



## KURSPLAN

# Kvalitetssäkring av mjukvaruprodukter, 6 högskolepoäng

*Software Product Quality Assurance, 6 credits*

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Kurskod:	TKSS26	Utbildningsnivå:	Avancerad nivå
Fastställd av:	VD 2015-02-09	Utbildningsområde:	Tekniska området (95%) och samhällsvetenskapliga området (5%)
Gäller fr.o.m.:	2016-01-01	Ämnesgrupp:	DT1
Version:	1	Fördjupning:	A1F
Diarienummer:	JTH 2015/2134-313	Huvudområde:	Produktutveckling

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## Lärandemål

After completing the course, the student shall

### *Kunskap och förståelse*

- demonstrate comprehension of the fundamental concepts, standards and guidelines of software product quality assurance
- display knowledge of software quality and quality models, quality metrics and quality control
- demonstrate comprehension of methods and techniques for software verification and validation including testing and inspections
- be familiar with examples of research into software quality and verification automation

### *Färdighet och förmåga*

- demonstrate ability to define, design and implement quality assurance activities
- demonstrate sufficient skills to apply techniques for software testing including different types and different levels of testing
- demonstrate ability to use modern tools for back-end and front-end testing as well as testing infrastructure including continuous integration

### *Värderingsförmåga och förhållningssätt*

- demonstrate ability to analyze and assess opportunities for achievement of software product quality and improvement of quality assurance process
- demonstrate ability to evaluate methods and techniques for verification and validation, and choose appropriate ones for the given software development project

## Innehåll

The course introduces the different influences on software quality. Four key messages are emphasised: that successful software can persist for years after initial delivery but only if it is of sufficient quality; that software quality assurance is not just about testing; that testing is not a phase conducted towards the end of development; and that quality assurance addresses both product and process.

The course includes the following topics:

- Achieving software quality assurance via verification and validation
- Testing in an Agile context, test-driven development and continuous integration
- Controlling software quality including the management of defects, versions and releases
- Designing a testing infrastructure including code analysers and test tools
- Test automation including test case generation and evolutionary testing
- Testing levels: unit, integration, component interface, and system testing
- Testing particular types of software: back-end software and front-end software
- Different software development roles, their motivations, their involvement in testing and the need for independence
- Software process improvement including the Capability Maturity Model Initiative
- Describing software quality, the use of quality models and metrics in software quality assurance

### Undervisningsformer

The course will consist of lectures, seminars, exercises and practical work.

Undervisningen bedrivs på engelska.

### Förkunskapskrav

Passed courses 180 credits in first cycle, at least 90 credits within the major subject Computer Engineering, Electrical Engineering (with relevant courses in Computer Engineering), and 15 credits Mathematics. In addition, completed course Software Engineering – a Product Perspective, 9 credits (or the equivalent). Proof of English proficiency is required. (eller motsvarande kunskaper).

### Examination och betyg

Kursen bedöms med betygen 5, 4, 3 eller Underkänd.

The final grade for the course is based upon a balanced set of assessments. The final grade will only be issued after satisfactory completion of all assessments.

Poängregistrering av examinationen för kursen sker enligt följande system:

Examinationsmoment	Omfattning	Betyg
Examination	2 hp	5/4/3/U
Assignment	2 hp	5/4/3/U
Laboratory work	2 hp	U/G

### Övrigt

Exemption from entry requirement allowed according to the selection groups of the program, where the course is included.

### Kurslitteratur

The literature list for the course will be provided one month before the course starts.

Title: Software Quality Assurance: From Theory to Implementation

Author: Daniel Galin

Publisher: Addison-Wesley,

ISBN: 13: 9780201709452, ISBN 10: 0-201-70945-7