# Database System Engineering - Course Outline
## SWEN 304: 2012 Trimester 2

This document sets out the workload and assessment requirements for SWEN 304. It also provides contact information for staff involved in the course. If the contents of this document are altered during the course, you will be advised of the change by an announcement in lectures and/or on the course web site. A printed copy of this document is held in the School Office.

SWEN 304 develops ability to solve practical software engineering problems in designing, developing, and maintaining databases. Its primary focus are relational databases and their database management systems (DBMS). The topics covered by SWEN 304 include the theory of the relational data model, the structured query language (SQL), the query optimization, the database design using the entity relationship (ER) data model and normalization, and database transaction processing.

## Objectives

By the end of the course, students should be able to:

1. Demonstrate understanding of the principles of database systems generally and the relational database model specifically;
2. Set up, query, and update a relational database using interactive SQL;
3. Design stored procedures and triggers in a relational database system;
4. Set up, query, and update a relational database using a transaction program written in Java;
5. Explain the basic principles and common trade-offs in designing a relational database, and to design it;
6. Explain the basic principles and common trade-offs in relational database query optimization;
7. Explain the basic principles of database concurrency control and recovery, and implement them within a transaction program.

Objective 1 demonstrates the ability to apply mathematical and engineering sciences to a software engineering problem (BE graduate attribute 3(a)).
Objectives 2, 3, 4, and 7 develop the ability to synthesize efficient solutions to complex engineering problems (BE graduate attribute 3(b)).
Objective 5 develops competence in database design, understanding of the limitations of database design methods, and a recognition when further information is needed for solving the problem (BE graduate attribute 3(f), BE graduate attribute 3(e), and BE graduate attribute 3(d)), respectively.
Objective 6 develops ability to solve models that predict behaviour of an engineering system (BE graduate attribute 3(c)).

## Textbook

The textbook for SWEN 304 is: R. Elmasri and S. Navathe, *Fundamentals of Database Systems; 5th edition,* Pearson/Addison Wesley, 2006.

## Lectures, Tutorials, Laboratories, and Practical work

For 2012, week 1 of trimester 2 begins on 16th of July. The mid-trimester lecture break is from 27th of August to the 4th of September.

A schedule of lecture topics, readings, and assignment due dates is available online

Lectures and tutorials are:

> Monday 11:00 - 11:50 am in LB LT118.
>
> Wednesday, Friday 11:00 to 11:50 am in HM LT002.

There are no additional timetabled laboratories in SWEN 304. There will be helpdesk available for the projects and assignments, and the helpdesk hours will be announced here.

## Workload

In order to maintain satisfactory progress in SWEN 304, you should plan to spend an average of at least *10-12* hours per week on this paper, which includes attending lectures, solving homework assignments, doing practical work and reviewing lecture material.

## School of Engineering and Computer Science

The School office is located on level three of the Cotton Building (Cotton 358).

## Staff

The course organiser for SWEN 304 is Hui Ma. The lecturers for the course is:Hui MA. Her contact details are:
- *Hui Ma*
- Cotton 259
- +64 4 463 5657
- Hui.Ma@ecs.vuw.ac.nz


The SWEN 304 tutors are:
- *Yang Yu*, Yang.Yu@ecs.vuw.ac.nz
- *TBA*

## Announcements and Communication

The main means of communication outside of lectures will be the SWEN 304 web area at http://ecs.victoria.ac.nz/Courses/SWEN304_2012T2/. There you will find, among other things, this document, the lecture schedule and assignment handouts, and the SWEN 304 Forum. The forum is a web-based bulletin board system. Questions and comments can be posted to the forum, and staff will read these posts and frequently respond to them.

# Assessment

Your grade for SWEN 304 will be determined based on the following assessment weightings:

| Item | Weight |
| --- | --- |
| Assignment 1 | 4% |
| Assignment 2 | 4% |
| Assignment 3 | 4% |
| Assignment 4 | 5% |
| Project 1 | 9% |
| Project 2 | 9% |
| Final Examination | 65% |

Assignment 1, Assinment 2, and Assignment 4 should be handed in to the SWEN 304 assignment box on level 2 of the Cotton Building. Assignment 3, Project 1, and Project 2 should be submitted via the school electronic submission system.

Any assignment or project submitted after the due date will be penalized at the rate of 5% per day (a weekend counts as one day). Approval to submit assignments and projects late without penalty will only be granted in exceptional circumstances and if the arrangement is made prior to the due date. Any medical excuse must be accompanied by a doctor's certificate.

## Exam

The timetable for final examinations will be available from the University web site and will be posted on a notice board outside the faculty office. The final examination will be three hours long. No computers, electronic calculators or similar device will be allowed in the final examination. Paper non-English to English dictionaries will be permitted. The examination period for trimester 2 is 26 Oct - 17 Nov.

## Plagiarism

Working Together and Plagiarism

We encourage you to discuss the principles of the course and assignments with other students, to help and seek help with programming details, problems involving the lab machines. However, any work you hand in must be your own work.

The School policy on Plagiarism (claiming other people's work as your own) is available from the course home page. Please read it. We will penalise anyone we find plagiarising, whether from students currently doing the course, or from other sources. Students who knowingly allow other students to copy their work may also be penalised. If you have had help from someone else (other than a tutor), it is always safe to state the help that you got. For example, if you had help from someone else in writing a component of your code, it is not plagiarism as long as you state (eg, as a comment in the code) who helped you in writing the method.

## Mandatory Requirements

To pass SWEN 304 a student must achieve at least 40% of all marks for projects and assignments.

## Passing SWEN 304

To pass SWEN 304, a student must pass the mandatory requirements, achieve at least a D grade for the final examination, and at least a C grade overall.

## Withdrawal

The last date for withdrawal from SWEN 304 with entitlement to a refund of tuition fees is Friday 27 July 2012. The last date for withdrawal without being regarded as having failed the course is Friday 28 Sept 2012 -- though later withdrawals may be approved by the Dean in special circumstances.

## Rules & Policies

Find key dates, explanations of grades and other useful information at http://www.victoria.ac.nz/home/study.

Find out about academic progress and restricted enrolment at http://www.victoria.ac.nz/home/study/academic-progress.

The University's statutes and policies are available at http://www.victoria.ac.nz/home/about/policy, except qualification statutes, which are available via the Calendar webpage at http://www.victoria.ac.nz/home/study/calendar (See Section C).

Further information about the University's academic processes can be found on the website of the Assistant Vice-Chancellor (Academic) at http://www.victoria.ac.nz/home/about/avcacademic

All students are expected to be familiar with the following regulations and policies, which are available from the school web site:

Grievances
Student and Staff Conduct
Meeting the Needs of Students with Disabilities
Student Support
Academic Integrity and Plagiarism
Dates and Deadlines including Withdrawal dates
School Laboratory Hours and Rules
Printing Allocations
Expectations of Students in ECS courses

The School of Engineering and Computer Science strives to anticipate all problems associated with its courses, laboratories and equipment. We hope you will find that your courses meet your expectations of a quality learning experience.

If you think we have overlooked something or would like to make a suggestion feel free to talk to your course organiser or lecturer.

Course Outline as PDF