

COURSE DESCRIPTION

Computer Science III

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Lecturer
Computer Engineering
School of Engineering
Universidad Distrital Francisco José de Caldas

2025-I



UNIVERSIDAD DISTRITAL
FRANCISCO JOSÉ DE CALDAS

Outline

- 1 You Don't Know Who I Am
- 2 Course Overview
- 3 Syllabus
- 4 Grading & Rules
- 5 Bibliography



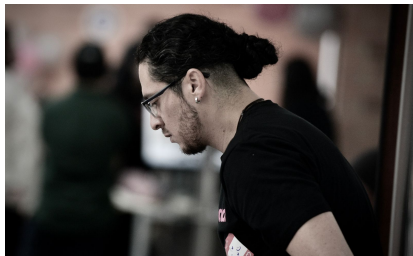
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Academic Experience

- **Computer Engineer, MSc.** in Computer Engineering, and researcher for the past **15 years**.
- 7 years as a **full-time associate professor** at various colleges for **Computer Engineering** programs.
- 3 years as a **lecturer** at colleges and in **government STEM** programs.
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Non-academic Experience



- **Co-organizer** of PyCon Colombia and Python Bogotá; collaborated with ScipyLATAM and Jupyter LATAM.
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Overview

This course is designed to introduce undergraduate students to foundations of **compilers design**. It is hard to generate a new programming language without a good **compiler**.

Classes will consist of lectures, discussions, and practical examples. Also, you must take some readings from theory of the computation. In addition, there will be a semester-long project, as well one final test, and three workshops.



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Goals

The main goal of this course is to cover the main concepts associated with compilers design. Also, you will learn how to create a simple compiler for a simple programming language.

By the end of this course you should be able to create a simple compiler for a simple programming language, where the output is a graphical representation of the program rather than machine code.



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add square with diamonds



Prerequisites

This is a basic course, so you must have some knowledge of:

- **Programming** in Java, Python, or C++.
- **Object-Oriented Programming** fundamentals.
- Basic concepts of Data structures and algorithms.

Trees

Also, it is desirable to have some knowledge of:

- Basic usage of Git and GitHub.
- Using IDEs such as VS Code, Eclipse, or PyCharm.



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Syllabus I

Period	Topic	Time
Period I	Introduction to Programming Languages	3 sessions
	Workshop on Theory of the Computation	1 session
	Compilers	1 session
	Lexical Analyzers	1 sessions
	Workshop on Lexical Analyzers	1 session
	Course Project Catch-Up	1 session

Table: Schedule for Period I

Overleaf → Latex { Paper, Poster, report, etc.



Syllabus II

Period	Topic	Time
Period II	Synthetic Analyzer & Parsing	1 session
	Semantic Analyzer	2 sessions
	Workshop on Compilation Analyzers	1 session
	Translation Process & Correctness	2 sessions
	Advanced Topics	1 session
	Final Test	1 session
Period III	Projects Presentation	2 session

Table: Schedule for Period II & III



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Grades Percentages

Period	Item	Percentage
Period I	Workshops	60%
	Project Catch-Up	40%
Period II	Workshop	50%
	Test	50%
Period III	Paper + Poster	5%
	Project Implementation	10%
	Project Report	15%

↓ hour
 ↑ 30%
 25%
 100%

Table: Computer Science III Grades Distribution



Don't hate the player, hate the game

- All assignments must be submitted on **time** and in **english**. Grammar and spelling will **not** be evaluated.
- Copying and pasting from internet is **forbidden**. Please, develop your own solutions.
- Class attendance is **not mandatory**. If you miss classes, you must study by yourself.
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Code of Conduct

- Always be **respectful** to your **classmates** and to me. You must be **kind** with everyone inside (*and outside*) the classroom.
- There is **no** a better **programming language**, **tool**, or **technology**. There are only **better** or **worse** solutions.
- You must be **honest** with your work. If you **don't know something**, just **ask** me. I will be **glad** to help you.
- You must be **responsible** with your work. If you don't submit **on time**, please **don't cry**.
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Bibliography

Recommended bibliography:

- Compilers: Principles, Techniques, and Tools, by Aho, Lam, Sethi, and Ullman.
- Engineering a Compiler, by Cooper and Torczon.
- Modern Compiler Implementation in Java, by Andrew W. Appel.
- Programming Language Pragmatics, by Michael L. Scott.
-  The Art of Compiler Design: Theory and Practice, by Thomas Pittman.
- The Dragon Book, by Aho, Lam, Sethi, and Ullman.
- The Theory of Parsing, Translation, and Compiling, by Alfred V. Aho.
-  Notas de Clase, Teoría de la Computación, by Rodrigo de Castro Korgi.



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Thanks!

Questions?



URL: www.linkedin.com/in/casierrav

