

**KING FAHD UNIVERSITY OF PETROLEUM & MINERALS**  
**COMPUTER ENGINEERING DEPARTMENT**

**ICS 103: Computer Programming in C**  
**Term 083 Lecture Breakdown**

<b>Lec #</b>	<b>Date</b>	<b>Topics</b>	<b>Ref.</b>
1	S 11/7	No Class.	
2	U 12/7	No Class.	
3	M 13/7	Syllabus. Overview of Computers, Hardware & Software, Computer Hardware Components of a Computer, Memory.	1.1-1.5, H1
4	T 14/7	Computer Software, Computer Languages, Compiler, Software Development Method, Pseudo code & Flowchart. Overview of C: History & Philosophy, Why C? What's Missing?	1.1-1.5, H1 & 2.1-2.2, H2
	W 15/7 (Makeup)	General Form of a C program: Preprocessor Directives, Comments, The "main" Function, Variables and Data Types, Executable Statements, Input/Output Operations and Functions, The printf Function, The scanf Function, Assignment Statements, return Statement, Reserved Words, Identifiers, Punctuation and Special Symbols, Formatting Numbers in Program Output (for integers).	2.1-2.5, H2, H3
5	S 18/7	Formatting Numbers in Program Output for integers & doubles. 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, Writing Mathematical Formulas in C, Programming Style, Bad Programming practices.	2.3-2.5, H3 & 3.1-3.3, H4
6	U 19/7	Introduction to Functions, Predefined Functions and Code Reuse, Some Mathematical Library Functions, Simple User-defined Functions, Function Prototypes, Function Definition, Placement of Functions in a program, Execution Order of Functions.	3.4,3.5, H5
7	M 20/7	Control Structures, Compound Statements, Conditions, Relational and Equality	4.1-4.5, H6

		Operators, Logical Operators, Operator Precedence, Character Comparison.	
8	T 21/7	Character Comparison, Logical Assignment. <b>(Quiz#1)</b>	4.1-4.5, H6
	W 22/7 (Makeup)	Complementing a condition, DeMorgan's Theorem, <i>if</i> statement: Two alternatives, One alternative, Nested <i>if</i> Statements, Multiple-Alternative Decision Form, Common <i>if</i> statement errors, Switch statement.	4.6-4.7, H6
9	S 25/7	Switch statement, Nested <i>if</i> versus switch, Common Programming Errors. Repetition in Programs, Counting Loops, While Statement, Compound Assignment Operators, For Statement, Increment and Decrement Operators, Prefix and Postfix Increment/Decrement.	4.6-4.7, H6 & 5.1-5.5, H7
10	U 26/7	Conditional Loops, Sentinel Controlled Loops, Nested Loops, Do While Loop.	5.6-5.8, H7
11	M 27/7	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.	2.6, H8
12	T 28/7	Types of Functions, void Functions with Input Arguments, Actual Arguments & Formal Parameters, Writing Modular Programs using Functions, Functions with Input Argument and a Single Result.	6.1, H9
	W 29/7	Major Exam I	
13	S 1/8	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
14	U 2/8	Introducing Functions that return multiple results, What is a Pointer variable? Functions returning multiple results, Triple use for Asterisk (*), Examples of Functions Returning Multiple Results.	6.3 , 6.5, H10
15	M 3/8	Examples of Functions Returning Multiple Results. Introducing Recursive Functions, Format of recursive Functions, Recursive Factorial, Tracing Recursive Functions, Recursive Multiplication, Recursive Power Function.	6.6, H11
16	T 4/8	Recursive Fibonacci Function, Tracing using Recursive Tree. What is an Array?	6.6, H11 & 7.1-7.3, H12

		Declaring Arrays, Array Initialization, Array Subscripts, Accessing Array Elements, Array Examples.	
17	S 8/8	Review on Arrays, Using array elements as function arguments. <b>(Quiz#2)</b>	7.4, H13
18	U 9/8	Using array elements as function arguments: Examples. Using arrays as function arguments: Examples.	7.4, H13
19	M 10/8	Returning an array result: Examples, Partially filled Arrays.	7.4, H13
20	T 11/8	No Class.	
	W 12/8 (Makeup)	Partially filled Arrays. Introduction to Searching, Linear Search Algorithm, Binary Search Algorithm, Binary Search Implementation, Introduction to Sorting.	7.5, H14
21	S 15/8	Selection Sort Algorithm, Selection Sort Implementation, Bubble Sort Algorithm, Bubble Sort Implementation.	7.5, H14
22	U 16/8	What is a String? Input/Output with printf and scanf, Input/Output with gets and puts, Input/Output with fgets and fputs, String Copy (strcpy).	7.6, H15
23	M 17/8	String Length (strlen), String Comparison (strcmp), String Concatenation (strcat), String Tokenization (strtok), Searching a string (strchr and strstr), Character Related functions.	7.6, H15
24	T 18/8	Character Related functions. <b>(Quiz#3)</b>	7.6, H15
	W 19/8	Major Exam II	
25	S 22/8	Major Exam II Solution.	
26	U 23/8	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.	8.1, H16
27	M 24/8	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 25/8	<b>(Quiz#4)</b>	
29	S 29/8	Review (Solving Previous Exams).	
30	U 30/8	Review (Solving Previous Exams).	