

## Java Enterprise Edition and Design Patterns

### Exercise 5 – The Course Manager

For the rest of the JEE exercises you will realize a bigger enterprise application. The system you will plan and develop in groups, will be used to manage students, courses, groups and deliverables. Your system has to fulfill the following tasks:

- Manage student data including pcn, firstname, lastname, email and cohort
- Manage course data including id, name, description, tutor
- Manage group lists of students
- Manage deliverables, e.g. source code and PDFs

There will be two different kinds of clients. First a webclient for students to attend to courses, take part in groups and deliver documents. And second a Java Swing client for the tutor to view and manage the data and work with the deliverables. In this exercise you will start to analyze and design the business layer for this application.

- 1) Identify, list and describe all entities and business methods needed in the application.
- 2) Create a UML Class Diagram, that contains all Session Beans, Entity Beans, Message Driven Beans and Utility Classes needed. The entity beans will need relations to each other! Although you haven't heard much about Message Driven Beans yet, you should be able to identify implicated usages. Think about the necessities of certain types of component interfaces. Where do you need local and where remote access?

Discuss the solutions in your group. Your deliverables for this exercise are the list of entities and business methods and the UML class diagram as PNG-file.

