

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
COMPUTER ENGINEERING DEPARTMENT

ICS 103: Computer Programming in C
Term 103 Lecture Breakdown

Lec #	Date	Topics	Ref.
1	S 25/6	Syllabus. Course Introduction.	
2	U 26/6	Overview of Computers, Hardware & Software, Computer Hardware Components of a Computer, Memory, Computer Software, Computer Languages, Compiler.	1.1-1.5, H1
3	M 27/6	Software Development Method, Pseudo code & Flowchart. Overview of C: History & Philosophy, Why C? What's Missing?	1.1-1.5, H1 2.1-2.5, H2, H3
4	T 28/6	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.	2.1-2.5, H2, H3
5	S 2/7	Assignment Statements, return Statement, Reserved Words, Identifiers. Punctuation and Special Symbols, Formatting Numbers in Program Output.	2.1-2.5, H2, H3
6	U 3/7	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.	3.1-3.3, H4
7	M 4/7	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
8	T 5/7	Control Structures, Compound Statements, Conditions, Relational and Equality Operators, Logical Operators. Operator Precedence. (Quiz#1)	4.1-4.7, H6

9	S 9/7	Character Comparison, Logical Assignment, Complementing a condition, DeMorgan's Theorem, <i>if</i> statement: Two alternatives, One alternative, Nested if Statements. Multiple-Alternative Decision Form.	4.1-4.7, H6
10	U 10/7	Common if statement errors. Switch statement. Nested if versus switch, Common Programming Errors.	4.1-4.7, H6
11	M 11/7	Repetition in Programs, Counting Loops, While Statement, Compound Assignment Operators, For Statement.	5.1-5.5, H7
12	T 12/7	Increment and Decrement Operators. Prefix and Postfix Increment/Decrement. Conditional Loops, Sentinel Controlled Loops, Nested Loops. Do While Loop.	5.5-5.8, H7
	W 13/7	Major Exam I	
13	S 16/7	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 & 2.7, H8
14	U 17/7	Types of Functions, void Functions with Input Arguments, Actual Arguments & Formal Parameters, Writing Modular Programs using Functions.	6.1, H9
15	M 18/7	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?	6.1, H9
16	T 19/7	Common Programming Errors. (Quiz#2)	6.1, H9
17	S 23/7	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
18	U 24/7	Introducing Recursive Functions, Format of recursive Functions, Recursive Factorial, Tracing Recursive Functions, Recursive Multiplication, Recursive Power Function. Recursive Fibonacci Function, Tracing using Recursive Tree.	6.6, H11
19	M 25/7	What is an Array? Declaring Arrays, Array Initialization, Array Subscripts, Accessing Array Elements. Array Examples.	7.1-7.3, H12

20	T 26/7	Using array elements as function arguments: Examples. Using arrays as function arguments.	7.4, H13
21	S 30/7	Returning an array result: Examples. Partially filled Arrays. (Quiz#3)	7.4, H13
22	U 31/7	Introduction to Searching, Linear Search Algorithm, Binary Search Algorithm, Binary Search Implementation. Introduction to Sorting. Selection Sort Algorithm, Selection Sort Implementation.	7.5, H14
23	M 1/8	Bubble Sort Algorithm, Bubble Sort Implementation. What is a String? Input/Output with printf and scanf. Input/Output with gets and puts.	7.5, H14 7.6, H15
24	T 2/8	Review for Major Exam II.	
	W 3/8	Major Exam II	
25	S 6/8	Input/Output with gets, fgets, puts and fputs.	7.6, H15
26	U 7/8	String Copy (strcpy), String Length (strlen), String Comparison (strcmp), String Concatenation (strcat), String Tokenization (strtok), Searching a string (strchr and strstr).	7.6, H15
27	M 8/8	Character Related functions. 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.	7.6, H15 8.1, H16
28	T 9/8	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
29	S 13/8	Review for Final Exam.	
30	U 14/8	(Quiz#4)	