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: ICOM4036
Course Title: Programming Languages
Number of credits: 3
Contact Period: 3 hours of lecture per week
Elective in ICOM

2. Course Description:

English: Comparative study of programming styles, including imperative, object-oriented, functional, logic, and concurrent programming. Concepts of data encapsulation and inheritance. Formal specification of the syntactic structure of a language. Context-free grammars and parse trees.

Spanish: Estudio comparativo de estilos de programación, incluyendo Programación imperativa, de objetos, funcional, lógica y concurrente. Conceptos de encapsulación de datos y herencia. Especificación formal de la estructura sintáctica de un lenguaje. Gramáticas de contexto libre y árboles de análisis.

3. Pre/Co-requisites and other requirements:

ICOM 4035

4. Course Objectives:

To teach students how to evaluate and understand a language based on its characteristics.

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	2
Syntactic structure	9
Imperative Programming	6
Object-oriented Programming	8.5
Functional Programming	6
Logic Programming	6
Concurrent Programming	3
Exams	4.5
Total hours: (equivalent to contact period)	45

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**	**2-3**	**45%**
☒ **Final Exam**	**1**	**35%**
☐ **Short Quizzes**		
☐ **Oral Reports**		
☐ **Monographies**		
☐ **Portfolio**		
☒ **Projects**	**3-5**	**20%**
☐ **Journals**		
☐ **Other, specify:**		
TOTAL:		**100%**

10. Bibliography:

Michael L. Scott , Programming Language Pragmatics, 2nd Ed. , Morgan Kaufmann, 2005.

Robert W. Sebesta, Concepts of Programming Languages, 6th Ed., Pearson, 2004.

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 different programming languages paradigms.	(a)
2. Ability to select appropriate programming languages for specific applications.	(k)
3. Ability to evaluate features of different languages.	(a)
4. Ability to design a simple scanner and parser	(c)

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