



Course Specifications

Institution: Umm Al-Qura University	Date: 1439-1440
College/Department : Common First Year Deanship	

A. Course Identification and General Information

1. Course title and code: Computer Programming 48021503-3			
2. Credit hours: 3 credit hours - "2 nd semester = 3 cr. hrs."			
3. Program(s) in which the course is offered.			
<ul style="list-style-type: none"> • First year Engineering Track. 			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: First Year			
6. Pre-requisites for this course (if any):			
<ul style="list-style-type: none"> • Computer Skills 4800150-2 			
7. Co-requisites for this course (if any):			
<ul style="list-style-type: none"> • None 			
8. Location if not on main campus:			
<ul style="list-style-type: none"> • Main Campus 			
9. Mode of Instruction (mark all that apply):			
a. traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="90%"/>
b. blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>
c. e-learning	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="10%"/>
d. correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. other	<input type="checkbox"/>	What percentage?	<input type="text"/>
Comments:			

B Objectives

1. What is the main purpose for this course?

- Do conversion of number systems.
- Describe operation of basic logic gates.
- Acquire an introductory knowledge of problem solving and a sound knowledge of basic computer programming concepts.

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

- Continues updating for content of lectures as a result of recent achievements and researches in the field.
- Encouraging the students to deal with electronic books and eLearning portal of the university, as they are using many web based reference material and by providing them with continues update for information.
- Trying to Decrease the direct theoretical teaching load of the course and putting more time for practical lectures.
- Electronic materials and computer-based programs have been utilized to support the lecture course material.
- The course material will be posted on the eLearning portal of the university that could be accessed by the students enrolled in the course only.
- All the foregoing helps to increase interaction between staff members and students.

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

Course Description:

- In this course, we shall cover the following topics:
 - Introduction to Information Technology and computer architecture.
 - Numbering Systems (Decimal, Binary, Hexadecimal, and Octal).
 - Conversion between numbering systems; data representation and coding.
 - Arithmetic operations in Binary System (Addition, Subtraction, Multiplication).
 - General Problem Solving Concepts, Introduction to Programming and Programming Languages (C language).
 - Beginning Problem Solving Concepts for the Computer Programming, Problem Solving Tools
 - The formal definition of an Algorithm; representing Algorithms; the efficiency of Algorithms; Analysis of Algorithms.
 - Fundamentals of writing code, compilation, and execution
 - Basic types, variables, assignment, expressions, comments, identifiers, constants
 - Formatted Input/Output
 - Logical expressions and selection structures
 - Repetition and Loop Statements
 - Arrays
 - Functions

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Numbering Systems (Decimal, Binary, Hexadecimal)	1-2	8
Conversion between numbering systems; data representation and coding.	3	4
General Problem Solving Concepts, Introduction to Programming and Programming Languages	4	4
Beginning Problem Solving Concepts for the Computer Programming, Problem Solving Tools	5	4
The formal definition of an Algorithm; representing Algorithms; the efficiency of Algorithms; Analysis of Algorithms.	6-7	8
Problem Solving with the Sequential Logic Structure.	8-9	8
Problem Solving with Decisions and Case Logic Structure.	10-11	8
Problem Solving with Loops.	12-13	8
Arrays and functions.	14-15	8

2. Course components (total contact hours and credits per semester):							
		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	Planned	24					
	Actual				45		
Credit	Planned	2			3		4
	Actual	3			0		3

3. Additional private study/learning hours expected for students per week. <input type="text"/>	
<ul style="list-style-type: none"> There is no scheduled private study/ learning hours but the students can directly contact the lecturer during his office hours. 	

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

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

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

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Numbering Systems (Decimal, Binary, Hexadecimal)	<ul style="list-style-type: none"> Lectures Assignments 	<ul style="list-style-type: none"> Class participation Assignments
1.2	Conversion between numbering systems; data representation and coding.		

1.3	General Problem Solving Concepts, Introduction to Programming and Programming Languages	<ul style="list-style-type: none"> • Practical Labs • Internet and e-learning 	<ul style="list-style-type: none"> • Quizzes • Final written exam
1.4	Beginning Problem Solving Concepts for the Computer Programming, Problem Solving Tools		
1.5	The formal definition of an Algorithm; representing Algorithms; the efficiency of Algorithms; Analysis of Algorithms.		
1.6	Problem Solving with the Sequential Logic Structure.		
1.7	Problem Solving with Decisions and Case Logic Structure.		
1.8	Problem Solving with Loops.		
1.9	Arrays and functions.		
2.0	Cognitive Skills		
2.1	Effective Learning skills	<ul style="list-style-type: none"> • Formal lectures. • Lab activities. • Case studies related to the course topics. • Group discussions. 	<ul style="list-style-type: none"> • Class participation • Assignments • Quizzes • Final written and practical exams
2.2	Self-assessment and development.		
3.0	Interpersonal Skills & Responsibility		
3.1	Productive effective and interactive discussion skills.	<ul style="list-style-type: none"> • Conducting group experiments and writing group reports. • Group assignments where much of the most effective learning comes from the student explaining, discussing and defending his/her own ideas with peers. 	<ul style="list-style-type: none"> • Class participation • Assignments • Quizzes • Final written exam
3.2	Following the learner manners and ethics including; commitment, respect and communication with confidence.		
4.0	Communication, Information Technology, Numerical		
4.1	Using the programs for submitting assignments and designing presentations.	<ul style="list-style-type: none"> • Writing reports. • Incorporating the use and utilization of computer in the course requirements. 	<ul style="list-style-type: none"> • Class participation • Assignments • Quizzes • Final written and Practical exams
4.2	Enhance the ability to use the search engines communicate about data privacy		
5.0	Psychomotor		
5.1	Give the student the possibility to be up to date in technologies and understand it works.	<ul style="list-style-type: none"> • Group discussions. • Present examples from the real life using all acquired languages and tools 	<ul style="list-style-type: none"> • Class participation

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quizzes	1 to 14	15%
2	Practical	15	15%
3	Mid-term exam	8	30%
4	Final Exam	16	40%
5	Total		100%

D. Student Academic Counseling and Support

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

- The student has the right to contact the lecturer or coordinators by their e-mails or during their office hours for academic advices or consultations.
- Students can communicate with a staff member outside the official working hours by email or by its website.

E. Learning Resources

1. List Required Textbooks

- Brian W. Kernighan. 1988. "The C Programming Language" (2nd ed.). Prentice Hall Professional Technical Reference.
- 2. David A. Scanlan. 1989. "Structured Flowcharts Outperform Pseudocode: An Experimental Comparison". IEEE Softw. 6, 5 (September 1989), 28-36.
- 3. John C. Mitchell. 1996. "Foundations of Programming Languages". MIT Press, Cambridge, MA, USA.
- 4. Ravi Sethi. 1989. "Programming Languages: Concepts and Constructs". Addison-Wesley Longman Publishing Co., Inc., Boston, MA, USA.

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

- <http://www.robotroom.com/NumberSystems.html>
- http://www.rapidtables.com/math/number/Numeral_system.htm
- <http://www.math.grin.edu/~rebelsky/Courses/152/97F/Readings/student-binary>
- www.cimt.plymouth.ac.uk/projects/mepres/book9/bk9_1.pdf
- <http://cprogrammingexpert.com/>
- <http://www.cprogramming.com/tutorial/c-tutorial.html>
- <http://www.learn-c.org/>
- <https://www.edx.org/course/introduction-to-computer-science-harvardx-cs50x>

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

- Massive Open Online Courses.
- Edx, and Coursera.

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

- None

F. Facilities Required

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

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

- Laboratories

2. Technology resources (AV, data show, Smart Board, software, etc.)

- Data show
- Computers
- ELearning Portal

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

- None

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Students have to evaluate the teacher rendering before obtaining results through the university web portal.
- Evaluation of students on the basis of the entire class performance
- Statistical analysis of questionnaires to identify strengths and weaknesses and look for solutions.
- Regular meetings with students.

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

- Peer consultation on teaching.
- Discussions of faculty members teaching the course.
- Course Based Evaluation
- Rubrics based Assessment

3. Processes for Improvement of Teaching

- Conducting workshops given by experts on the teaching and learning methodologies.
- Workshops to facilitate the exchange of experiences amongst faculty members.
- Attending staff development training sessions
- Periodical departmental revisions of its methods of teaching.
- Monitoring the teaching activities by senior faculty members.
- Provide opportunities for academic and research staff to attend and participate in seminars and scientific conferences.
- Availability of electronic scientific information resources related to the subject.

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- Providing samples of all kinds of assessments in the Departmental course portfolio.
- Automatic checking for quizzes, midterm exam, and final exam.
- Faculty members from other institutions can also be invited to review the accuracy of the grading policy.
- The department coordinator and members of Quality Unit also ensures the accuracy.

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

- The course material, especially (Low-medium-high student answer sheet) and learning outcomes are periodically reviewed and the changes to be taken are approved in the Departmental and Faculty councils.
- Regular meeting to the staff to review the course effectiveness.
- The course plan is regularly compared with that of other local and international universities.

Course Coordinator:

Dr Mourad Mars | Email: msmars@uqu.edu.sa