

Requirements

1

Kristian Sandahl
krisa@ida.liu.se

§ Elicitation

§ Analysis

§ Specification

§ Modeling

§ Formalization

§ Validation

§ IEEE Std 830

§ Natural language specifications

§ Use-case

§ Actor

§ Classes

§ Data model

§ Non-functional requirements

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Design and architecture

2

Kristian Sandahl
krisa@ida.liu.se

§ Box-and-line diagram

§ Time

Development

Run-time

Deployment

§ Coupling - Cohesion

§ Scale up - scale out

§ Architecture styles

Pipes and filters

Layers

Client-server

§ Design patterns

Strategy

Observer

Facade

§ UML: sketching, blueprinting, programming language

class diagram: attributes, association, composition, generalization

object diagrams

sequence diagram

state machine diagrams

activity diagrams

deployment diagrams

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Testing

3

Kristian Sandahl
krisa@ida.liu.se

§ Error, Fault, Failure

§ Black-box testing

§ White-box testing

§ Oracle

§ Equivalence class testing

§ Boundary value testing

§ Control graph testing coverage

§ Data-flow testing coverage

§ Unit testing

§ Regression testing

§ Integration testing

§ System testing

§ Acceptance testing

Benchmarking

Pilot testing

alpha test

beta test

Installation testing

Parallel testing

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Planning and processes

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Kristian Sandahl
krisa@ida.liu.se

§ Project, Process

§ Stakeholders

§ SMART goals

§ Milestone, Tollgate

§ Critical path

§ COCOMO

§ Delphi

§ Risk analysis: Probability, Impact

§ Risk plan: Avoid, Transfer, Accept

§ Risk management

§ Models

Waterfall

V-model

Spiral

§ Iterative development

§ Incremental development

§ Time-boxing

§ Processes and methodologies

RUP - Inception, Elaboration, Construction, Transition

Agile

• Extreme programming (XP)

• Scrum

§ Configuration Management

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Quality factors

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Kristian Sandahl
krisa@ida.liu.se

§ Usability engineering

§ Relevance

§ Efficiency

§ Attitude

§ Learnability

§ Reliability engineering

§ Failure intensity

§ Safety

§ Hazard, Incident, Accident

§ Inspection

§ Roles

§ Process

§ Inspection record

§ Weaker methods

§ Management

§ Software metrics

§ Software quality factors

§ ISO 9000-3

§ Total Quality management

§ CMMI or CMM levels 2 and 3

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