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

ICS 103: Computer Programming in C

**Term 132 Lecture Breakdown**

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| **Lec#** | **Date** | **Topics** | **Ref.** |
| 1 | U 26/1 | Syllabus. Course Introduction. Overview of Computers, Hardware & Software, Computer Hardware Components of a Computer, Memory, Computer Software, Computer Languages, Compiler. | 1.1-1.5 |
| 2 | T 28/1 | Software Development Method, 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. | 1.1-1.5 & 2.1-2.5 |
| 3 | U 2/2 | 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. | 2.1-2.5 |
| 4 | T 4/2 | 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. | 2.5-2.8 |
| 5 | U 9/2 | Introduction to Functions, Predefined Functions and Code Reuse, Some Mathematical Library Functions. Simple User-defined Functions. Function Prototypes. | 3.1-3.3 |
| 6 | T 11/2 | Function Prototypes, Function Definition, Placement of Functions in a program, Execution Order of Functions. **(Quiz#1)** | 3.4, 3.5 |
| 7 | U 16/2 | Actual Arguments & Formal Parameters, Argument List Correspondence, The Function Data Area, Local Variables vs. Global Variables. Why do we use Functions? | 3.4, 3.5 |
| 8 | T 18/2 | Control Structures, Compound Statements, Conditions, Relational and Equality Operators, Logical Operators. Operator Precedence. Character Comparison. | 4.1-4.7 |
| 9 | U 23/2 | Character Comparison, Logical Assignment, Complementing a condition, DeMorgan’s Theorem, ***if*** statement: Two alternatives, One alternative, Nested if Statements. Multiple-Alternative Decision Form. | 4.1-4.7 |
| 10 | T 25/2 | Multiple-Alternative Decision Form. Common if statement errors. Switch statement. Nested if versus switch, Common Programming Errors. Repetition in Programs, Counting Loops, While Statement. | 4.1-4.7  5.1-5.5 |
| 11 | U 2/3 | While Statement, Compound Assignment Operators, For Statement. Increment and Decrement Operators. Prefix and Postfix Increment/Decrement. Conditional Loops, Sentinel Controlled Loops. | 5.1-5.8 |
| 12 | T 4/3 | Sentinel Controlled Loops, Nested Loops. | 5.5-5.8 |
|  | TH 6/3 | **Last Day for Dropping with W** |  |
| 13 | U 9/3 | Do While Loop. **(Quiz#2)** | 5.5-5.8 |
| 14 | T 11/3 | Review of Loop questions. |  |
| 15 | U 16/3 | What is a Pointer variable? Functions returning multiple results, Triple use for Asterisk (\*), Examples of Functions Returning Multiple Results. | 6.1-6.3 |
| 16 | T 18/3 | 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. | 6.1 |
|  | 23-29/3 | **Midterm Vacation** |  |
| 17 | U 30/3 | Review for midterm exam. |  |
| 18 | T 1/4 | Review for midterm exam. |  |
|  | Th. 3/4 | **Midterm Exam** |  |
| 19 | U 6/4 | What is an Array? Declaring Arrays, Array Initialization, Array Subscripts, Accessing Array Elements. Array Examples. | 7.1-7.3 |
| 20 | T 8/4 | Using array elements as function arguments: Examples. Using arrays as function arguments. | 7.4 |
|  | TH 10/4 | **Last Day for Dropping all Courses with W** |  |
| 21 | U 13/4 | Using arrays as function arguments. Returning an array result: Examples.Partially filled Arrays. | 7.4 |
| 22 | T 15/4 | Introduction to Searching, Linear Search Algorithm,. Introduction to Sorting. Selection Sort Algorithm, Selection Sort Implementation. | 7.5 |
| 23 | U 20/4 | Introduction to 2-D Arrays, Declaration of 2-D Arrays, Accessing 2-D Array elements, Initialization of 2-D Arrays, Processing 2-D Arrays. **(Quiz#3)** | 7.6 |
| 24 | T 22/4 | 2-D Arrays as parameters to functions. Parallel Arrays. Enumerated types. | 7.6 – 7.7 |
| 25 | U 27/4 | What is a String? Input/Output with printf and scanf. Input/Output with gets and puts. | 8.1 |
| 26 | T 29/4 | Input/Output with gets, fgets, puts and fputs. **(Quiz#4)** | 8.1 |
| 27 | U 4/5 | String Copy (strcpy), String Length (strlen), String Comparison (strcmp), String Concatenation (strcat), String Tokenization (strtok) | 8.2-8.4 |
| 28 | T 6/5 | String Tokenization (strtok), Searching a string (strchr and strstr). Character Related functions. Array of Strings, Input/Output with Arrays of Strings. Sorting array of strings. | 8.6 & 8.8 |
|  | TH 8/5 | **Dropping all Courses with WP/WF** |  |
| 29 | U 11/5 | **(Quiz#5)** Review for Final Exam. |  |
| 30 | T 13/5 | Review for Final Exam. |  |