# Software Processes Part II

## CS4003 - Software Engineering

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# Design and Analysis

A **requirements document** serves as a foundation for a project. It defines the general aspects of design, specification, and resource analysis.

- Requirements elicitation and analysis
- Requirements specifications/validation
- System Description
- User and system requirements

# Diagrams

Diagrams help define processes and models how systems and objects work in the project.

- Can be added to the requirements document as an addendum

# Software Specification

Establishes serves required and constraints put on development.

- What do the system stakeholders require or expect from the system?

# Design Activities

- Architectural design
- Database design
- Interface design
- Component selection and design

# Old Systems Design

- Design, code, implement in linear fashion
- Testing done in between processes

# Agile, Lean, New School Paradigms

- Design, code, implement in sections
- Integrate and integrate over a given timeline
- Tasks split up into teams and groups
- Prioritizes testing in all stages

# Validation

Verification and validation (V&V) shows a system works as it should.

- Does the system conform to specifications?
- Does it meet the needs of the system customer?

Testing is most common method.

# Software evolution

Software should be flexible and able to change. Good software can adapt to changing circumstances and can be easily maintainable.

- Will my software work and evolve in 2 years time? 5 years?
- Will the tools and processes remain relevant over time?

# Process measurement

Quantitative process data is useful to measure the progress of a project.

- Measurements can help look at where you are, but shouldn't drive improvements

# Use Case Diagram

Shows users (actors) and all the processes that they have access to.

- Admin → Create/update work order, create/update user
- Worker → Accept work order, view work order