



Ministry of Higher Education and
Scientific Research - Iraq
University of Technology
College of Computer Science
Department of Software



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	COMPILER DESIGN		Module Delivery
Module Type	CORE		Theory Lecture Lab Tutorial Practical Seminar
Module Code	CODE322		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	3	Semester of Delivery	
Administering Department		College	
Module Leader	Abeer Tariq Maolood Alaa Nori Mazher Saja Sabeeh	e-mail	abeer.t.maolood@uotechnology.edu.iq alaa.n.mazher@uotechnology.edu.iq 110068@uotechnology.edu.iq
Module Leader's Acad. Title	Prof. Dr. Prof.	Module Leader's Qualification	PhD. MSc.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Review Committee Approval		Version Number	

Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Computation Theory	Semester	1
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. Understand the concept of a translator 2. Knowing the work functions of the translator program 3. Learn the rules and basics and solve the problems you face
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	A-Knowledge and Understanding A1: Enabling the student to know and understand the basic principles of how a translator works and the stages it goes through A2: Enable the student to know and understand the practical applications of the translator program and the languages related to the translator B-Subject-specific skills B1 - logical thinking B2 - Giving the student tasks to design rules to design correct rules to motivate the student to acquire programming skills and solve grammatical and linguistic problems C- Thinking Skills C 1- The ability to work in teams and lead groups C2 - The ability to solve problems and think collectively
Indicative Contents المحتويات الإرشادية	Programming language, introduction to compiler, lexical analysis, symbol table, context free grammar, Finite automata, syntax analysis, parsing tree & leftmost and right most derivations, writing grammar, problems of grammar, Top down parsing, predictive parsing method, first and follow, construction of predictive parsing table, LL grammars, Error detection and reporting, Bottom up parsing, operator precedence parser.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The main strategies that will be adopted in delivering this module are:- 1-Using theoretical and practical tools in analyzing and implementing
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	database systems 2-Using modern means of communication to interact with the work team to solve a specific problem 3-The ability to manage time while working as a team 4-Documenting the stages of building systems to be able to check and correct errors in the system
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Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
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	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to compiler
Week 2	Compiler structure (Lexical, syntax ,semantic ,intermediate code ,code optimization ,code generation)

Week 3	Types of errors, Compiler problems, ambiguous
Week 4	Left recursion and left factoring, rules and examples
Week 5	Find first and follow(rules and examples),Top-Down parsing method (Tree and derivation)
Week 6	Predictive parsing method +examples
Week 7	LL(1) rules and examples
Week 8	Introduction to Bottom-Up parsing method rules and stack(shift-reduce)
Week 9	Introduction to Operator precedence parser
Week 10	SLR parsing method (rules and examples)
Week 11	Intermediate code generation (Three address code) + Triple and quadruple methods
Week 12	Semantic analysis + Code optimization & it's Types
Week 13	Loop optimization + Code generation
Week 14	Mid Term exam
Week 15	Preparatory Week
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to VB.Net
Week 2	Input & output
Week 3	Loop & if statement
Week 4	Array
Week 5	Functions
Week 6	File
Week 7	Lexical and tokens
Week 8	How to find first value in any grammar
Week 9	How to find follow value in any grammar
Week 10	Top-Down parsing method and derivation

Week 11	How to solve left recursion problem
Week 12	How to solve left factoring problem
Week 13	Bottom-Up parsing method and derivation
Week 14	Applications to find first and follow in the same grammar
Week 15	Mid term axam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1-Principle of compiler design by Alfred V.Aho& Jeffrey D.Ullman,2003 2-Compilers: principle, techniques and toolsby Alfred V.Aho , Ravi Seth, Jeffrey D.Ullman,2011	Yes
Recommended Texts	1-Basics of compiler design by Torben Egidius mogensen,2009	No
Websites		

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.