



National Computing Education Accreditation Council
NCEAC



NCEAC.DOC.001-E

COURSE DESCRIPTION

NAME OF INSTITUTION	Lahore Garrison University
PROGRAM (S) TO BE EVALUATED	Computer Science , Spring 2022

Course Description :

Course Code	CSC373		
Course Title	Compiler Construction		
Credit Hours	3+0		
Prerequisites by Course(s) and Topics	Data Structure, Theory of automata		
Assessment Instruments with Weights (homework, quizzes, midterms, final, programming assignments, lab work, etc.)	SESSIONAL (Quizzes, Assignments, Presentations) =25 % Midterm Exam =25 % Final Exam = 50%		
Course Coordinator	M. Basit Ali		
URL (if any)			
Current Catalog Description			
Textbook (or Laboratory Manual for Laboratory Courses)	Compilers: Principles, Techniques, and Tools By Alfred V. Aho, Ravi Sethi, Jeffrey D. Ullman, Contributor Jeffrey D. Ullman, Addison-Wesley Pub. Co., 2nd edition, 2006		
Reference Material	1. Modern Compiler Design, by Dick Grune, Henri E. Bal, Cerial J. H. Jacobs, Koen G. Langendoen, John Wiley, 2000. 2. Modern Compiler Implementation in C, by Andrew W. Appel, Maia Ginsburg, Contributor Maia Ginsburg, Cambridge University Press, 2004. 3. Modern Compiler Design by Dick Grune, Henri E. Bal, Cerial J. H. Jacobs, Koen G. Langendoen, 2003, John Wiley & Sons.		
Course Goals			
Course Learning Outcomes (CLOs):	At the end of the course the students will be able to:		
	* BT= Bloom's Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain		

Topics Covered in the Course, with Number of Lectures on Each Topic (assume 15-week instruction and one-hour lectures)	Week	Lecture	Topics Covered
	Week 1	1	General Introduction
		2	Detailed introduction of Compiler, Preprocessor, Assembler, Linker/Loader, Interpreter
	Week 2	3	Compiler, History of Compiler, Properties of Compiler
		4	Compilation two parts, Compilation Process in General
	Week 3	5	Compilation Process in Brief: Lexical Analysis, Syntax Analysis
		6	Compilation Process in Brief: Semantic Analysis, Intermediate Code, Code Optimization, Code Generation
	Week 4	7	Symbol Table: Construction of Symbol table, Interaction Between the symbol table and other phases of compiler
		8	One-Pass Compiler
	Week 5	9	Two-Pass Compiler
		10	Back end of Compiler
	Week 6	11	Chapter 3: Lexical Analysis, Function of Lexical Analyzer
		12	Input Buffering, Specification of Tokens
	Week 7	13	Conversion of Regular Expression into NFA
		14	Conversion of Regular Expression into DFA
	Week 8	1 hours	Mid Term
	Week 9	15	Conversion into minimized DFA
		16	Conversion of DFA into minimized DFA
	Week 10	17	What are Grammars? Context-Free Grammar, CFG Terminologies, Examples
		18	Syntax Analysis
	Week 11	19	Define Parser, Role of Parser, and Derivations, Types of Derivations
		20	Parse Tree, Types of Parse Tree, Examples and Ambiguity Examples
	Week 12	21	Precedence, Examples and Left-Recursive
		22	Types of Parsing, Top-Down Parsing Introduction
	Week 13	23	Bottom Up Parsing, Backtracking, Predictive Parser
		24	Recursive Descent Parser (RDP) construction rules
	Week 14	25	Recursive Descent Parser (RDP) construction algorithm implementation and LL(1) Parser Construction Method
		26	LL(1) Parser Construction Method
	Week 15	27	First Function with examples and FOLLOW Function with examples
		28	LL(1) Table Construction
	Week 16	29	Input String Running Through LL(1) Table/Presentations
		30	Bottom Up Parsing and Shift Reduce Parsing
	Week 17	2 hours	Final Term
Laboratory Projects/Experiments Done in the Course			
Programming Assignments Done in the Course			

Instructor Name	M. Basit Ali
Instructor Signature	
Date	