الملحق ٤: وصف المادة الدراسية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	**Object Oriented Programming**	**Module Delivery**	
Module Type	Core	☒Theory ☒Lecture ☒ Lab ☐Tutorial ☐Practical ☐Seminar	
Module Code	**CPE 208**		
ECTS Credits	**6**		
SWL (hr/sem)	**150**		
Module Level	2	**Semester of Delivery**	4
Administering Department	Computer Eng.	**College**	College of Engineering
Module Leader	Dhafer Taha Shihab	**e-mail**	dhafershihab@uodiyala.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	MSc
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	02/06/2024	**Version Number**	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CPE 102	**Semester**	2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Upon completion of this course, the student will be able to: 1. To learn basic constructs of programming language that are implementing tools for object oriented program development. 2. To provide the knowledge of Object Oriented Programming Paradigm. 3. To learn object-oriented programming and what distinguishes it from other types of programming methods. 4. To develop skill to analyze and code for problem solution in object oriented approach.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon Completion this Course, the students will able to: 1. Understand used language constructs. 2. Analyze and code the solution to problem using object oriented paradigm, and create class hierarchies using the object-oriented design process. 3. Design and implement programs for complex problems, making good use of the features of the language such as classes, inheritance and templates. 4. Apply object model for software development
Indicative Contents المحتويات الإرشادية	• Object Oriented Concepts, Merits of Object Oriented Technology. Abstraction, Encapsulation, Information Hiding.(2 hrs) • Object Model: definition, State, behavior, Identity and messages. Concept of object initialization, constructors, constructor overloading. Name space and references(2 hrs) • Access modifiers: Class attributes and methods. Introduction to object model of software development. (2 hrs) • Used Language features: syntax, data types, data type conversions, control statements, operators and their precedence. (2 hrs) • Introduction to Class: Instance members and member functions. (2 hrs) • String Handling, Wrapper classes: Arrays and Vectors. (2 hrs) • Class relationships: Inheritance and its types, Merits and Demerits. (2 hres) • Polymorphism: Dynamic method dispatch, Runtime polymorphism, Abstract classes, Interfaces and Packages. (2 hrs) • Exceptions: Need for exceptions, Checked Vs Unchecked exceptions, creating custom exceptions. (2 hrs) • Multithreading: Introduction, Priorities and scheduling, Inter-thread communication, Thread Synchronization and its life cycle. (2 hrs) • Basic concept of streams I/O stream & reader-writer classes. (2 hrs) • File handling. Applet and its Life Cycle, Templates. (2 hrs) • Basic GUI elements , Event Delegation Model and event handling. (2 hrs) • Practical Examples. (4 hrs)

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, homework's and examples. Practical examples helps students to understand the course material.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (10)	7 and 14	LO #2 and #4
	Assignments	2	10% (5)	11 and 13	LO #3and #4
	Projects / Lab.	1	10% (10)		
	Report				
Summative assessment	Midterm Exam	1 hr	10% (10)	9	LO #1 - #3
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	**Introduction to Object Oriented Programming:** Object Oriented Concepts, Merits of Object Oriented Technology. Abstraction, Encapsulation, Information Hiding.
Week 2	Object Model: definition, State, behavior, Identity and messages. Concept of object initialization, constructors, constructor overloading. Name space and references
Week 3	**Introduction to Used Language classes and objects:** Access modifiers: Class attributes and methods. Introduction to object model of software development.
Week 4	Used Language features: syntax, data types, data type conversions, control statements, operators and their precedence.
Week 5	Introduction to Class: Instance members and member functions.
Week 6	String Handling, Wrapper classes: Arrays and Vectors.
Week 7	**Inheritance and Polymorphism :** Class relationships: Inheritance and its types, Merits and Demerits.
Week 8	Polymorphism: Dynamic method dispatch, Runtime polymorphism, Abstract classes, Interfaces and Packages.
Week 9	**Exception Handling and Multithreading**: Exceptions: Need for exceptions, Checked Vs Unchecked exceptions, creating custom exceptions.
Week 10	Multithreading: Introduction, Priorities and scheduling, Inter-thread communication, Thread Synchronization and its life cycle.
Week 11	**Used Language I/O, Applets and Event Handling:** Basic concept of streams I/O stream & reader-writer classes.
Week 12	File handling. Applet and its Life Cycle, Templates
Week 13	Basic GUI elements , Event Delegation Model and event handling
Week 14	Practical Examples
Week 15	Practical Examples
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Experiments to understand program development environment for Used language.
Week 2	Writing program to learn basic language constructs like identifier, variables, data types and console input/output..
Week 3	Writing program to use class and objects to model problem domain entity in program domain.
Week 4	Writing program to learn control statements.

Week 5	Writing program to learn the Instance members and method
Week 6	Writing program to learn String, Wrapper classes, Array and vectors.
Week 7	Writing program to use inheritance and polymorphism features. Abstract classes and Interfaces
Week 8	Writing program to use inheritance and polymorphism features. Abstract classes and Interfaces(cont.)
Week 9	Programs to use exception and understanding modeling errant condition in execution as class and objects.
Week 10	Experiments to learn Multi-Thread execution.
Week 11	Experiments to understand stream concept and study various stream abstractions and implementation available in the language
Week 12	Writing program to learn File handling, Temples
Week 13	Exploring GUI components and understanding Event Delegation Model. Understanding (GUI) objects and their communication based program to realize object oriented programming in action.
Week 14	Understanding (GUI) objects and their communication based program to realize object oriented programming in action. (cont.)
Week 15	Projects

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	• Danny Poo , Derek Kiong , Swarnalatha Ashok, Object-Oriented Programming and Java • Robert Lafore , Object-Oriented Programming in C++, , Fourth Edition	No
Recommended Texts	• Dusty Phillips, Python 3 Object-oriented Programming - Third Edition. • Timothy Budd, An Introduction to Object-Oriented Programming • Prof. Choudhary, Beniwal, Dadheech and KLSI, Object Oriented Programming	No
Websites	▪	

**Ministry of Higher Education and
Scientific Research - Iraq
University of Diyala
College of Engineering
Department of Computer Engineering**

	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

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.