Overview

- Architectural Styles (Garlan & Shaw)
- Design Pattern (Gamma)
- Types of Architecture (Hassan, Bowman)
- Architectural Views (Kruchten)
- Enterprise Architecture (class slides)

Not on Exam

- Guest Presentations
  - Ian Davis (LSEdit)
  - Norm Young (Case studies)
- Design Processes
  - normal vs radical design
  - agile, RUP
- Case Studies
  - Linux, web servers
- Invariants, properties, verification, etc.

Exam Format

- Short answer questions

Architectural Styles

- Styles
  - pipe & filter
  - data abstraction
  - implicit invocation
  - layered
  - repository
  - interpreter style
- For each
  - know the intent, diagram, advantages, disadvantages, variations, applications

Architectural Styles Case Studies

- Case Studies

  - case study 1: KWIC

  - case study 2: Instrumentation Software

  - case study 3: A Fresh View of Compilers

- How the different designs are applied

  - advantages and disadvantages

Design Pattern

- Patterns
  - Singleton, Adapter, Bridge, Façade, Command, Iterator, Observer, Strategy, Visitor, Interpreter
- For each
  - intent, class diagram
  - applicability
    - given a scenario, which and why
  - discussion in the class

Types of Architectures

- Reference, Conceptual, Concrete
  - definition & differences
    - The role of each in the software design process
  - drift & erosion
    - definitions

Architectural Views

- 4+1 View
  - Kruchten
- For each view
  - definition
  - diagram
  - purpose
  - usage
    - what views are required and what views are not and when

Enterprise Architecture

- Types of Architectural Styles

- Evolution

  - know the differences between
    - first, second, & third (gwt) generation
    - improvement & weaknesses

  - draw the diagrams
    - identify components & connectors clearly
    - request-response cycle

Enterprise Architecture

- Synchronous & asynchronous

- Separation of concerns

  - responsibility of each tier

- Functional vs. non-functional requirements

  - know the difference

  - which ones are

    - honoured (& why)
    - violated (& why)