Software Modeling

Course Description

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

2024-I

Outline

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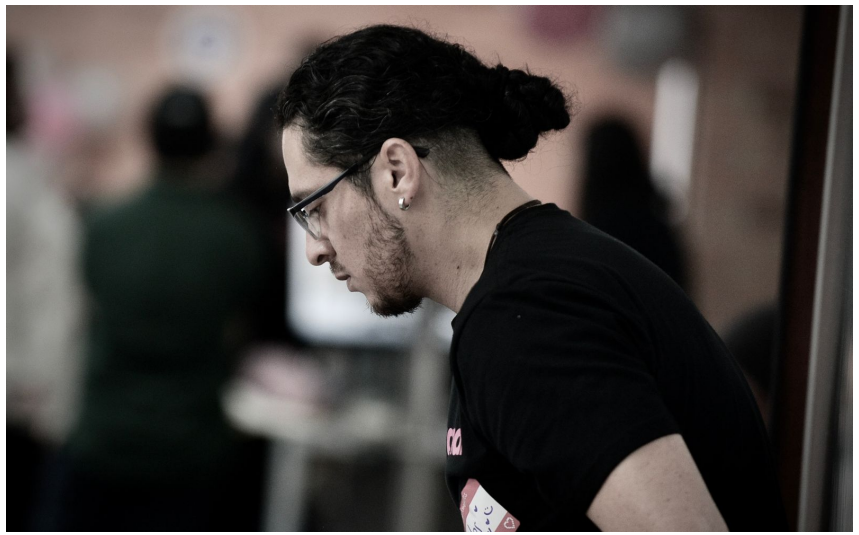

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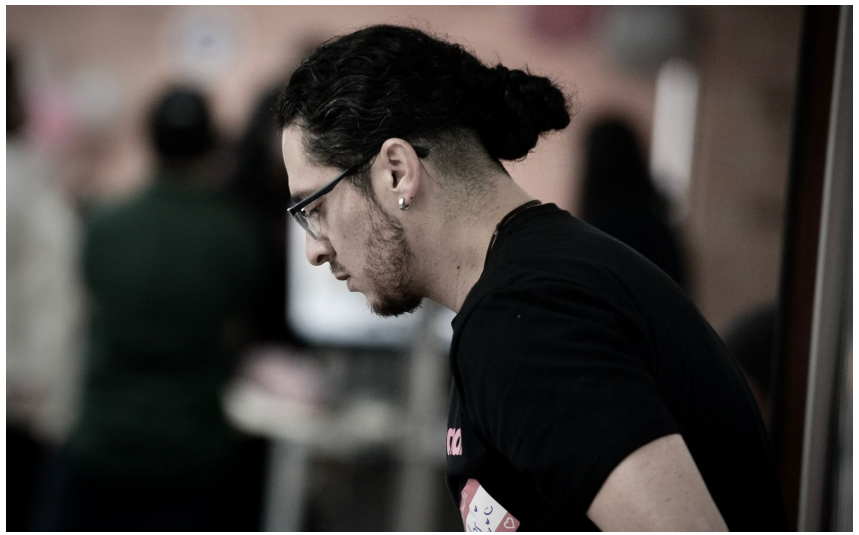

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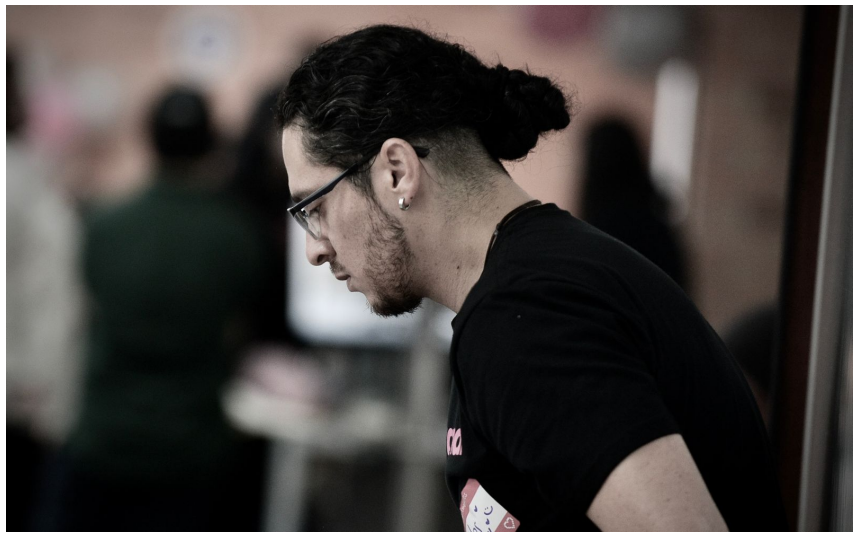

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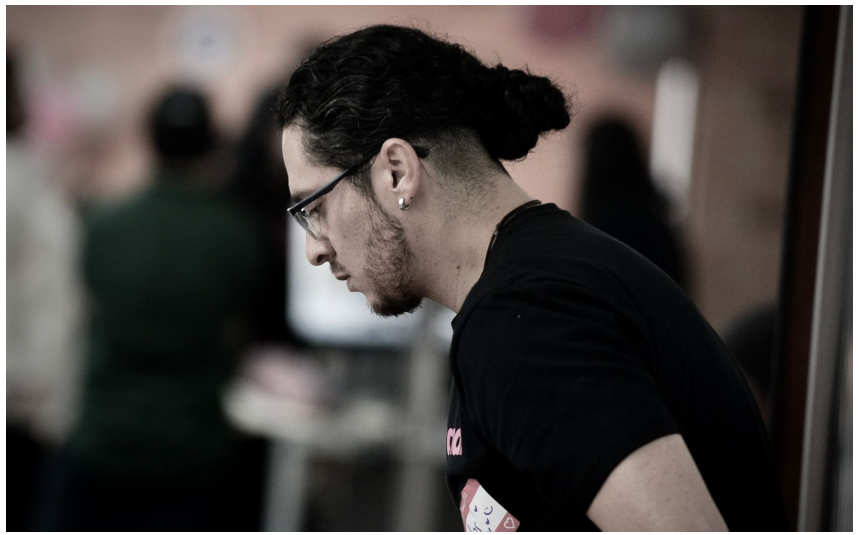

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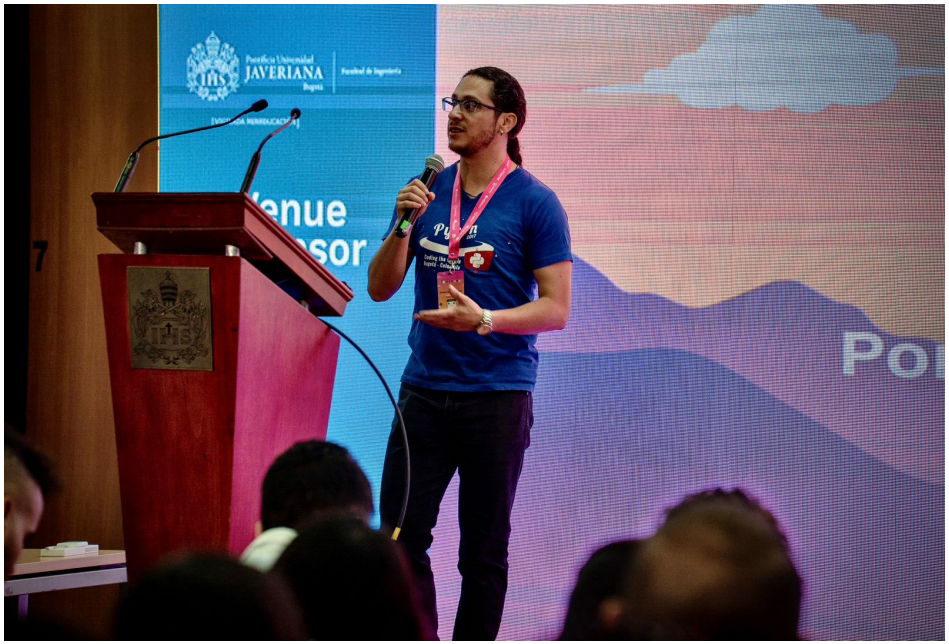

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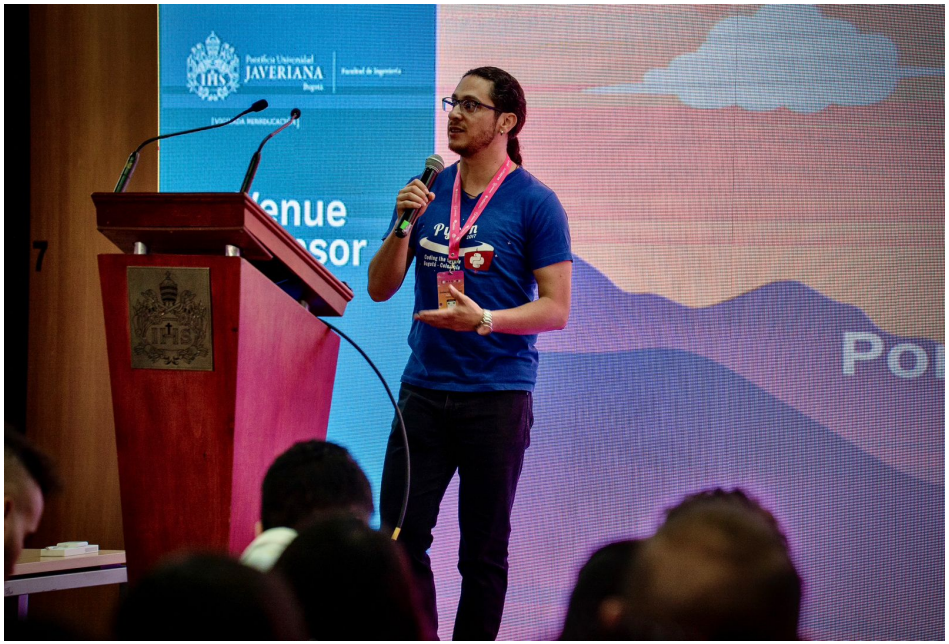

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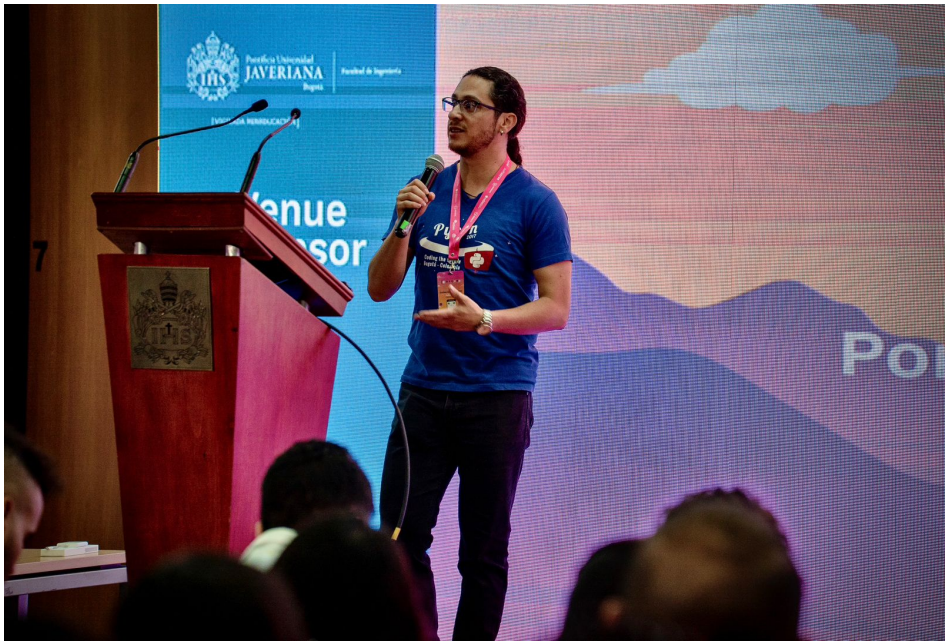

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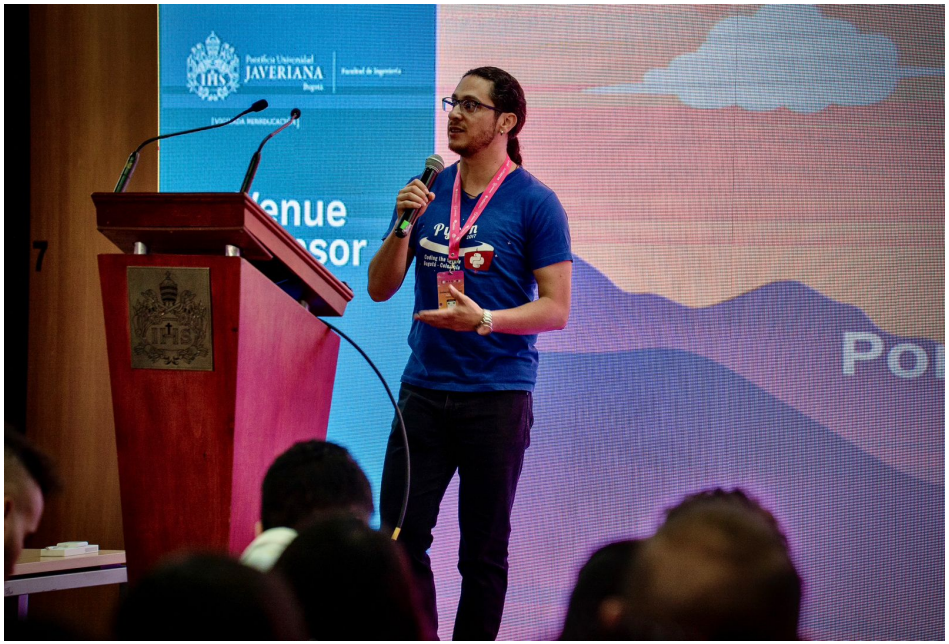

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Overview

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 **three** exams, **five** workshops, and **twenty-four** additional assignmens.

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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** metrics. Also, you should be able to **design** robust software systems in an **agnostic** way.

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Prerequisites

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

- **Programming** in Java, Python, or C++.
- **Object-Oriented Programming** foundations.
- UML and **Class Diagrams** basic concepts.
- **Git** basic usage, and **GitHub** basic usage.
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Syllabus I

Period	Topic	Time
Period I	Introduction to Design Patterns	2 classes
	Workshop OOP	1 session
	Creational Patterns	3 classes
	Workshop on Creational Patterns	1 session
	Structural Patterns	6 classes
	Workshop on Structural Patterns	1 session
	Test 1	1 session

Table: Schedule for Period I

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Syllabus II

Period	Topic	Time
Period II	Behavioral Patterns	4 classes
	Workshop on Behavioral Patterns	1 session
	Solid Principles	1 classes
	Test 2	1 session
Period III	Anti-Patterns and Code Smell	4 classes
	Workshop on Code Smells	1 session
	Questions and Answers	2 classes
	Final Test	1 session
	Projects Presentation	1 session

Table: Schedule for Period II & III

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Grades Percentages

Period	Item	Percentage
Period I	Assignments	10%
	Workshops	15%
	Test	10%
Period II	Assignments	10%
	Workshops	15%
	Test	10%
Period III	Workshop + Assigntments	5%
	Final Test	10%
	Course Project	15%

Table: Software Modeling Grades Distribution

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Don't hate the player, hate the game

- All asignments 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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- 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.
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- **Design Patterns: Elements of Reusable Object-Oriented Software**, by Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides.
- **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.

Bibliography

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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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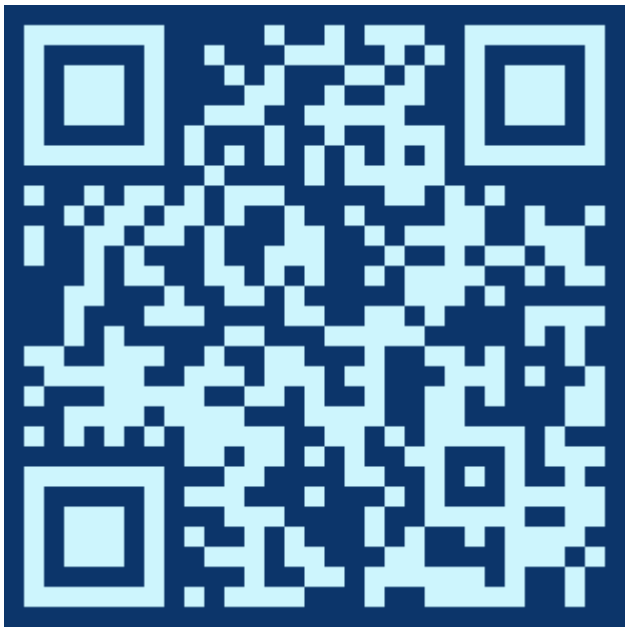
Questions?



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