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| المملكة العربية السعودية  وزارة التعليم العالي  **جامعة أم القرى**  الكلية الجامعية بالجموم – قسم الحاسب الآلي |  | Kingdom of Saudi Arabia  Ministry of Higher Education  **Umm Al-Qura University**  University College in Al-Jamoum  Computer Dept. |

Course Specification

1. **Course number and name:** (2316103-3) Computer Programming
2. **Credits and contact hours:** 3 Credits

(Lecture: 2/week – Practical Session: 2/week)

1. **Instructor’s or course coordinator’s name:** Dr. Wael Deabes
2. **Text books**
3. **Main Text book:** Harvey M. Deitel, Paul, J. Deitel, C and C++ How to Program, 9th Edition, Prentice Hall, 2012.
4. **Reference: D. S. Malik,** C++ Programming: From Problem Analysis to Program Design, 6th Edition, Cengage Learning, 2012.
5. **Specific course information**
6. **brief description of the content of the course (Catalog Description):**

This course introduces computer programming and problem solving in a structured program logic environment using the C and C++ languages. Emphasis is placed upon development of correct, efficient programs that are easy to maintain. Topics include language syntax, data types, problem analysis, program design, debugging, code comments, problem-solving methods, and logic control structures. Basic features of the C and C++ programming language such as data types, control structures, input/output statements, functions, and arrays are covered.

1. **prerequisites or co-requisites:** Introduction to Computer Science (2316101-3)
2. **indicate whether a required, elective, or selected elective course in the program:** required
3. **Specific goals for the course**

The student will be able to:

1. Understand the basic terminology used in computer programming.
2. Write, compile and debug programs in C language.
3. Explain the concept of data storage and named memory locations.
4. Use different data types as variables and arrays in a computer program and apply decision and repetition structures in program design.
5. Write and incorporate functions to demonstrate program competence.

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| *Course*  *Goals* | *Program Outcomes* | | | | | | | | | | |
| SOa | SOb | SOc | SOd | SOe | SOf | SOg | SOh | SOi | SOj | SOk |
| 1 | **🗸** |  |  |  |  |  |  | **🗸** |  |  |  |
| 2 | **🗸** | **🗸** | **🗸** |  |  |  |  | **🗸** |  | **🗸** | **🗸** |
| 3 |  | **🗸** | **🗸** |  |  |  |  | **🗸** |  | **🗸** | **🗸** |
| 4 |  | **🗸** | **🗸** |  |  |  |  |  |  | **🗸** | **🗸** |
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| **Relationship of Course Goals to the Program Student Outcomes** | |
| **SOa** | An ability to apply knowledge of computing and mathematics appropriate to the discipline   * *Students apply knowledge of programming to solve simple programming problems.* |
| **SOb** | An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.   * *Students acquire the ability to study programming problems and write programs that realize the required logic.* |
| **SOc** | An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.   * *Students are required to write (implement) their assignment in the form of methods to be called from the main method and test their methods by passing different appropriate values.* |
| **SOh** | Recognition of the need for, and an ability to engage in, continuing professional development.   * *Students are encouraged to conduct self-study on some advanced topics.* |
| **SOj** | An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.   * *Students use the command line and an IDE for writing, formatting, compiling, running, and debugging code.* |
| **SOk** | An ability to apply design and development principles in the construction of software systems of varying complexity.   * *The students are required to use standard programming design and development principles on some significant problems.* |

1. **Brief list of topics to be covered**

* Introduction Computer Programming
* Input and output statements
* Data Types
* Operator precedence
* Decision Structures and Boolean Logic
* Loops and Repetition Structures
* Functions
* Arrays