



## KURSPLAN

# Mjukvaruutveckling ur ett produktperspektiv, 9 högskolepoäng

*Software Engineering - a Product Perspective, 9 credits*

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Kurskod:	TMUR25	Utbildningsnivå:	Avancerad nivå
Fastställd av:	VD 2015-02-09	Utbildningsområde:	Tekniska området (95%) och samhällsvetenskapliga området (5%)
Gäller fr.o.m.:	2015-08-01	Ämnesgrupp:	DT1
Version:	1	Fördjupning:	A1N
Diarienummer:	JTH 2015/2098-313	Huvudområde:	Produktutveckling

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## Lärandemål

After completing the course, the student shall

### *Kunskap och förståelse*

- display knowledge of the nature of software as a product or part of a product;
- demonstrate comprehension of the different perspectives of software development;
- demonstrate comprehension of model-based approaches to software engineering;
- be familiar with the roles played by process improvement, quality assurance and metrics in software product development;
- be familiar with the professional responsibilities of the software engineer.

### *Färdighet och förmåga*

- demonstrate skills of identifying and specifying requirements for a software product;
- demonstrate ability to design the architecture for a software product taking into account legacy, evolution and sustainability aspects;
- demonstrate ability to develop software project plans.

### *Värderingsförmåga och förhållningssätt*

- demonstrate ability to select and apply different life cycle models and approaches of software product development;
- demonstrate ability to select and apply different approaches to software re-use.

## Innehåll

The course provides an overview of the software engineering domain as an evolving professional discipline that is concerned with software as a product or service in its own right, or as a component of a wider product. After studying the perspectives that apply to software engineering, the course focuses upon the elements of software development beyond the writing of code. The course introduces the concept of model-driven software engineering and offers students an example approach to follow. The course also covers the planning, control and monitoring of software development work.

The course includes the following topics:

- Software as a product itself or as part of a product (including maintenance and evolution)
- Software engineering as a profession (including ethics and sustainability)
- Process models for software development life cycles (including Agile and traditional approaches)
- Introduction to software process improvement
- The importance of requirements and their place in the software product lifecycle
- Model Driven Software Engineering (including domain-specific and translational approaches)
- Software architecture and system design decisions
- Reuse (patterns, components, frameworks, Open Source and COTS, “commercial off the shelf”)
- The management of software projects (including estimation, risk analysis and control)
- Software metrics and evidence-based software engineering

## Undervisningsformer

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

Undervisningen bedrivs på engelska.

## Förkunskapskrav

Examen om minst 180 hp med lägst 90 hp i huvudområdet datateknik alt. elektroteknik (med relevanta kurser inom datateknik) eller motsvarande svensk eller utländsk utbildning. Dessutom krävs 15 hp i matematik samt Engelska kurs A/5 eller motsvarande.

## 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	3 hp	5/4/3/U
Assignments	3 hp	5/4/3/U
Laboratory work and project work	3 hp	U/G

## Övrigt

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

## Kurslitteratur

Literature will be specified at least one month before the course starts.

### Main textbook:

Title: *Software Engineering: Principles and Practice*

Author: Hans van Vliet

Publisher: John Wiley & Sons, 2008, 3rd Edition

### Additional literature:

Title: *Software Engineering Essentials:*

Volume 1: The Development Process

Volume 2: The Supporting Processes

Volume 3: The Engineering Fundamentals

Author: Richard Hall Thayer & Merlin Dorfman (eds.)

Publisher: SoftwareManagementTraining Press, 2013, 4th Edition.

Title: *Essentials of Software Engineering*

Author: Frank F. Tsui & Orlando Karam

Publisher: Jones and Bartlett Publishers, 2011, 2nd Edition.