King Fahd University of Petroleum and Minerals
Information and Computer Science Department

Syllabus
ICS103: Computer Programming in C (2-3-3)
2013 Spring Semester (Term 132)

Course Website: Blackboard 9.1 http://blackboard.kfupm.edu.sa

Class Times and Venues: Registrar Website http://regweb.kfupm.edu.sa/

List of lecture instructors:

INSTRUCTOR	Office	Phone	E-mail Address	Office Hours
Dr. Adel Ahmed	22/300		adelahmed@kfupm.edu.sa	
Dr. Aiman El-Maleh	22/407-5	2811	aimane@kfupm.edu.sa	MWR 11:00 - 12:00
Dr. Ahmed Almulhem	22/407-2	7554	ahmadsm@kfupm.edu.sa	UT 9:00 - 10:00
Dr. Rafi Ul Hasan	22/318	7330	mrhassan@kfupm.edu.sa	UM 15:00-17:00
Dr. Mohammed Balah	22/321	1390	mbalah@kfupm.edu.sa	UT 9:30-10:30, MW 9:00-10:00
Mr. Hazem Selmi	23/057	1450	hazem@kfupm.edu.sa	MW 12:15 -13:00, T 12:15-13:50
Mr. Masudul Hassan	22/407-1	3880	masud@kfupm.edu.sa	MW 10:00-11:00
Mr. Zahid Ayar	22/417	1864	ayar@kfupm.edu.sa	MWR 15:00 - 17:00
Mr. Kamel Chenaoua	23/082	2082	cskamel@kfupm.edu.sa	MWR 11:00-13:00
Mr. Said Muhammad	22/148-2	2081	said@kfupm.edu.sa	U 8:00 - 9: 00, T 8:00 -10: 00
Mr. Yahya Garout	22/324-1	4296	garout@kfupm.edu.sa	UT 9:00 – 10:30
Dr. Muhamed Mudawar	22/328	4642	Mudawar@kfupm.edu.sa	UTR 11:00-12:00 MW 10:00-11:00

Course Catalog Description

Overview of computer hardware and software; Programming in C with emphasis on modular and structured programming technique; Problem solving and algorithm development; Simple engineering and scientific problems. Note: ICS 103 cannot be taken by ICS/SWE students.

Co-requisites: MATH 101 or MATH 132

Course Objectives

Provide engineering students with basic knowledge of programming in C and problem solving.

Course Learning Outcomes

Upon completion of this course, each student should be able to:
1. Understand and find the output of simple C programs that incorporate different types of variables, expressions (arithmetic and logical), selection, and iteration.
2. Understand and find the output of more complex C programs containing arrays and invoking (calling) functions having input and output arguments using pointers.
3. Design and implement simple programs using basic syntax of C language such as assignment, expressions, selection, and iterations.
4. Practice modular programming by developing more complex C programs made of functions passing data between them using arrays, input, and output arguments.

Lab Learning Outcomes

Upon completion of the lab, each student should be able to:
1. Use effectively a software development tool for C programming.
2. Comprehend theoretical concepts through practical examples.
3. Strengthen programming capabilities to construct software systems of varying complexity.
4. Enhance teamwork and communication skills.
5. Engage in continuing professional development.

Required Material

- Problem Solving and Program Design in C, 7/E, by Jeri R. Hanly & Elliot B. Koffman. Prentice Hall, 2013.
- Lecture Slides.
- Lab Documents.

Other Recommended References

- C Programming: A Modern Approach, 2/e, by K. N. King, 2008.
- C Programming Language, 2/e, by Brian W. Kernighan & Dennis M. Ritchie. Prentice Hall, 1988.
- C for Engineers and Scientists, by Harry H. Cheng. McGraw Hill, 2009.
- C How to Program, 5/e, By Deitel & Deitel, 2007.
- Engineering Problem Solving with C, 3/e, by Delores M. Etter, 2005.

Assessment Plan

Evaluation Method	Weight
Lab: Lab Tests(8%), Lab work & Assessment (12%), Project (5%)	25%
Quizzes	10%
Programming Assignments	10%
Midterm Exam 8:00 PM, Thursday, April 03, 2014 Location: EXB. CENTER Material: ch1 - 6	25%
Final Exam: 8:00 AM, Monday, May 26, 2014 Location: EXB. CENTER Material: Comprehensive	30%

Course Tentative Schedule:

	Lecture			Lab (Check "Lab Syllabus & Regulations" document for details)
Wk#	Topic	Readings	Notes	Topic
1	Overview of Computers and Programming	1.1-1.3		No Lab
	Overview of Computers and Programming	1.4-1.5		
2	Overview of C	2.1-2.2		Lab 00: Introduction of the Lab; Use of IDE Environment to Write, Compile and Run C Programs
	Overview of C	2.3-2.4		
3	Overview of C	2.5-2.6		Lab 01: Data Types and Console I/O
	Top-Down design with Functions	3.1-3.3		
4	Top-Down design with Functions	3.4-3.5		Lab 02: Expressions
	Selection Structures	4.1-4.4		
5	Selection Structures	4.5-4.6		Lab 03: Functions without and with Input Parameters
	Selection Structures	4.7-4.9		
6	Repetition and Loop Statements	5.1-5.3		Lab 04: Selection
	Repetition and Loop Statements	5.4-5.5		
7	Repetition and Loop Statements	5.6-5.8		==Lab Test 1(Labs 1,2,3,4)== Lab 05: Repetition-1
	Repetition and Loop Statements	5.9-5.10, 5.12		
8	Pointers and Modular Programming	6.1-6.3		Lab 06: Repetition-2
	Pointers and Modular Programming	6.4-6.8		
9	Data Files	11.1	==Midterm Exam==	Lab 07: Functions with Output Parameters using Pointers
	Arrays	7.1-7.3		
10	Using Array Elements as Function Arguments	7.4		Lab 08: Data Files
	Array Arguments	75		
11	Searching and Sorting an Array	7.6		Lab 09: 1-D Arrays (How to Read & Write Elements in 1-D Array)
	Parallel Arrays and Enumerated Types	7.7		
12	Multidimensional Arrays	7.8		Lab 10: 1-D Arrays (How to Use 1-D Array with Functions)
	Array Processing Illustrated	7.9, 7.11		
13	Strings	8.1-8.2		==Lab Test 2(Labs 5,6,7,8,9,10)== Lab 11: 2-D Arrays
	Strings	8.3-8.4		
14	Strings	8.5-8.7		Lab 12: Strings
	Strings	8.8-8.9		
15.	Review and Problem Solving			

Course Policies

- *Labs:* Lectures and labs are integrated and they complement each other. To pass this course, the student must pass the lab-component of the course.
- *Course Website & Participation:* Students are required to periodically check the course website and download course material as needed. Several resources will be posted through the website as well. Keys to quizzes and exams are generally discussed during class as time permits but solutions will be posted. Blackboard will be used for communication and interaction, posting and submitting assignments, posting grades, posting sample exams, etc. It is expected that you get benefit of the discussion board by raising questions or answering questions put by others.
- *Attendance:* Regular attendance is a university requirement; hence, attendance will be checked at the beginning of each lecture and lab. Late arrivals will disrupt the class session. Hence, two late attendances (more than 10 minutes) will be considered as one absence. Missing more than <u>6 unexcused lectures</u> or <u>3 unexcused lab</u> will result in a <u>DN grade without prior warning</u>. To avoid being considered as absent, an official excuse must be shown no later than one week of returning to classes.
- *No makeup* of homework, quizzes or exams will be given.
- *Re-grading policy:* If you have a complaint about any of your grades, discuss it with the instructor no later than a week of distributing the grades (except for the final). Only legitimate concerns on grading should be discussed.
- *Office Hours:* Students are encouraged to use the office hours to clarify any part of the material that is not clear; however, the instructor will only provide hints if it is an assigned task but not solve it.
- *Academic honesty:* Students are expected to abide by all the university regulations on academic honesty. Cheating will be reported to the Department Chairman and will be severely penalized. Although collaboration and sharing knowledge is highly encouraged, copying others' work without proper citation, either in part or full, is considered plagiarism. Whenever in doubt, review the university guidelines or consult the instructor. <u>Cheating in whatever form will result in F grade.</u>
- *Courtesy:* Students are expected to be courteous toward the instructor and their classmates throughout the duration of this course. Talking while someone else is speaking will not be tolerated. Furthermore, all cell phones must be turned off during class and exams. In addition, students are expected to be in class on time. More importantly, you are not allowed to leave the class unless it is an urgent matter.

✿ ✿ Good Luck ✿ ✿