Systems Analysis & Design

Course Description

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

2025-I

Outline

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Academic Experience

- **Computer Engineer**, **MSc.** in Computer Engineering, and *researcher* for the last 15 years.
- 8 years as **full-time professor** at colleges, for Computer Engineering programs.
- 3 years as **lecturer professor** for both colleges and goverment STEM programs.
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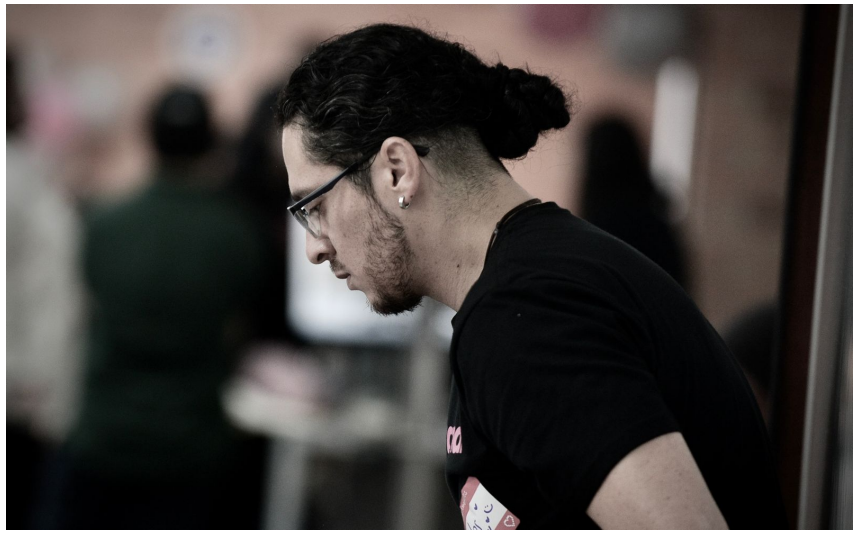

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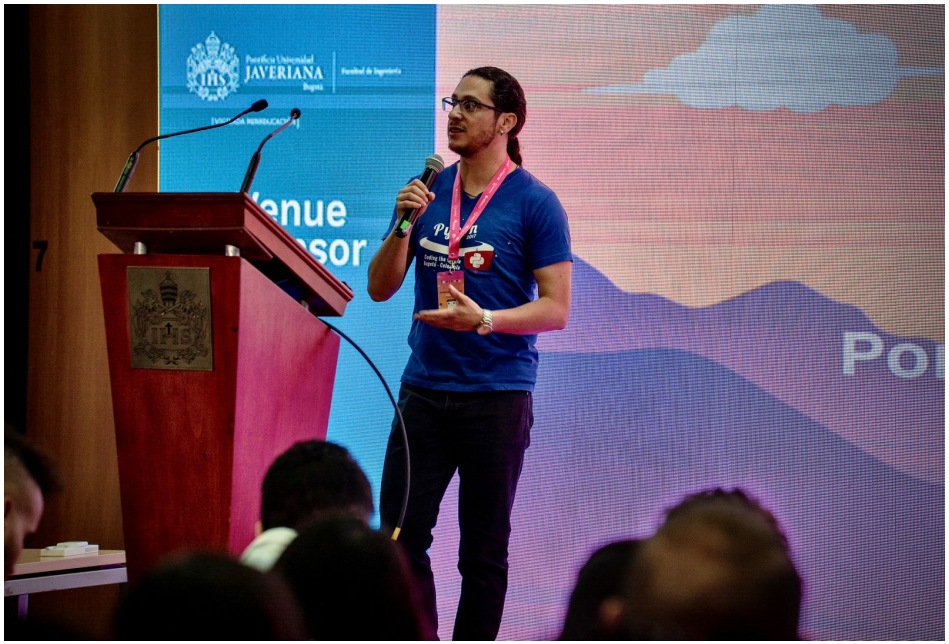

- PyCon Colombia and Python Bogotá **co-organizer**. Collaborations in ScipyLATAM and Jupyter LATAM.
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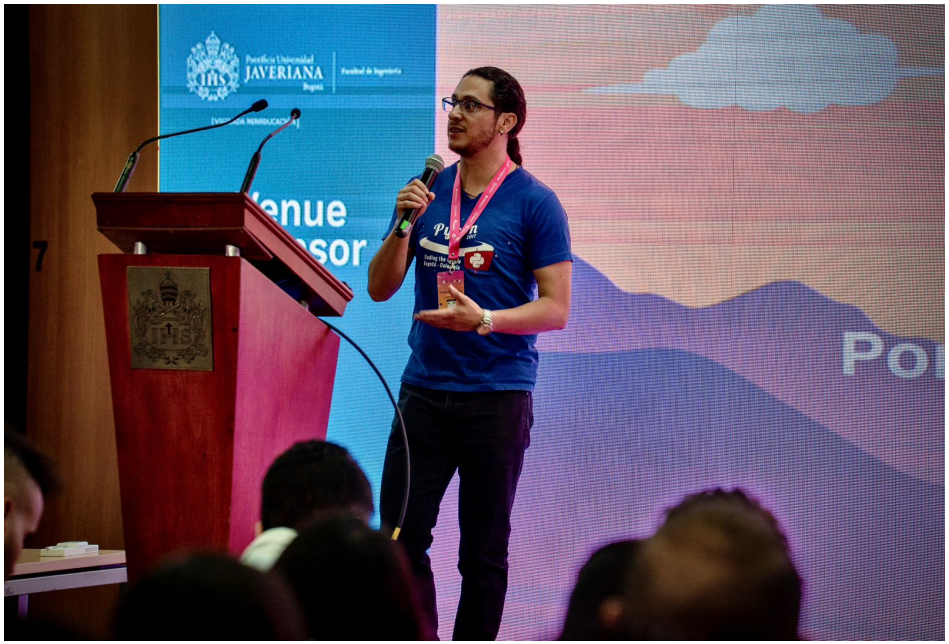

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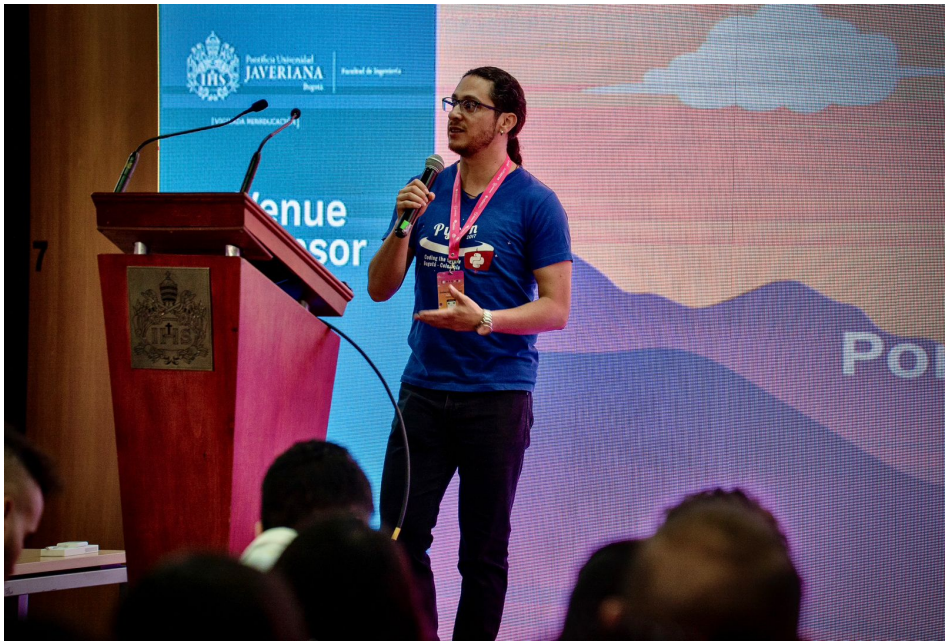

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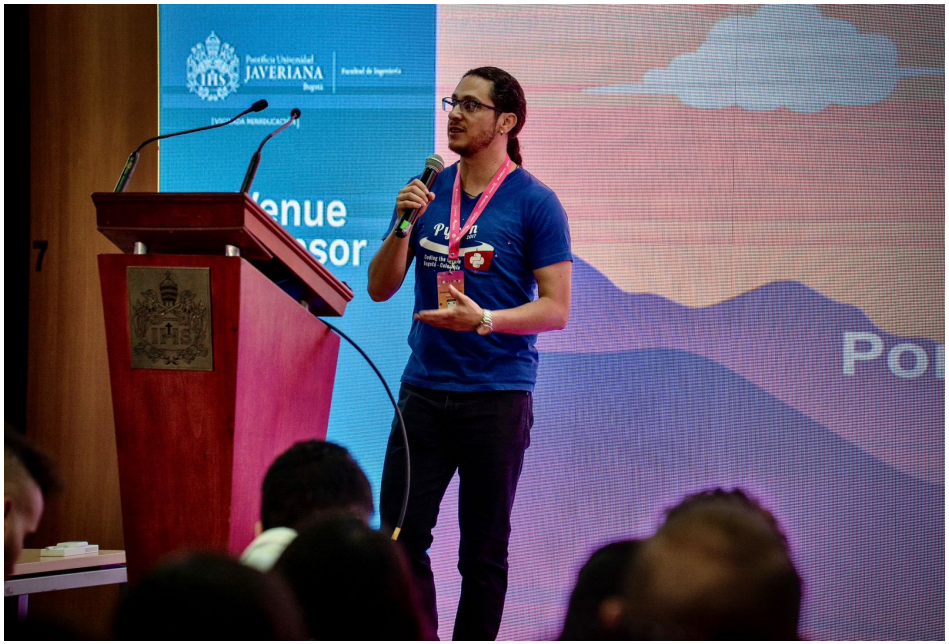

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Overview

This course is designed to introduce undergraduate students to foundations of **systems analysis and design** and a lot of multiple computer science paradigms. This is a course focused on thinking and **problem solving**.

Classes will consist of lectures, **discussions**, and practical examples. Also, you must take some readings from *systems concepts*. In addition, there will be a **semester-long** project, as well **one** final test, **three** workshops, and **ten** additional assignments.

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Goals

The main goal of this course is to provide undergraduate students with different **models concepts**, and **tools** for understanding and solving problems using **analysis systems and design** based on projects requirements.

At the end of this course you should be able to **create** a full **systems engineering solution** with a good level of **quality** metrics. Also, you should be able to **design** solutions in an **agnostic** way.

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Prerequisites

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

- **Programming** in Python or Java.
- **Draw diagrams** to represent anything.
- Use of **IDEs** like VS Code, Eclipse, or PyCharm.

Also, it is recommended to have some knowledge in:

- **Data Structures** and **Algorithms**.
- **Git** basic usage, and **GitHub** basic usage.

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Syllabus I

Period	Topic	Time
Period I	Systems Thinking	2 sessions
	Systems Engineering	3 sessions
	Systems Analysis	4 session
	Workshop on Systems Thinking	1 session
	Systems Design	4 sessions
	Workshop on Systems Design	1 sessions
	Projects Catch-Up	1 session

Table: Schedule for Period I

Syllabus II

Period	Topic	Time
Period II	Robust System Design	4 sessions
	General Systems Theory Paradigms	3 sessions
	Systems Projects Management	3 sessions
	Systems Simulation	4 session
	Workshop on Systems Simulation	1 session
	Final Test	1 sessions
Period III	Project Disertations	2 sessions

Table: Schedule for Period II & III

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Grades Percentages

Period	Item	Percentage
Period I	Assignments	5%
	Workshops	20%
	Project CatchUp	10%
Period II	Assignments	5%
	Workshops	15%
	Final Test	15%
Period III	Paper + Poster	5%
	Technical Report	15%
	Project Dissertation	10%

Table: Systems Analysis & Design — Grades Distribution

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Don't hate the player, hate the game

- All asignments must be submitted hand-written on **time** and in **english**. Grammar and spelling will **not** be evaluated.
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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.
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Bibliography

Recommended bibliography:

- **Systems Analysis and Design**, by Alan Dennis, Barbara Haley Wixom, and Roberta M. Roth.
- **Systems Analysis and Design**, by Kenneth E. Kendall and Julie E. Kendall.
- **Systems Analysis and Design**, by Scott Tilley and Harry J. Rosenblatt.
- **Systems Analysis and Design**, by Gary B. Shelly, Harry J. Rosenblatt, and Thomas J. Cashman.

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Thanks!

Questions?

URL: `www.linkedin.com/in/casierrav`

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