TIG030, Software Architecture, 7.5 higher education credits

*First Cycle*

This syllabus in English is the binding document.

1. **Confirmation**

The syllabus was confirmed by the Faculty Board/the Dean of IT University on 2007-02-14 and revised on 2007-12-04 to be valid from autumn semester, 2008.

Field of education: Sciences.

Responsible department: Applied Information Technology.

2. **Position in the educational system**

The course is provided by the Department for applied information technology at the IT University of Göteborg.

The course is given as a course in the Master of Software Engineering and Management Program at the IT University of Göteborg.

3. **Entrance qualifications**

This course is accessible for students with a bachelor degree in the IT area and knowledge in software engineering corresponding to the course Introduction to Software Engineering and Management.

4. **Course content**

This course covers architectural design including requirements and how to achieve these using different styles, patterns, and tactics; and how to document architectures; Concepts and principles will be illustrated by artefacts and techniques used in practice, such as frameworks, middlewares, service-oriented architectures, and standard platforms.

The course will include several small assignments complemented with lectures and seminars. Students work both alone and in small groups.
5. Learning outcomes
The purpose of the course is to provide students with methods and tools to think in system and software architectural terms about software-intensive systems.

After completing the course the students will be able to:

- describe the role of an architect in software-intensive system development projects and what may be expected from such a person
- document architectures and know how to use UML (Unified Modeling Language) to describe architectures
- describe common quality attributes such as dependability, performance, security and modifiability, and how to express them as quality scenarios
- describe typical principles for building systems that meet important quality requirements
- use reusable assets like: patterns and styles and how to create or find new ones; and, software and hardware platforms, software frameworks and libraries
- describe common reusable assets and common tool support for creating architectures, for at least one engineering domain.

6. Required reading
The course literature is defined in the detailed information about the course.

7. Assessment
The course is examined as by written reports and an oral exam.

A student who has failed two times for the examination in the same course has the right to request the faculty board of the IT University to appoint a different examiner to determine the mark.

8. Grading scale
The grades are Pass with honour (VG), Pass (G) or Fail (U) is given after reviewing the written report. On request, grades are mapped onto an ECTS grading scale using a fixed mapping, common for GU.

9. Course evaluation
After completion, the course will be evaluated by the students. The results of the evaluation are reported to the program manager and discussed with the students. A summary of the evaluation results together with the suggestions for improvement is made available to students and teachers.

10. Additional information
The course is given in English.