Work Breakdown Structures

• Bill of Materials (BOM) format

![Diagram of a BOM format with tasks and subtasks]

• Indented BOM format

![Diagram of an indented BOM format with tasks and subtasks]
WBS Level Names

1. Program
2. Project
3. Task
   4. Sub Task
   5. Work Package
   6. Effort or Activity

WBS Level Names

• Common names & terms facilitate:
  ▪ Communication
  ▪ Understanding
• All parties should use a common level naming convention

When Developing a WBS

• Identify necessary tasks
• Don’t worry about the particular order—yet
• Don’t worry about particular details—yet
**Scheduling**
develops the sequence; not the WBS development

**WBS Development Process**

- *First:* Identify all work that needs to be done
- *Then:* Identify who, how long, when, and how much ($ and resources)

**Estimating Work**

- Estimate WBS to level of required accuracy
  - Granularity
- “Exact estimates” are oxymoronic (e.g., jumbo shrimp)
Scheduling

• The goal of scheduling is to maximize parallel activities to minimize time
• Minimal time yields
  ▪ the most aggressive schedule
  ▪ an ideal (unrealistic) target

Scheduling

• Overlap work when possible (lead vs. lag)

Scheduling Methods

• Manual (PERT) quickest!!!!
  ▪ Post-It® notes on white board
• Computer-based (Gantt)
  ▪ MS Project, Primavera
Gotchas!!

- Watch for “dangles”
  - Unattached tasks with no predecessors &/or successors
- Remember resource constraints

Adding personnel isn’t always the best answer

- *The Mythical Man-Month*
  - by Fredrick Brooks
- Brooks was the System 36 Project Manager for IBM
- Collection of summary evaluation essays to Tom Watson (CEO)

Change Control

The world will not stand still while a plan is being executed.