

Project Management

Chapter 16, pg. 332-353

Lecture #6

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Information

- Meeting Rooms.
 - Index cards
- ME/EE Joint Teams –
- Check the website.
 - Resources page

Today

- Feedback on Progress Reports and Quiz #1
- Project Management Lecture

Progress Reports

- First and Last name.
- Project name short version and ID#.
- Be specific.
 - Groups making progress stood out.
 - Groups not making progress stood out.
- Damper Group.

Quiz #1

1. Which of the 7 concept selection methods is explained in detail in Chapter 7?

Decision matrices

2. List two of your concepts and three selection criteria in table form. First Rate them using relative scoring and then rank them.

	Concept
Specification	

Rating and Ranking

Rate:

0, -, +
1-5 (1 = least, 5 = most)
1-9 (finer scale)

Rank:

Sum and compare

Accomplishments to Date

- Mission Statement
- Customer Needs Analysis
- Product Design Specification (PDS)
- Review of Concept Generation
- Concept Selection Matrix

AFTER TODAY: Gantt Chart, Work Breakdown Structure

A Project is a set of activities which ends with specific accomplishment.

Specific start/finish dates

- **5 weeks** until Mid-Term Reviews
- **8 weeks** until Site Visits
- **12 weeks** until Design Show

Limited Resources

- \$\$
- Time
- Personnel

Project Plan

- What
 - Tasks and activities
- When
 - Schedule
- How
 - People, equipment, \$'s

Tasks

- Relative to the project.
- Defined start and end points
- Has: Duration and Resources
- Verb-noun name
 - Create drawings
 - Build prototypes
 - Develop transmission

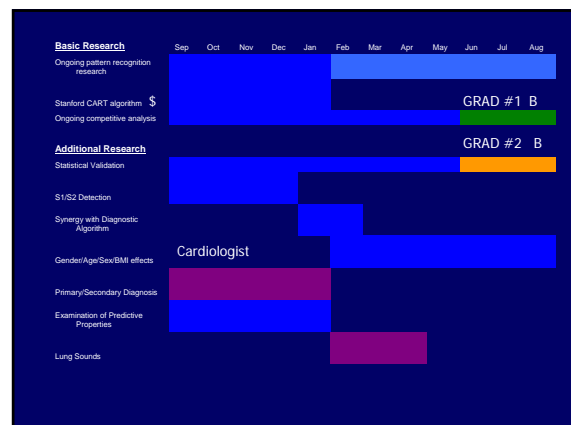
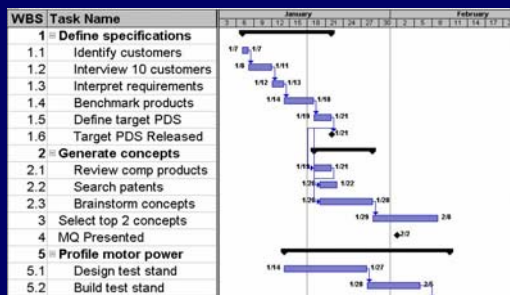
Gantt Chart

- Most basic and common planning tool.
- Bar chart with
 - Tasks
 - Durations
 - dependencies

MS Project

- Most popular planning software
- Easy to use
- Available in IT Labs
- Web-based tutorials exist
- Required for your project planning activities (Gantt Chart)

Example Gantt chart



Identify your Project Manager

- Not your advisor!
(Tasks & schedules set by those responsible for them)
- One or more team members
- Maybe not your (rotating) group leader (but maybe so)



Questions for Project Manager

- What is the scope of our project?
- What gets delivered for the available time, people, \$?
(And what *won't* we do?)
- What resources do we need?
- How do we tell where we are?
 - Are we on schedule?
 - Are we on budget?
- How do we communicate our plan inside & outside the team?
 - Gain team agreement
 - Gain approval of upper management
 - Communicate with customer or sponsor

Questions for team planning

- Define tasks & resources
- Define milestones
- Define schedule

Identifying Tasks & Resources

- Break overall project into tasks & sub-tasks
- Define each sub-task to be "short" in project scope (approx. 1 day effort of 1 team member)
- State each task using "verb-noun" form
Examples:
 - Design motor test stand
 - Build motor test stand
 - Plot torque vs. speed
 - Appropriate level of detail
- *Function*, not *form*, known at start of project
- Example: "Build concept demonstration prototype"
- Make each task significant ("Identify competitive products" rather than "Go to library")

Task Attributes

- WBS #
(Defines task / sub-task level using outline protocols)
- Task Description
(Verb-noun form)
- Estimated person-hours
(Total time required to complete task)
(*Note: Multiply by 2 and add 1!*)
- Who will perform task
- Outside resources required
- Material & supply costs
- *Note:* Defining tasks is hard but worthwhile!

Work Breakdown Structure

- A to-do list sorted by category
- Task description (what)
- Estimated time (length)
- Person responsible (who)
- Resources required
- Cost (\$)

Task #	What	Person(Hrs)	Who	Resources	\$
5	Profile motor				
5.1	Design test stand	20	SE, JM	Pro/E	
5.2	Build Test Stand	15	SE, JM	Parts, machine shop	\$35
5.3	Test 3 motors	3	SE, JM	Stroboscope	
5.4	Plot torque vs. speed	2	JM	Excel	

Team Exercise

- Fill out a 10 item draft WBS for your project using previous example as a guide.

Step 2: Identify Milestones

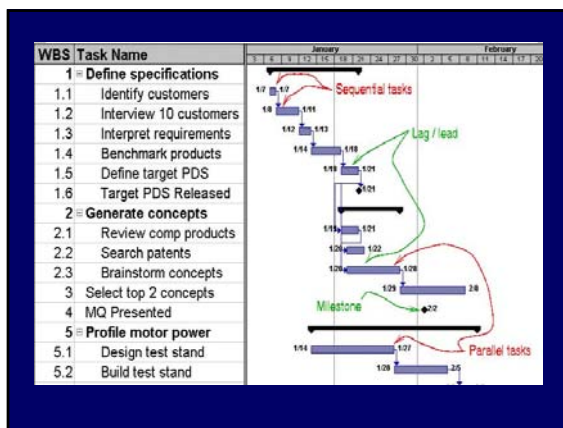
- Types of milestones
 - Provide tangible interim goals
 - Demonstrate progress
 - Enforce schedule
- State each milestone by "noun-verb" form

Examples:

 - Mission stated
 - Mid-quarter review presented
 - Prototype completed
- Probably about 5-10 milestones is appropriate for 10 week project

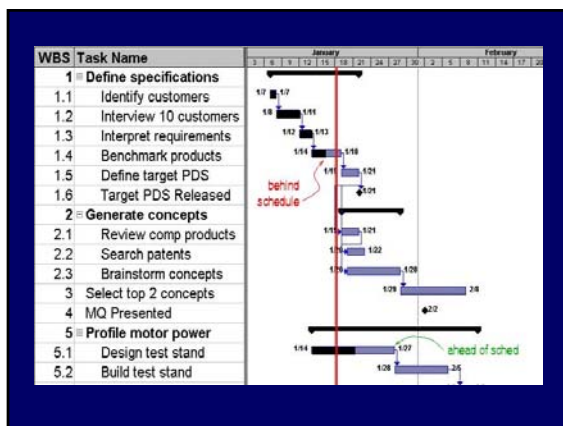
Step 3: Define Schedule with a Gantt Chart

- Define start & end dates for each WBS task
 - Parallel tasks: Independent
 - Serial tasks: Dependent
 - Serial tasks with lag or lead
- List WBS tasks on left; draw time line on right
 - Simple: Carefully draw by hand
 - Elegant: Microsoft Project
 - Or use your favorite drawing software
- Include milestones as 0-length diamonds



Tracking Progress

- Each bar in the Gantt chart time line represents percentage of task complete
- Continuously update bars (a marking pen will do)
- Draw red vertical line at current date to show schedule discrepancies



Budget Reminder

- \$100 prototyping budget available for each faculty-sponsored project

Does *not* include:

 - Overhead transparencies
 - Design booth posters
 - Report preparation
- Check with your sponsor for industry project budget
- Obtain spending approval from T. Chase or your industry sponsor *before* making a purchase

Summary

- Define tasks & resources *early* using a Work Breakdown Structure (WBS)
- Choose milestones to demonstrate progress both within team and to customer
- Track progress weekly using a Gantt chart
- Remember to budget materials & supplies!
- *GOOD PROJECTS REQUIRE PLANNING!*

Final Thoughts

- Start now
- Continually update
- Identify bottlenecks

- Other Project Management links:
http://www.aipm.com.au/html/links_page.cfm

02/07/06 Lecture #7
Estimation and Modeling