PREP.

SOFTWARE ENGINEERING

→ Modules of SE (?)

→ SDLC (Software Development Life Cycle)
- Planning
- Analysis
- Design
- Implementation / Coding
- Testing & Integration
- Deployment
- Maintenance

→ What is software?

→ Properties of Software
- Doesn't wear out
- No silver bullets in software
- Functionality
- Scalability
- Reliability
- Adaptability

→ Balancing Act

→ Categories of SE
- Construction (Analysis, Design, Coding, Testing)
- Management (Project planning & management, software quality assurance, installation / training)

→ SE Framework (Pg. 15, VU Handouts)
- Quality Focus
- Processes
- Methods
- Tools

→ Characteristics of Software
- → Functionality (Suitability, Accuracy, Interoperability, Compliance, Security)
- → Reliability (Recoverability, Fault-Tolerance, Maturity)
- → Efficiency (In-Time, In-Resources)
- → Usability (Understandability, Learnability, Operability)
- → Maintainability (Testability, Stability, Change-ability)
- → Portability (Adaptability, Install-ability, Replace-ability)

→ Phases of SE
- → Vision
- → Definition
- → Development
- → Maintenance

→ Software development Loop
- → Problem Definition
- → Technical Development
- → Solution Integration
- → Status Quo

→ Requirements Engineering (Pg. 19, VU Handouts)
→ Characteristics of Requirements
- → Complete
- → Sufficient
- → Specific
- → Reliable
- → Concise

- Points that damage requirements
  - Incomplete
  - Frequently changed
  - Vague
  - Inadequate

- Role of requirements (Pg. 21, VU Handout)
- Types of requirements / Categories of requirements
  - Business requirements
  - User requirements
  - Functional requirements
  - Non-functional requirements
- Stakeholders of software (people interested in software)
- Requirements Elicitation
  - What is requirement elicitation?
  - Importance of requirement elicitation
    - Compliance with business objectives
    - User satisfaction
    - Time and money savings
    - Compliance & regulation requirements
    - Traceability & documentation
  - Requirements elicitation activities
  - Requirement elicitation methods
    - Interviews
    - Brainstorming sessions
    - Facilitated application specification technique
    - Quality function development
    - Use case approach

→ Process Models (RAWSVIP)
- Rapid App development (RAD)
- Agile Model
- Waterfall Model
- Spiral Model
- V-Model
- Incremental Model
- Prototyping Model

→ Cohesion
- Co-incidental cohesion
- Logical cohesion
- Temporal cohesion
- Procedural cohesion
- Communicational cohesion
- Sequential cohesion
- Functional cohesion

→ Coupling
- Content coupling
- Common coupling
- Control coupling
- Stamp coupling
- Data coupling

→ UML (Unified Modeling Language)
- Elaborated Use Case
- Use case diagram
- User action & System Response } Use Flow
- Activity Diagram

→ State Transition Diagram

→ [redacted]

→ Data Flow Modeling

→ Data Flow Diagram (DFD)

- → Types
  - → Logical
  - → Physical
- → Levels
  - → Level 0 DFD
  - → Level 1 DFD
  - → Level 2 DFD
  - → Level 3 & Beyond DFD.