**COURSE DESCRIPTIONS**

| Faculty | Science and Information Technology | | | | |
|---|---|---|---|---|---|
| **Department** | Computer Science | | | **NQF level** | 6 |
| **Course Title** | Introduction to programming | **Code** | 852110 | **Prerequisite** | -------- |
| **Credit Hours** | 3 | **Theory** | 3 | **Practical** | 0 |
| **Course Leader** | | **email** | | | |
| **Lecturers** | Dr. Azmi Halasa | **emails** | halasa@jadara.edu.jo | | |
| **Lecture time** | 10:00-11:30 Mon-Sat | **Classroom** | Blended  learning (synchronized) | | |
| **Semester** | Second | **Production** | | **Updated** | 2021-2022 |
| **Awards** | Bachelor Degree | | | **Attendance** | Fulltime |

| Short Description |
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| This course introduces computer and information technology systems that are used for organizational decision-making and problem-solving. The aim of the course is to give some basic terms, concepts, general structure and Methodology of Programming. The course covers the topics; introduction to computer System, computer languages, binary, decimal, and hexadecimal systems, algorithms, pseudo code, flowcharts, program life-cycle, and an introduction to C++ programming language. |

| Course Objectives |
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| Upon completion of this course, students should be able to: |

- Introduction to problem solving for programming (i.e., "how to think about solving the problem" including techniques such as pseudo-code or flowcharts).
- Syntax and program structure, including C++ identifier rules.
- Primitive data types and declarations.
- Operations on integers (including mod  %), doubles (including truncation), and Booleans
- String objects and basic String methods.
- Basic input using cin, including validating input and output using cout, including output format.
- Conditional execution with if, else if, and else, and switch statements.
- Basic looping, including for and while loops statements.
- Basics of identifying and fixing errors

| Learning Outcomes |
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| **A. Knowledge - Theoretical Understanding** |
| a1: <u>define</u>  the major hardware components of a computer and compare between the two major types of software: system software and application software.(K1) |
| **B. Knowledge - Practical Application** |
| a2: <u>Apply</u> logical reasoning in constructing a model for problem solving (flowcharts)(K4) |

| C. Skills - Generic Problem Solving and Analytical Skills |
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| b1: <u>choose</u> control structures to write programs in C++ languages, analyze it, test for error detection and correction.(S2) |

| D. Skills - Communication, ICT, and Numeracy |
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| b2: Combine the knowledge and skills acquired in developing a C++ project  (S3) |

| E. Competence: Autonomy, Responsibility, and Context |
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| Teaching and Learning Methods |
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| Face to face learning  + on line learning<br> through quizzes and assignments |

| Assessment Methods |
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| **By quizzes, home works and exams** |

| Course Contents | | | | | |
|---|---|---|---|---|---|
| **Week** | **Hours** | **CLOs** | **Topics** | **Teaching & Learning Methods** | **Assessment Methods** |
| 1 | 1.5 | a1 | An Overview of Computers and Programming Languages | Face to face  learning | quiz |
| 1 | 1.5 | | | Distance  learning | |
| 2 | 1.5 | | Binary Representation and memory storage | Face to face learning | |
| 2 | 1.5 | | | Distance  learning | |
| 3 | 1.5 | a1 | Problem-Solving and flowchart design | Face to face learning | |
| 3 | 1.5 | | | Distance learning | |
| 4 | 1.5 | a2 | Problem-Solving and flowchart design | Face to face learning | |
| | 1.5 | | | Distance learning | |
| 5,6 | 3 | b1 | Introduction to C++ programming | Face to face learning | quiz |
| | 3 | | | Distance learning | |
| 7 | 1.5 | a1,a2 | Introduction to C++ programming | Face to face learning | Mid Term |
| | 1.5 | | Mid Exam | Face to face exam | |
| 8 | 1.5 | b1 | Basic Elements of C++ | Face to face exam | |
| | 1.5 | | | Distance learning | |
| 9 | 1.5 | b1 | Arithmetic Expressions | Face to face learning | |
| | 1.5 | | | Distance learning | |
| 10 | 1.5 | b1, b2 | Programming Flow of Control | Face to face  learning | quiz |
| | 1.5 | | | Distance learning | |
| 11 | 1.5 | b1, b2 | Programming Flow of Control | Face to face learning | |

| | 1.5 | | | Distance learning | |
| 12,13 | 3 | b2 | Introduction to user-defined functions | Face to face learning | assignment |
| | 3 | | | Distance learning | |
| 14 | 2 | a1,a2, b1,b2 | Final exam | Face to face exam | Final exam |

| Infrastructure | |
|---|---|
| Textbook | C++ Programming From Problem Analysis To Program Design. 5th Edition. D. S. Malik. Thomson |
| References | **ISBN** 978-0-538-79808-2 |
| Required reading | |
| Electronic materials | **Available on :** **http://elearning.jadara.edu.jo/CourseContent/index/11362/** |
| Other | **Any other book related to C++ Programming** |

| Assessment Method | | Grade | a1 | a2 | b1 | b2 |
|---|---|---|---|---|---|---|
| **First (Midterm)** | | 30 | 20 | 10 | | |
| **Second (if applicable)** | | | | | | |
| **Final Exam** | | 50 | 10 | 10 | 20 | 10 |
| **Coursework** | | 20 | 5 | 5 | 5 | 5 |
| Coursework assessment methods | Assignments | | | | | 5 |
| | Case study | | | | | |
| | Discussion and interaction | | | | | |
| | Group work activities | | | | | |
| | Lab tests and assignments | | | | | |
| | Presentations | | | | | |
| | Quizzes | 15 | 5 | 5 | 5 | |
| **Total** | | 100 | 35 | 25 | 25 | 15 |

| Plagiarism |
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| Plagiarism is claiming that someone else's work is your own. The department has a strict policy regarding plagiarism and, if plagiarism is indeed discovered, this policy will be applied. Note that punishments apply also to anyone assisting another to commit plagiarism (for example by knowingly allowing someone to copy your code). |
| Plagiarism is different from group work in which a number of individuals share ideas on how to carry out the coursework. You are strongly encouraged to work in small groups, and you will certainly not be penalized for doing so. This means that you may work together on the program. What is important is that you have a full understanding of all aspects of the completed program. In order to allow proper assessment that this is indeed the case, you must adhere strictly to the course work requirements as outlined above and detailed in the coursework problem description. These requirements are in place to encourage individual understanding, facilitate individual assessment, and deter plagiarism. |