University / Academy: Arab Academy for Science and Technology & Maritime Transport
Faculty / Institute: College of Computing and Information Technology
Program: Computer Science

Form No. (12)
Course Specification

1- Course Data

Course Code:	Course Title:	Academic Year / Level:
CS441	Compilers	Year 4 / Semester 7
Specialization: Computer Science	**No. of Instructional Units:** 2 hrs lecture 2 hrs lab	**Lecture:**

2- Course Aim	Introduction to language translation. Language translation phases. Lexical analysis. Syntactic analysis: Formal definition of grammars; BNF and EBNF; Context-free-grammars. Bottom-up vs. top-down parsing; tabular vs. recursive-descent parsers; error handling. Run-time Environment. Code generation. Code Optimization.
3- Intended Learning Outcome:	
a- Knowledge and Understanding	**Students will be able to demonstrate knowledge of:** K18.Understand the fundamental topics in Computer Science, including hardware and software architectures, software engineering principles and methodologies, operating systems, compilers, parallel and distributed computing, systems and software tools.
b- Intellectual Skills	**By the end of the course, the student acquires high skills and an ability to understand:** I11. Perform comparisons between (algorithms, methods, techniques...etc). I17. Identify a range of solutions and critically evaluate and justify proposed design solutions.
c- Professional Skills	**By the end of the course the student will have the ability to:** P14. Specify, design, and implement computer-based systems. P15. Evaluate systems in terms of general quality attributes and possible tradeoffs presented within the given problem.

d- General Skills	**Students will be able to:** G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7. Show the use of general computing facilities.
4- Course Content	1. Analyze and understand overall structure of commercial compilers 2. Use and apply a number of important techniques commonly used in compilers construction. 3. Implement a compiler for a simple programming language.
5- Teaching and Learning Methods	Lectures, Labs, Projects, Individual study & self-learning.
6- Teaching and Learning Methods for Students with Special Needs	• Students with special needs are requested to contact the college representative for special needs (currently Dr Hoda Mamdouh in room C504) • Consulting with lecturer during office hours. • Consulting with teaching assistant during office hours. • Private Sessions for redelivering the lecture contents. • For handicapped accessibility, please refer to program specification.
7- Student Assessment:	
a- Procedures used:	Exams and Individual Projects
b- Schedule:	Week 7 exam Projects through the semester Week 16Final exam
c- Weighing of Assessment:	7th week exam 30% Projects 20% Lab work 10% Final exam 40%
8- List of References:	
a- Course Notes	
b- Required Books (Textbooks)	Aho, Lam, Sethi, Ullman, *Compilers: Principles, Techniques and Tools*, 2nd edition, Prentice Hall, 2007
c- Recommended Books	
d- Periodicals, Web Sites, ..., etc.	

Course Instructor:

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Head of Department:

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