

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Compiler Construction		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	CS308		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	CS	College	CS
Module Leader		e-mail	E-mail
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	2025-2026	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	CS208	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1- To understand and explain the main techniques and algorithms used in compilers. 2- To understand, design and implement a lexical analyzer. 3- To understand, design and implement a Syntax Analysis. 4- To understand, design and implement a parser. 5- To understand, design code generation schemes.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Learn about compilers and interpreters. 2- Explain the main techniques and algorithms used in compilers. 3- Describe an application of regular expressions in lexical scanners. 4- Discuss the hand coded scanner and automatically generated a scanner. 5- Explain the formal definition of tokens. 6- Describe finite state automata. 7- Explain the revision of formal definition of grammars. 8- Explain BNF and EBNF. 9- Describe the Bottom $\rightarrow$ up and top $\rightarrow$ down parsing. 10- Explain tabular, recursive, and descent parsers. 11- Learn about error handling. 12- Describe the automatic generation of tabular parsers, symbol table. management, and the use of tools in support of the translation process.

Indicative Contents المحتويات الإرشادية	1- Introduction to Compilers: The role of language translation in the programming process; 2- Comparison of interpreters and compilers, language translation phases, machine dependent and machine independent aspects of translation, language translation as a software engineering activity 3- Lexical Analysis: Application of regular expressions in lexical scanners, hand coded scanner vs. automatically generated a scanner, formal definition of tokens 4- Implementation of finite state automata. 5- Syntax Analysis: Revision of formal definition of grammars, BNF and EBNF, Bottom – up, top – down parsing, ... 6- Parsers Implementation: automatic generation of tabular parsers, symbol table management, the use of tools in support of the translation process, 7- Project presentation1
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Employing these strategies can create a comprehensive and engaging learning experience in compiler construction module, such as lectures, interactive discussions, hands-on lab sessions, case studies, assignments, projects, guest lectures, online resources, assessments, group projects, and continuous support.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	77	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	73	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

ModuleEvaluation تقييم المادة الدراسية
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		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1,# 2,#3,#4, #11 and #11
	Assignments	2	10% (10)	2, 12	LO #5,#7, and #8, #10
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 6,#7, #8,#9
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-#7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		