DATABASES II Course Description

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2025-III





- Course Overview
- Syllabus
- Grading & Rules
- Bibliography





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Overview

This course is designed to introduce undergraduate students to advanced topics in database systems and good practices in both database design and basic implementation.

This is **not** a course fully focused on **software engineering**, but it does cover the main concepts of **software systems building**.

Classes will consist of lectures, **discussions**, and practical examples. Also you will be required to complete some readings in *software development*. In addition, there will be a **semester-long project**, as well as one **final course test**, four **workshops**, and some additional **quices**.





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Goals

The main goal of this course is to provide undergraduate students with various models, concepts, and tools for solving the data layer of software problems using database systems based on software application project requirements.

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





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Pre-requisites

This is an advanced course so you should have some knowledge of:

- Programming in Python, Java, or C++.
- Object-Oriented Programming fundamentals.
- Basic concepts of Data Structures.
- Basic concepts of **Relational Databases**.
- Using IDEs such as VS Code, Eclipse, or PyCharm,

Additionally, it is desirable to have some knowledge of:

- Basic concepts of UML and Class Diagrams.
- Basic usage of Git and GitHub.
- Basic Linux commands and basic usage of Dockers
- Basic usage of LaTeX for technical writing.





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Syllabus I

	Period	Торіс	Time
		Introduction to Databases	3 sessions
		Database Systems Architecture	2 sessions
		Database Administration	3 sessions
۲ ۳۰ ۲		Transaction Management	3 sessions
,	Period I	Concurrency Management	2 sessions
		Advanced Query Concepts	3 sessions
2001	•	PL/SQL	8 sessions
		Project Catch-Up	2 sessions
		Course Final Test	1 session 5

Table: Schedule for Period I





Syllabus II

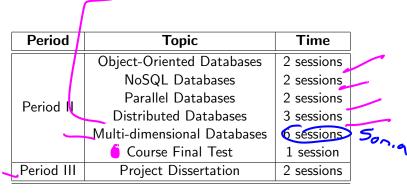


Table: Schedule for Period II & III





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Grades Percentages

Period	Item	Percentage	
	Quizzes	5%	
Period I	Workshops	15%	0 1 = 65
Period i	Project Catch-Up	5%	/2-2/
	Partial Test	10% -	7/1
	Quizzes	5%	<u>↓</u> ∤)
Period II	Workshops	15%	
	Final Course Test	15%	\vdash
	Paper + Poster	5%	
Period III	${\sf Implementation} + {\sf Report}$	15%	65%
	Project Presentation	10%	₩ 65/

Table: DataBases II Grades Distribution





- All assignments must be submitted handwritten, 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 independently.
- No cell phones, no smartwatches, no WhatsApp, no Tinder, no smart-anything. Just you and your brain. Pay attention in class.
- Communication with me must be via **email** or **Slack**. I will **not** answer any questions via *WhatsApp*.





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- Always be **respectful** to your classmates and to me. You must be **kind** to everyone inside (and outside) the classroom.
- There is no lest 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 complain.
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Bibliography

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- Database Management Systems, by Raghu Ramakrishnan and Johannes Gehrke.
- Fundamentals of Database Systems, by Ramez Elmasri and Shamkant B. Navathe.
- Introducción a los Sistemas de Bases de Datos, by C.J. Date.
- Procesamiento de Bases de Datos, Fundamentos, Diseño e Implementación, by David M. Kroenke.
- Sistemas de Bases de Datos: Conceptos Fundamentales, by Navathe Elmasri.





Bibliography

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- Database System Implementation, by Hector Garcia-Molina, Jeffrey D. Ullman, and Jennifer Widom.
- Fundamentos de Bases de Datos, by A. Silberschatz, H.F. Korth, and S. Sudarshan.
- Database Systems: Concepts, Design and Applications, by S.K. Singh.
- Database Systems: Design, Implementation, and Management, by Carlos Coronel, Steven Morris, and Peter Rob.





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Thanks!

Questions?





My profile: www.linkedin.com/in/casierrav

