

UNIVERSIDAD DE CASTILLA - LA MANCHA GUÍA DOCENTE

Code: 42342

ECTS credits: 6

Academic year: 2023-24

Group(s): 15

. General information

Course: AUTOMATA THEORY AND COMPUTATION

Type: ELECTIVE

406 - UNDERGRADUATE DEGREE IN COMPUTER SCIENCE AND

ENGINEERING (AB)

Center: 604 - SCHOOL OF COMPUTER SCIENCE AND ENGINEERING (AB)

Year: 3

Duration: C2 Main language: Spanish Second language: English

Use of additional **Enalish Friendly: Y** languages:

Web site: Bilingual: N

Lecturer: FERNANDO LOPEZ PELAYO - Group(s): 15							
Building/Office	Department	Phone number	Email	Office hours			
ESII / 1A3	SISTEMAS INFORMÁTICOS	926053121	fernandol.pelayo@uclm.es				

As this subject is taught in the third year of the degree it is expected that all the necessary requirements are met. Therefore, it is expected that there will be a basic background in:

- Mathematical formalisms: Set theory in Algebra. Basic mathematical background on proof techniques, especially Induction.
- Languages ¿¿and Programming Techniques: Mainly Imperative Style. It is expected that the student would be non-dependant on a specific programming language for final implementation (if required). The stunts are expected to know some programming languages in order to better illustrate the usefulness of using grammars.

More specifically, the student should:

- Be able to work within a mathematical and formal framework.
- have abstraction capacity that allows they to identify the key ideas and concepts above the details and / or notation used.

3. Justification in the curriculum, relation to other subjects and to the profession

Automata theory and Computation is basic background for on both Science and Technique of Computing, in fact it has always been included in the Curriculum of these studies from its origins. At present, for the sake of a technification of the discipline, the study of this subject has remained part of the Computation itinerary, due to its more scientific nature

In this subject, where both is justified and stablished the basis of the studies, there can be found most of the basic concepts studied and used in almost all other subjects. What is a programming language, how and why is it defined in the way it is done? What is the mechanism in which it is translated into a formalism understandable by a machine, why is that specifically, and what are the limitations that can be found, among many others.

This subject is strongly linked with others, as are all having mathematical nature, since formerly the subject has this origin, as well as those with a certain theoretical component related to programming, such as Language Processors, Declarative Programming, and all those in which the Artificial Intelligence has a certain weight.

4. Degree competences achieved in this course

Course	compe	tences

Code Description

Ability to acquire thorough knowledge about fundamental principles and models in computation, and to apply them for the CM01

interpretation, selection, assessment, modelling, and creation of new concepts, theories, uses, and development of those technologies

in the field of IT.

Ability to know the theoretical fundamentals of programming languages, and their associated techniques for lexical, syntactic, and CM02

semantic processes, along with their application in the creation, design, and language processing.

INS01 Analysis, synthesis, and assessment skills.

INS04 Problem solving skills by the application of engineering techniques. INS05 Argumentative skills to logically justify and explain decisions and opinions.

SIS01 Critical thinking SIS03 Autonomous learning.

UCLM03 Accurate speaking and writing skills.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Understanding of the theoretical foundations of computability and decidability.

Understanding and skills in the definition of regular and context-free languages ¿¿as well as the computers that recognize them.

Additional outcomes

Knowing the formal languages theory concepts that can be applied to Informatics, e.g., formal language definition, skills and tools for formal language processing, goals for this processing, etc...

Connecting these previous concepts with some others that are widely used throughout the studies of the degree, among which sohuld be included those related to programming languages.

6. Units / Contents

Unit 1: Introduction

Unit 2: Formal Languages

Unit 3: Formal Grammars

Unit 4: Finite Automata / Finite State Machine

Unit 5: Regular expressions

Unit 6: Regular Languages properties

Unit 7: Context Free Grammars

Unit 8: PushDown Automata

Unit 9: Turing Machines

7. Activities, Units/Modules and M	Methodology						
Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	urs As Com		Description
Class Attendance (theory) [ON-SITE]	Combination of methods	CM01 CM02 INS01	0.64	16	N	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	CM01 CM02 INS01 INS05 SIS01 UCLM03	0.64	16	N	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	CM01 CM02 INS01 SIS01 SIS03 UCLM03	0.96	24	N	-	
-9	Assessment tests	CM01 CM02 INS01 SIS01 UCLM03	0.24	6	Υ	N	
Project or Topic Presentations [ON-SITE]	Group Work	INS01 SIS01 UCLM03	0.64	16	Υ	N	
Study and Exam Preparation [OFF-SITE]	Self-study	CM01 CM02 INS01 SIS01	2.4	60	N	-	
In-class Debates and forums [ON-SITE]	Debates	INS01 SIS01 UCLM03	0.24	6	N	-	
Final test [ON-SITE]	Assessment tests	CM01 CM02 INS01 SIS01 UCLM03	0.24	6	Υ	N	
Total:				150			
	Total credits of in-class work: 3.6						Total class time hours: 90
Total credits of out of class work: 2.4				Total hours of out of class work: 60			

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System							
Evaluation System	Continuous assessment	Non- continuous evaluation*	Description				
Test	80.00%	80.00%	Partial Test and if required Final Test				
Self Evaluation and Co-evaluation	10.00%	10.00%	LAB work				
Oral presentations assessment	10.00%	10.00%					
Total:	100.00%	100.00%					

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

Written test: 60%.

Practical work: 20%.

The delivery of the internship work will be mandatory: 10%.

Oral presentations of topics, including work and memory of practices: 10%

Non-continuous evaluation:

Evaluation criteria not defined

Specifications for the resit/retake exam:

Written test to assess theoretical and practical knowledge.

The delivery of the internship is compulsory.

Specifications for the second resit / retake exam:

Written test to assess theoretical and practical knowledge.

The delivery of the internship is compulsory.

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Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 4 Progress test [PRESENCIAL][Assessment tests] 1 Project or Topic Presentations [PRESENCIAL][Group Work] 5tudy and Exam Preparation [AUTÓNOMA][Self-study] 10 Unit 9 (de 9): Turing Machines Activities Hours Class Attendance (theory) [PRESENCIAL][Combination of methods] 1 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 2 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 4 Study and Exam Preparation [AUTÓNOMA][Self-study] 4 Global activity Activities Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 24 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 24	Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 8 (de 9): PushDown Automata Activities	3 4 1 3 10 Hours 2 3 4 1 3 10
Progress test [PRESENCIAL][Assessment tests] 1 Project or Topic Presentations [PRESENCIAL][Group Work] 4 Study and Exam Preparation [AUTÓNOMA][Self-study] 10 Unit 9 (de 9): Turing Machines Activities Hours Class Attendance (theory) [PRESENCIAL][Combination of methods] 1 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 2 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 4 Study and Exam Preparation [AUTÓNOMA][Self-study] 4 Global activity Activities hours Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 24	Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL][Combination of methods]	3 4 1 3 10 Hours 2 3 4 1 3 10
Project or Topic Presentations [PRESENCIAL][Group Work] 10 Unit 9 (de 9): Turing Machines Activities Hours Class Attendance (theory) [PRESENCIAL][Combination of methods] 1 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 2 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 4 Study and Exam Preparation [AUTÓNOMA][Self-study] 4 Global activity Activities hours Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 2 Activities hours Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 2 Activities hours	Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	3 4 1 3 10 Hours 2 3 4 1 3 10 Hours 2 2 3 4 2 2
Study and Exam Preparation [AUTÓNOMA][Self-study] 10 Unit 9 (de 9): Turing Machines Activities Hours Class Attendance (theory) [PRESENCIAL][Combination of methods] 1 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 2 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 4 Study and Exam Preparation [AUTÓNOMA][Self-study] 4 Global activity Activities hours Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 24	Problem solving and/or case studies [PRESENCIAL] [Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL] [Problem solving and exercises] Progress test [PRESENCIAL] [Assessment tests] Project or Topic Presentations [PRESENCIAL] [Group Work] Study and Exam Preparation [AUTÓNOMA] [Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL] [Combination of methods] Problem solving and/or case studies [PRESENCIAL] [Problem solving and exercises] Progress test [PRESENCIAL] [Assessment tests] Project or Topic Presentations [PRESENCIAL] [Group Work] Study and Exam Preparation [AUTÓNOMA] [Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL] [Combination of methods] Problem solving and/or case studies [PRESENCIAL] [Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL] [Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL] [Problem solving and exercises]	3 4 1 3 10 Hours 2 3 4 1 3 10 Hours 2 4 4 4 4 4 4 4 4 4 4 4 4 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
Unit 9 (de 9): Turing Machines Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] 1 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 2 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 4 Study and Exam Preparation [AUTÓNOMA][Self-study] 4 Global activity Activities Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 24	Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests]	3 4 1 3 10 Hours 2 3 4 1 3 10 Hours 2 2 4 1
Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] 1 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 2 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 4 Study and Exam Preparation [AUTÓNOMA][Self-study] 4 Global activity Activities Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 2 4 hours 24	Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Progress test [PRESENCIAL][Assessment tests] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work]	3 4 1 3 10 Hours 2 3 4 1 3 10 Hours 2 2 4 1 1 4
Class Attendance (theory) [PRESENCIAL][Combination of methods] 1 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 2 Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 4 Study and Exam Preparation [AUTÓNOMA][Self-study] 4 Global activity Activities hours Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 24	Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study]	3 4 1 3 10 Hours 2 3 4 1 3 10 Hours 2 2 4 1 1 4
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Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 4 Study and Exam Preparation [AUTÓNOMA][Self-study] 4 Global activity Activities hours Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 24	Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 9 (de 9): Turing Machines Activities	3 4 1 3 10 Hours 2 3 4 1 3 10 Hours 2 2 4 1 4 10 Hours
Study and Exam Preparation [AUTÓNOMA][Self-study] Global activity Activities Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 4 hours 24	Problem solving and/or case studies [PRESENCIAL] [Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL] [Problem solving and exercises] Progress test [PRESENCIAL] [Assessment tests] Project or Topic Presentations [PRESENCIAL] [Group Work] Study and Exam Preparation [AUTÓNOMA] [Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL] [Combination of methods] Problem solving and/or case studies [PRESENCIAL] [Problem solving and exercises] Progress test [PRESENCIAL] [Assessment tests] Project or Topic Presentations [PRESENCIAL] [Group Work] Study and Exam Preparation [AUTÓNOMA] [Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL] [Combination of methods] Problem solving and/or case studies [PRESENCIAL] [Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL] [Problem solving and exercises] Problem solving and/or rease studies [PRESENCIAL] [Problem solving and exercises] Progress test [PRESENCIAL] [Assessment tests] Project or Topic Presentations [PRESENCIAL] [Group Work] Study and Exam Preparation [AUTÓNOMA] [Self-study] Unit 9 (de 9): Turing Machines	3 4 1 3 10 Hours 2 3 4 1 3 10 Hours 2 4 1 4 10 Hours 1
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Activities hours Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 24	Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Progress test [PRESENCIAL][Assessment tests] Proplem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 9 (de 9): Turing Machines Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	3 4 1 3 10 Hours 2 3 4 1 1 3 10 Hours 2 2 4 1 1 4 10 Hours 1 2 4
· · · · · · · · · · · · · · · · · · ·	Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Proplems solving and/or case studies [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 9 (de 9): Turing Machines Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	3 4 1 3 10 Hours 2 3 4 1 1 3 10 Hours 2 2 4 1 1 4 10 Hours 1 2 4
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] 16	Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Prolem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Proplem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 9 (de 9): Turing Machines Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	3 4 1 3 10 Hours 2 3 4 1 1 3 10 Hours 2 2 4 1 4 10 Hours 1 2 4 4 4
	Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 7 (de 9): Context Free Grammars Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 8 (de 9): PushDown Automata Activities Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Progress test [PRESENCIAL][Assessment tests] Project or Topic Presentations [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 9 (de 9): Turing Machines Class Attendance (theory) [PRESENCIAL][Group Work] Study and Exam Preparation [AUTÓNOMA][Self-study] Unit 9 (de 9): Turing Machines Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Class Attendance (theory) [PRESENCIAL][Combination of methods] Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises] Clobal activities Clobal activities Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	3 4 1 3 10 Hours 2 3 4 1 1 3 10 Hours 2 2 4 1 4 10 Hours 1 2 4 4 4 hours

Final test [PRESENCIAL][Assessment tests]	6 Total horas: 150
In-class Debates and forums [PRESENCIAL][Debates]	6
Class Attendance (theory) [PRESENCIAL][Combination of methods]	16
Study and Exam Preparation [AUTÓNOMA][Self-study]	60
Project or Topic Presentations [PRESENCIAL][Group Work]	16
Progress test [PRESENCIAL][Assessment tests]	6

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