم وضعها منذ أكثر من ١٠ سنوات.		
أهم مبررات الرفض	○ تدني مستوى بعض الطلاب.		
أهم النقاط التي يجب مراعاتها عند وضع الخطة	○ مراعاة متطلبات الاعتماد (ABET) الجديدة. ○ دراسة احتياجات سوق العمل. ○ زيادة الساعات العملية والاهتمام بالمهارات الطلابية. ○ الاهتمامات بالتدريب الميداني ومشروعات المقررات ومقررات المشروعات. ○ الاهتمام بالمشروعات التطبيقية. ○ وضع بعض المقررات الاختيارية. ○ رفع شروط القبول للبرنامج لتحسين مدخلات البرنامج.		

ثانياً: خطة برنامج نظم المعلومات

	موافق	٢٨	٨٢٪
المشاركين	غير موافق	٦	١٨٪
أهم مبررات القبول	○ التطور السريع لمجالات الحوسبة يتطلب تطوير البرامج الدراسية لمواكبة سوق العمل. ○ وجود مجالات واهتمامات واحتياجات جديدة لدى سوق العمل.		

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	○ الحصول على الاعتماد (ABET) لبرنامج علوم الحاسب لذلك يجب التوسع لبرامج جديدة.
	○ إعطاء فرصة أفضل للطلاب لاختيار التخصص الملائم لهم.
أهم مبررات الرفض	—
أهم النقاط التي يجب مراعاتها عند وضع الخطة	○ مراعاة متطلبات الاعتماد (ABET) الجديدة.
	○ دراسة متطلبات سوق العمل ومراعاة احتياجات مؤسسات الأعمال.
	○ زيادة الساعات العملية والاهتمام بالمهارات الطلابية.
	○ الموازنة بين تقنيات المعلومات وأنظمة الأعمال والتجارة حسب رؤية المملكة ٢٠٣٠.

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استبانة تطوير مناهج الحوسبة
بالكلية الجامعية بالجموم

البيانات الأساسية:

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

نظراً للتطور العالمي الدائم في مجالات الحوسبة وحسب احتياجات سوق العمل، يقوم قسم الحاسب الآلي بالكلية الجامعية بالجموم بمراجعة الخطة الدراسية لبرنامج علوم الحاسب واستحداث برنامج في نظم المعلومات، الرجاء إبداء رأيكم بهذا الشأن من خلال النقاط التالية:

أولاً: خطة برنامج علوم الحاسب

هل ترى ضرورة لاستحداث خطة جديدة لبرنامج علوم الحاسب في الوقت الحالي.

١. ☐ موافق   ☐ غير موافق

٢. المبررات

....

....

٣. إذا كنت موافق فما هي النقاط التي يجب مراعاتها عند وضع الخطة:

....

....

ثانياً: خطة برنامج نظم المعلومات

هل ترى ضرورة لاستحداث خطة جديدة لبرنامج نظم المعلومات في الوقت الحالي.

١. ☐ موافق   ☐ غير موافق

٢. المبررات

....

....

٣. إذا كنت موافق فما هي النقاط التي يجب مراعاتها عند وضع الخطة:

....

....

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COMPUTER PROGRAMMING SKILLS
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 Skills	23161101-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:		Computer Science Information Systems
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)		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.

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
1. Introduction Computer Programming	1	4
2. Input and output statements	1	4
3. Data Types	2	8
4. Operator precedence	1	4
5. Decision Structures and Boolean Logic	3	12
6. Loops and Repetition Structures	3	12
7. Functions	2	8
8. Arrays	2	8

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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.

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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)

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• 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.

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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	23162102-4
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science Information Systems	
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 Skills (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 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

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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

(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

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•	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)

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- 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.

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DISCRETE STRUCTURES 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:	Discrete Structures I		23162103-3
2. Credit hours:	3		
3. Program(s) in which the course is offered:		Computer Science Information Systems	
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)		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, 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
1. The Mathematical Logic	3	9
2. Sequences, Induction and Recursion	3	9
3. Sets, Functions and Relations	3	9
4. Counting and Probabilities	2	6
5. Graphs and Trees	2	6
6. Analysis of Algorithms	2	6

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

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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

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(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

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- 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.

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OBJECT-ORIENTED 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:	Object-Oriented Programming		23162104-4
2. Credit hours:	4		
3. Program(s) in which the course is offered:		Computer Science Information Systems	
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 (23162102-4)	
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 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 of 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	5
Overview of Java programming	1	5
Data Types in Java	1	5
Classes and Objects	2	10
Exceptions and Input/Output	1	5

Extending Classes	1	5
Inheritance	2	10
Encapsulation	1	5
Graphical User Interface (GUI)	3	15
Events	2	10

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.   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

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(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.

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• 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.
• 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.

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DISCRETE STRUCTURES 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:	Discrete Structures II	23162105-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science Information Systems	
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)	Discrete Structures I (23162103-3) Computer Programming (23162102-4)	
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 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

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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

   2. 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

   4. Identify appropriate methods of problem modelling and solving.
   5. Identify a range of solutions and critically evaluate and justify proposed design solutions.
   6. 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

   2. 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

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- 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

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• 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.

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DIGITAL LOGIC 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:	Digital Logic Design		23162201-3
2. Credit hours:	3		
3. Program(s) in which the course is offered:		Computer Science Information Systems	
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 Skills (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

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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

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(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.

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- 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.

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COMPUTER ORGANIZATION & 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 Organization & Architecture	23162202-4
2. Credit hours:		
3. Program(s) in which the course is offered:	Computer Science Information Systems	
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)	Design Logic Design (23162201-4)	
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 students will be familiar with main concepts of computer architecture, Hardware components of a computer, Instruction set, instruction formats, encoding of instructions, types, Execution unit, registers design, combinational shifters, ALU, division and multiplication algorithms, Control unit, register transfer language, hardwired and microprogrammed control unit, Memory unit, RAM, cache memory, associative memory, virtual memory, Input/output, Introduction to Assembly Language, Introduction multiprocessor systems and parallel processing.

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 System, Computer Components.	1	5
Computer Evolution and Performance: Generations of Computers, Evolution of processors, memory, interconnection system.	2	10
A Top-Level View of Computer Function and Interconnection: Computer Components, Computer Functions, Interconnection Structures, Bus Interconnection.	2	10
Main Memory, Error Correction, Advanced DRAM Organization.	2	10

Cache Memory: Computer Memory System Overview, Cache Memory Principles, Elements of Cache Design.	2	10
External Memory: Magnetic Disk, RAID, Solid State Drives, Optical Memory, Magnetic Tape.	2	10
Input / Output: External Devices, I/O Modules, I/O Channels and Processors.	2	10
Central Processing Unit: Instruction Sets, Machine Instruction Characteristics, Types of Operands, Types of Operations, Instruction Sets.	2	10

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.
> 2-4 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 the computer system concepts, computer evolution and performance.
2. Students will understand the Top-Level View of Computer System.
3. Students will understand the Internal Memory's structure and function.
4. Students will understand the Cache Memory's structure and function.
5. Students will understand the External Memory's structure and function.
6. Students will understand the Input / Output devices.
7. Students will understand the principles of building chips for different memory types.
8. Students will understand the Central Processing Unit structure and function.

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

- Lectures, Tutorials, case study.

(iii) Methods of assessment of knowledge acquired

- Written exams, Assignments.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. Design and analyze the main functional units of a computer.
2. Design and analyze a sample Instruction set for a theoretical machine.
3. Compare between the different computer systems structures according to certain criteria.
4. Compare between the different computer systems performance according to certain criteria.

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(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**

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1	Midterm Exam 1	5-7	20
2	Midterm Exam 2	12-13	20
3	Assignments: H/W & Projects	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 and Architecture, Designing for Performance, 9th Edition, William Stallings, Pearson Education, 2013.
- Structured Computer Organization, Fourth or fifth edition, Andrew S. Tanenbaum, Prentice-Hall / Pearson, 2006.

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.

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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.

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DATA 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:	Data Structures	23163106-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science Information Systems	
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 II (23162105-3) Object-Oriented Programming (23162104-4)	
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, 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. 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
Arrays	1	4
Linked Lists	3	12
Stack	1	4
Queue	1	4
Heaps	2	8
Trees and Traversals	2	8
Graphs	2	8

Memory Management	1	4

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.
    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 techniques to write efficient codes.

(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 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.

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(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.

No	Assessment task	Week due	Proportion of Final Assessment
	5. Schedule of Assessment Tasks for Students During the Semester		
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)

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- 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.

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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	23163107-4
2. Credit hours:	4	
3. Program(s) in which the course is offered:	Computer Science Information Systems	
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)	Liner Algebra I (23042243-4) Computer Programming (23162102-4)	
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	10
Systems of linear equations.	3	15
Nonlinear equations.	3	15
Interpolation and function approximation.	2	10
Numerical differentiation and integration.	2	10
Numerical algorithmic development using mathematical software packages.	3	15

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

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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. 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.

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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.

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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:	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)		Discrete Structures II (23162105-3) Object-Oriented Programming (23162104-4)	
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 objective of this course is to study design and analysis of algorithms. Learning different algorithms design strategies such as divide and conquer, dynamic programming, and greedy approach. Applications involve: sorting and searching, trees/graph, geometric algorithms, and string matching algorithms. Analysis of algorithms is essential part of this course. Study worst case, average case, and amortized analysis with an emphasis on the close connection between the time complexity of an algorithm and the underlying data structures.
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
Basic Concepts in Algorithmic Analysis	1	5
Searching & Sorting	1	5
Recurrence Relations and Recursion	1	5
Divide and Conquer	1	5
Graph Algorithms	3	15
Greedy Approach	1	5
Dynamic Programming	2	10
String Matching	2	10
Time and Space Complexity	2	10

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P and NP Problems	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.
   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 asymptotic notation of time analysis and complexity.
2. Know a variety of useful algorithms.
3. Know and understand the principles and techniques for algorithm design.
4. Understand the essential mathematics relevant to 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. Evaluate algorithms in terms of their time analysis within the given problem.
2. Specify and apply the main methodologies for designing algorithms.

(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

3. Manage tasks effectively.
4. Manage one's own learning and development, including time management.
5. Search for information and adopt life-long self-learning.

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(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
(ii) Description of the skills to be developed in this domain. 3.   Report writing and present reports, communicate orally, discuss and defend his ideas. 4.   **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.

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E. Learning Resources

1. Required Text(s)
• Cormen, Leiserson, Rivest, Stein, Introduction to Algorithms, (second edition) MIT Press, 2002.
2. Essential References
• S. Dasgupta, C. H. Papadimitriou, and U. V. Vazirani, Algorithms, McGraw-Hill, 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: 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.

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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		23163109-3
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 Structures (23163106-3)	
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.

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

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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.

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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)

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• 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.

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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		23163203-4
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)		Discrete Structures II (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, 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	5
Protocols and Layering.	1	5
OSI and Internet models.	2	10
The Physical Layer	1	5
The Data Link Layer	1	5
The Medium Access Control Sublayer	1	5
The Network Layer	1	5
Ethernet, Congestion control and Routing	2	10
Internet Protocol (IP)	1	5
The Transport Layer	1	5

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UDP and TCP	1	5
The Application Layer	1	5
Telnet, FTP, SMTP,etc…	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

5. Understand and analyze the hardware and software components of a network and the real implementations of these concepts.
6. Understand networking protocols and their hierarchical relationship hardware and software. Compare protocol models and select appropriate protocols for a particular design.
7. List 7 layers of the OSI Model and compare them to the layering used in the Internet model (TCP/IP).
8. 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

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(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.

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- 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.

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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	23163301-4
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)		Computer Organization & Architecture (23162202-4) Object-Oriented Programming (23162104-4)
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 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	10
Operating System Structures	1	5
Processes	2	10
Threads	1	5
CPU Scheduling	2	10
Process Synchronization	2	10
Deadlocks	2	10
Main Memory	3	15

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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. 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

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(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.

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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).   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.

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DATABASE 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:	Database I	23163302-3
2. Credit hours:	3
3. Program(s) in which the course is offered:	Computer Science Information Systems
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)	Object-Oriented Programming (23162104-4)
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 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

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• 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)

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• 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.

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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	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	6/3	
6. Pre-requisites for this course (if any)	Object-Oriented Programming (23162104-4) Linear Algebra I (23042243-4)	
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 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	4
Mathematical Foundation for Graphics	2	8
2D graphics algorithms	3	12
2D and 3D Transformation and representation	3	12
2D viewing	2	8
3D Object Representations	3	12

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3D viewing	1	4

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. 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

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.
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

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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

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• 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		23164110-4
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		7/4	
6. Pre-requisites for this course (if any)		Database I (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.

By completing this course the students should be able to:

1. Students will be familiar with exception handling and input validation.
2. Students will gain knowledge about I/O file management and object persistence.
3. Students will be able to develop GUI-based Java applications
4. Students will learn how to use different types of collections provided in the standard library as well as the fundamental operations of Arrays and collections classes.
5. Students will learn about other advanced Java topics.
6. Students will get the experience of working in groups to design and develop complete GUI-based Java application projects.

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

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

C. Course Description

1. Topics to be Covered

List of Topics	No of Weeks	Contact hours

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Java and Object-Oriented programming overview	1	5
Recursion techniques	1	5
Java Collections	2	10
Generic Programming	2	10
File I/O	2	10
Building Graphical User Interface (GUI)	2	10
Introduction to Design patterns	1	5
Java database Connectivity (JDBC)	2	10
Multi-threading and synchronization	2	10

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

For each of the domains of learning shown below indicate:
- A brief summary of the knowledge or skill the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

a. Knowledge

(i) Description of the knowledge to be acquired

Upon completion of this course, students will be able to:

3. Choose appropriate data structures from the Java Collection API.
4. Sort and search arrays and lists using a variety of techniques.
5. Capture configuration and debugging information using the Java Logging APIs.
6. Use generics to create type safe collections.
7. Serialize Java objects.
8. Use features of the new I/O API.
9. Build a Graphic User Interface.
10. Perform database queries and updates using JDBC.

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

- Lectures, Tutorials, Practical sessions, Projects, Discussion.
- Providing references and supporting reading materials for self-study.

(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
This course aims to enhance students programming skills by introducing them to advanced programming topics in addition to training them on Object-oriented problem solving.
(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
(ii) Teaching strategies to be used to develop these skills and abilities
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility

d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain.
(ii) Teaching strategies to be used to develop these skills
(iii) Methods of assessment of students numerical and communication skills

e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required
(ii) Teaching strategies to be used to develop these skills
(iii) Methods of assessment of student's psychomotor skills

5. Schedule of Assessment Tasks for Students During the Semester			
No	**Assessment task**	**Week due**	**Proportion of Final Assessment**

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1	Quiz 1	3	5
2	Quiz 2	7	5
3	Group Project	8	20
4	Midterm Exam 2	9	20
5	Quiz 3	12	5
6	Quiz 4	14	5
7	Final Exam	Exam week	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)
- Java How to Program, 9th Edition, Harvey M. Deitel, Paul, J. Deitel, 20122, Prentice Hall.

2. Essential References
- Java Programming 7th edition, Joyce Farrell, 2013, Cengage Learning, ISBN 1285081951

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

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, a data show projector connected to a PC preferably with Internet connection and sliding board
- General computer laboratories (max 20 students per session).

2. Computing resources
- Computers
- Integrated Development Environment (e.g. NetBeans, Eclipse, JBuilder)
- Java Development Kit (JDK)
- Internet Access.
- Specialized computer laboratories (max 16 students per session).
  - Free Lab

3. Other resources

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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 • Peer Evaluation Procedure • Instructor self-evaluation
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.

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PARALLEL 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:	Parallel Computing	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		8/4
6. Pre-requisites for this course (if any)		Data Structures (23163106-3) Operating system (23163301-4)
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 introduces the principles, theory, and practice of parallel computing. Topics covered include Von Neumann computer architecture, Flynn's classical taxonomy, multiprocessor architecture, shared memory, distributed memory, mutual exclusion, synchronization primitive, locks, monitor, concurrent data structures and algorithms, work distribution, parallel programming models, and designing parallel programs.

- Ability to use the primitives needed to construct parallel programs.
- Appreciate how concurrent data structures and algorithms are developed.
- Appreciate the issues in distributing work and load balancing.

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: concept, and terminology	2	4
Multiprocessor architecture	1	2
Shared memory, and distributed memory	2	4
Concurrent data structures and algorithms	2	4
Parallel programming models	3	6

Designing parallel programs: partitioning, mutual exclusion, synchronization primitives, communications, data dependencies, and load balancing	3	6
Future trends in parallel computing	2	4

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 what a parallel computing is and why one would design a parallel program.
   2. Know how to design a parallel program to benefit from multiprocessor architecture.

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

   - Lectures, Case study, tutorials, 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 parallel algorithms for execution in multiprocessors architectures, 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

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- 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/Homework	4-9	10
4	Projects	4-16	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.

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- E-mail communication.

E. Learning Resources

1. Required Text(s)
- Zbigniew J. Czech, Introduction to Parallel Computing, Cambridge University Press; 1st edition, 2017.

2. Essential References
- Maurice Herlihy and Nir Shivat, Art of Multiprocessor Programming, Morgan Kaufmann; 1st. 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.

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SOFTWARE ENGINEERING 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:	Software Engineering I	23164303-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:	Computer Science Information Systems	
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 I (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.

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.

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

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

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Understanding and Modeling Organizational Systems	1	3
Project Management	2	6
Information Gathering Techniques	2	6
Data Flow Modelling I	2	6
Data Flow Modelling II	2	6
Conceptual Modelling	2	6
Process Specifications and Structured Decisions	2	6
Design Effective HCI (Output & input)	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. 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

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- 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.
2. 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

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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)

- K.E. Kendall and J. E. Kendall, Systems Analysis and Design, 9th Edition, Pearson, 2014.

2. Essential References

- J.L. Whitten, L.D. Bentley and K.C. Dittman, System Analysis and Design Methods, McGraw-Hill, 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

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- 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.

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SOFTWARE ENGINEERING 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:	Software Engineering II		23164304-3
2. Credit hours:	3		
3. Program(s) in which the course is offered:		Computer Science Information Systems	
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 I (23164303-3)	
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 importance of software engineering methods, techniques and tools in real projects. It also introduces students to the software engineering code of ethics. Then it introduces the different software engineering process. Finally, some software engineering activities are detailed such as requirement engineering and design using UML

- Understand the importance of Software Engineering.
- Understand the software engineering code of ethics.
- Understand some software processes and engineering approaches.
- Understand differences between plan-driven and agile processes.
- Learn the detailed activities of requirements engineering for a software systems.
- Use UML to document the design of a software system.

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

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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

6. Apply software engineering theory, principles, tools and processes to the development and maintenance of complex, scalable software systems.
7. Analyze, design, verify, validate, implement, apply, and maintain software systems.
8. Work in one or more significant application domains.
9. Manage the development of software systems.
10. 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

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•	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.
4. 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

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		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.

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

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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	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	8/4	
6. Pre-requisites for this course (if any)	Advanced Programming (23164110-4)	
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 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

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

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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)

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(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.

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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.

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		23164402-4
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		7/4	
6. Pre-requisites for this course (if any)		Algorithms (23163108-4)	
7. Co-requisites for this course (if any)		None	
8. Location if not on main campus		Jamoum Campus	

B. Objectives

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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	5
Intelligent Agents	2	10
Solving Problems by Searching	3	15
Logical Agents	1	5
Planning	1	5
Knowledge Representation	2	10
Intelligent Systems	2	10
Machine Learning	3	15

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. 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

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(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.

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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

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• 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.

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INTERNET APPLICATIONS
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	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	7/4	
6. Pre-requisites for this course (if any)	Object-Oriented Programming (23162104-4)	
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 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	4
Dynamic Web Programming	3	12
Web App Development	2	8
Web Services	3	12
Web Search and Mining	3	12
Web Applications and Project	3	12

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

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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

(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.

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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

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• 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).   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.

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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	23164404-3
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 Networks (23163203-4)
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 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	3
Power supplies security	1	3
Data security	1	3
Raid technologie	1	3
Cryptography	2	6
Data integrity	1	1
Network security	1	1
Malwares	2	6
Propagation Vector and malware detection	1	3
Worms	1	3

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Web Security	1	3
Cross-site data export feature	1	3
How to Protect Yourself	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

    The student will be able to:
   9. Recognize vulnerabilities and select IT security products.
   10. Understand current defenses techniques.
   11. Understand and use encryption techniques.
   12. 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

- Explain the various approaches and techniques for developing secure computer systems.
- Critically analyze and evaluate security properties and threats in computer systems
- Explain the different stages of the risk management process and be able to choose the appropriate technique in every stage.
- 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

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(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.

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- 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).
  - o 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.

SUMMER TRAINING

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:	Summer Training	23164501-2
2. Credit hours:	2	
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 (Summer semester)
6. Pre-requisites for this course (if any)		Completing a minimum of 64 credit hours of Department Requirement (DR) courses.
7. Co-requisites for this course (if any)		None
8. Location if not on main campus		Jamoum Campus

B. Objectives

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

The training experience provides students with hands-on work experience in various sectors
(industrial, governmental, academic, etc.)
1. Help students to adapt to the work environment.
2. Help students to learn how to make decisions and to take responsibility.
3. Help students to apply theoretical concepts into concrete practical realities.
4. Help students to improve their communication skills.
5. Help students to enhance their skills in writing technical reports.
6. Apply ethical principles and commit to professional ethics, responsibility and norms of computers science practice.
7. Give an opportunity to companies / organizations to identify distinctive cards in order to recruit them after graduation.

The duration of training is 2440 hours during the EIGHT weeks of Summer semester. The students should be able to register for summer Training just after the completion of 64 credit hours of Department Requirement (DR) courses.

The department (summer training committee) assigns a faculty member as a supervisor that should follow, advice and evaluate the students' work.

At the end of Summer training, the students are required to submit a detailed report that shows their training experiences and the gained knowledge. They are also required to give a presentation that present their training experience.

The Summer training committee carries out a rubric assessment based on the submitted report, presentation, employer evaluation letter and supervisor evaluation.

2. **Briefly describe any plans for developing and improving the course that are being implemented.**
- Using questionnaire to collect feedback from students and employer.
- Reviewing summer training programs of other universities to improve our proposed summer training program.

C. Course Description

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

2. Course components (total contact hours per semester):				
Lecture	**Tutorial**	**Laboratory**	**Practical/Field work/Internship**	**Other: None**
0	**0**	**0**	**8 weeks during Summer Semester**	**0**

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

4. Development of Learning Outcomes in Domains of Learning

For each of the domains of learning shown below indicate:
- A brief summary of the knowledge or skill the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

a. Knowledge

(i) Description of the knowledge to be acquired

- Define the tool used in practical for specific computer based systems.
- Describe the practical management process for real computer based systems.
- Describe the activities in development for computer based systems.
- Describe the errors and state of the solution steps.
- Describe the concurrent used models, tools and hardware.
- Explore the industrial environed needs and limitations.

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

- Celebration with teamwork.
- Sharing ideas with real work team.
- Communicate effectively with field expertise.

(iii) Methods of assessment of knowledge acquired

- Send a biweekly report to the field supervisor.
- Presenting all the skills gained in the final report and presentation.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

- The ability to collect the requirements for a specific problem.
- The ability to design and create design model for a specific computer based problem.
- The ability to implement and test small solution for a specific computer based problem.
- The ability to debug and finalize the implemented solution of a specific computer based problem.
- The ability to test the overall system in computer based problem.
- The ability to correct and fix system errors in a specific computer based problem.

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

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• Celebration with teamwork. • Sharing ideas with real work team. • Communicate effectively with field expertise.
(iii) Methods of assessment of student's cognitive skills • Send a biweekly report to the field supervisor. • Presenting all the skills gained in the final report and presentation.
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed • Apply ethical principles and commit to professional ethics, responsibility and norms of computers science practice. • Communicate professionally as an individual and as a member or a leader in team. • Capacity and acceptance to take responsibility for continued life-long learning relevant to professional codes of practices.
(ii) Teaching strategies to be used to develop these skills and abilities
(iii) Methods of assessment of student's interpersonal skills and capacity to carry responsibility • Send a biweekly report to the field supervisor. • Presenting all the skills gained in the final report and presentation.
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain. • Operate on a variety of modelling and computational tools used by computer science practice. • Demonstrates the ability to write technical reports. • Operate on different software tools as project planning, syste modelling for analysis and design tools. • Demonstrates the ability to understand and to prepare effective reports. • Conduct presentation on complex computer based problem implementation with the computer based community. • Ability to give and receive clear instructions. • Ability to communicate with many people in the practical field.
(ii) Teaching strategies to be used to develop these skills
(iii) Methods of assessment of students numerical and communication skills • Display all the new software and hardware used in training in the final report. • Discussion of all the observations related to the technology used in the company in final presentation.
e. Psychomotor Skills (if applicable)

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(i) Description of the psychomotor skills to be developed and the level of performance required
(ii) Teaching strategies to be used to develop these skills
(iii) Methods of assessment of student's psychomotor skills

5. Schedule of Assessment Tasks for Students During the Semester

No	Assessment task	Week due	Proportion of Final Assessment
1	Field supervisor report evaluation	Final	40
2	Student report	Final	40
3	Student presentation	Final	20
		Total	100

D. Student Support

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

E. Learning Resources

1. Required Text(s)

2. Essential References

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

4- Electronic Materials, Web Sites etc.

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

F. Facilities Required

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

2. Computing resources

3. Other resource

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G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department
3. Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement   • The summer training committee may review and reevaluate the students' achievement.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

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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		23165112-3
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)		Internet Applications (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.
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):

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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

Knowledge and Understanding:

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

5. Lectures, Tutorials, Projects, Discussion.

(iii) Methods of assessment of knowledge acquired

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

b. Cognitive Skills

(i) Description of cognitive skills to be developed

7. 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.

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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

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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.

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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.

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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		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		Elective	
6. Pre-requisites for this course (if any)		Discrete Structures II (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 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

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- 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.

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PROGRAMMING LANGUAGES

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	23165114-3
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)		Advanced Programming (23164110-4)
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 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	3
Computer Language History	1	3
Language Design	2	6
Syntax	2	6
Basic Semantics	2	6
Data Types and Memory Management	2	6
Control I: Expressions and Statements	2	6
Control II: Procedures and Environments	2	6
Programming Paradigms: Object-Oriented, Functional & Logic	1	3

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

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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 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

(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

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• 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.

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INTRODUCTION TO 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:	Introduction to Cryptography	23165115-3
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)		Discrete Structures II (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 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

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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

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(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

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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

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- 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.

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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	23165204-3

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)	Computer Networks (23163203-4)
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 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

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- 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**

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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.

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DATABASE 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:	Database II		23165306-3
2. Credit hours:	3		
3. Program(s) in which the course is offered:		Computer Science Information Systems	
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)		Database I (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.

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

- Design and execute advanced queries.
- Design application using EER model.
- Describe components of database management systems.
- Explain how queries are processed and simple query optimization techniques.
- Define concepts like transaction processing, backup and recovery.
- Understand advanced data modelling e.g. object oriented, distributed database, XML, data warehousing and data mining and the supporting theoretical foundation.

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

- 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
Advanced SQL: NULL values, Semi join, left join, right join, triggers and views	2	6
Enhanced Entity-Relationship (EER) Model	1	3
Transactions: failures, atomicity, consistency, isolation, durability	2	6
Query Processing and Query Optimization Techniques	2	6

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Database Backup and Recovery	1	3
Object and Object-Relational Databases	2	6
XML for Semi-structured Data	1	3
Distributed Database (DDB)	1	3
Database Security	1	3
NoSQL Databases	1	3
Data mining and Warehousing	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

    7.   Understand advanced features of SQL.
    8.   Understand query processing and different optimization techniques.
    9.   Understand the concepts of constraints and relational algebra operations.
    10. Implement advanced features of SQL
    11. Understand principles of distributed database, data mining and data warehousing.

(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

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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
- MySQL Server and MySQL Workbench.

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.

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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		23165307-3
2. Credit hours:	3		
3. Program(s) in which the course is offered:		Computer Science Information Systems	
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)		Software Engineering II (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.

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

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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

(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.

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• 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.

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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.

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SOFTWARE 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:	Software Architecture		23165308-3
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)		Software Engineering II (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.
The goal of this course is to get the student to become more familiar with the differ software architecture and to gain the knowhow on using these architectures.

- Student will learn the concept of virtual software bus.
- Student will learn the concepts of CORBA and how to use it.
- Student will learn the concepts of RMI/Java and will gain hand on experience on how to program RMI applications.
- Student will learn the concepts of SOA, web services and will gain hand on experience on how to program use it.
- Student will learn the concepts of OAuth, trust, security and how to implement OAuth application.
- Web-based attacks (SQL injections, session stealing, etc.…) and how to protect your application.
- Student will learn how to store login information on the client machine using temporary tokens.

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

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List of Topics	No of Weeks	Contact hours
Virtual bus concept	1	3
CORBA concepts and implementation	2	6
RMI/Java	1	3
SOA and Web services	2	6
OAuth concepts and implementation	2	6
Multi-tier web applications and web framework (such as Spring)	2	6
Web-base attacks (SQL injections, session stealing, etc.) and how to protect you application	4	12
Storing login information on the client machine using tokens	2	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 Knowledge and Understanding: - Get the students to become more familiar with different software architecture and to gain the knowhow on using these archirtrures.   - Learn the concept of virtual software bus architectures suc as CORBA, RMI, and SOA and how to use them.   - Learn the concept of OAuth, trust, security and how to implement OAuth application.   - Learn web-base attacks (SQL injections, session stealing, etc.) and how to protect your application,
(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

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(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)

- Java RMI,1st Edition, William Grosso, O'Reilly, ISBN-10: 1565924525
- SOA with Java: Realizing Service-Oriented with Java Technologies, 1st Edition, Thomas Erl, Andre Tost, Satardu Roy, Philip Thomas, Raj Balasubramanian, David Chou, Thomas Plunkett, Prentice Hall, ISBN-10: 0133859037
- Getting Started with OAuth 2.0, 1st Edition, Ryan Boyd, O'Reilly, ISBN-10: 1449311601
- Web Security Testing Cookbook: Systematic Techniques to Find Problems Fast, 1st Edition, Paco Hope, Ben Walther, O'Reilly, ISBN-10: 0596514832

2. 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

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F. Facilities Required

1. Accommodation (Lecture rooms, laboratories, etc.)
- Classroom with 35 seats for students.

2. Computing resources

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	23165405-2
2. Credit hours:	2	
3. Program(s) in which the course is offered:		Computer Science Information Systems
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)		Software Engineering I (23164303-3)

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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.

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(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.

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

- None.

No	Assessment task	Week due	Proportion of Final Assessment
	5. Schedule of Assessment Tasks for Students During the Semester		
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.

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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.

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MOBILE APPLICATIONS

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 Applications		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		Elective	
6. Pre-requisites for this course (if any)		Database II (23165306-3) Internet Applications (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.
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.
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

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.

(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

(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

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

- None.

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(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.
(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)

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- 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.

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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		23165407-3
2. Credit hours:	3		
3. Program(s) in which the course is offered:		Computer Science Information Systems	
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)		Database II (23165306-3)	
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

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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.

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

5. Schedule of Assessment Tasks for Students During the Semester

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.

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| **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. |

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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		23165408-3
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)		Artificial Intelligence (23164402-4)	
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.

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

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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.

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(ii) Teaching strategies to be used to develop these skills
• Lectures, Tutorials, Practical sessions, Projects, Case study, Research, Self-study, Discussion, Workshops, Role playing.
(iii) Methods of assessment of students numerical and communication skills
• Written exams, Assignments, Oral exams, Practical exams, Reports, Project Discussion and Demo, Presentation, Posters, 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	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.

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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

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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	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		Elective
6. Pre-requisites for this course (if any)		Artificial Intelligence (23164402-4)
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 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

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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. 2. 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.

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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).   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.

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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	23165410-3
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	Elective	
6. Pre-requisites for this course (if any)	Algorithms (23163108-4) Computer Graphics (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 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

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

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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

2. Solve a wide range of problems related to various image processing techniques.

3. 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

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

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(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

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• 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).   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.

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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		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)		Computer Graphics (23163401-3) Artificial Intelligence (23164402-4)	
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

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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

   3. Understand the concepts of pattern recognition techniques.
   4. 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

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.

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	2. 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). 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.

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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		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)		Computer Graphics (23163401-3) Artificial Intelligence (23164402-4)	
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 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

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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
(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

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(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.

No	Assessment task	Week due	Proportion of Final Assessment
5. Schedule of Assessment Tasks for Students During the Semester
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

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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).
    o AI Lab
    o 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

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- 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.

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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	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		Elective
6. Pre-requisites for this course (if any)		Computer Security (23164404-3)
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 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

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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.

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(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.

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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:	Bioinformatics	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	Elective	
6. Pre-requisites for this course (if any)	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 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):

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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

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(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

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• 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.

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INFORMATION RETRIEVAL SYSTEMS

NCAAA Course Specification

Institution:	Umm Al-Qura University
College	Jamoum University College
Department	Information Systems

A. Course Identification and General Information

1. Course title and code:	Information Retrieval Systems	23265415-3
2. Credit hours:	3	
3. Program(s) in which the course is offered:		Information Systems
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)		Advanced Programming (23164110-4)
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 will discuss about Evaluation & Information Retrieval models, Text categorization & Statistical characteristics of text, Document filtering & information extraction, Parallel, Distributed & Multimedia retrieval, Types of information retrieval, systems and search engine, Query transformation and interface design, Visualization literacy, Usability research, Theories of visual perception and cognition, Visualization models and Visual analytics and data graphics.

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 IR; Document representation and retrieval models	2	6
Types of information retrieval systems and search engine	1	3
Document and query representation	1	3
Page Rank: exploiting document links IR and NLP: cross-linguistic information retrieval	2	6
Document filtering & information extraction	1	3
Query transformation	1	3

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Parallel, Distributed & Multimedia retrieval	1	3
Introduction to Information Visualization and Visualization literacy	2	3
Visual Principles, Theories of visual perception and cognition	1	3
Visualization models, Brushing, Linking, Animation and Dynamic Querying	1	3
Modern Information Retrieval, User interfaces and visualization	1	3
Visual analytics and Types of Data and Graphs	1	3

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 hours/week.

4. Development of Learning Outcomes in Domains of Learning

a. Knowledge

(i) Description of the knowledge to be acquired

Upon finishing this course, the students should be able to:

1. Techniques behind Web search engines, E-commerce recommendation systems Tools and techniques to do cutting-edge research in the area of information retrieval or text mining.

2. Learn about different areas of information retrieval research systems. Design, develop and use information retrieval and search systems.

3. Principles of information storage and retrieval systems and databases.

4. Identifying and understanding the need for information visualization.

5. Design and construct visualizations

(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 information retrieving and visualization 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.
(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

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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)
- Search Engines: Information Retrieval in Practice by Croft, B., Metzler, D., Strohman, T., 1st Edition, Addison Wesley, 2009.

2. Essential References
- Modern Information Retrieval by Baeza-Yates, Ricardo &Ribeiro-Neto, Berthier., 2nd Edition, Addison-Wesley, 2011
- Information Visualization by Spence, Robert., 1st edition, Addison Wesley, 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
- 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

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• 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.

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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		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		Elective	
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
2. 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.
3. 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.

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

5. Schedule of Assessment Tasks for Students During the Semester

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.)

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• 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.

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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		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)		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

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(i) Description of the knowledge to be acquired
2. 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
3. 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.
4. 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)

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(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.)

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• 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.

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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	23165502-4
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)		Software Engineering I (23164303-3)
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	30
System software analysis and design	5	30
Software develop documentation and project presentation	5	30

2. Course components (total contact hours per semester):				
Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
15	0	75	0	0

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

    4-5 hours/week.

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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

- The use of scientific, engineering, and knowledgeable skills in the writing the proposed graduation project
- How to choose the subject of the graduation project
- Design and planning of the graduation project.
- Participation in the one team groups to implement the objectives of the graduation project.
- The student's ability to collect and analyze data, interpret and draw conclusions
- The student's ability to develop scientific and practical thinking
- 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.
• The ability to read scientific literature and analysis
• 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

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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

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- 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.

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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	23165503-4
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)	Software Engineering II (23164304-3) Graduation Project I (23165502-4)	
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	12
System software analysis and design	2	12
Software implementation and testing	11	66

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

Lecture	Tutorial	Laboratory	Practical/Field work/Internship	Other: None
15	0	75	0	0

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3. Additional private study/learning hours expected for students per week.
    4-5 hours/week.

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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

- Identify and formulate computer science problems
- Applying the computer science knowledge and skills learned throughout the program
- 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.

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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. • The ability to read scientific literature and analysis. • The ability to implement a computer software. • 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

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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)
  - o 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.

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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.

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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	**SOf.** Apply computer science theory and software development fundamentals to produce computing-based solutions.	مطابق للإطار الوطني للمؤهلات
المهارات الإدراكية	أن يستطيع القيام بالاستقصاءات، وأن يفهم ويقوّم المعلومات والمفاهيم والأدلة الجديدة من مصادر متنوعة، ويطبق النتائج على نطاق واسع 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 حلول مبتكرة والاستجابة بشكل يعتمد على خلفيته النظرية والعملية ذات العلاقة.	Computer Science Program at University of Connecticut	**SOa.** Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions. **Sob.** Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	مطابق للإطار الوطني للمؤهلات
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.	Computer Science Program at University of Connecticut	**SOd.** Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles. **SOe.** Function effectively as a member or leader of a team engaged in activities	مطابق للإطار الوطني للمؤهلات

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مدى الاتساق	البرنامج المقترح	العلامة المرجعية	الإطار الوطني	وجه المقارنة
	appropriate to the program's discipline.		يتعامل مع القضايا الأخلاقية والمهنية التي لها علاقة بالقيم والأحكام الأخلاقية بطرق حساسة للآخرين ومتوافقة مع القيم الأساسية والأخلاقيات المهنية المتعارف عليها.	
مطابق للإطار الوطني للمؤهلات	**SOc.** Communicate effectively in a variety of professional contexts.	Computer Science Program at University of Connecticut	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.	مهارات التواصل، وتقنية المعلومات، والمهارات العددية

مصفوفة البرنامج

نواتج التعلم		المقررات																										
رمز ورقم المقرر		23165503-4	23165502-4	23165405-2	23164501-2	23164404-3	23164403-3	23164402-4	23164305-3	23164304-3	23164303-3	23164111-3	23164110-4	23163401-3	23163302-3	23163301-4	23163203-4	23163109-3	23163108-4	23163107-4	23163106-3	23162202-4	23162201-4	23162105-3	23162104-4	23162103-3	23162102-4	23161101-3
المعرفة																												
حقائق، ومفاهيم، والإجراءات الخاصة بالنظريات								✓										✓	✓	✓	✓	✓	✓	✓		✓		✓
المهارات المعرفية-الإدراكية																												
تطبيق المهارات عندما يطلب ذلك التفكير الإبداعي وحل المشكلات		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓				✓		✓	✓	✓
مهارات العلاقات مع الآخرين والمسؤولية																												
المسؤولية عن التعلم				✓	✓	✓																						
المشاركة الجماعية والقيادة		✓	✓	✓	✓	✓				✓	✓																	
الاستجابة بشكل مسؤول في المواقف الشخصية والمهنية				✓	✓	✓				✓	✓																	
المعايير الأخلاقية للسلوك				✓		✓																						
مهارات الاتصال، وتقنية المعلومات، والعددية																												
الاتصال الشفهي والكتابي		✓	✓	✓	✓	✓				✓	✓																	
استخدام تقنية المعلومات		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓			✓		✓	✓	✓
الرياضيات والإحصاء الأساسي																		✓				✓	✓		✓			
المهارات الحركية																												
لا تنطبق		لا تنطبق																										

نتائج مسح البرامج الدراسية النظيرة لبناء البرنامج الأكاديمي المستحدث

الكلية : الكلية الجامعية بالجموم

القسم: قسم الحاسب الآلي

البرنامج الحالي		البرنامج الأول		المقارنة بين البرامج المماثلة	
المقررات	الوحدات	المقررات	الوحدات	إجمالي وحدات البرنامج والمقررات	
٥٠	١٦٠	٣٩	١٢٠		
المقررات	الوحدات	المقررات	الوحدات	توزيع الوحدات والمقررات	
١٠	٢١	٨	٢٤	متطلبات الجامعة	
٩	٣٦	٥	١٥	متطلبات الكلية	
٣١	١٠٣	٢٦	٨١	متطلبات القسم	
١٤٨		٨١		الإجبارية	متطلبات التخصص
٠		٠		المساعدة	
١٢		٣٩		الاختيارية	
٠		٠		الرسالة	
٨		٦		المشروع البحثي	
٢		٠		الخبرة الميدانية	

البرامج الدراسية النظيرة

- برنامج علوم الحاسب (Computer Science Program at University of Connecticut)

http://www.cse.uconn.edu/undergraduate-studies/major-programs/computer-science/

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مستلزمات تطبيق البرنامج

الكلية : الكلية الجامعية بالجموم

القسم: قسم الحاسب الآلي

الموارد البشرية المتوفرة

عدد الفنيين ومؤهلاتهم	عدد الإداريين ومؤهلاتهم	عدد أعضاء هيئة التدريس					
		أستاذ	أستاذ مشارك	أستاذ مساعد	محاضر	معيد	
٠ بكالوريوس	٢ بكالوريوس	—	٣	٧	١٠	٤	المتوفر

الموارد البشرية (الحاجة الفعلية)

عدد الفنيين ومؤهلاتهم	عدد الإداريين ومؤهلاتهم	عدد أعضاء هيئة التدريس					
		أستاذ	أستاذ مشارك	أستاذ مساعد	محاضر	معيد	
٤ بكالوريوس	٤ بكالوريوس	٤	٥	١٠	١٣	٨	المتوفر

الإمكانيات المادية
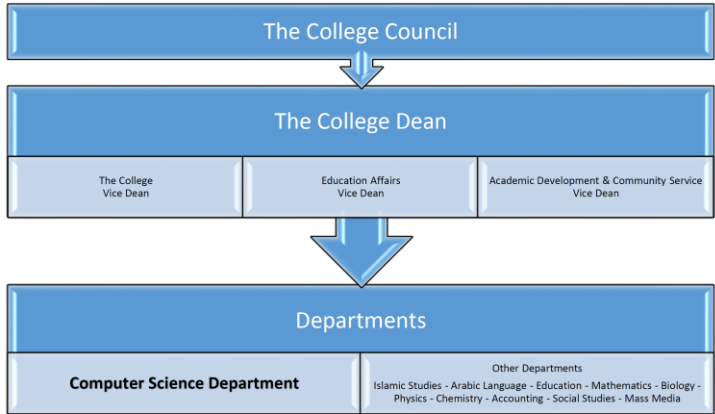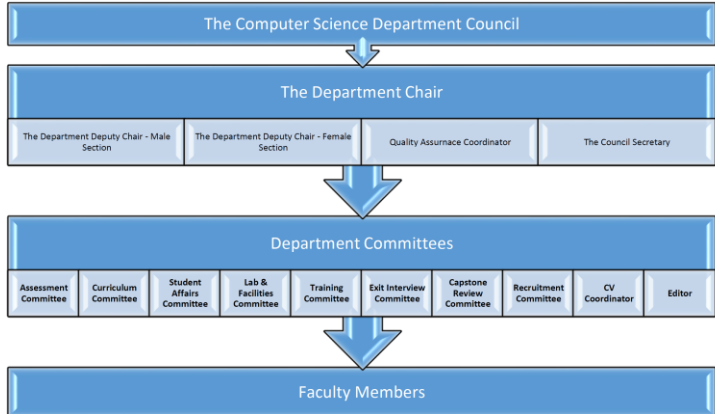
التجهيزات المطلوبة	التجهيزات المتاحة	المطلوب	المتاح	
٣ قاعات تحتاج إلى تجهيز	٩ قاعات مجهزة	—	١٢	القاعات الدراسية
٢ معمل للأجهزة تحتاج إلى عدد من الأجهزة	٢٢ معمل مجهز	—	٢٢	المعامل والمختبرات
٦ غرف تحتاج إلى تجهيز	١٨ غرفة مجهزة	٦	١٨	مكاتب أعضاء هيئة التدريس والإداريين
عدد وافر من الكتب الدراسية	أثاث	—	٢	المكتبة

جهات العمل المتوقعة للخريجين

- شركات نظم وشبكات وخدمات الحاسب.

- جميع الجهات والمنظمات والهيئات الحكومية والخاصة والتي بها أنظمة حاسب أو معلومات.

COMPUTER SCIENCE BACHELOR PROGRAM
NCAAA Program Specification

Institution:	Umm Al-Qura University	Date:	Jan. 2018
College/Department:	Jamoum University College / Computers		
Dean/Department Head:	Prof. Tawfeek Alshareef / Dr. Ahmed Subahi		
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.		

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8. Name of program chair or coordinator.	Dr. Ahmed Subahi
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 professionals in designing, developing and maintaining technical computing projects.
   PEO2. Enhance their skills and gain knowledge about modern 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

رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية	رقم المقرر	اسم المقرر باللغة العربية	اسم المقرر باللغة الإنجليزية
(١٧ ساعة معتمدة) المستوى الأول			(١٥ ساعة معتمدة) المستوى الثاني		
23161101-3	مهارات برمجة الحاسب الآلي	Computer Programming Skills	2304102-4	تفاضل وتكامل (٢)	Calculus II
2304101-4	تفاضل وتكامل (١)	Calculus I	23061101-4	فيزياء عامة (١)	General Physics I
23051101-4	الكيمياء عامة	General Chemistry	2309xxxx-4	اللغة الإنجليزية التقنية	Technical English Language
2309xxxx-6	اللغة الإنجليزية	English Language	23091112-3	مهارات التعلم	Learning Skills
(١٦ ساعة معتمدة) المستوى الثالث			(١٥ ساعة معتمدة) المستوى الرابع		
23162102-4	برمجة الحاسب الآلي	Computer Programming	23162104-4	البرمجة الشيئية	Object-Oriented Programming
23162103-3	هياكل متقطعة (١)	Discrete Structures I	23162105-3	هياكل متقطعة (٢)	Discrete Structures II

اسم المقرر باللغة الإنجليزية	اسم المقرر باللغة العربية	رقم المقرر	اسم المقرر باللغة الإنجليزية	اسم المقرر باللغة العربية	رقم المقرر
Computer Organization & Architecture	تنظيم وعمارة الحاسب	23162202-4	Digital Logic Design	التصميم الرقمي المنطقي	23162201-4
Linear Algebra I	الجبر الخطي (1)	23042243-4	Elementary Statistics & Probability	مبادئ الاحصاء والاحتمالات	2304231-3
			Quran I	القرآن الكريم (1)	2301116-2

(16 ساعة معتمدة) المستوى السادس			(16 ساعة معتمدة) المستوى الخامس		
اسم المقرر باللغة الإنجليزية	اسم المقرر باللغة العربية	رقم المقرر	اسم المقرر باللغة الإنجليزية	اسم المقرر باللغة العربية	رقم المقرر
Algorithms	خوارزميات	23163108-4	Data Structures	هياكل بيانات	23163106-3
Compiler Construction	تركيب المترجمات	23163109-3	Numerical Methods	طرق عددية	23163107-4
Computer Networks	شبكات الحاسب	23163203-4	Operating Systems	نظم التشغيل	23163301-4
Computer Graphics	الرسومات بالحاسب	23163401-3	Database I	قواعد البيانات (1)	23163302-3
Quran II	القرآن الكريم (2)	2301216-2	Islamic Culture I	الثقافة الإسلامية (1)	2302116-2

(16 ساعة معتمدة) المستوى الثامن			(16 ساعة معتمدة) المستوى السابع		
اسم المقرر باللغة الإنجليزية	اسم المقرر باللغة العربية	رقم المقرر	اسم المقرر باللغة الإنجليزية	اسم المقرر باللغة العربية	رقم المقرر
Parallel Computing	الحوسبة المتوازية	23164111-3	Advanced Programming	برمجة متقدمة	23164110-4
Software Engineering II	هندسة البرمجيات (2)	23164304-3	Software Engineering I	هندسة البرمجيات (1)	23164303-3
User Interface Design	تصميم واجهات المستخدم	23164305-3	Artificial Intelligence	الذكاء الاصطناعي	23164402-4
Computer Security	أمن الحاسبات	23164404-3	Internet Applications	تطبيقات الإنترنت	23164403-3
Summer Training	التدريب الصيفي	23164501-2	Islamic Culture II	الثقافة الإسلامية (2)	2302216-2
Quran III	القرآن الكريم (3)	2301316-2			

(16 ساعة معتمدة) المستوى العاشر			(17 ساعة معتمدة) المستوى التاسع		
اسم المقرر باللغة الإنجليزية	اسم المقرر باللغة العربية	رقم المقرر	اسم المقرر باللغة الإنجليزية	اسم المقرر باللغة العربية	رقم المقرر
Graduation Project II	مشروع التخرج (2)	23165503-4	Computers & Society	الحاسب والمجتمع	23165405-2
Elective Course III	مقرر اختياري (3)	23165×××-3	Graduation Project I	مشروع التخرج (1)	23165502-4
Elective Course IV	مقرر اختياري (4)	23165×××-3	Elective Course I	مقرر اختياري (1)	23165×××-3
Islamic Culture IV	الثقافة الإسلامية (4)	2302416-2	Elective Course II	مقرر اختياري (2)	23165×××-3
Arabic Language	اللغة العربية	2303109-2	Quran IV	القرآن الكريم (4)	2301416-2
Prophet Muhammad's Biography (PBUH)	السيرة النبوية	2309142-2	Islamic Culture III	الثقافة الإسلامية (3)	2302316-3

قائمة المقررات الاختيارية					
اسم المقرر باللغة الإنجليزية	اسم المقرر باللغة العربية	رقم المقرر	اسم المقرر باللغة الإنجليزية	اسم المقرر باللغة العربية	رقم المقرر
Neural Networks	الشبكات العصبية	23165408-3	Advanced Web Programming	البرمجة العنكبوتية المتقدمة	23165112-3
Natural Language Processing	معالجة اللغات الطبيعية	23165409-3	Computer Theory	نظرية الحاسب	23165113-3
Image Processing	معالجة الصور	23165410-3	Programming Languages	لغات البرمجة	23165114-3
Pattern Recognition	التعرف على الأنماط	23165411-3	Introduction to Cryptography	مقدمة في التشفير	23165115-3
Game Programming	برمجة الألعاب	23165412-3	Cloud Computing	الحوسبة السحابية	23165204-3
Forensics Computing	الحوسبة الجنائية	23165413-3	Database II	قواعد البيانات (2)	23165306-3
Bioinformatics	المعلوماتية الحيوية	23165414-3	Software Testing	اختبار البرمجيات	23165307-3
Information Retrieval Systems	نظم استرجاع المعلومات	23165415-3	Software Architecture	عمارة البرمجيات	23165308-3
Selected Topics I	مواضيع مختارة (1)	23165416-3	Mobile Applications	تطبيقات الجوال	23165406-3
Selected Topics II	مواضيع مختارة (2)	23165417-3	Big Data Analytics	تحليلات البيانات الضخمة	23165407-3

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

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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. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

SOb. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

SOc. Communicate effectively in a variety of professional contexts.

SOd. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

SOe. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

SOf. Apply computer science theory and software development fundamentals to produce computing-based solutions.

c) At what stage or stages in the program is the project or research undertaken?
Levels 9 and 10.

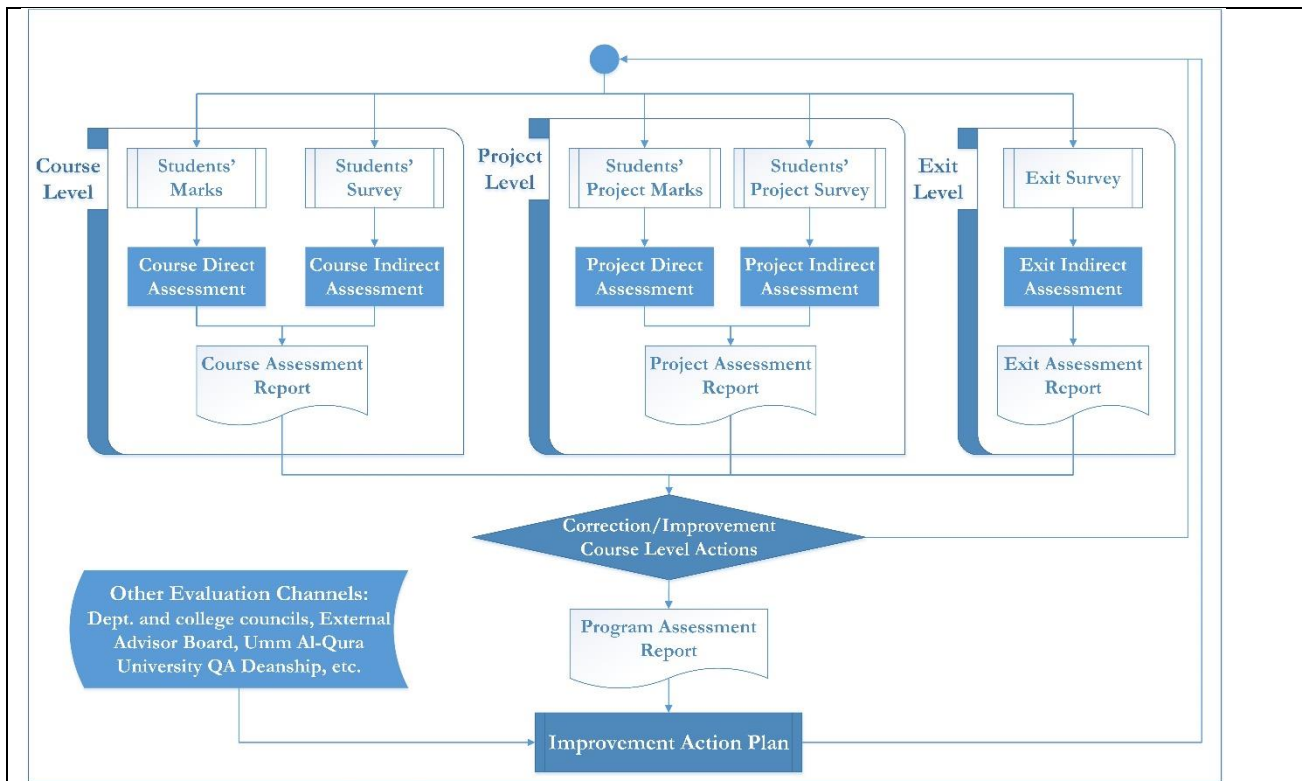d) Number of credit hours.
Four hours per week.

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.

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Assessment/Improvement Cycle.

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. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

SOb. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

SOc. Communicate effectively in a variety of professional contexts.

SOd. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

SOe. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

SOf. Apply computer science theory and software development fundamentals to produce computing-based solutions.

b) Program Learning Outcomes Mapping Matrix

The characteristics (SOa) through (SOf) 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	
Code	**Name**							
23161101-3	Computer Programming Skills							Formative Assessment
23162102-4	Computer Programming							
23162103-3	Discrete Structures I							
23162104-4	Object-Oriented Programming		✓					
23162105-3	Discrete Structures II							
23162201-4	Digital Logic Design							
23162202-4	Computer Organization & Architecture							
23163106-3	Data Structures							
23163107-4	Numerical Methods							
23163108-4	Algorithms	✓						
23163109-3	Compiler Construction							
23163203-4	Computer Networks				✓			
23163301-4	Operating Systems			✓				
23163302-3	Database I							
23163401-3	Computer Graphics					✓		
23164110-4	Advanced Programming	✓				✓		Summative Assessment
23164111-3	Parallel Computing	✓						
23164303-3	Software Engineering I			✓		✓		
23164304-3	Software Engineering II		✓				✓	
23164305-3	User Interface Design		✓					
23164402-4	Artificial Intelligence	✓						
23164403-3	Internet Applications			✓			✓	
23164404-3	Computer Security				✓			
23164501-2	Summer Training							
23165405-2	Computers & Society				✓			
23165502-4	Graduation Project I	✓		✓		✓	✓	
23165503-4	Graduation Project II		✓		✓		✓	
23165ₓₓₓ-3	Elective Course I							
23165ₓₓₓ-3	Elective Course II							
23165ₓₓₓ-3	Elective Course III							
23165ₓₓₓ-3	Elective Course IV							

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

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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	-

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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.

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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:

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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.
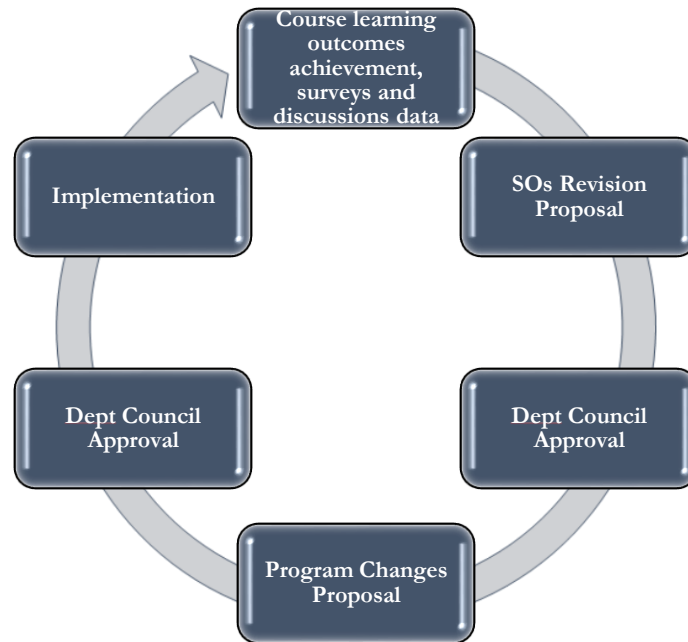
According to UQU regulations.

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 figure 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).

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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.
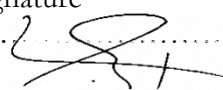
a) Strategies used in the program for obtaining assessments of the overall quality of the program and achievement of its intended learning outcomes:
   i. from current students and graduates of the program: Senior student and graduate surveys.
   ii. from independent advisors and/or evaluator(s): External 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. Ahmed Subahi 25/12/2017

محضر اجتماع لجنة تطوير المناهج

قسم الحاسب الآلي – الكلية الجامعية بالجموم

اسم اللجنة:	لجنة تطوير المناهج		
تاريخ الاجتماع:	يوم الأحد	رقم الاجتماع:	رقم (١) للعام ١٤٣٨-١٤٣٩هـ
	١٤٣٩٨/٤/١٣هـ	توقيت الاجتماع:	الساعة ٩:٠٠صباحاً
	٢٠١٦/١٢/٣١م	مكان الاجتماع:	مقر القسم بشطر الطلاب

	الحضور		التوقيع
١.	د. أحمد فيصل سبحي	الأستاذ المساعد ورئيس القسم – رئيساً	
٢.	د. خيرالدين حاج بوعزة	الأستاذ المشارك بالقسم – أمين سر اللجنة	
٣.	د. عبد الرحمن حيدرأحمد	الأستاذ المشارك بالقسم – عضواً	
٤.	د. علاء عبد الحكيم علي	الأستاذ المشارك بالقسم – عضواً	
٥.	د. جمال أحمد رشدي السيد	الأستاذ المساعد بالقسم – عضواً	
٦.	د. طارق خالد العفيف	الأستاذ المساعد 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 الخطة الدراسية الجديدة لبرنامج علوم الحاسب
٢.	اعتماد الخطة الدراسية الجديدة لبرنامج نظم المعلومات

التوصيات

١. **اعتماد الخطة الدراسية الجديدة لبرنامج علوم الحاسب**

تم استعراض الخطة الدراسية لبرنامج علوم الحاسب توصية ٣٨ بكلية الحاسب ونظم المعلومات بمقر الجامعة الرئيسي في العابدية، وتم دراستها واستيفاء جميع المستندات اللازمة لها من تقارير مراجعة خارجية وقياس آراء المعنيين وتوصيف البرنامج والمقررات ومستلزمات التطبيق تبين جاهزية القسم لتدريس هذه الخطة.

التوصية: توصي اللجنة باعتماد الخطة الدراسية الجديدة لبرنامج علوم الحاسب المرفقة.

٢. **اعتماد الخطة الدراسية الجديدة لبرنامج نظم المعلومات**

تم استعراض الخطة الدراسية لبرنامج نظم المعلومات توصية ٣٨ بكلية الحاسب ونظم المعلومات بمقر الجامعة الرئيسي في العابدية، وتم دراستها واستيفاء جميع المستندات اللازمة لها من تقارير مراجعة خارجية وقياس آراء المعنيين وتوصيف البرنامج والمقررات ومستلزمات التطبيق تبين جاهزية القسم لتدريس هذه الخطة.

التوصية: توصي اللجنة باعتماد الخطة الدراسية الجديدة لبرنامج نظم المعلومات المرفقة.

المملكة العربية السعودية
وزارة التعليم
جَامِعَةُ أُمِّ القُرى
(٠٣١)

الموضوع: المصادقة على محضر مجلس قسم الحاسب الآلي

سعادة رئيس قسم الحاسب الآلي   الموقر

السلام عليكم ورحمة الله وبركاته ... وبعد

نسأل الله لكم العون والسداد....

نشير إلى خطابكم رقم (٣٩٠١٠٠١٤٨٢) وتاريخ ١٤٣٩/٠٤/١٤هـ والمرفق به محضر اجتماع مجلس قسم الحاسب الآلي في جلسته (العاشرة) للعام الجامعي (١٤٣٨/١٤٣٩هـ) المنعقد بتاريخ ١٤٣٩/٠٤/١٣هـ.

نخبركم بالمصادقة على المحضر – مالم تكن – هناك أنظمة أو قرارات أو تعليمات تنفيذية أو إجرائية أو تعاميم تتعارض مع هذه المصادقة فتعتبر غير نافذة ، مع ملاحظة الآتي :

١) رفع ما جاء في توصية الموضوع الأول والثاني لأمانة مجلس الكلية لإكمال اللازم نظاماً .

وتقبلوا خالص تحياتي وتقديري ،،،

عميد الكلية الجامعية بالجموم

د. توفيق بن علي أحمد الشريف

الرقم : _____
التاريخ : _____
المشفوعات : _____

المملكة العربية السعودية
وزارة التعليم
جامعة أم القرى
(٠٣١)

سعادة الدكتور/ عميد الكلية الجامعية بالجموم   وفقه الله

السلام عليكم و رحمة الله و بركاته ،،،

نسأل الله لكم التوفيق والعون والسداد

نرفق لسعادتكم أصل محضر اجتماع مجلس قسم الحاسب الآلي في جلسته رقم (١٠) للعام الدراسي ١٤٣٨/١٤٣٩هـ والمنعقد في يوم الأحد الموافق ١٤٣٩/٤/١٣هـ.

نأمل من سعادتكم التكرم بالاطلاع واتخاذ ما ترونه مناسباً نحو المصادقة عليه والتوجيه بما يلزم.

و تقبلوا فائق تحياتي وتقديري ،،،،

رئيس قسم الحاسب الآلي
١٤٣٩/٤/١٣هـ

الدكتور/ أحمد فيصل سبحي

الرقم: ٢٨٢١-١٠٠-٣٩   التاريخ: ٢٤/٤/٣٩   المشفوعات:

المملكة العربية السعودية
وزارة التعليم
جامعة أم القرى
(٠٣١)

محضر اجتماع مجلس قسم الحاسب الآلي
في جلسته رقم (١٠) للعام الدراسي ١٤٣٨ـ١٤٣٩هـ

تم بعون الله وتوفيقه انعقاد مجلس قسم الحاسب الآلي السابع للعام الدراسي ١٤٣٨/١٤٣٩هـ في يوم الأحد الموافق ١٤٣٩/٤/١٣هـ في الساعة الحادية عشر والنصف في القاعة المخصصة بقسم الحاسب الآلي بالكلية الجامعية بالجموم برئاسة سعادة الدكتور/ أحمد فيصل سبحي وبحضور كل من:

د. أحمد فيصل سبحي	الأستاذ المساعد بالقسم ــ رئيساً للمجلس
د. هشام حامد أمين	الأستاذ المساعد بالقسم ــ أمين سر المجلس
د. خير الدين بوعزة	الأستاذ المشارك بالقسم ــ عضواً
د. عبد الرحمن حيدر أحمد	الأستاذ المشارك بالقسم ــ عضواً
د. علاء الدين عبد الحكيم علي	الأستاذ المشارك بالقسم ــ عضواً
د. جمال أحمد رشدي السيد	الأستاذ المساعد بالقسم ــ عضواً
د. صلاح عبد العظيم محمد فياض	الأستاذ المساعد بالقسم ــ عضواً
د. وائل عبد الرحمن دعبس	الأستاذ المساعد بالقسم ــ عضواً
د. يوسف عايض العتيبي	الأستاذ المساعد بالقسم ــ عضواً
د. طارق خالد العفيف	المحاضر بالقسم ــ عضواً

جدول الأعمال

١. مناقشة اعتماد الخطة الدراسية لبرنامج البكالوريوس علوم الحاسب.
٢. مناقشة اعتماد الخطة الدراسية لبرنامج البكالوريوس في نظم المعلومات.

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University
(031)

المملكة العربية السعودية
وزارة التعليم
جامعة أم القرى
(٠٣١)

محضر اجتماع مجلس قسم الحاسب الآلي
في جلسته رقم (١٠) للعام الدراسي ١٤٣٨ـ١٤٣٩هـ

بدأ المجلس سعادة الدكتور/ أحمد سبحي، رئيس القسم، بحمد الله تعالى ثم الصلاة والسلام على رسول الله صلى الله عليه وسلم. ثم قام سعادته باستعراض المواضيع المدرجة في جدول أعمال القسم وهي على النحو التالي:

الموضوع الاول: مناقشة اعتماد توصيف الخطة الدراسية لبرنامج البكالوريوس في تخصص علوم الحاسب

قام سعادة الدكتور / أحمد سبحي رئيس القسم بعرض الموضوع الاول على السادة أعضاء هيئة التدريس وهو مناقشة توصيف الخطة الدراسية لبرنامج البكالوريوس في تخصص علوم الحاسب الآلي حسب تقرير اجتماع لجنة تطوير المقررات المطبقة من قبل قسم علوم الحاسب الآلي في كلية الحاسب الآلي ونظم المعلومات بالعابدية (خطة ٣٨) ليتم تطبيقها في القسم ابتداءً من العام القادم.

القرار: التوصية باعتماد توصيف الخطة الدراسية لبرنامج البكالوريوس في تخصص علوم الحاسب الآلي بعد التأكد من استيفاءه لمعايير الخطط الدراسية المعمول بها في الجامعة.

المستند النظامي: صلاحية مجالس الأقسام.

الإجراء المطلوب: اعتماد توصيف البرنامج والرفع للجنة المناهج بالكلية لاعتماده.

الموضوع الثاني: مناقشة اعتماد توصيف الخطة الدراسية لبرنامج البكالوريوس في تخصص نظم المعلومات

قام سعادة الدكتور / أحمد سبحي رئيس القسم بعرض الموضوع الاول على السادة أعضاء هيئة التدريس وهو مناقشة توصيف الخطة الدراسية لبرنامج البكالوريوس في تخصص نظم المعلومات حسب تقرير اجتماع لجنة تطوير المقررات (المناهج) بالقسم، حيث أفاد بأن اللجنة قامت باعتماد توصيف الخطة الدراسية لبرنامج البكالوريوس في تخصص نظم المعلومات المطبقة من قبل قسم نظم المعلومات في كلية الحاسب الآلي ونظم المعلومات بالعابدية (خطة ٣٨) ليتم تطبيقها في القسم ابتداءً من العام القادم.

القرار: التوصية باعتماد توصيف الخطة الدراسية لبرنامج البكالوريوس في تخصص علوم الحاسب الآلي بعد التأكد من استيفاءه لمعايير الخطط الدراسية المعمول بها في الجامعة.

المستند النظامي: صلاحية مجالس الأقسام.

الإجراء المطلوب: اعتماد توصيف البرنامج والرفع للجنة المناهج بالكلية لاعتماده.

هذا وقد انتهى الاجتماع بحمد الله تعالى في الساعة الواحدة والنصف ظهراً وبنفس المكان.

رئيس قسم الحاسب الآلي

٢٩/٤/١٣

د / أحمد بن فيصل سبحي

الرقم : ....

التاريخ : ....

المشفوعات : ....

المملكة العربية السعودية
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جامعةُ أمّ القُرى
(٠٣١)

محضر اجتماع مجلس قسم الحاسب الآلي
في جلسته رقم (١٠) للعام الدراسي ١٤٣٨-١٤٣٩هـ

أعضاء مجلس القسم

التوقيع	الاسم	م
	د. خير الدين حاج بوعزة	١
	د. عبد الرحمن حيدر أحمد	٢
	د. علاء الدين عبد الحكيم علي	٣
	د. جمال أحمد رشدي السيد	٤
	د. هشام حامد أبو الحسن	٥
	د. وائل عبد الرحمن دعبس	٦
	د. صلاح عبد العظيم فياض	٧
	د. يوسف عايض العتيبي	٩
	د. طارق خالد العفيف	١٠

رئيس قسم الحاسب الآلي

د / أحمد بن فيصل سبحي

الرقم :

التاريخ :

المشفوعات :

المملكة العربية السعودية
وزارة التعليم
جامعة أم القرى
وكالة الجامعة للشؤون التعليمية
وحدة المناهج والخطط الدراسية

رقم المعاملة: -------------------

التاريـــــــــخ: ---- / ---- / ١٤٣٩هـ

المشفوعـــات: -------------------

نموذج التحكيم رقم (١)

- **البيانات الأساسية**

الجامعة:	جامعة أم القرى
الكلية:	الكلية الجامعية بالجموم
القسم:	الحاسب الآلي
مسمى البرنامج:	علوم الحاسب
رقم التوصية:	٣٩

- **محاور البرنامج**

لا	نعم	
( )	(✓)	- **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 يوفر البرنامج 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)		

المملكة العربية السعودية
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وكالة الجامعة للشؤون التعليمية
وحدة المناهج والخطط الدراسية

رقم المعاملة: -------------------

التاريــــــــخ: ---- / ---- / ١٤٣٩هـ

المشفوعــــات: -------------------

(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. أحمد فيصل سبحى

التوقيع: ....

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جامعة أم القرى
وكالة الجامعة للشؤون التعليمية
وحدة المناهج والخطط الدراسية

رقم المعاملة: --------------------

التاريـــــــــخ: ---- / ---- / ١٤٣٩هـ

المشفوعــــات: --------------------

External Arbitration (1)

- **General Information**

University:	Umm Al-Qura University
Collage:	Jamoum University College
Department:	Computers
Programme Title:	Computer Science
Plane No.:	39

- **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) 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		

المملكة العربية السعودية
وزارة التعليم
جامعة أم القرى
وكالة الجامعة للشؤون التعليمية
وحدة المناهج والخطط الدراسية

رقم المعاملة: --------------------

التاريـــــــــخ: ---- / ---- / ١٤٣٩هـ

المشفوعـــات: --------------------

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. Ahmed F. Subahi

Signature: ....

المملكة العربية السعودية
وزارة التعليم
جامعةُ أمّ القُرى
(٠٣١)

الكلية الجامعية بالجموم
وكيل الكلية للشؤون التعليمية

مذكرة إحالة داخلية

	سري	عاجل جدا	عاجل

رقم المعاملة	التاريخ	المشفوعات	

الأقسام الأكاديمية

- يعمم على جميع الأقسام الأكاديمية
- سعادة رئيس قسم الدراسات الإسلامية
- سعادة رئيس قسم التربية
- سعادة رئيس قسم المحاسبة
- سعادة رئيس قسم اللغة العربية
- سعادة رئيس قسم الحاسب الآلي
- سعادة رئيس قسم الرياضيات
- سعادة رئيس قسم الأحياء
- سعادة رئيس قسم الكيمياء
- سعادة رئيس قسم الفيزياء
- سعادة / ....

الأقسام الإدارية

- سعادة عميد الكلية الجامعية
- سعادة وكيل الكلية
- سعادة وكيل الكلية للتطوير الأكاديمي وخدمة المجتمع
- سعادة وكيلة الكلية بشطر الطالبات

يعمم على جميع الأقسام الإدارية

- سعادة مدير الإدارة
- سعادة المشرف على مكتبة الكلية
- سعادة المشرف على شؤون الطلاب
- سعادة / ....

للإطلاع	للإحاطة	للتوجيه	للمفاهمة	للمتابعة	للإفادة	للحفظ

- لإكمال اللازم حسب المتبع نظاماً
- يعمم على أعضاء القسم
- للدراسة وإبداء المرئيات
- للعرض على المجلس

....
....
....

وكيل الكلية للشؤون التعليمية

أ.ربيع الأول ١٤٣٨هـ

د. عبدالمجيد بن فهد الرفاعي

Kingdom of Saudi Arabia

Ministry of Education

Umm Al-Qura University

(031)

المملكة العربية السعودية

وزارة التعليم

جَامِعَةُ أُمِّ القُرَى

(٠٣١)

محضر اجتماع لجنة المناهج

اسم اللجنة	لجنة المناهج والخطط الدراسية		
تاريخ الاجتماع	الأحد ١٤-٤-١٤٣٩هـ	رقم الاجتماع	الأول
		توقيت الاجتماع	التاسعة والنصف صباحاً
		مكان الاجتماع	الكلية الجامعية بالجموم
رئيس الاجتماع	د.٠/ توفيق بن علي الشريف		

الأعضاء الحاضرين

صفته	القسم	الاسم	م
رئيساً	عميد الكلية	أ.د /توفيق بن علي الشريف	١.
نائباً	وكيل الكلية للشؤون التعليمية	د / عبدالمجيد بن فهد الرفاعي	٢.
عضواً	عضو هيئة التدريس بقسم الرياضيات	أ.د/ صالح بن منيع الحربي	٣.
عضواً	عضو هيئة التدريس بقسم اللغة العربية	أ.د/ أحمد عبدالمجيد خليفة	٤.
عضواً	عضو هيئة التدريس بقسم الفيزياء	أ.د/ فوزي صلاح طرابيه	٥.
عضواً	عضو هيئة التدريس بقسم الأحياء	أ.د/ كمال علي عطيه	٦.
عضواً	عضو هيئة التدريس بقسم الكيمياء	د. محمود سيد بشندي	٧.
عضواً	عضو هيئة التدريس بقسم الحاسب الآلي	د. خير الدين أبو عزة	٨.
عضواً	عضو هيئة التدريس بقسم الرياضيات	د. صلاح محمد عمران محمد	٩.

الرقم : .... التاريخ : .... المشفوعات : ....

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بدأ الإجتماع بحمد الله عز وجل والثناء عليه والصلاة والسلام على رسول الله وآله وصحبه أجمعين ، ثم استعرض سعادة رئيس اللجنة جدول الأعمال وتم إتخاذ التوصيات اللازمة لها حسب ما يلي :

جدول الأعمال	
مناقشة الخطة الدراسية لبرنامج بكالوريوس اللغة الإنجليزية.	١.
مناقشة الخطة الدراسية لبرنامج بكالوريوس نظم المعلومات.	٢.
مناقشة تحديث الخطة الدراسية لبرنامج بكالوريوس علوم الحاسب الآلي.	٣.

التوصيات	
بعد الاطلاع على الخطة الدراسية لبرنامج بكالوريوس اللغة الإنجليزية و الاستماع لتقرير مشرف البرامج الاكاديمية تمت الموافقة على الخطة الدراسية لبرنامج اللغة الإنجليزية.	التوصية الأولى بخصوص الموضوع الأول
بعد الاطلاع على الخطة الدراسية لبرنامج بكالوريوس نظم المعلومات و الاستماع لتقرير مشرف البرامج الاكاديمية تمت الموافقة على الخطة الدراسية.	التوصية الثانية بخصوص الموضوع الثاني
بعد الاطلاع على الخطة الدراسية لبرنامج بكالوريوس علوم الحاسب الآلي و الاستماع لتقرير مشرف البرامج الاكاديمية تمت الموافقة على الخطة الدراسية	التوصية الثالثة بخصوص الموضوع الثالث

الرقم : ....   التاريخ : ....   المشفوعات : ....

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توقيع الحاضرين من أعضاء لجنة المناهج في الكلية الجامعية بالجموم

بشأن المصادقة على اجتماع اللجنة –   والتي عقدت يوم الإثنين الموافق ١٤ / ٠٤ / ١٤٣٩هـ

التوقيع	العمل الحالي	الاسم	م
عبدالله	عميد الكلية الجامعية بالجموم	د. توفيق بن علي الشريف	١
	وكيل الكلية للشؤون التعليمية	د/ عبدالمجيد بن فهد الرفاعي	٢
١٤/٤/٢٨	رئيس قسم الرياضيات	أ.د / صالح بن منيع الحربي	٣
أحمد عبد المجيد خليفه	عضو هيئة التدريس بقسم اللغة العربية	أ.د / أحمد عبدالمجيد خليفه	٤
١٤/٤/	عضو هيئة التدريس بقسم الفيزياء	أ.د / فوزي صلاح طرابيه	٥
١٤ الله	عضو هيئة التدريس بقسم الأحياء	أ.د / كمال علي عطية	٦
محمود سيد بشندي ١٤/٤/١٤٣٩ هـ	عضو هيئة التدريس بقسم الكيمياء	د. محمود سيد بشندي	٧
١٤/٤/١٤٣٩	عضو هيئة التدريس بقسم الحاسب الآلي	د/ خير الدين أبو عزة	٨

الرقم : _____

التاريخ : _____   المشفوعات : _____

سري

الموضوع : المصادقة على محضر الكلية الجامعية بالجموم
العاشر المنعقد بتاريخ ١٤٢٩/٠٤/١٥هـ.

سعادة عميد الكلية الجامعية بالجموم   سلمه الله

السلام عليكم ورحمة الله وبركاته ...

نشير إلى خطابكم رقم (٢٩٠١٠٠٥٩٦٥) وتاريخ ١٤٣٩/٠٤/٢٠هـ المرفق به محضر
مجلس الكلية العاشر للعام الجامعي (١٤٢٨/١٤٣٩هـ) المنعقد بتاريخ ١٤٣٩/٠٤/١٥هـ.
نخبركم بالمصادقة على 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
إحالة توصية الموضوع الأول لعمادة الدراسات العليا لإكمال اللازم نظاماً.

وتقبلوا أطيب تحيـــاتي ،،،

مدير الجامعة

د. بكري بن معتوق بكري عساس

..٦٥٩

الرقم : ٦٩٣ / ٣ / س   التاريخ : ١٤٣٩ / ٤ / ٢٧هـ   المشفوعات : محضر

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{سري للغاية}

محضر مجلس الكلية الجامعية بمحافظة الجموم المنعقدة بتاريخ ١٤٣٩/٠٤/١٥هـ في جلسته (العاشرة)

للفصل الدراسي الأول للعام الجامعي ١٤٣٨هـ/١٤٣٩هـ

بعون الله وتوفيقه عقد الاجتماع العاشر لمجلس الكلية الجامعية بمحافظة الجموم في تمام الساعة العاشرة عشرة صباحاً من يوم الاثنين الموافق ١٤٣٩/٠٤/١٥هـ برئاسة عميد الكلية وبحضور كل من :-

١) الدكتور / توفيق على أحمد الشريف	رئيس المجلس	
٢) الدكتور / عبد المجيد فهد بركة الله الرفاعي	وكيل الكلية للشؤون التعليمية وأمين المجلس	
٣) الدكتور / عمر صالح عمر المالكي	وكيل الكلية	
٤) الدكتور / عبد الله ناصر زهير الشهري	وكيل الكلية للدراسات العليا والبحث العلمي	
٥) الدكتور / عبد الملك بن محمد سكتاوي	وكيل الكلية للتطوير وخدمة المجتمع	
٦) الدكتورة / هنادي بنت محمد عمر بن سراج قمره	وكيلة الكلية الجامعية في محافظة الجموم شطر الطالبات	
٧) الأستاذ الدكتور / صالح منيع بن منيع الله الحربي	رئيس قسم الرياضيات	
٨) الدكتور / سمير حسن محمد قاري	رئيس قسم الأحياء	
٩) الدكتور / عبد الله ناصر زهير الشهري	رئيس قسم المحاسبة	
١٠) الدكتور / سعيد معيض عبد الله القحطاني	رئيس قسم الفيزياء	
١١) الدكتور / أحمد فيصل أحمد سبحي	رئيس قسم الحاسب الآلي	
١٢) الدكتور / عمر صالح عمر المالكي	رئيس قسم اللغة العربية	
١٣) الدكتورة / خلود حسن هجرس الحازمي	رئيسة قسم الإعلام	
١٤) الأستاذ / أنس سعيد مسفر القحطاني	رئيس قسم الدراسات الإسلامية	
١٥) الدكتور / حمدان محمد دخيل الله الحربي	عضو المجلس	
١٦) الدكتور / ماجد محمود يعقوب فراش	عضو المجلس	
١٧) الدكتورة / سميرة أحمد حسن الفيفي	عضو المجلس	

وقد اعتذر عن الحضور :-

١- الدكتور / سامي عبد الله ضيف الله العربي	رئيس قسم الكيمياء	
٢- الدكتورة / عفاف عبد الله حسن قبوري	رئيسة قسم الخدمة الاجتماعية	

بدأ الاجتماع بحمد الله عز وجل والثناء عليه والصلاة والسلام على رسول الله وآله وصحبه أجمعين، ثم بدأ باستعراض جدول الاعمال واتخذ بشأنها التوصيات التالية :-

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موضوعات مجلس الكلية الجامعية بمحافظة الجموم في جلسته (العاشرة)المنعقدة يوم الاثنين الموافق ١٥/٠٤/١٤٣٩ هـ
للفصل الدراسي الأول ١٤٣٨/١٤٣٩ هـ

الموضوع الأول: فتح برنامج الدراسات العليا الموازي لقسم الأحياء في تخصص (علم الحيوان التجريبي).

الموضوع الثاني: إنشاء قسم اللغة الإنجليزية لبرنامج البكالوريوس

الموضوع الثالث: فتح قسم نظم المعلومات لبرنامج البكالوريوس

الموضوع الرابع: تحديث الخطة الدراسية لقسم الحاسب الآلي بالكلية الجامعية بالجموم.

الموضوع الخامس: الطلب المقدم سعادة الدكتور / **حمود بن عتيق المعبدي،** والذي يرغب بنقل خدماته من جامعة شقراء إلى جامعة أم القرى بالكلية الجامعية بالجموم بقسم اللغة العربية.

الموضوع السادس: الطلب المقدم سعادة الدكتور / **هوازن ضيف الله الزهراني،** والتي ترغب بنقل خدماتها من جامعة الباحة إلى جامعة أم القرى بالكلية الجامعية بالجموم بقسم الرياضيات.

الموضوع السابع: ما يستجد من أعمال.

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تابع لاجتماع مجلس الكلية الجامعية بمحافظة الجموم
الجلسة رقم (١٠) المنعقدة بتاريخ ١٤٣٩/٠٤/١٥هـ

الموضوع الرابع:

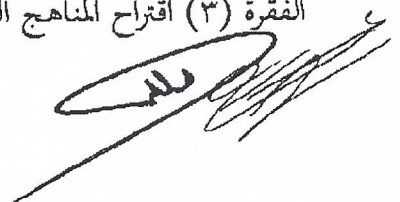تحديث الخطة الدراسية لقسم علوم الحاسب الآلي بالكلية الجامعية بالجموم.

التوصية الرابعة:

بعد اطلاع أعضاء المجلس على محضر القسم رقم (١٠) بتاريخ ١٤٣٩/٠٤/١٠هـ، وعلى الأوراق المرفقة للخطة الدراسية بقسم الحاسب الآلي **قـررا لمجلس التوصية** بالموافقة تحديث الخطة الدراسية وفق خطة قسم الحاسب الآلي بكلية الحاسب الآلي ونظم المعلومات بناءً على تحقيق متطلبات الاعتماد الأكاديمي، والموافقة على فتح سنة تحضيرية بالكلية تحت إشراف عمادة السنة التحضيرية بالجامعة على أن تقوم الكلية بتدريس جميع المقررات في هذه السنة، والرفع بكامل المعاملة إلى سعادة وكيل الجامعة للشؤون التعليمية لإكمال الإجراءات النظامية.

المستند النظامي المؤيد للتوصية:

المادة الرابعة والثلاثون من نظام مجلس التعليم العالي " مع التقيد بما يقضي به هذا النظام وغيره من الأنظمة وما يقرره مجلس التعليم العالي أو مجلس الجامعة يختص مجلس الكلية أو المعهد بالنظر في الأمور التي بالكلية أو المعهد وله على الخصوص:

الفقرة (٢) اقتراح خطط الدراسة أو تعديلها مع التنسيق بين الأقسام.

الفقرة (٣) اقتراح المناهج الدراسية والكتب المقررة والمراجع في أقسام الكلية أو المعهد.

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تابع لاجتماع مجلس الكلية.. الجلسة رقم(١٠)المنعقدة بتاريخ ١٤٣٩/٠٤/١٥ هـ هنا ، وقد انتهى الاجتماع بمثل ما ابدء به من حمد الله عز وجل والثناء عليه والصلاة والسلام على رسول الله وآله وصحبه أجمعين.

توقيع أعضاء المجلس : -

التوقيع	المنصب	الاسم
	وكيل الكلية	د. عمر صالح عمر المالكي
	وكيلة الكلية (شطر الطالبات)	د. هنادي بنت محمد عمر سراج قمره
١٤٣٩/٤/١٥	وكيل الكلية للدراسات العليا والبحث العلمي	د. عبد الله ناصر زهير الشهري
	وكيل الكلية للتطوير الأكاديمي وخدمة المجتمع	د. عبد الملك بن محمد سكتاوي
	رئيس قسم الرياضيات	أ.د. صالح منيع بن منيع الله الحربي
	رئيس قسم الأحياء	د. سمير حسن محمد قاري
١٤٣٩/٤/١٥	رئيس قسم المحاسبة	د. عبد الله ناصر زهير الشهري
معتذر	رئيس قسم الكيمياء	د. سامي عبد الله ضيف الله الحربي
	رئيس قسم الفيزياء	د. سعيد معيض عبد الله القحطاني
	رئيس قسم الحاسب الآلي	د. أحمد فيصل أحمد سبحي
	رئيس قسم اللغة العربية	د. عمر صالح عمر المالكي
معتذرة	رئيسة قسم الخدمة الاجتماعية	د. عفاف عبد الله حسن قبوري
	رئيسة قسم الإعلام	د. خلود حسن هجرس الحازمي
٤/١٥	رئيس قسم الدراسات الإسلامية	أ. أنس سعيد مسفر القحطاني
٤/١٥	عضو المجلس	د. حمدان محمد دخيل الله الحربي
٤/١٥	عضو المجلس	د. ماجد محمود يعقوب فراش
٤/١٥	عضو المجلس	د. سميرة أحمد حسن الفيفي

عميد الكلية – رئيس المجلس

د. توفيق بن علي أحمد الشريف

وكيل الكلية للشؤون التعليمية
وأمين المجلس

٤/١٥

د. عبد المجيد فهد بركة الله الرفاعي