



COURSE COMPILERS		
DEGREE: DEGREE IN INFORMATICS ENGINEERING	YEAR: 3º	SEMESTER: 2

WEEKLY PLANNING									
WEEK	SESSION	DESCRIPTION	GROUPS		SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	Indicate YES/NO If the session needs 2 teachers: Maximum 4 sessions	WEEKLY PROGRAMMING FOR STUDENT		
			LECTURE	SEMINAR			DESCRIPTION	CLASS HOURS	HOMEWORK HOURS Maximum 7 H
1	1	Introduction to Language Processors. Concepts, applications and structure. Phases of a Language translator	X			NO		1,5	7
1	2	Lexical analysis. Basic concepts. Regular expressions and recognizers automata	X			NO		1,5	
2	3	Lexical specification and building of finite automaton	X			NO		1,5	7
2	4	Practical exercises: Lexical analysis. Implementation of lexical analyzers		X		YES		1,5	
3	5	Syntactical analysis. Basic concepts and formalization. Grammars and finite state automata	X			NO		1,5	7
3	6	Practical exercises: Grammar design and analysis for proposed examples		X		YES		1,5	
4	7	Descendent predictive analysis. Implementation with recursive descent	X			NO		1,5	7
4	8	Practical exercises: Examples of grammars to generate languages		X		YES		1,5	

5	9	Prediction sets for syntactical analysis. LL(1) Grammars, descendent analyzer LL(k)	X			NO		1,5	7
5	10	Practical exercises: Recognizing languages with descendent analyzers		X		YES		1,5	
6	11	SLR Analyzer. Recognizing automaton and SLR analysis. SLR Table and application	X			NO		1,5	7
6	12	Practical exercises: Building SLR tables		X		YES		1,5	
7	13	LR canonic analyzer. Reconizing automaton and LALR analyzer. Resolution of ambiguous grammars	X			NO		1,5	7
7	14	Practical exercises: Examples of building LALR analyzers		X		YES		1,5	
8	15	Error recognition in syntactic analyzers	X			NO		1,5	7
8	16	Work with computer: syntax error recovery. This session will be dedicated to the design of error recognition strategies for a simple example of language translator, implemented with syntactic analysis tools		X	Computer Room	YES		1,5	
9	17	Semantic analysis. Basic concepts. Atributed grammars and semantic actions. Types of atributed grammars	X			NO		1,5	7
9	18	Work with computer: building syntax trees. This session will be dedicated to the implementation of data structures to store the syntax tres corresponding to expressions with a language program and syntactic analysis tools		X	Computer Room	YES		1,5	
10	19	Descendent and ascendant evaluation. Recursive predictive translators LL(1). Semantic stack and semantic actions.	X			NO		1,5	7
10	20	Practical exercises: Building translators		X		YES		1,5	
11	21	Type checking. Concepts and representation	X			NO		1,5	7
11	22	Work with computer: type systems. This session will address the implementation of a simplified type system for a certain language using syntax-directed translation tools.		X	Computer Room	YES		1,5	

12	23	Intermediate code. Representation and examples. Variable declaration and expressions	X			NO		1,5	7
12	24	Work with computer: intermediate code. This session will be dedicated to implementation of language translation into intermediate code, using compiler generation tools and a programming environment.		X	Computer Room	YES		1,5	
13	25	Intermediate code: instructions and control flow structures	X			NO		1,5	7
13	26	Work with computer: code generation for flow control structures. This session will be dedicated to the implementation of translator for typical declarative and flow control structures in examples of programming languages. The solution will be designed with a syntax-directed translator and then implemented with the compiler generation tools		X	Computer Room	YES		1,5	
14	27	Generating target code and assembly code. Execution environment and optimization	X			NO		1,5	7
14	28	Final exercises. Preparation of final project assignment		X		YES		1,5	
SUBTOTAL								42	+ 98 = 140
15		Tutorial and extra class, assignments presentations, etc						5	
16-18		Preparation for exams and assessment						5	
TOTAL								150	

LABORATORIES CLASSES PROGRAMMING*									
SESSION	WEEK	DESCRIPTION	LABORATORY		SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)		WEEKLY PROGRAMMING FOR STUDENT		
							DESCRIPTION	CLASS HOURS	HOMEWORK HOURS Maximum 7 H
2	4	Complementary session: LEX tutorial. This session will introduce a lexical analyzer tool and programming environment, solving some typical examples as a tutorial to familiarize with the characteristics of this tool. The use of regular expressions and finite automata theory to model the scanning process will be applied in this session.		SI	Computer Room	YES		1,5	2
8	16	Complementary session: YACC tutorial. This session will introduce a syntactical analyzer tool and programming environment, solving some typical examples as a tutorial to familiarize with the characteristics		SI	Computer Room	YES		1,5	2
10	20	Complementary session: Ambiguous grammars and error recovery with YACC. The error recovery strategies and ambiguity problems with syntactical analysis will be explored in this session		SI	Computer Room	YES		1,5	2
12	24	Complementary session: semantic actions in LR. The syntax to introduce semantic actions during the syntactical analysis is addressed in this session (syntax-directed translation), solving some examples and viewing the results for input programs.		YES	Computer Room	YES		1,5	2
TOTAL								14	

* 6 hours of complementary laboratories classes in EPS

