

Document:	Translator Design Course Administration			
Revised:	February 7, 2018			
Course Title:	Translator Design			
Course Number:	CMSC 4173			
Section:	CRN 25838 Monday and Wednesday 5:45 – 7:00 p.m. MCS 113			
Instructor:	Dr. Thomas R. Turner; Office: MCS 134; Work Phone: 974-5383, e-mail: trturner@uco.edu			
Office Hours:	Time	Monday	Wednesday	Friday
	10:00 – 10:50 a.m.	Office Hours MCS 134	Office Hours MCS 134	Office Hours MCS 134
	3:00 – 4:00 p.m.	Office Hours MCS 134	Office Hours MCS 134	
Texts:	1. Aho, A. V., Lam, M. S., Sethi, R., and Ullman, J. D. <i>Compilers: principles, techniques, and tools</i> 2nd Ed. Pearson Addison Wesley 2007 ISBN 0-321-48681-1 2. Levine, J. R., Mason, T. and Brown, D. <i>lex & yacc</i> 2nd Ed O'Reilly & Associates, Inc. 1992 ISBN 1-56592-000-7 3. Jensen, K., Wirth N., Mickel, A. B., and Miner, J. F. <i>Pascal User Manual and Report ISO Pascal Standard</i> 4th Ed. Springer-Verlag 1991 ISBN 0-387-97649-3			
References:	1. Stroustrup, B. <i>The C++ Programming Language</i> 3rd Ed.; Addison-Wesley 1997 ISBN 0-201-88954-4 2. Wirth, N. <i>Programming in Modula-2</i> 2nd Ed. Springer-Verlag 1983 ISBN 3-540-12206-0 3. Pemberton, S. and Daniels M. C. <i>Pascal Implementation: The P4 Compiler</i> Ellis Horwood Limited 1982 ISBN 0-85312-589-9 4. Fischer, C. N., and LeBlanc, R. J. Jr. <i>Crafting a Compiler</i> The Benjamin/Cummings Publishing Company, Inc. 1988 ISBN 0-8053-3201-4 5. Muchnick, S. S. <i>Advanced Compiler Design and Implementation</i> Morgan Kaufmann Publishers, Inc. 1997 ISBN 1-55860-320-4			
Prerequisites:	1. CMSC 3613, Data Structures 2. CMSC 2833, Computer Organization I 3. CMSC 2813, Discrete Structures 4. CMSC 2613, Programming II 5. CMSC 1613, Programming I 6. CMSC 1513, Beginning Programming (Pascal) 7. MATH 2313, Calculus I			
Course due dates:	All projects are submitted electronically. All projects are due at the beginning of class on the date given in this document unless otherwise specified.			

Course Scoring:	Task	Date	Value
	Projects	Tables 2 and 3	600
	Poster	2-12	200
	Total		800
Grading:	A: 90% (720-800); B: 80-89% (640-719); C: 70-79% (560-639); D: 60-69% (480-559); F: 59% (0-479) and below.		
Notice:	Beepers and cellular phones are prohibited in class.		
Caveat:	This lecture schedule, programming projects and due dates, number and dates of tests are all subject to change. Changes are presented in class You are responsible for the material presented in class.		
Class Web Page:	The course administration and assignments can be found on URL http://www.comsc.uco.edu/~trt/cs4173.html		
Course Directory	The course directory is on the department computer (cs.uco.edu). You can find project test data files in the course directory. ~tt/cs4173/		
Student Disabilities:	Students with disabilities who require accommodations may contact Disability Support Services. http://bronze.uco.edu/disability_support/		
Absences:	1. A 40-point bonus is awarded to any student having no recorded absences. The attendance bonus will be denied to any student who is absent for any reason. The attendance bonus will not be granted to any student having an excused absence. 2. A student may be absent for up to one (1) class without penalty: these three classes are counted as excused absences. No notification or documentation is required except when a test is given. 3. Ten (10) points will be deducted from the student's final score for the second and every subsequent class for which the student is recorded absent.		

Table 1. Lecture Schedule			
Lecture	Date	Topic	Reference
1	1-8	Course overview and administration Anatomy of a Compiler Lexical Analysis and <i>lex</i>	Lecture notes Lecture 1 Lecture 2
2	1-10	Strings and Languages p01 overview	Lecture 3 Lecture 4
3	1-17	Nondeterministic Finite Automata Deterministic Finite Automata Regular Expression to NFA Conversion of a NFA to a DFA State Reduction and Assignment	Lecture 5 Lecture 6 Lecture 7 Lecture 8 Lecture 9
4	1-22	Context Free Grammars p02 Overview a02 Overview LR Parsing Constructing SLR Parsing Tables First and Follow Sets Submit p01: Subset Pascal Scanner Submit a01: P-Code Assembler Scanner	Lecture 10 Lecture 11 Lecture 12 Lecture 13 Lecture 14 Lecture 15
5	1-24	p03 Overview a03 Overview Submit p02: Subset Pascal Parser Submit a02: P-Code Assembler Parser	Lecture 16 Lecture 17
6	1-29	Symbol Table Overview Symbol Table Design Symbols and Types	Lecture 18 Lecture 19 Lecture 20
7	1-31	Submit p03: Identifiers and Identifier Lists Submit a03: P-Code Assembler	
8	2-5	Symbol Table Interface p04 Overview a04 Overview	Lecture 21 Lecture 22 Lecture 23

Table 1. Lecture Schedule (continued)			
Lecture	Date	Topic	Reference
9	2-7	P-Code Overview a05 Overview Submit p04: Subset Pascal Declarations Submit a04: P-Code Disassembler	Lecture 24 Lecture 25
10	2-12	Software Engineering Guest Lecture	
11	2-14	a06 Overview Submit p05: Subset Pascal Factors Submit a05: P-Machine Loader, Subprogram Linkage, and Termination Operations	Lecture 26
12	2-19	Factor semantics Term semantics	Lecture 27 Lecture 28
13	2-21	a07 Overview Submit p06: Subset Pascal Terms Submit a06: P-Machine Data Reference Operations and Standard Functions	Lecture 29
14	2-26	Simple Expression Semantics	Lecture 30
15	2-28	a08 Overview Submit p07: Subset Pascal Simple Expressions Submit a07: P-Machine Comparison and Arithmetic Operations	Lecture 31
16	3-5	Expression Semantics Expression List Semantics	Lecture 32 Lecture 33
17	3-7	a09 Overview Submit p08: Subset Pascal Expressions Submit a08: P-Machine Boolean and Set Operations	Lecture 34
18	3-12	Procedure Semantics Variable Semantics Submit rdp01: Research Day Abstract	Lecture 35 Lecture 36
19	3-14	Submit p09: Subset Pascal Variables Submit a09: P-Machine Conversion and Jump Operations.	
20	3-26	Statement Semantics Statement List Semantics	Lecture 37 Lecture 38
21	3-28	Submit p10: Subset Pascal Statements	
22	4-2	Subprogram Declaration Semantics Program Semantics Submit rdp01: Research Day Poster	Lecture 39 Lecture 40

Table 1. Lecture Schedule (continued)			
Lecture	Date	Topic	Reference
23	4-4	Submit p11: Subset Pascal Programs	
24	4-9	Standard Procedures and Functions	Lecture 41
25	4-11	Submit p12: Subset Pascal Standard Functions and Procedures Submit a10: Compiler-Assembler-Interpreter Integration	
26	4-16	Margin	
27	4-18	Margin	
28	4-23	Margin	
29	4-25	Student Perception on Instructor Effectiveness (Teacher Evaluations) Summary Score Sheets.	

Table 2. Compiler Programming Projects			
Project	Due	Value	Description
1	1-17	50	p01: Subset Pascal Scanner
2	1-24	50	p02: Subset Pascal Parser
3	1-31	50	p03: Subset Pascal Symbol Table
4	2-7	50	p04: Subset Pascal Declarations
5	2-14	50	p05: Subset Pascal Factors
6	2-21	50	p06: Subset Pascal Terms
7	2-28	50	p07: Subset Pascal Simple Expressions
8	3-7	50	p08: Subset Pascal Expressions
9	3-14	50	p09: Subset Pascal Variables
10	3-28	50	p10: Subset Pascal Statements
11	4-4	50	p11: Subset Pascal Programs
12	4-11	50	p12: Subset Pascal Standard Functions and Procedures
Total		600	

Table 3. Assembler/Interpreter Programming Projects			
Project	Due	Value	Description
1	1-17	60	a01: P-Code Assembler Scanner
2	1-24	60	a02: P-Code Assembler Parser
3	1-31	60	a03: P-Code Assembler
4	2-7	60	a04: P-Code Disassembler
5	2-14	60	a05: P-Machine Loader, Subprogram Linkage, and Termination Operations
6	2-21	60	a06: P-Machine Data Reference Operations and Standard Functions
7	2-28	60	a07: P-Machine Comparison and Arithmetic Operations
8	3-7	60	a08: P-Machine Boolean and Set Operations
9	3-14	60	a09: P-Machine Conversion and Jump Operations
10	4-11	60	a10: Compiler-Assembler-Interpreter Integration
Total		600	