ID2002 Value-Based Software Engineering 7,5 hp

Value-Based Software Engineering

Fastställande

Kursplan för ID2002 gäller från och med HT07

Betygsskala

A, B, C, D, E, FX, F

Utbildningsnivå

Avancerad nivå

Huvudområden

Särskild behörighet

Grundläggande kurs i programvaruteknik
Betygsskala: A/B/C/D/E/Fx/F

Undervisningsspråk

Undervisningsspråk anges i kurstillfällesinformationen i kurs- och programkatalogen.

Lärandemål

The course is an advanced software engineering course focused on deeper studies in specific software management and economics topics, and the emerging value-based software engineering paradigm. The learning objectives of the course are to enable the students to get knowledge about:

- Research and trends in value-based software engineering - Major value-based software engineering concepts and techniques and how they address current and emerging software engineering challenges, opportunities, and problem areas - Applying the concepts and techniques to representative case studies - Understanding how different types of models are integrated in modern software development - Fundamental principles of software management and economics - Analyzing performance/cost/schedule tradeoffs via modern software cost estimation tools and microeconomic techniques - Performing comparative analyses of modern software management and development methods; Balancing agility and discipline in software development- Applying decision analysis models and techniques in software engineering to support the value-based paradigm.

Kursinnehåll

- Value-based versus value-neutral software engineering

- Concurrent software and system engineering. Model-based architecting and software system engineering

- Value-based monitoring and control of software products and product lines

- Stakeholders value propositions and reconciliation

- Continuous risk and opportunity management

- Cost-benefit and business case analyses of software products and product lines

- Comparative analyses of modern software management and development methods. Balancing agility and discipline: risk-based methodology and process

- Software cost modeling and estimation techniques: past, present, and future.

- Performance models, cost-effectiveness models, software production functions, decision criteria

- Net value, present value, figures of merit

- System reliability and availability, mathematical optimization techniques, software analysis, copying with unreconciliable goals

- Risk, uncertainty, and the value of information.

Kurslitteratur

Value-Based Software Engineering, S.Biffl,A.Aurum,B.Boehm,H.Erdogmus,P.Grunbacher (Eds.)

Upplaga: Förlag: Springer-Verlag År: 2006

ISBN: 3-540-25993-7

Övrig litteratur

Required reading

A.J. Stoica: Value-Based Software Engineering (Compendium)

Recommended reading

S. Biffl, A.Aurum, B.Boehm, H. Erdogmus, P. Grunbacher: Value-Based

Software Engineering, Springer Verlag, 2006

B. Boehm and R. Turner: Balancing Agility and Discipline in Software

Development, Addison Wesley, 2003

J. Highsmith: Agile Software Development Ecosystems, Addison Wesley, 2003

D. Ahern, A.Clouse, and R. Turner: CMMI Distilled, Addison Wesley, 2001

D. Reifer: Business Case Analysis, Addison Wesley, 2001

B. Boehm et al.: Software Cost Estimation with COCOMO II, Prentice Hall, 2000

J.Thorp and DMR: The Information Paradox, McGraw Hill, 1998

B. Boehm: Software Engineering Economics, Prentice Hall, 1981

Examination

- PRO1 - Assignment, 4,5 hp, betygsskala: P, F
- TEN1 - Examination, 3,0 hp, betygsskala: A, B, C, D, E, FX, F

Examinator beslutar, baserat på rekommendation från KTH:s handläggare av stöd till studenter med funktionsnedsättning, om eventuell anpassad examination för studenter med dokumenterad, varaktig funktionsnedsättning.

Examinator får medge annan examinationsform vid omexamination av enstaka studenter.

När kurs inte längre ges har student möjlighet att examineras under ytterligare två läsår.

Övriga krav för slutbetyg

Written examination (TEN1; 3.0 p).). Group assignments/project (PRO1; 4.5 p).

Etiskt förhållningssätt

- Vid grupparbete har alla i gruppen ansvar för gruppens arbete.

- Vid examination ska varje student ärligt redovisa hjälp som erhållits och källor som använts.
- Vid muntlig examination ska varje student kunna redogöra för hela uppgiften och hela lösningen.