

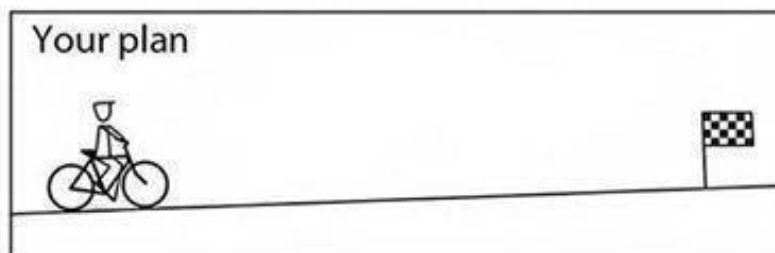
Who
needs to do what
by when

2

+ Project Management Process

3

1. Identify needs
2. Propose solution
3. Planning
4. Scheduling
5. Performing/monitoring
6. Terminate the project



4



4. Project Scheduling

5



4. Project Scheduling

6

- All about activity durations
- Integrate into the network diagram (or Gantt chart) to provide an overall schedule for the project
- Identify which tasks are on the “critical path”
- Locate opportunities to accelerate work or reduce risk

+ Durations

7

- Each task must have a duration
- This represents how long the task will take to complete
 - This is based on how much work it is and how many resources you have to do it
 - It may also be based on waiting time, delivery estimates, manufacturing process time, etc.
- Those responsible for a task should estimate its duration
- More accurate when based on historical data or when done by dedicated estimators

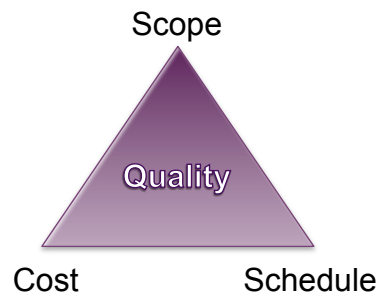
Calculating Durations

8

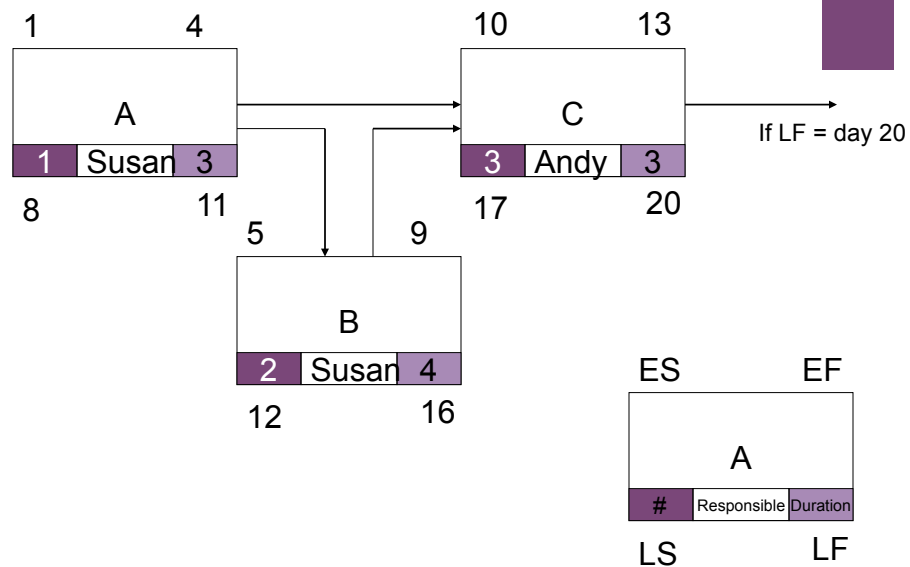
- $t = (t_o + 4t_m + t_p)/6$
- t_o - optimistic time (if everything goes correctly; 10% of the time)
- t_m - most likely time
- t_p - pessimistic time (under adverse circumstances; 10% of the time)

+ Constraints

- Fixed start date
- Fixed completion date
- Fixed budget
- Fixed resources
- Start as soon as possible
- Start as late as possible



+ Calculating Dates



+ Critical Path

11

- Slack – amount of time available to adjust when a task is performed
 - $\text{Slack} = \text{LF} - \text{EF}$ or $\text{LS} - \text{ES}$
- If slack = 0, the task is on the **Critical Path**
- If a task on the Critical Path slips, the whole project slips



5. Performing/Monitoring

12

+ 5. Performing/Monitoring

13

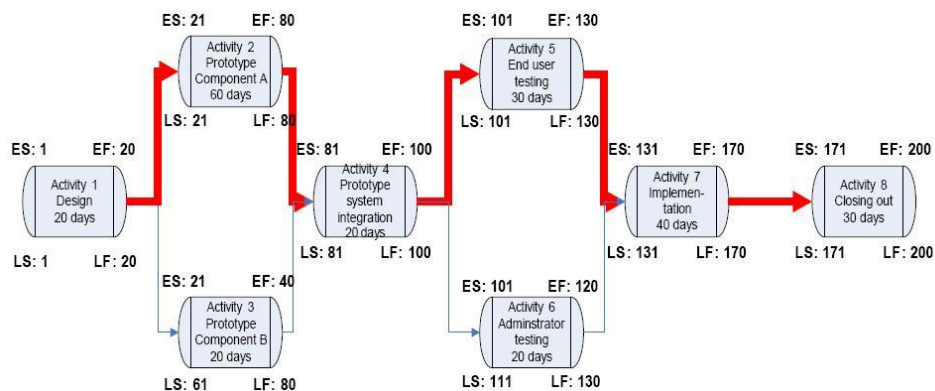
- You planned the work...

...now you work the plan!

- Monitor the project; keep it on schedule
- Identify when problems occur and be able to react to them
- Minimize the impact of potential risks
- Ensure customer satisfaction

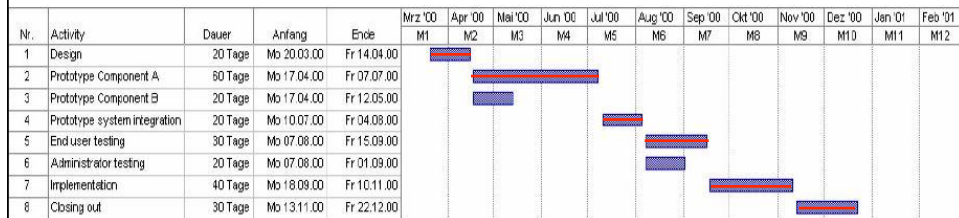
+ Network Diagram

14



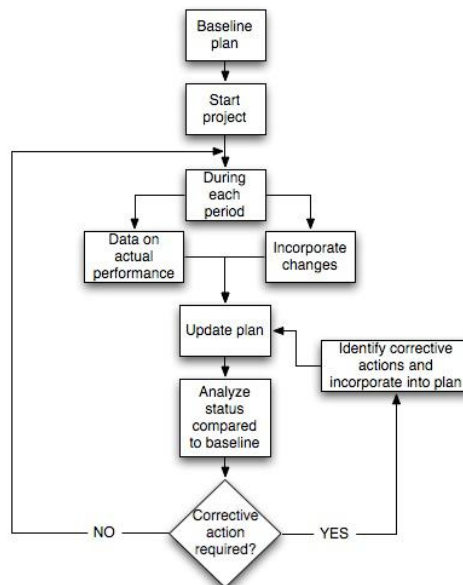
+ Gantt Chart

15



+ Schedule Control

16



+ Progress Reporting

17

- Compare actual progress to the plan
- Compare actual costs to budgeted costs for each reporting period and cumulative
- Compare actual cost to actual project progress
- How do you measure % completion?
 - Elapsed time
 - % of total effort (generally quantized to 25% or so)
 - % of budget spent
 - Earned value (another lecture)

+ PM Process Summary

18

- Project Management is about **who** needs to do **what** by **when**
- Work breakdown structure organizes activities into packages of activities
- Network diagram and Gantt chart to show sequence of activities and durations; critical path
- Resource allocation and budgeting



Proverbs of Project Management

19

- Projects progress quickly until they become 90% complete; then remain at 90% complete forever.
- If project content is allowed to change freely, the rate of change will exceed the rate of progress.
- You cannot produce a baby in one month by impregnating nine women.
- The conditions attached to a promise are forgotten and the promise is remembered.
- Of several possible interpretations of a communication, the least convenient one is the only correct one.
- What is not on paper has not been said.
- A user will tell you anything you ask about – nothing more.
- Parkinson and Murphy are alive and well – in your project.



Project Schedule Example

Consumer Market Study

20

+ Consumer Market Study

21

- A small company wants to collect information about potential customers using a questionnaire
- The project involves the creation of the questionnaire, mailing it, collecting responses and developing software for analyzing the results.
- There are 4 people on the team: Susan (Marketing), Steve (Admin), Andy (Software), and Jim (boss)
- Objective: Obtain feedback from target consumers about product offerings using a print questionnaire within 6 months

+ Consumer Market Study - WBS

22

1. Questionnaire
 - 1.1 Identify target consumers
 - 1.2 Develop draft questionnaire
 - 1.3 Pilot-test questionnaire
 - 1.4 Review comments & finalize questionnaire
2. Software
 - 2.1 Develop data analysis software
 - 2.2 Develop software test data
 - 2.3 Test software
3. Distribution
 - 3.1 Prepare mailing labels
 - 3.2 Print questionnaire
 - 3.3 Mail questionnaires & get responses
4. Analysis
 - 4.1 Input response data
 - 4.2 Analyze results
 - 4.3 Prepare report



23

Consumer Market Study

#	Activity	Responsible				Predecessor	Duration
		Susan	Steve	Andy	Jim		
1.1	Identify target consumers	P				-	3
1.2	Develop draft questionnaire	P				1.1	10
1.3	Pilot-test questionnaire	P				1.2	20
1.4	Review comments and finalize questionnaire	P			S	1.3	5
3.1	Prepare mailing labels		P			1.1	2
3.2	Print questionnaire		P			1.4	10
3.3	Mail questionnaire & get responses		P			3.1, 3.2	65
2.1	Develop data analysis software			P		1.4	12
2.2	Develop software test data	P				1.4	2
2.3	Test software			P	S	2.1, 2.2	5
4.1	Input response data	S			P	3.3, 2.3	7
4.2	Analyze results	S			P	4.1	8
4.3	Prepare report	S			P	4.2	10



24

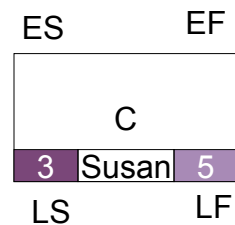
Team Exercise: Consumer Market Study

■ Given:

- List of activities, responsibilities, and predecessors, durations

■ Create the network diagram

- Include activity # or WBS identifier
- ES, LS, EF, LF
- Assume the project must be completed in 130 days
- Find slack for each task
- Critical path



+ Results

25

- What do you conclude from this analysis?
- What is the critical path?
- What could you do to get project on track to complete in 130 days?