Course introduction

Software Design

2DV608

Mauro Caporuscio

Department of Computer Science and Media Technology

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Contact Personz

- Mauro Caporuscio, Course Coordinator
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- Francis Palma
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- Diego Perez
  - diego.perez@lnu.se

Plan changing

Due to ongoing uncertainty caused by COVID-19 the course will be offered in a **distance-learning** format to all

- Set of Video Lectures
  - Pre-recorded and made available on MyMoodle
- Video Lectures are complemented with
  - Extensive Reading Material
  - Exercises
  - Q&A sessions held via Zoom
- Assignments will be done as a “Take-home exam”

Prerequisites

- 1DV506 Problem solving and programming
- 1DV507 Programming and data structures
  - Java (the programming language for 2DV608)
- 1DV607 Object Oriented Analysis and Design using UML
  - UML (the modeling language for 2DV608)
- ~~2DV610 Software Testing~~
  - ~~Unit testing (the testing technique for 2DV608)~~

NB: If you cannot register because you **don't meet** the requirements
- Send me an **email**

MyMoodle

- Course Page:
  - https://mymoodle.lnu.se/course/view.php?id=49386
- Content and Timetable
- Practical information
- Contact information
- Video Lectures
- Learning Material
  - Handouts, scientific articles, books, tools, videos, exercises …
- Assignments

NB: If you cannot access
  - Send me an **email**, I will enroll you

Communication channels

- Mail: for **personal reasons/problems/issues**
  - Module 1: francis.palma@lnu.se
  - Module 2: diego.perez@lnu.se
  - Module 3 and General Admin: mauro.caporuscio@lnu.se
- Forums: for Q&A of **general interest** about
  - Info: *General Forum* (Course info/administration issues)
  - Module 1: *Requirements Engineering Forum* (lectures, exercises, assignments, ...)
  - Module 2: *Performance Engineering Forum* (lectures, exercises, assignments, ...)
  - Module 3: *Architecting and Design Forum* (lectures, exercises, assignments, ...)
- Slack: for Q&A of **general interest** about (no PM)
  - Workspace: 2DV608-lnu.slack.se
  - 3 specific channels (one for each module, *#01_re*, *#02_pe*, and *#03_ad*), plus 1 general purpose channel (*#general*)
  - *email@student.lnu.se* is required
    - https://join.slack.com/t/2dv608-lnu/signup

Email Etiquette

1. You **MUST** use your **student.lnu.se** email account for any correspondence with Linnaeus University

2. Your message **MUST** have a relevant subject line specifying the **course** that your message concerns
   - e.g., "**[2DV608]** Registration problem", "**[2DV608]** information about assignment", etc.

3. Identify yourself clearly (first name, last name, personnummer), and whether you are studying on **campus** (VXO, KLM) or by **distance**

4. Write your emails as **correctly** and **concisely** as possible
   - Read through them before sending to make sure they **make sense**
   - Use capital letters and full stops

Well written emails save time and will result in a quicker and more useful response

Q&A Sessions

- You can book us for a **15mins** Q&A session (see MyMoodle)
  - Each module has its own booking system

- Q&A Sessions are individual

- Once the session is scheduled and confirmed you will receive an invitation for a Zoom Meeting

Course content and Planning

- Introduction (Mauro Caporuscio)
  - w03: Software Engineering and Design
  - w04: ASSIGNMENT 0
- Module 1 – Requirement Engineering (Francis Palma)
  - w04: Understanding and Developing Requirements
  - w04: Requirements Elicitation, Validation, and Management
  - w05: Modeling with UML
  - w05: Requirements Modelling and Management with Tools
  - w06: ASSIGNMENT RE
- Module 2 – Performance Engineering (Diego Perez)
  - w07: Performance Modeling
  - w07: Performance Evaluation - Operational Laws
  - w08: Performance Evaluation of Software Systems – Tools
  - w08: ASSIGNMENT PE
- Module 3 – Architecting and Design (Mauro Caporuscio)
  - w09: Design for Quality
  - w09: Architecting Software
  - w10: Software Components Quality
  - w10: Re-engineering Legacy Software
  - w11: ASSIGNMENT AD

Grading

Grading Criteria Document *2DV608 Software Design* *Mauro Caporuscio*	Department of Computer Science and Media Tehnology	Scoring Strategy	Grade
Learning Outcome	**Assessment Type**		
Understand the context for software design research and practice	Written Home Assignment (A0)	A0 = {0, 1}	if A0 == 0 then student is **unregistered**
Requirements Elicitation	Assignment 1 (RE) 2.5 hp	RE = [0, 100]	ECTS scale calculated as *T(RE)*
Requirements Validation, and Management			
Requirements Modelling			
Software performance engineering	Assignment 2 (PE)	PE = [0, 100]	ECTS scale calculated as *T(PE)*
Software performance modeling			
Software performance evaluation			
Design Principles	Assignment 3 (AD)	AD = [0, 100]	ECTS scalecalculated as *T(AD)*
Software Architecture and Architectural Patterns			
Re-engineering Legacy Systems			
Final Grade			1) Let RE, PE, AD in [60, 100] 2) Final Grade = T(AVG(RE, PE, AD))

w04

w06

w08

w11

Ladok

T(S): [0, 100] -> ECTS is defined according to the "Grading Criteria for A-F Courses" document
S in [0,49] -> F
S in [50,59] -> FX,
S in [60, 67] -> E
S in [68,74] -> D
S in [75,82] -> C
S in [83,89] -> B
S in [90,100] -> A

Grade	Definition
A	Outstanding performance without errors
B	Above the average standard but with minor errors
C	Generally sound work with some errors
D	Fair but with significant shortcomings
E	Performance meets the minimum criteria
FX	Fail – some more work required before the credit can be awarded
F	Fail – considerable further work is required

Assignment 0

Assignment 0 – Deadline Tuesday, 29 January 2021, 11:59 PM

Read two papers and prepare answers to some questions.

- **Task 1 – Software Design**
  - Read the "*No Silver Bullet - Essence and Accident in Software Engineering*" paper by F.P. Brooks
  - Reflect on the impact it has on software design in general
  - Enumerate three core problems and for each problem two to three possible mitigations
- **Task 2 – The Design Question**
  - Read the three chapters by F.P. Brooks (*The Design of Design - Essays from a Computer Scientist*)
  - Reflect on the software design
  - Enumerate at least two problems that you recognize and describe when you experienced this and how you found a workaround
- Your answers should not exceed 1000 words
  - app. 2 pages, 12pt Times new Roman single sp.

NB: Who does not pass the assignment will be unregistered from the course