CIHAN UNIVERSITY-SULAIMANIYA

Course Outline

2024-2025

Address:
Chwarchra-Opposite to Family Mall
Sulaymaniyah City
Kurdistan Region–Iraq
Tel: 07714695656,
email: presidency@sulicihan.edu.krd

MODULE DESCRIPTION FORM

Module Information					
Module Title	**Compiler**				
Module Type	Theory and Lab			☐ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar** ☐ **Report** ☐ **Extra activity**	
Module Code					
Language	English				
ECTS Credits					
Module Level		**First-year**	**Semester of Delivery**		**4th**
Administering Department		**Computer Science**	**College**	**Science**	
Lecturer	**Ardalan Hussein Awlla**				
Academic Title		**Assistant Lecturer**	**Qualification**		**Master**
Module Tutor			**e-mail**	ardalan.husain@sulicihan.edu.krd	
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	1	
Cycle of Study	Bachelor		**Form of Education**	Full time	

Relation with other Modules			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Cihan University-Sulaimaniya

College of Health Science

Department: Anesthesia
Discipline: Computer Skills
Stage: First

Total Contact Hours:	**52**
Total Self Study Hours:	**110**
Total No. Hours:	**162**
ECTS:	**06**

No. of Weeks	Contact Hours					Self-Study					
	Theoretical	Practical	Lab	Project	Visit	Quiz	Reading	Assignment	Report	Midterm Exam.	Final Exam.
1st Week (Registration)	-	-	-	-	-	-	-	-	-	-	-
2nd Week	2	2					2				
3rd Week	2	2				2	2	6			
4th Week	2	2				2	2		2		
5th Week	2	2				2	2		8		
6th Week	2	2					2	2			
7th Week	2	2					2				
8th Week	2	2					2			11	21
9th Week	2	2				2	2	8			
10th Week	2	2				2	2		2		
11th Week	2	2					2				
12th Week	2	2				2	2	2	8		
13th Week	2	2				2	2				
14th Week	2	2					2				
15th Week (Pr. Final Ex											
16th Week (Final Exam.)											
TOTAL	**26**	**26**				**14**	**26**	**18**	**20**	**11**	**21**

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Registration
Week 2	Introduction to Compilers
Week 3	Lexical Analysis
Week 4	Syntax-Directed Translation
Week 5	Top-Down Parsing
Week 6	Bottom-Up Parsing
Week 7	MIDTERM EXAM
Week 8	Semantic Analysis
Week 9	Type Checking 1
Week 10	Type Checking 2
Week 11	Code Generation 1
Week 12	Code Generation 2
Week 13	Operational Semantics
Week 14	Intermediate Code & Local Optimization
Week 15	Global Optimization
Week 16	Review

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Registration
Week 2	Lecture
Week 3	Lecture
Week 4	Lecture
Week 5	Lecture, assignment
Week 6	Lecture
Week 7	**MIDTERM EXAM 1**
Week8	Lecture
Week9	Lecture
Week 10	Lecture

Week 11	**Lecture**
Week 12	Lecture
Week 13	Lecture
Week 14	Lecture
Week 15	
Week 16	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	To have broad knowledge of principles of basic techniques, theory and tools underline the practice and act of Compiler Construction. This Course introduces the major concept areas of language translation and compiler design.
Module Learning Outcomes	• Understand compiler and different phases. Using this translate program from source code to executable code and files. (Knowledge). • Able to explain lexical analysis phase and their connection to language definition through regular expressions and grammars. (Comprehensive). • Able to explain the syntax analysis phase and differentiate among various parsing techniques and grammar transformation techniques.(Comprehensive).

Learning and Teaching Strategies	
Strategies	• Theory Lectures: Introduce foundational concepts like compiler phases, lexical analysis, syntax analysis, and code generation. • Practical Lectures: Have students write small compilers or code to implement tokenization and parsing techniques. • Mini Projects: Assign small projects like building a contact book or a simple to-do list to practice newly learned concepts. • Quizzes/Tests: Regular quizzes to test understanding of syntax and concepts. • Incremental Challenges: Provide progressively harder exercises (e.g., from basic to more complex algorithms) to reinforce learning.

Module Evaluation

Assessment Types		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	5	10%		
	Assignments	2	2%		
	Projects / Lab.		5%		
	Report	2	3%		
	Presentation		0%		
Summative assessment	Midterm Exam	2hr	30%	7th	
	Prefinal Pr. Exam	2hr	15%	15th	
	Final Exam	3hr	35%	16th	
Total assessment			100% (100 Marks)		

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Compilers Principles, Techniques, & Tools, by A.V.Aho, R.Sethi & J.D.Ullman, Pearson Education.	
Recommended Texts	Principle of Compiler Design, A.V.Aho and J.D. Ullman, Addition – Wesley.	
Websites	https://www.tutorialspoint.com/compiler_design/index.htm	

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.

- **Cycle of studies - choose one of the three options: Bachelor «1», Master «2», PhD. «3»**
- **(Exam: Oral Examination, Written Exam), and (Continous Evaluation(CE), Portfolio).**
- **Discipline status (Content) - for the Bachelor level, choose one of the options: FD (Fundamental (General) Discipline), PF (Preparatory Disciplines in the Field), SD (Specialty Disciplines), CD (Complementary Disciplines), DU (Disciplines based on the University's options).**
- **Discipline status (compulsoriness) - choose one of the options**
    a. MD (Mandatory discipline)
    b. OD (Optional Discipline)
    c. ED (Elective (Facultative) Discipline).

Approved by Head of the Branch / Department

Signature	
Date	
Name	

Approved by Curriculum Development Committee and Bologna Process Committee

Signature	
Date	
Name	