University of Puerto Rico
Mayagüez Campus
College of Engineering
Department of Electrical and Computer Engineering
Bachellor of Science in Computer Engineering

Course Syllabus

1. General Information:

Alpha-numeric codification: ICOM4029
Course Title: Compiler Construction
Number of credits: 3
Contact Period: 3 hours of lecture per week
Elective in ICOM

2. Course Description:

English: Techniques involved in the analysis of source languages and the generation of efficient object codes with emphasis on the components of a compiler.

Spanish: Técnicas envueltas en el análisis de los lenguajes fuente y la generación de códigos eficientes con énfasis en los componentes de un compilador.

3. Pre/Co-requisites and other requirements:

ICOM 4036

4. Course Objectives:

To introduce and provide programming experience in the techniques involved in the analysis of source languages and the generation of efficient object codes with emphasis on the components of a compiler

5. Instructional Strategies:

☒conference ☐discussion ☒computation ☒laboratory

☐seminar with formal presentation ☐seminar without formal presentation ☐workshop

☐art workshop ☐practice ☐trip ☐thesis ☐special problems ☐tutoring

☐research ☐other, please specify:

6. Minimum or Required Resources Available:

7. Course time frame and thematic outline

Outline	Contact Hours
Introduction and structure of a basic compiles	3
Lexical analysis and the lexical analyzer generator lex	3
Trees (especially search trees)	3
Parsing techniques and context-free grammars	3
LL parsing	2
Operator-precedence grammars	2
LR and LALR parsing and the parser generator yacc	3
Syntax-directed translation	2
Intermediate and target code generation	3
Object file formats and optimization	4.5
Mini languages	1.5
Total hours: (equivalent to contact period)	30

8. Grading System

☒ Quantifiable (letters) ☐ Not Quantifiable

9. Evaluation Strategies (Suggested): The faculty member teaching the course will provide the student with the evaluation strategy he/she will be using throughout the semester. This will be done within the first week of classes.

	Quantity	Percent
☒ **Exams**	**2**	**30%**
☒ **Final Exam**	**1**	**35%**
☐ **Short Quizzes**		
☐ **Oral Reports**		
☐ **Monographies**		
☐ **Portfolio**		
☒ **Projects**		**35%**
☐ **Journals**		
☐ **Other, specify:**		
TOTAL:		**100%**

10. Bibliography:

Alfred V. Aho, Ravi Sethi, and Jeffrey D. Ullman, Compilers - Principles, Techniques and Tools, Addison-Wesley, 1986

11. According to Law 51

Students will identify themselves with the Institution and the instructor of the course for purposes of assessment (exams) accommodations. For more information please call the Student with Disabilities Office which is part of the Dean of Students office (Chemistry Building, room 019) at (787)265-3862 or (787)832-4040 extensions 3250 or 3258.

12. Contribution of Course to meeting the requirements of Criterion 5:

Math	Basic Science	General	Engineering Topic
			√

13. Course Outcomes

	Map to Program Outcomes
1. Apply the basic concepts of compilation and translation	(a)
2. Knowledge of alternative algorithms used in the implementation of the various phases of a compiler	(a)
3. Explain the fundamental issues arising from the implementation of contemporary programming languages	(e)
4. Use these concepts in construction of a working compiler or interpreter	(c)
5. Ability to work in a team to implement a fully-functional compiler	(d)

Person (s) who prepared this description and date of preparation: Bienvenido Vélez. Submitted by: Manuel Rodríguez, March 2007.