Arab Academy for Science and Technology and Maritime Transport
Computer Science Curriculum
Course Syllabus

Course Code: CS441	**Course Title:** Compilers	**Classification:** E	**Coordinator's Name:** Prof. Dr. Aliaa Youssif	**Credit Hours:** 3
Pre-requisites: • CS321 (System Programming) • CS445 (Structure of programming Languages)	**Co-requisites:** None	**Schedule:** Lecture: 2 hours Tutorial-Lab: 2 hours		
Office Hours:				

Course Description:
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.

Textbook:
Appel, A. and Ginsberg, M., *Modern Compiler Implementation in C*, Cambridge Univ. Press.

References:
Aho, Sethi, Ullman, *Compilers: Principles, Techniques and Tools*, Addison Wesley.

Course Objective/Course Learning Outcome:	Contribution to Program Student Outcomes:
1. Specify what is language translation and its phases.	(SO1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Do Lexical and Syntactic analysis.	
3. Interpret context-free grammars.	
4. Understand the overall structure of a compiler, and	

5. Learn significant details about a number of important techniques commonly used in compilers construction.	(SO6) Apply computer science theory and software development fundamentals to produce computing-based solutions.
6. Understand code generation and optimization	
Course Outline: 1. Introduction to language translation 2. Language translation phases 3. Lexical analysis 4. Syntactic analysis 5. Formal definition of grammars; BNF and EBNF 6. Context-free-grammars	7. Bottom-up vs. top-down parsing 8. tabular vs. recursive-descent parsers 9. error handling and Run-time Environment 10. Code generation 11. Code Optimization.

Grade Distribution:

7th Week Assessment (30%)

12th Week Assessment (20%)

Year Work (10%)

Final Exam (40%)

Policies:

Attendance:
AASTMT Education and Study Regulations (available at aast.edu)

Academic Honesty:
AASTMT Education and Study Regulations (available at aast.edu)

Late Submission:
Late submissions are graded out of 75% (1 week late), 50% (2 weeks late), 25% (3 weeks late), 0% (more than 3 weeks late)