Course Code No: ACSC383
Course Description: Software Engineering
Number of ECTS Credits: 6

Prerequisites: ACSC155 and ACSC382 (or concurrently)

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Monday: 9:30-10:20 (R205)
Friday: 9:30-10:20, 10:50-11:40 (R207)

Course Outline:

The Object Paradigm: Objects and Classes, Abstraction and Encapsulation, Methods and Messages, Interfaces, Inheritance, and Polymorphism, Access Control, The Business Case for OO Development

Diagramming & Notational Techniques Using the UML: Overview of Analysis and Design Phases, UML Notation, Analysis Diagramming Techniques, Design Diagramming Techniques, Generalization / Specialization, Aggregation and Composition, Association, Cardinality, Navigability, Package and Deployment Diagrams, Icons, Relationships, and Adornments


Patterns: Benefits of Patterns, Using Patterns During Analysis, Using Patterns During Design, Design Patterns (Gang-of-Four Format), GRASP Patterns, Model-View-Controller Pattern, Persistence Patterns, Patterns as Internal Documentation

Advanced Design Concepts: Expanding Inheritance Hierarchies, Abstract Classes and Virtual Methods, Overriding and Overloading, Multiple Inheritance, Interface versus Implementation Inheritance

Design Refinement: Designing for Extensibility, Designing for Reusability, Partitioning the Class Space, Checking Completeness and Correctness, Testing Business Processes, Design Metrics, Discovering Reusable Patterns


Persistent Object and Database Issues: The Data Management Domain, Object Persistence, Object-Orientated Database Management Systems (ODBMS), Object Orientated versus Relational Databases, and Mapping Objects to Relational Data Structures


Evaluation¹

According to the University’s regulations, 60% of a student’s grade corresponds to the result of his/her final examination. The remaining 40% is the student’s coursework grade which will be calculated as follows:

| Assignment | Lecture 5 (approx.) | 40% |
| Test       | Lecture 8 (approx.) | 60% |

¹ The coursework evaluation may have minor changes depending on the subject’s progress
Bibliography

Several books on software engineering exist. A specific textbook will not be followed but students are advised to refer to the following books:

Textbook(s):


References:


Most books exist in the FU library in multiple copies together with a number of more recent books on the subject.

As always, useful information can be found on the web. Students are encouraged to search the web for information on the different concepts introduced in class.