Al-Al Bayt University
Prince Hussein bin Abdullah Faculty of Information Technology
Computer Science

Course Title : Compilers
Course Number :901440
Credit Hours :3
Pre requisite :
Placement :
Instructor: venus@aabu.edu.jo 10:0-11:0,
Course Description :
General objectives :
The main objectives of this course are:
1- Understand the structure of compilers.
2- Understand the basic techniques used in compiler construction such as lexical analysis, top-down, bottom-up parsing, context-sensitive analysis, and intermediate code generation.
3- Understand the basic data structures used in compiler construction such as abstract syntax trees, symbol tables, three-address code, and stack machines.
4- Design and implement a compiler using a software engineering approach.
5- Use generators (e.g. Lex and Yacc)
Course outline :
Introduction to Compiling
The role of language translation in the programming process; Comparison of interpreters and compilers, language translation phases, machine ?dependent and machine ?independent aspects of translation, language translation as a software engineering activity
Lexical Analysis
The Role of the Lexical Analyzer, Specification of Token recognition of Tokens,
Syntax Analysis
Introduction
Context-Free Grammars
Syntax Analysis: Top-Down Parsing
Syntax Analysis: Bottom-Up Parsing

Intermediate-Code Generation

Variants of Syntax Trees
Intermediate-Code Generation
Three-Address Code

Code Optimizations
what is code Optimization
Basic Blocks and Flow Graphs
Optimization of Basic Blocks

Code Generator
Issues in the Design of a Code Generator

Code Generation: The Target Language, Addresses in the Target Code

Evaluation methodology :

First Exam.....15

Second Exam.....15

Project.....20

Final Exam.....50

References :

*Compiler, Principle, Techniques and Tools, Alfred V. Aho & Ravi Sethi, Addison-Wesley,

*The essence of compiler, Robin Hunter,1999 , Prentic Hall,

*Crafting a Compiler with C,Charles N.Fischer & Richard J.LeBlanc91, Cummings Publishing,

Course Schedule :

Topic_____Hours

Introduction to Compiling: ----------6

Lexical Analysis: ----------9

Syntax Analysis----------18

Syntax-Directed Translation----------6

Intermediate-Code Generation----------9

Code Generation----------6

Run-Time Environments----------3

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