MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

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| **Module Information**  **معلومات المادة الدراسية** | | | | | | | |
| **Module Title** | Object Oriented Programming | | | | **Module Delivery** | | |
| **Module Type** |  | | | | * **☒ Theory** * **☒ Lecture** * **☒ Lab** * **☐ Tutorial** * **☐ Practical** * **☐ Seminar** | | |
| **Module Code** | OOP213 | | | |
| **ECTS Credits** |  | | | |
| **SWL (hr/sem)** | 150 | | | |
| **Module Level** | | UGx11 2 | **Semester of Delivery** | | | | 1 |
| **Administering Department** | | Type Dept. Code | **College** | Type College Code | | | |
| **Module Leader** | Name | | **e-mail** | E-mail | | | |
| **Module Leader’s Acad. Title** | | Professor | **Module Leader’s Qualification** | | | | Ph.D. |
| **Module Tutor** | Name (if available) | | **e-mail** | E-mail | | | |
| **Peer Reviewer Name** | | Name | **e-mail** | E-mail | | | |
| **Scientific Committee Approval Date** | | 01/06/2024 | **Version Number** | | | 1.0 | |

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| **Relation with other Modules**  **العلاقة مع المواد الدراسية الأخرى** | | | |
| **Prerequisite module** | None | **Semester** |  |
| **Co-requisites module** | None | **Semester** |  |

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| **Module Aims, Learning Outcomes and Indicative Contents**  **أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | |
| **Module Objectives**  **أهداف المادة الدراسية** | To introduce the principles of object-oriented programming. To understand and apply core concepts such as classes, objects, inheritance, polymorphism, and encapsulation. To develop problem-solving skills using object-oriented To enhance  programming proficiency in C++ |
| **Module Learning Outcomes**  **مخرجات التعلم للمادة الدراسية** | - Demonstrate understanding of object-oriented programming concepts.  - Apply principles of OOP to design and implement C++ programs.  - Utilize C++ features such as classes, inheritance, and polymorphism effectively.  - Analyze and solve problems using object-oriented techniques. |
| **Indicative Contents**  **المحتويات الإرشادية** | Indicative content includes the following.  -Introduction to Object\_Oriented Progmming  - classes and Objects  - constructor and Destructors  - Inheritance  -Polymorphism  - Operator Overloading  - Template  - Static variable and Static function  -Exception Handling  - File I/O  - Standard Template Library(STL)      Total hrs = 105 = SSWL - (Exam hrs) = 109 - 4 = 105 hr (Time table hrs x 15 weeks) |

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| **Learning and Teaching Strategies**  **استراتيجيات التعلم والتعليم** | |
| **Strategies** | - Lectures :To introduce and explain key concepts and theories.  - Lab Session: Hands-on Programming exercises to reinforce Learning.  - Assignment : Regular assignments to apply Learned concepts.  -Quizzes and Exams : Periodic assessments to evaluate understanding.  -projects : Comprehensive projects to integrate various concepts. |

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| **Student Workload (SWL)**  **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا** | | | |
| **Structured SWL (h/sem)**  **الحمل الدراسي المنتظم للطالب خلال الفصل** | 93 | **Structured SWL (h/w)**  **الحمل الدراسي المنتظم للطالب أسبوعيا** | 6 |
| **Unstructured SWL (h/sem)**  **الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 57 | **Unstructured SWL (h/w)**  **الحمل الدراسي غير المنتظم للطالب أسبوعيا** | 3 |
| **Total SWL (h/sem)**  **الحمل الدراسي الكلي للطالب خلال الفصل** | **150** | | |

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| **Module Evaluation**  **تقييم المادة الدراسية** | | | | | |
| **As** | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5 and 10 | LO #1, #2 and #10, #11 |
| **Assignments** | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |
| **Projects / Lab.** | 1 | 10% (10) | Continuous | All |
| **Report** | 1 | 10% (10) | 13 | LO #5, #8 and #10 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 7 | LO #1 - #7 |
| **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) |  |  |

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| **Delivery Plan (Weekly Syllabus)**  **المنهاج الاسبوعي النظري** | |
| **Week** | **Material Covered** |
| **Week 1** | Introduction to OOP and C++ Basics |
| **Week 2** | Classes and Objects |
| **Week 3** | Constructors and Destructors  const object and const member function |
| **Week 4** | Friend Functions and  Friend Classes |
| **Week 5** | Operator Overloading |
| **Week 6** | Inheritance |
| **Week 7** | Polymorphism |
| **Week 8** | Mid-term Review and Exam |
| **Week 9** | Advanced Inheritance (virtual base classes) |
| **Week 10** | Templates |
| **Week 11** | Static variable and Static function |
| **Week 12** | Exception Handling |
| **Week 13** | File I/O ( Perform File operations in C++) |
| **Week 14** | Standard Template Library (STL) –Part 1 |
| **Week 15** | Standard Template Library (STL) –Part 2 |
| **Week 16** | Final Review and Exam Preparation |

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| **Delivery Plan (Weekly Lab. Syllabus)**  **المنهاج الاسبوعي للمختبر** | |
| **Week** | **Material Covered** |
| **Week 1** | Lab 1: Implement C++ program with basic I/O operation |
| **Week 2** | Lab 2: Implement a class represent a simple real-world entity |
| **Week 3** | Lab 3: Implement a class with various constructor and destructor |
| **Week 4** | Lab 4 : Implement operator overloading for class |
| **Week 5** | Lab 5: Implement a class hierarchy demonstrating inheritance |
| **Week 6** | Lab 6: Implement polymorphism using virtual functions and abstract classes |
| **Week 7** | Lab 7: Mid-term project Assignment |
| **Week 8** | Lab 8 :Implement a class hierarchy using virtual Inheritance |
| **Week 9** | Lab 9: Implement a template class |
| **Week 10** | Lab 10 : Implement exception handling in a program |
| **Week 11** | Lab 11 : Implement a program to read from and write to a file |
| **Week 12** | Lab 12 : Implement basic operations using STL vectors |
| **Week 13** | Lab 13 : Implement a program using STL maps and Algorithms |
| **Week 14** | Lab 14 : Final Project development and progress report |
| **Week 15** | Lab 15 : Final Lab Exam |

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| **Learning and Teaching Resources**  **مصادر التعلم والتدريس** | | |
|  | **Text** | **Available in the Library?** |
| **Required Texts** | Object Oriented Programming in C++ by Robert Lafore ,fourth Edition ,sams pub,2002 | No |
| **Recommended Texts** | Object Oriented Programming with C++ by E Balagurusamy, fourth Edition 2008 , published by Tata McGraw –Hill. | No |
| **Websites** | -Cplusplus.com  -Greeks for Greeks C++ Section | |

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| **Grading Scheme**  **مخطط الدرجات** | | | | |
| **Group** | **Grade** | **التقدير** | **Marks %** | **Definition** |
| **Success Group**  **(50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group**  **(0 – 49)** | **FX –** Fail | **راسب (قيد المعالجة)** | (45-49) | More work required but credit awarded |
| **F –** Fail | **راسب** | (0-44) | Considerable amount of work required |
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| **Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above. | | | | |