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

ICS 103: Computer Programming in C

**Term 092 Lecture Breakdown**

|  |  |  |  |
| --- | --- | --- | --- |
| **Lec#** | **Date** | **Topics** | **Ref.** |
| 1 | U 21/2 | No Class. |  |
| 2 | T 23/2 | No Class. |  |
|  | S 27/2 (Makeup) | Syllabus. Overview of Computers, Hardware & Software, Computer Hardware Components of a Computer, Memory, Computer Software. | 1.1-1.5, H1 |
| 3 | U 28/2 | No Class. |  |
| 4 | T 2/3 | Memory, Computer Software, Computer Languages, Compiler, Software Development Method. | 1.1-1.5, H1 |
|  | S 6/3 (Makeup) | Pseudo code & Flowchart. 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, 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). | 1.1-1.5, H1 &  2.1-2.5, H2, H3 |
| 5 | U 7/3 | 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 |
| 6 | T 9/3 | Introduction to Functions, Predefined Functions and Code Reuse, Some Mathematical Library Functions. **(Quiz#1)** | 3.4,3.5, H5 |
| 7 | U 14/3 | Simple User-defined Functions, Function Prototypes, Function Definition, Placement of Functions in a program, Execution Order of Functions. Control Structures, Compound Statements, Conditions, Relational and Equality Operators, Logical Operators. | 3.4,3.5, H5 &  4.1-4.5, H6 |
| 8 | T 16/3 | Operator Precedence, Character Comparison, Logical Assignment, Complementing a condition, DeMorgan’s Theorem, ***if*** statement: Two alternatives, One alternative, Nested if Statements, Multiple-Alternative Decision Form, Common if statement errors. | 4.1-4.7, H6 |
| 9 | U 21/3 | Switch statement, Nested if versus switch, Common Programming Errors. | 4.6-4.7, H6 |
| 10 | T 23/3 | Repetition in Programs, Counting Loops, While Statement, Compound Assignment Operators, For Statement, Increment and Decrement Operators. | 5.1-5.5, H7 |
|  | Th. 25/3 | **Major Exam I** |  |
| 11 | U 28/3 | Prefix and Postfix Increment/Decrement. Conditional Loops, Sentinel Controlled Loops, Nested Loops. | 5.5-5.8, H7 |
| 12 | T 30/3 | No Class. |  |
|  | W 31/3 | **Last Day for Dropping with W** |  |
| 13 | U 4/4 | 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 |
|  | M 5/4 (Makeup) | 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 |
| 14 | T 6/4 | 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 |
| 15 | U 11/4 | Introducing Functions that return multiple results, What is a Pointer variable? **(Quiz#2)** | 6.3 , 6.5, H10 |
| 16 | T 13/4 | Functions returning multiple results, Triple use for Asterisk (\*), Examples of Functions Returning Multiple Results. Examples of Functions Returning Multiple Results. | 6.3 , 6.5, H10 |
|  | 17/4-21/4 | **Midterm Vacation** |  |
| 17 | U 25/4 | 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 |
| 18 | T 27/4 | What is an Array? Declaring Arrays, Array Initialization, Array Subscripts, Accessing Array Elements. **(Quiz#3)** | 7.1-7.3, H12 |
| 19 | U 2/5 | Accessing Array Elements, Array Examples. Using array elements as function arguments: Examples. Using arrays as function arguments. | 7.4, H13 |
| 20 | T 4/5 | Using arrays as function arguments: Examples. Returning an array result: Examples. | 7.4, H13 |
|  | W 5/5 | **Last Day for Dropping all Courses with W** |  |
| 21 | U 9/5 | Partially filled Arrays. Introduction to Searching, Linear Search Algorithm, Binary Search Algorithm, Binary Search Implementation. | 7.5, H14 |
|  | U 9/5 (Makeup) | Introduction to Sorting. Selection Sort Algorithm, Selection Sort Implementation, Bubble Sort Algorithm, Bubble Sort Implementation. | 7.5, H14 |
| 22 | T 11/5 | Review for Major Exam II. |  |
|  | Th. 13/5 | **Major Exam II** |  |
| 23 | U 16/5 | What is a String? Input/Output with printf and scanf, Input/Output with gets and puts, Input/Output with fgets and fputs. | 7.6, H15 |
| 24 | T 18/5 | String Copy (strcpy), String Length (strlen), String Comparison (strcmp), String Concatenation (strcat), String Tokenization (strtok), Searching a string (strchr and strstr). **(Solution of Major Exam II)** | 7.6, H15 |
| 25 | U 23/5 | String Comparison (strcmp), String Concatenation (strcat), String Tokenization (strtok). **(Quiz#4)** | 7.6, H15 |
|  | M 24/5 (Makeup) | Searching a string (strchr and strstr), 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. | 7.6, H15 & 8.1, H16 |
| 26 | T 25/5 | Processing 2-D Arrays, 2-D Arrays as parameters to functions. 2-D Arrays Example Programs. | 8.1, H16 |
| 27 | U 30/5 | No Class. |  |
| 28 | T 1/6 | No Class. |  |
|  | W 2/6 | **Dropping all Courses with WP/WF** |  |
| 29 | U 6/6 | Array of Strings, Input/Output with Arrays of Strings, Use of *break* in loops, Use of *continue* in Loops. | 8.2,8.3, H17 |
| 30 | T 8/6 | Final Exam Review. **(Quiz#5)** |  |