Software Modeling Foundations

Course Description

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

2024-III

Outline

1. You don't know who I am
2. Course Overview
3. Syllabus
4. Grading & Rules
5. Bibliography

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FRANCISCO JOSÉ DE CALDAS

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Academic Experience

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- 7 years as **full-time associate professor** at colleges, for Computer Engineering programs.
- 3 years as **lecturer professor** for both colleges and goverment STEM programs.
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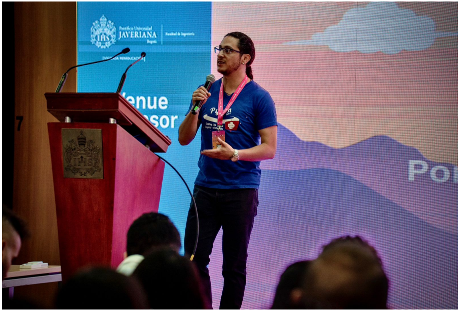

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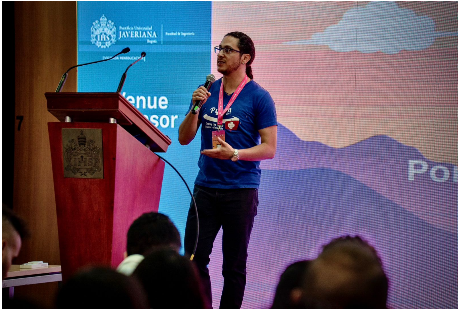

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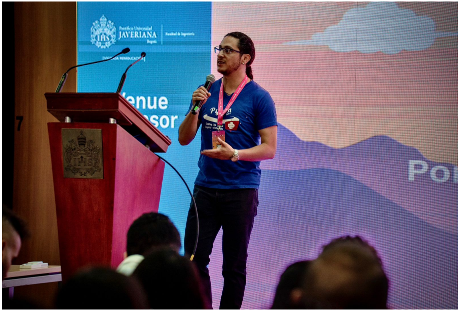

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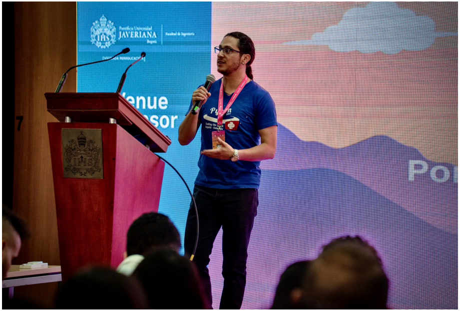

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Overview

This course is designed to introduce undergraduate students to foundations of **design patterns** and *good practices* of **software modeling**. This is **not** a course fully focus on **software architecture**, but it is part of main concepts of software achitecture.

Classes will consist of lectures, **discussions**, practical examples, and workshops. Also, you must take some readings from *software architecture*. In addition, there will be a **semester-long project**, as well one course exam, four **workshops**, and ten additional **assignmens**.

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200 -300

Goals

The main goal of this course is to provide undergraduate students with different **models** and **tools** for solving software problems using **object-oriented paradigm**.

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

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API REST

Prerequisites

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

- **Programming** in Java, Python, or C++.
- **Object-Oriented Programming** foundations.

Objects

- UML and **Class Diagrams** basic concepts.
- **Git** basic usage, and **GitHub** basic usage.
- **Data systems** and relational model basic concepts.
- Use of **IDEs** like VS Code, Eclipse, or PyCharm.

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→ Class

→ Attribute

→ Behavios

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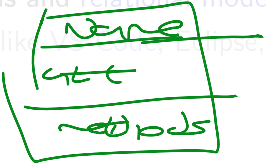

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Files

DB

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→ FOSS → update

→ multi-language

→ plugins

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Syllabus I

Period	Topic	Time
Period I	Software Modeling Introduction	4 classes
	Workshop Object-Oriented Design	1 session
	Creational Patterns	4 classes
	Structural Patterns	5 classes
	Workshop on Patterns I	1 session
	Course Project Catch-Up	1 session

Table: Schedule for Period I

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Syllabus II

Period	Topic	Time
Period II	Structural Patterns	2 classes
	Behavioral Patterns	6 classes
	Workshop on Patterns II	1 session
	Solid Principles	1 classes
	Anti-Patterns and Code Smell	4 classes
	Workshop on Code Smells	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	Assignments	5%	— 5
	Workshops	20%	— 2
	Project Catch-Up	10%	— report
Period II	Assignments	5%	— 5
	Workshops	20%	— 2
	Test	10%	
Period III	Paper + Poster	5%	
	Project Implementation	10%	
	Course Project	15%	40%

Table: Software Modeling 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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- Class attendance is **not mandatory**. If you **miss** classes, you must *study by yourself*.
- No cell-phones, no smartwatches, no whatsapp, no tinder, no smartanything. **Just you and your brain**. Pay attention at clase.
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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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- **Clean Code: A Handbook of Agile Software Craftsmanship**, by Robert C. Martin.
- **Refactoring: Improving the Design of Existing Code**, by Martin Fowler.
- **Domain-Driven Design: Tackling Complexity in the Heart of Software**, by Eric Evans.
- **Patterns of Enterprise Application Architecture**, by Martin Fowler.

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- **Construcción de Software Orientado a Objetos**, by Bertrand Meyer.
- **Thinking Java**, by Bruce Eckel.
- **Java2 How To Program**, by Deitel & Deitel.

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Thanks!

Questions?

www.linkedin.com/in/casierrav