

COURSE DETAIL

DATABASE APPLICATIONS DESIGN AND TUNING

Country

Singapore

Host Institution

National University of Singapore

Program(s)

National University of Singapore

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Engineering Computer Science

UCEAP Course Number

152

UCEAP Course Suffix**UCEAP Official Title**

DATABASE APPLICATIONS DESIGN AND TUNING

UCEAP Transcript Title

DB APPS/DSGN/TUNING

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

This course addresses the design and performance tuning of database applications, focusing on relational database applications implemented with relational database management systems. Topics covered include normalization theory (functional, multi-valued and join dependency, normal forms, decomposition and synthesis methods), entity relationship approach and SQL tuning (performance evaluation, execution plan verification, indexing, de-normalization, code level and transactions tuning). Additional selected topics include the technologies, design and performance tuning of non-relational database applications (for instance, network and hierarchical models and nested relational model for an historical perspective, as well as XML and NoSQL systems for a modern perspective). The course requires students to take prerequisites.

Language(s) of Instruction

English

Host Institution Course Number

CS4221

Host Institution Course Title

DATABASE APPLICATIONS DESIGN AND TUNING

Host Institution Course Details

<https://nusmods.com/courses/CS4221/database-applications-design-and-tuning>

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

Computer Science

Course Last Reviewed

2025-2026

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