MITIQ 2007

Curriculum Information Quality

Jens Lüssem, EIDIQ

HSH Nordbank AG
Transaction Services
Data Quality Management

University of Applied Science
Braunschweig/Wolfenbüttel
Department of Computer Science

Agenda

- How to build an European Curriculum for Information Quality?
  - Bologna Process – European Framework
    - Bachelor
    - Master
  - Industrial Needs
- Curriculum Information Quality
- Example Modules
- Next Steps

How to build an European Curriculum …

- Bologna Process – goals:
  - bring quality in European Studies
  - make curricula comparable – with degrees:
    - Bachelor
    - Master
  - simplify student exchange within Europe
  - prepare students for the European market

How to build an European Curriculum …

- Information Quality – Industrial Needs:
  - Not another computer science specialist
  - Persons with a broad competence basis
    - business understanding
    - process management
    - project management
    - requirements engineering
    - quality management
    - information quality (tools, models, ...)

Curriculum Information Quality

- Elements:
  - Organization
  - Software Engineering
  - Information Systems
  - Quantitative Methods
  - Information Quality
  - Supplementary Moduls

Curriculum Information Quality

- Organization:
  - Project Management
  - Process Management
  - Change Management
  - Organizational Behaviour

Curriculum Information Quality

- Software Engineering:
  - IT-Project Management
  - Software Engineering
  - Requirements Engineering
  - Software Quality

Curriculum Information Quality

- Information Systems:
  - Information Systems
  - Data Warehousing
  - IT-Architecture
  - Interface Management

Curriculum Information Quality

- Quantitative Methods:
  - Mathematical Methods
  - Statistics
  - Data Mining
  - Visualization

Curriculum Information Quality

- Information Quality:
  - Information Quality
  - Information Quality Tools
  - Total Quality Management
  - Software Quality

Curriculum Information Quality

- Supplementary Moduls:
  - IT-Security
  - Legal Aspects / Compliance
  - Marketing
  - Business Cases

Curriculum Information Quality

- Project Management
- Process Management
- Change Management
- Organizational Behaviour

- Information Systems
- Data Warehousing
- IT-Architecture
- Interface Management

Project

- Information Quality
- Information Quality Tools
- Total Quality Management
- IQ-Audits / IQ-Methods

- Marketing
- Security / Legal Aspects
- Compliance / Governance
- Business Cases

Thesis

- IT-Project Management
- Software Engineering
- Requirements Engineering
- Software Quality

- Mathematical Methods
- Statistics
- Data Mining
- Visualization

Curriculum Information Quality

- Project Management
- Process Management
- Change Management
- Organizational Behaviour

- Information Systems
- Data Warehousing
- IT-Architecture
- Interface Management

Project

- Information Quality
- Information Quality Tools
- Total Quality Management
- **IQ-Audits** / IQ-Methods

- Marketing
- Security / Legal Aspects
- Compliance / Governance
- Business Cases

Thesis

- IT-Project Management
- Software Engineering
- Requirements Engineering
- **Software Quality**

- Mathematical Methods
- Statistics
- Data Mining
- Visualization

Example Moduls

- Elements of a Modul Description:
  - Content
  - Objectives
  - Sources / Textbooks
  - Prerequisites
  - Dependencies with other Courses
  - Delivery Mode

Software Quality

- Content:

This course covers the following topics:

- Motivation – quality characteristics of software
- Quality of requirements, concepts and programs
- Tools and methods
- Analytical vs. proactive software quality assurance
- Software testing
  - Static testing
    - Software quality metrics
    - Reviews
  - Dynamic testing
    - Functional testing (Black box)
    - Structure-oriented testing (control flow)
- Test-driven software development (incl. xUnit)
- Refactoring
- Test frameworks
- Software quality standards
  - CMMI
  - SPICE

Software Quality

- Objectives:

Having finished this course, students will be able to:
- differentiate between a number of software quality characteristics
- assess the application areas of analytical and proactive quality assurance methods
- combine static and dynamic testing methods in a meaningful way
- develop software in a test-driven way, using tools like xUnit
- refactor given software artifacts
- adapt test frameworks to a given application scenario
- assess the intention and application areas of well-known software quality standards

IQ Audits

- Content (I):

Tutorial lessons of IQ Audit spread sheets are included.

Introduction: IQ Audit and main areas of application

QM Elements of IQ Audits:
- Management Accountability
- Organization and Processes
- Data Collection - Data Processing - Data Usage
- DQM – Data Checks
- DQM – Measures
- Technical Requirement – Data Model / Flow / Manipulation
- DQ / IQ Training
- Reference Systems
- Interface Management

IQ Audis

- Content (II):

QM Elements of IQ Audit:
- Service Level Management
- Meta Data Management
- Measuring Data Quality
- Data Cleansing and Data Enrichment
- DQ / IQ Monitoring
- Risk Assessment
- Economic Efficiency
- Documentation

Special application: IQ Audit for IT Projects

Interview Session: How to carry out an Audit interview?

IQ Audis

- Objectives:

Ability to judge the status of Information Quality in the different area of business and projects.