



UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Compilers

Academic Year 2023/2024

1. Organic Unit

Faculty of Business and Economic Sciences

2. Course

Computer Engineering

3. Cycle

1st

4. Course Unit

Compilers (L9023)

5. Scientific Area

6. Curricular Year

3rd

7. Type of Curricular Unit / Semester

2nd Semester



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8. Class type and workload (work time)

Theoretical classes:

Practical classes:

Theoretical-Practical Classes 30,00

Tutorial Guidance: 20,00

9. ECTS Credits

6,00

10. Scientific Area Coordinator

11. Regent

Prof. Doutora MARIA INÊS VASCONCELLOS FURTADO

12. Assistants

13. Teaching Language

Portuguese

14. General Objectives

Provide the student with the basic knowledge of the concepts and techniques needed to build compilers, as well as to understand the knowledge involved in the design of programming languages and the computational processing of languages in general.

15. Specific Objectives

- Understanding the aspects related to the design of programming languages
- Describe the compiler's architectural arrangement and its operation
- Understand and implement the most important lexical analysis algorithms
- Understand and implement the most important syntactic analysis algorithms
- Understand and implement the semantic analysis processes adopted in compilers
- Describe the error retrieval techniques used in compilers
- Identify the ways of intermediate code generation and rep

16. Skills to be acquired

- Practice of some tools commonly used in this field.
- Ability to produce an analysis or compilation tool.
- Operation of finite automata simulators.

17. Teaching Methodology



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- Theoretical-practical classes where the subject of study is presented and where several assignments and exercises are proposed to students to be solved within the class or through research afterwards.
- Tutorial classes where exercises are solved using PCs where the necessary tools are installed. the necessary tools are installed.

18. Course Unit Program

- 1) The structure of a compiler
- 2) Programming languages
 - Main characteristics
- 3) Specification and design of a language
- 4) Lexical analysis
- 5) Construction of a lexical analyzer
- 6) Syntactic analysis and error correction
- 7) Construction of a syntactic analyzer
- 8) Semantic analysis
- 9) Implementation of semantic analysis
- 10) Intermediate code generation and optimization
- 11) Implementation of the code generator.

19. Assessment Methods

- The theoretical-practical classes will be given in an interactive way presenting the subject matter and small exercises. In the practical classes students must solve exercises with tutoring, as well as develop solutions from scratch.
- Exercises / Assignments are required and contribute to the final evaluation, as well as two knowledge evaluation tests.
- There will be a project divided into several parts.

20. Didactic Resources

Classes will be given, whenever possible, using visual presentations.

Students will be provided with illustrative examples of conventional and non-conventional models and problems, as well as supplementary information on the subjects taught.

21. Sustainability Objectives

22. Keywords

Compilers
Formal Languages



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23. Main Bibliography

Author(s): Rui Gustavo Crespo
Title: Processadores de Linguagens
Edition: 2 Year: 2001
Local: Lisboa
Publisher: IST Press

Author(s): Pedro Reis Santos, Thibault Langlois
Title: Compiladores: da teoria à prática
Edition: 1 Year: 2014
Local: Lisboa
Publisher: FCA

Author(s): R. Sethi A. V. Aho and J. D. Ullman
Title: Compilers: Principles, Techniques, and Tools.
Edition: Year: 2006
Local: USA
Publisher: Pearson

24. Complementary Bibliography

Author(s):
Title:
Edition: Year:
Local:
Publisher:

Author(s):
Title:
Edition: Year:
Local:
Publisher:



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Ficha técnica MIP / MIP Datasheet	
Título / Title	Course Unit Program 'COMPILADORES': Academic Year 2023/2024
Autor / Author	Prof. Doutora MARIA INÊS VASCONCELLOS FURTADO
Classificação / Classification	-
Descritores / Descriptors	-
Colaborador(es) / Colaborator(s)	-
Data Hora / Date Time	
Formato de dados / Data Format	Texto / Text, PDF
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