

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
COMPUTER ENGINEERING DEPARTMENT

ICS 103: Computer Programming in C
Term 093 Lecture Breakdown

Lec #	Date	Topics	Ref.
1	S 3/7	Syllabus. Course Introduction.	
2	U 4/7	Overview of Computers, Hardware & Software, Computer Hardware Components of a Computer, Memory, Computer Software, Computer Languages.	1.1-1.5, H1
3	M 5/7	Compiler, Software Development Method, Pseudo code & Flowchart.	1.1-1.5, H1
4	T 6/7	Overview of C: History & Philosophy, Why C? What's Missing? General Form of a C program: Preprocessor Directives, Comments, The "main" Function, Variables and Data Types.	2.1-2.5, H2, H3
5	S 10/7	Executable Statements, Input/Output Operations and Functions, The printf Function, The scanf Function, Assignment Statements, return Statement, Reserved Words, Identifiers.	2.1-2.5, H2, H3
6	U 11/7	Punctuation and Special Symbols, Formatting Numbers in Program Output. C Arithmetic Expressions, C Operators, Data Type of an Expression, Mixed-Type Assignment Statement, Type Conversion Through Casts, Expressions with Multiple Operators, Rules for Evaluating Expressions.	3.1-3.3, H4
7	M 12/7	Rules for Evaluating Expressions, Writing Mathematical Formulas in C, Programming Style, Bad Programming practices. Introduction to Functions, Predefined Functions and Code Reuse, Some Mathematical Library Functions. Simple User-defined Functions.	3.1-3.3, H4 3.4,3.5, H5
8	T 13/7	Function Prototypes, Function Definition, Placement of Functions in a program, Execution Order of Functions. (Quiz#1)	3.4,3.5, H5
9	S 17/7	Control Structures, Compound Statements, Conditions, Relational and Equality Operators, Logical Operators. Operator	4.1-4.7, H6

		Precedence, Character Comparison, Logical Assignment, Complementing a condition, DeMorgan's Theorem, <i>if</i> statement: Two alternatives, One alternative, Nested if Statements.	
10	U 18/7	Multiple-Alternative Decision Form, Common if statement errors. Switch statement.	4.1-4.7, H6
11	M 19/7	Nested if versus switch, Common Programming Errors. Repetition in Programs, Counting Loops, While Statement, Compound Assignment Operators, For Statement, Increment and Decrement Operators.	4.6-4.7, H6 5.1-5.5, H7
12	T 20/7	Prefix and Postfix Increment/Decrement. Conditional Loops, Sentinel Controlled Loops, Nested Loops.	5.5-5.8, H7
	W 21/7	Major Exam I	
13	S 24/7	Do While Loop. Why data files? Steps For Using Data Files, Declaring FILE pointer variables, Opening data files for input/output, Scanning from and printing to data files, Closing input and output files, Handling File not found error, EOF-controlled Loops.	5.6-5.8, H7 & 2.6, H8
14	U 25/7	Types of Functions, void Functions with Input Arguments, Actual Arguments & Formal Parameters, Writing Modular Programs using Functions.	6.1, H9
15	M 26/7	Functions with Input Argument and a Single Result. Re-usability of Functions, Logical Functions, Functions with Multiple Arguments, Function Data Area, Testing Functions Using Drivers, Why do we use Functions? Common Programming Errors.	6.1, H9
16	T 27/7	Introducing Functions that return multiple results, What is a Pointer variable? (Quiz#2)	6.3 , 6.5, H10
17	S 31/7	Functions returning multiple results, Triple use for Asterisk (*), Examples of Functions Returning Multiple Results. Introducing Recursive Functions, Format of recursive Functions, Recursive Factorial, Tracing Recursive Functions, Recursive Multiplication, Recursive Power Function. Recursive Fibonacci Function, Tracing using Recursive Tree.	6.3 , 6.5, H10 6.6, H11
18	U 1/8	What is an Array? Declaring Arrays, Array Initialization, Array Subscripts, Accessing	7.1-7.3, H12

		Array Elements. Array Examples.	
19	M 2/8	Using array elements as function arguments: Examples. Using arrays as function arguments.	7.4, H13
20	T 3/8	Returning an array result: Examples. Partially filled Arrays. (Quiz#3)	7.4, H13
21	S 7/8	Introduction to Searching, Linear Search Algorithm, Binary Search Algorithm, Binary Search Implementation. Introduction to Sorting. Selection Sort Algorithm, Selection Sort Implementation.	7.5, H14
22	U 8/8	Selection Sort Implementation, Bubble Sort Algorithm, Bubble Sort Implementation. What is a String? Input/Output with printf and scanf.	7.5, H14 7.6, H15
23	M 9/8	Input/Output with fgets and fputs, String Copy (strcpy), String Length (strlen), String Comparison (strcmp).	7.6, H15
24	T 10/8	Review for Major Exam II.	
	Th 12/8	Major Exam II	
25	S 14/8	String Concatenation (strcat), String Tokenization (strtok), Searching a string (strchr and strstr), Character Related functions.	7.6, H15
26	U 15/8	Introduction to 2-D Arrays, Declaration of 2-D Arrays, Accessing 2-D Array elements, Initialization of 2-D Arrays, Processing 2-D Arrays. 2-D Arrays as parameters to functions. 2-D Arrays Example Programs.	8.1, H16
27	M 16/8	Array of Strings, Input/Output with Arrays of Strings, Use of <i>break</i> in loops, Use of <i>continue</i> in Loops.	8.2,8.3, H17
28	T 17/8	Review for Final Exam.	
29	S 21/8	(Quiz#4)	
30	U 22/8	Review for Final Exam.	