	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Computer Science Department	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Web Application II			**Module Delivery**	
Module Type	CORE			☐**Theory** √**Lecture** √**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	COMP3214				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level			**Semester of Delivery**	2	
Administering Department	Computer Science		**College**	College of science	
Module Leader	Dr.Tiba Zaki Abdulhameed		**e-mail**	Tiba.zaki@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor			**e-mail**		

Peer Reviewer Name	Dr. Rasool Hisham Al-Saadi	**e-mail**	rasool.hisham@nahrainuniv.edu.iq
Review Committee Approval		**Version Number**	1

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	NA	**Semester**	
Co-requisites module	NA	**Semester**	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	To develop backend web applications using **C#, ASP.NET Core, MySQL, and Visual Studio**, focusing on modern API-driven development.		

Module Learning Outcomes	By the end of the course, students will be able to: 1. Build backend web applications using ASP.NET Core 2. Write clean, structured C# code 3. Design and integrate MySQL databases 4. Implement CRUD and RESTful APIs 5. Use Visual studio and .NET 6. Apply secure authentication techniques

Indicative Contents	**Introduction to Backend Development** • What is Backend and its role • Overview of the .NET environment **C# Fundamentals** • Variables and data types • Conditional statements and loops • Functions and classes **Working with ASP.NET Core** • Creating a Web API project • Project structure • Controllers and routing **Database Integration (MySQL)** • Database basics • Connecting using Entity Framework Core • Implementing CRUD operations **Building RESTful APIs** • REST concepts • Using HTTP methods (GET, POST, PUT, DELETE) • Testing APIs using Postman **Authentication & Security** • User registration and login • Using JWT • Securing APIs **Tools and Development Environment** • Using Visual Studio • Managing projects with .NET CLI **Final Project** • Designing and implementing a complete backend system • Integrating all learned concepts

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**Teaching and Learning Strategies** **1. Interactive Lectures** **○ Used to introduce fundamental theoretical concepts (e.g., RESTful APIs via PowerPoint presentations).** **○ Supported with slides and in-class practical examples.** **2. Project-Based Learning** **○ Each student/group develops a mini project during the course, followed by a comprehensive final project.** **○ Enables integration of frontend and backend concepts and practical application of learned skills.** **3. Active Learning** **○ Short in-class activities such as: debugging broken code, group discussions on best practices, and quick quizzes.** **○ *Think-Pair-Share*: students think individually, discuss with a partner, then share with the class.** **4. Hands-On Labs** **○ Weekly practical sessions to develop applications step by step.** **○ Clear, short tasks are provided and completed during class time.** **5. Collaborative Learning** **○ Students are divided into groups to design different parts of an application and then integrate them.** **○ Encourages peer code review.** **6. Problem-Based Learning** **○ Real-world problems are introduced (e.g., building a secure login system or a small e-commerce website).** **○ Students are encouraged to design and implement their own software solutions.** **7. Flipped Classroom Model** **○ Theoretical concepts are studied before class.** **○ Class time is dedicated to hands-on practice and problem-solving.** **8. Formative Assessment** **○ In-class online quizzes.** **○ Immediate feedback during lab sessions.** **9. Presentations & Peer Feedback** **○ Students present their projects at midterm and end of the course.**

	○ **Peers provide feedback to enhance presentation and technical communication skills.**

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation
تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10% (10)		All
	Assignments	1	10% (10)		All
	Projects / Lab.	1	20% (20)	Continuous	All
	Report	0			
Summative assessment	**Midterm Exam**	2 hr	10% (10)		All
	Final Exam	3hr	50% (50)		All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered	Assessment / Lab / Assignment	Module Learning Outcomes(MLO)
Week 1	What is .NET, Visual Studio, C# basics, Console apps	Lab: Install tools + Simple console app	MLO2, MLO5
Week 2	Data Types, Variables, Logic	Lab: Solve problems using conditions & loops; Assignment 1: Console mini tasks	MLO2
Week 3	Methods, Error Handling, OOP	Lab: Build modular console app; Assignment 2: OOP-based program	MLO2
Week 4	JSON, Serialization, Lists	Lab: JSON profile project	MLO2, MLO4
Week 5	ASP.NET Minimal API, GET/POST	Lab: Greeting API project	MLO1, MLO4, MLO5
Week 6	Cookies, Results, Login/Logout	Lab: Simple authentication system	MLO1, MLO6
Week 7	Swagger,	Lab: API testing with Swagger; Quiz 1	MLO4,
Week 8	Mid Exam	Midterm Exam	MLO1–MLO4
Week 9	CRUD, ORM (EF Core)	Lab: CRUD API with EF Core	MLO3, MLO4
Week 10	MySQL, DB Design	Lab: Design DB + SQL queries; Assignment 3: Database schema	MLO3
Week 11	Routing, Controllers	Lab: MVC API implementation	MLO1, MLO4
Week 12	Model Binding, Validation, DI	Lab: Form validation API	MLO1, MLO4, MLO5
Week 13	JWT Authentication, Authorization	Lab: Secure API with JWT	MLO6
Week 14	Final Project	Project submission (backend system)	MLO1–MLO6
Week 15	Revision	Mock Exam + Project improvement	MLO1–MLO6
Week 16	Final Exam	Final Exam	MLO1–MLO6

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	Lab: Install tools + Simple console app
Week 2	Lab: Solve problems using conditions & loops; Assignment 1: Console mini tasks
Week 3	Lab: Build modular console app; Assignment 2: OOP-based program
Week 4	Lab: JSON profile project
Week 5	Lab: Greeting API project
Week 6	Lab: Simple authentication system
Week 7	Lab: API testing with Swagger; Quiz 1
Week 8	Midterm Exam
Week 9	Lab: CRUD API with EF Core
Week 10	Lab: Design DB + SQL queries; Assignment 3: Database schema
Week 11	Lab: MVC API implementation
Week 12	Lab: Form validation API
Week 13	Lab: Secure API with JWT
Week 14	Project submission (backend system)
Week 15	Mock Exam + Project improvement
Week 16	Final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?

Required Texts	**Primary Learning Resource (Weeks 1–4):** **Rob Miles, *The C# Yellow Book*, free educational edition.** **Web API Development for the Absolute Beginner ,** **Coding Clean, Reliable, and Safe REST APIs with ASP.NET Core 8Develop Robust Minimal APIs with .NET 8—Anthony Giretti and** **BEGINNING C# and .NET 2021 EDITION**	
Recommended Texts	**Microsoft Learn – C# Fundamentals modules.**	
Websites	https://code.visualstudio.com/docs/languages/dotnet#:~:text=If%20you%20are%20an%20existing,language%20development%20in%20VS%20Code.	

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:				
NB 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.				



ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي