

# Project Scheduling

EEE455/457



Royal Military College of Canada  
Electrical and Computer Engineering

# Outline

- Review of 2<sup>nd</sup> year course
  - Work Breakdown Structure
  - PERT Chart
  - Gantt charts
- Exercise

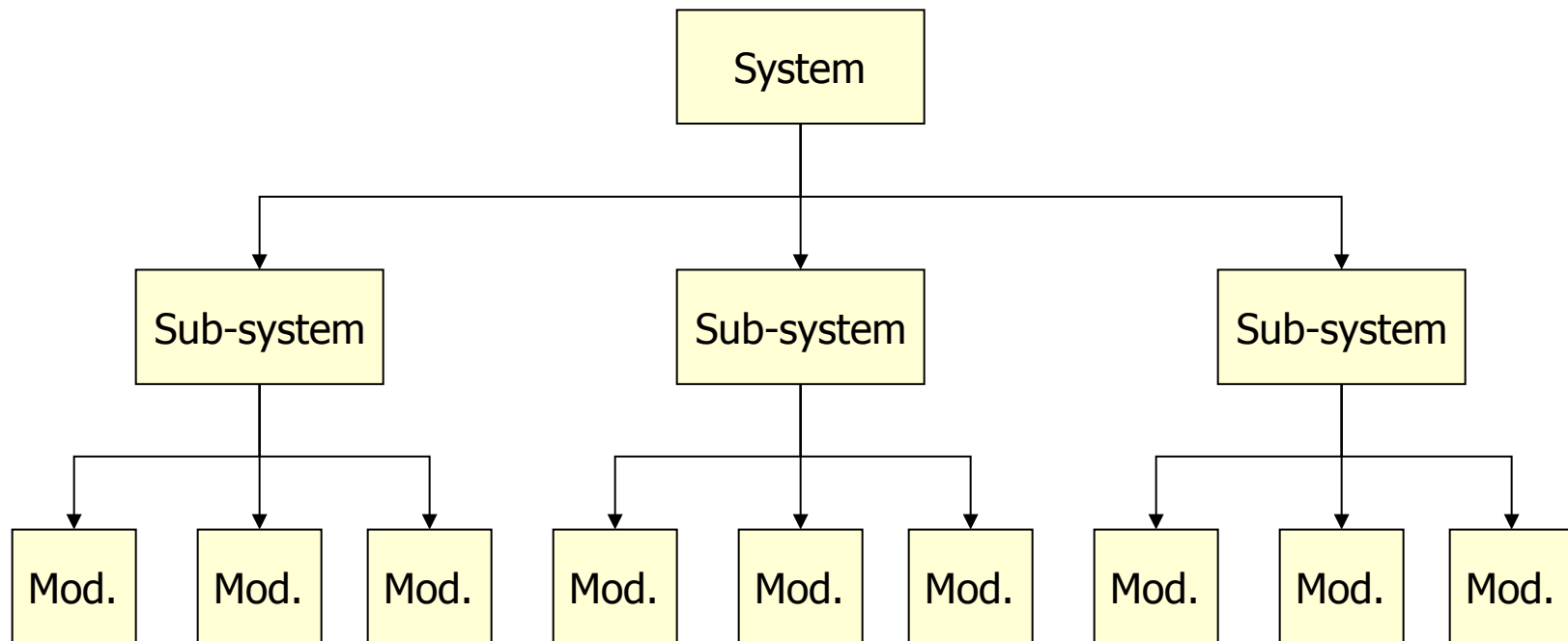
# Work Breakdown Structure

# Work Breakdown Structure (WBS)

- Hierarchy or work elements
  - Hook for task assignments
  - Framework for scheduling and budget
- Depicted as a tree
  - High-level systems broken into subsystems, subsystems (modules)
- Two types
  - Conventional
  - Evolutionary

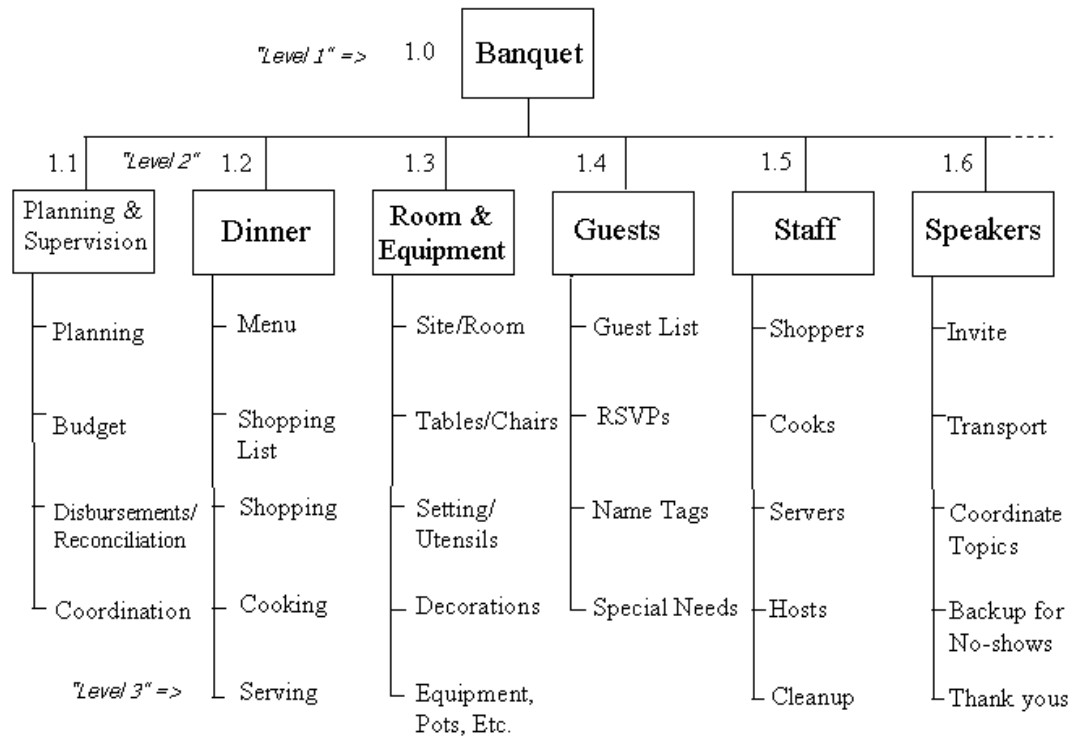
# Conventional WBS

- Based on the decomposition of the **product**
- Tied to the design



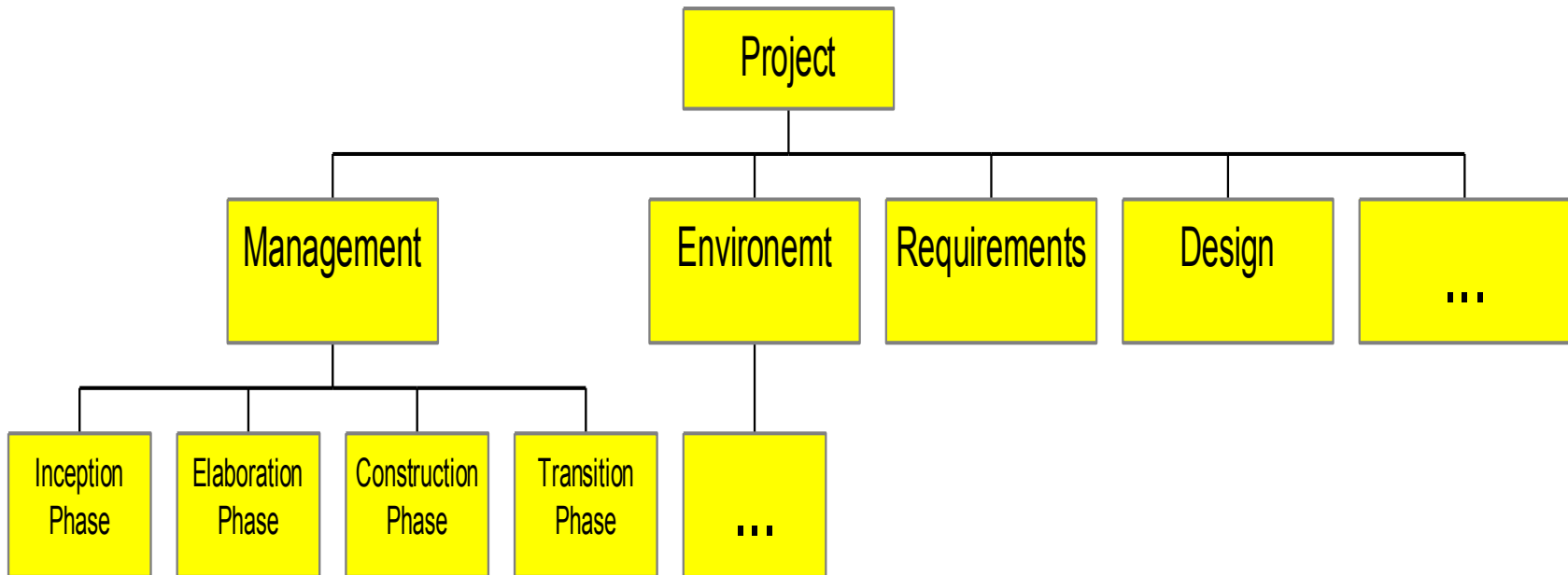
# Conventional WBS

## WBS Example - Banquet



# Evolutionary WBS

- Based on the decomposition of the process
- Tied to functions



# Comparison of WBS Types

- Conventional
  - tied to a design that may (will) change, may even hamper design change
  - project specific, and thus cross-project comparisons are difficult
  - generally either too detailed, too early or insufficiently detailed throughout
- Evolutionary
  - tied to the process, thus facilitates change management
  - not project specific, thus facilitates cross-project comparisons
  - the fidelity of the WBS increases with the fidelity project



# WBS for your project

- You choose type
  - Collaboration, constructions, management tasks
  - Specific technological work elements

# PERT

# PERT Chart

**P**erformance

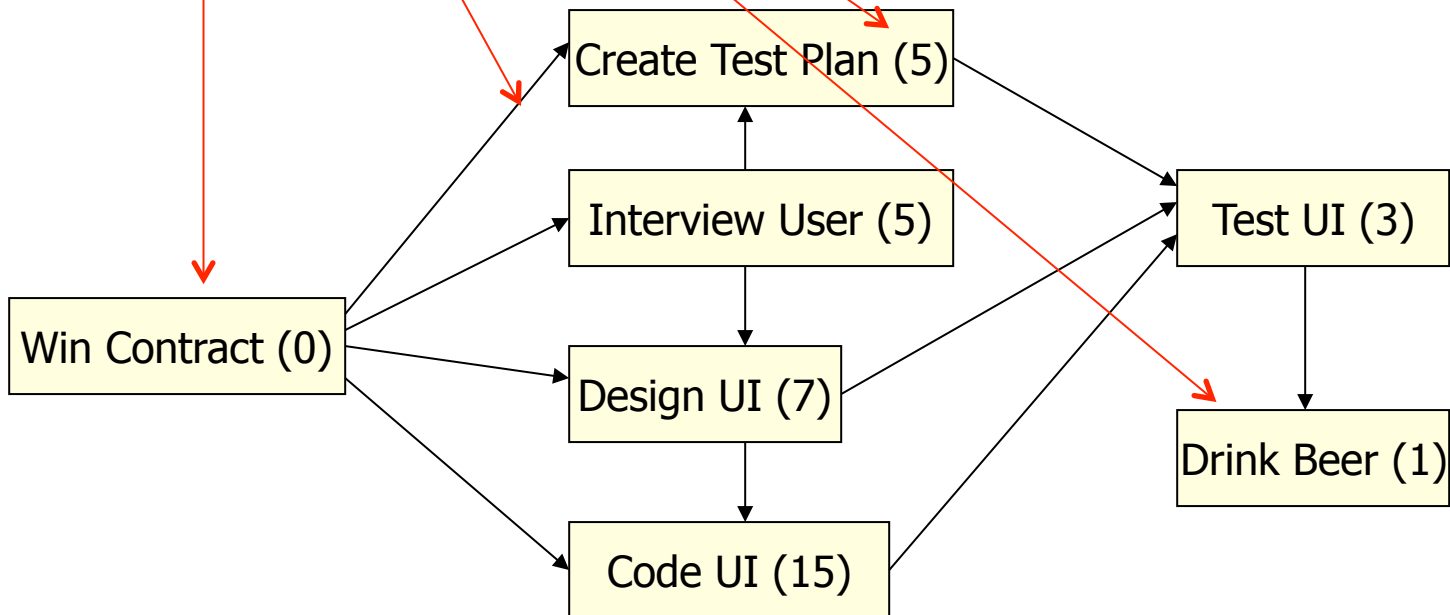
**E**valuation &

**R**eview

**T**echnique

# PERT Chart

- Duration of tasks
- Dependences
- One start and One finish



# PERT Chart Information

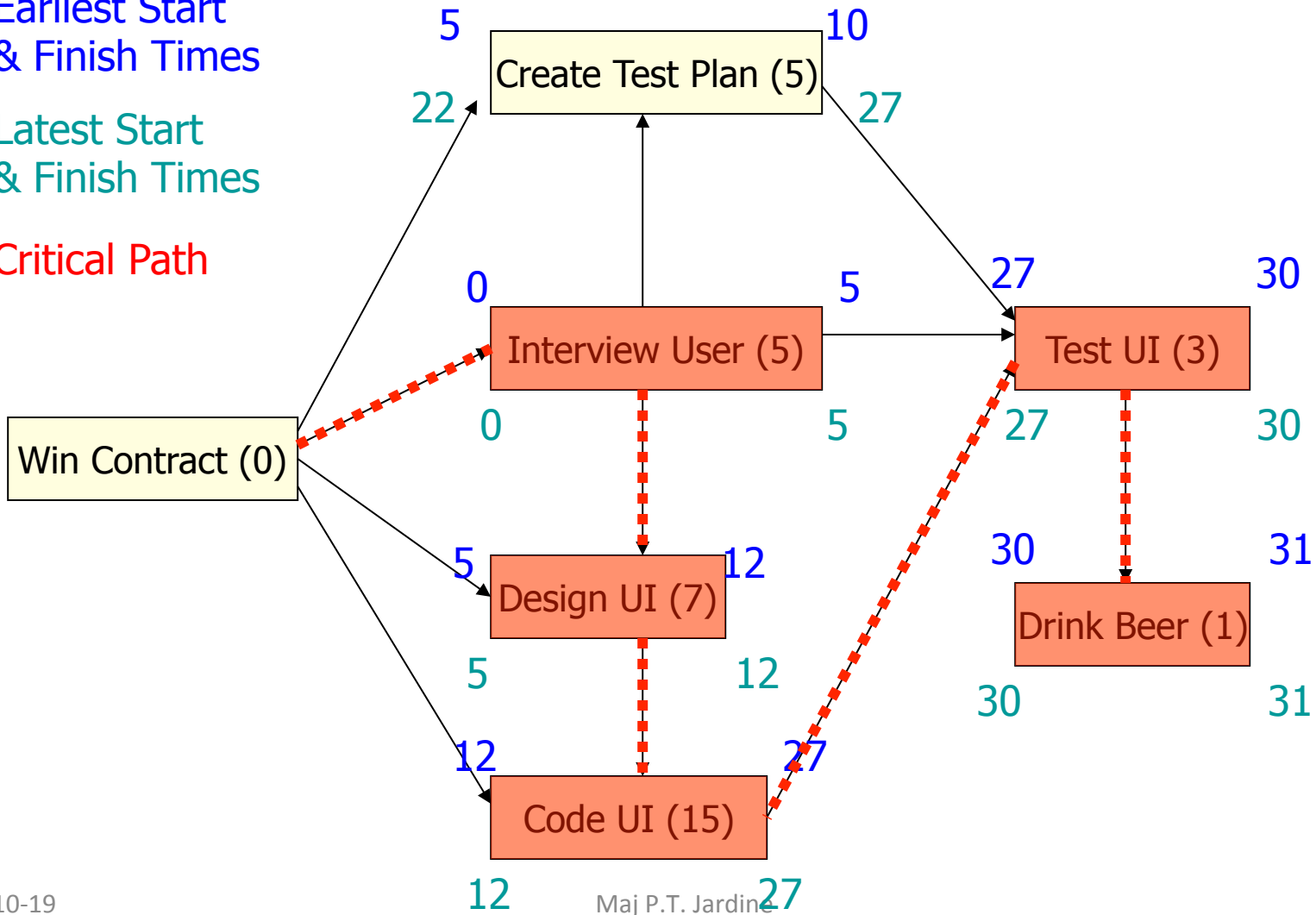
- Dependencies
  - Show how tasks are related to one another
- Critical path
  - Earliest time project can be finished
  - Delaying any item on Critical path delays entire project
- Slack
  - if off critical path, item can slip without affecting Critical Path (latest possible start time)
- Crashing
  - If we want to start sooner, which tasks to focus on

# PERT Example

Earliest Start  
& Finish Times

Latest Start  
& Finish Times

Critical Path



# PERT Pros/Cons

- Pros
  - Shows dependences well
  - Critical path is clear
- Cons
  - Computing data can be laborious
  - Scheduling/Timeline not clear

# Gantt Chart



# Gantt Chart

Bring up MS project example

# Gant Chart Pros/Cons

- Pros
  - Shows timeline clearly
  - Good for presenting progress to stakeholders
  - Good tools (MS Project)
- Cons
  - Dependencies not always clear

# How does this apply to me?

- You will submit a project schedule in the form of a Gantt chart
- You will know your critical path activities
- You will maintain an up-to-date schedule to track your progress

# Considerations for your timeline

- What is “one day” estimate to complete task?
  - One project period (4 hours)?
  - Full work day (8 hours)?
  - Sun-up to Sun-down (12 hours)?
- Double tasking
  - Christmas break
  - Reading Week
  - Mid-terms
- Ordering/Receiving part is almost always on the critical path

# Exercise