

TTOW0110
Advanced Databases
(7 ECTS)

Course introduction

Jouni Huotari

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<http://ttow0110.pages.labranet.jamk.fi/>

jamk.fi



Objectives / Learning Outcomes

You

- understand **database design, data modeling, and database administration** and as parts of the development of information systems
- can make a **normalized relational database (=> logical and physical data model)** based on a **conceptual data model** with a **CASE** tool
- master the basic **database administration tasks**: you are able to
 - specify users and their access rights
 - monitor and optimize databases
 - document a plan for database management

Items of Assessment

- Database project: 40 points
- Examination(s): 30 points
- Exercises and assignments: 20 points
- Learning report: 10 points



Grading scale (0-5)

| <u>Points</u> | <u>Grade</u> | <u>Explanation</u> |
|---------------|--------------|---|
| 0 – 24.9 | 0 | ☹️ |
| 25 – 39.9 | S or 1 | The student can design and implement a normalized database (comprising of approximately 10 tables) and perform the most typical database administrative tasks such as creating a database, importing data to it, giving access rights, and monitoring the performance. |
| 40 – 54.9 | 2 | 😊 |
| 55 – 69.9 | 3 | Database has been designed and documented rather comprehensively and nearly faultlessly, good knowledge of modeling and management |
| 70 – 84.9 | 4 | 😊 |
| 85 – | 5 | <p>The student 1) provides detailed, clear, error-free, and complete documentation about database design and database management; 2) carries out database assignments and exams without major flaws or errors in database design and management.</p> <p>These, including the final presentation, show 1) ability to document and argument design decisions understandably, 2) knowledge and understanding of concepts, and 3) practical skills of database design and management.</p> |

Database project

- Recommended size of the group: 2-4 persons
- Choose a topic which solves a real problem
- Size of the database: ~ 10 concepts (and when normalized to 3rd normal form => ~ 20 tables)
- Prototype with the DBMS you have chosen containing GUI for SCRUD (search, create, read, update, and delete data)
- Database management plan for
 - backups
 - distribution and using different disks or cloud
 - optimization (database tuning)
 - user/group rights management
 - other tasks that belong to DBA

Examination(s)

- 1st part is an applied modeling task: design a database according to a given requirements specification by using a CASE tool
- 2nd part test your skills of database management
- You can use all the learning material including your learning diary, but the exam(s) must be done independently



Exercises and assignments

- 9 quizzes: 10 points
 - located in Optima
 - you can also answer them by using your learning diary
 - Note: you can try to answer each quiz twice (but opening the quiz counts as one)
- 10 exercises: 10 points
 - 5 modelling exercises
 - 5 database management exercises
 - Document your learnings and answers to your learning diary
- The deadlines are shown in the course's [home page](#)



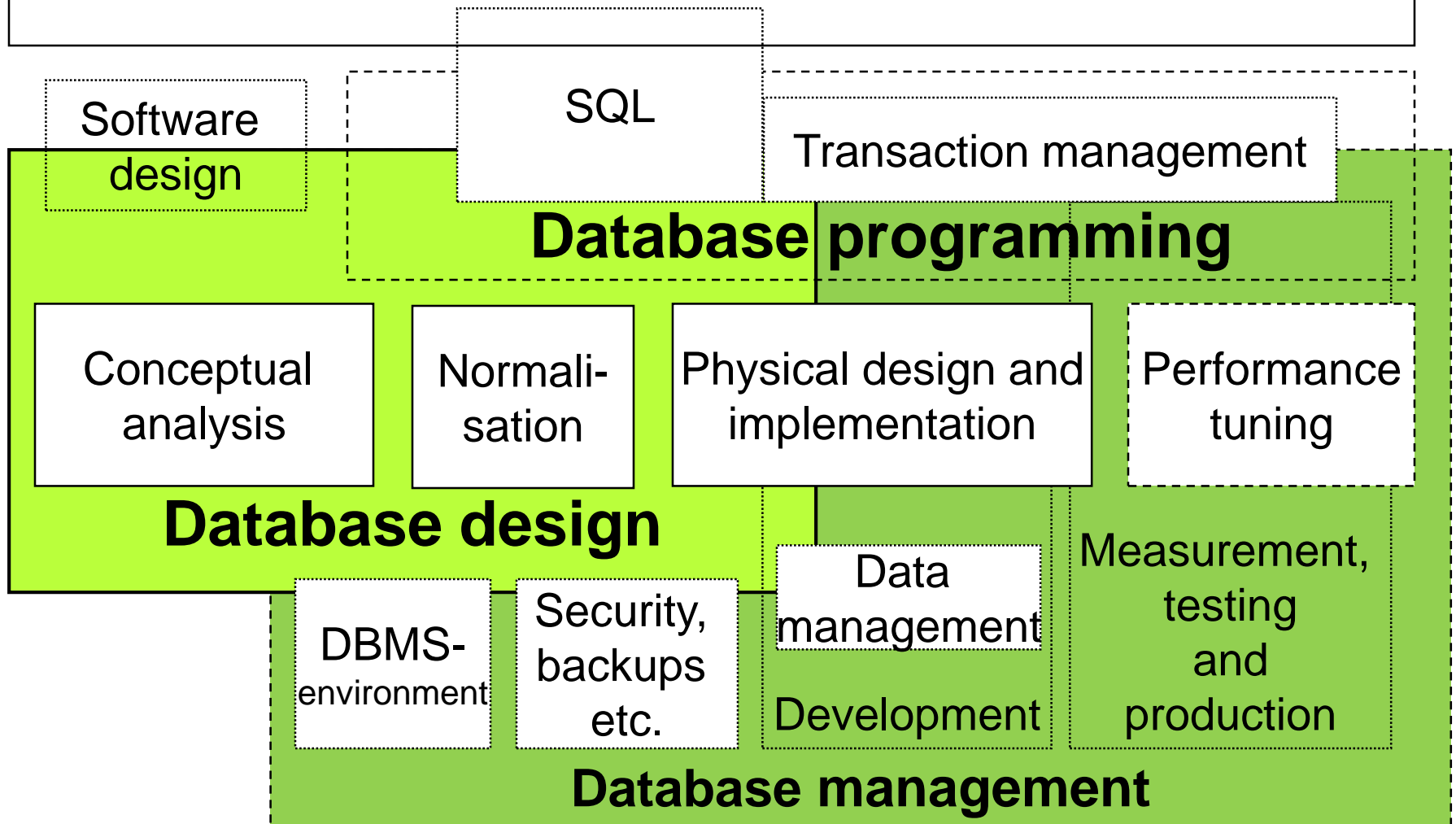
Learning report

- In the beginning: your background, personal goals etc.
- Every week: what you have learned etc.
- In the end: how did you achieve your goals, what things to improve etc.
- Return a (link of) the report to the learning environment
- The format is free; you can use my [template](#)

Learning material

- Slides and other web-based material
- Janet / [Finna](#), e.g.
 - [Database modeling and design](#) (Toby J. Teorey)
 - [Relational Database Design and Implementation](#) (Jan L. Harrington)
 - Note: Database management books are DBMS specific => no recommendations; choose one that suits you
- Connolly & Begg: Database Systems (in the library)
- Tietokantojen suunnittelu & indeksointi (Hovi, Huotari, Lahdenmäki, Docendo) part I (DB design: chapters 1-9; DB management: mainly chapters 10-12)

Basics of Databases



Helia / Martti Laiho; JAMK / Jouni Huotari

Enterprise applications module

- TTOW0100 [Advanced Databases](#) 7 ECTS
 - TTOW0130 [Service-oriented applications](#) 8 ECTS
- Total 15 ECTS



Practical issues

- Online lectures
 - We begin with a short summary of the previous week's topic
 - Are there any questions?
 - Did you apply the learnings to your group work => are there any problems?
 - Flipped learning:
 - You listen the recorded video about the new topic before attending the lecture
 - During the classroom session, we discuss the most essential things in order to deepen understanding
- After a coffee break
 - Instructions for the problem-solving assignment => individual or group work
 - One possible answer can be found from Optima (files + video)
 - Introduction of the new topic
- Individual and group guidance (through Teams, code wf2yfk6 to join)

Questions?

