Unit 17: IT Project

Planning & Scheduling Tools (P2)

Learning Outcomes

- Know the difference between Planning and Scheduling
- Know the different project management tools available to aid planning & scheduling projects

Planning

Planning is the process by which the elements required to perform a task are determined in advance of the project start

Planning Process Involves

- Determining the project
- Develop a project plan. This entails the sequence of the activities in the project and establishing the best methods and procedures to accomplish them
- Establish workforce size for the project/activities
- Check if special tools and equipment are needed and obtain them
- Assign workers with appropriate skills to tasks

Levels of Planning

1. Long-range planning: it covers a period of 3 to 5 years and sets plans for future activities and long-range improvement
2. Medium-range planning: it covers a period of 1 month to 1 year
3. Short-range planning: it covers a period of 1 day to 1 week. It focuses on the determination of all the elements required to perform tasks in advance

Scheduling

Is the process by which tasks are matched with resources and sequenced to be executed at a certain points in time

Scheduling

- Scheduling deals with the specific time and phasing of planned tasks together with the orders to perform the work, monitoring the work, controlling it, and reporting on task progress
- Successful planning needs a feedback from scheduling

Reliable Schedule Must Take Into Consideration

- A task priority ranking reflecting the criticality of each task
- The availability of all materials/resources needed to complete each task
- Realistic estimates and what is likely to happen
- Flexibility in the schedule

Scheduling

The objective of scheduling is to construct a time chart showing:

- The start and finish for each task
- The interdependencies among tasks
- The critical tasks that require special attention and effective monitoring

Project Management Tools

- Techniques and tools used during the planning/scheduling process
- Enabling managers to control the development of projects by providing a framework against which projects can be measured
- Good planning is a prerequisite for sound scheduling

- Planning Tools include:-
  1. Gantt Charts
  2. PERT Charts
  3. CPA Diagrams
  4. Microsoft Project

Gantt Charts

- Gantt charts are used for sequencing Processes
- A GANTT chart is a type of bar chart that illustrates a project schedule
- Especially useful when covering activities that must take place before other activities begin
- If processes can take place at the same time (as they are not reliant on each others actions) then these can be shown as simultaneous
- In a sequence, for example, you need to boil the kettle before you attempt to make a cup of tea
- However, you could be simultaneously feeding the cat whilst the kettle is boiling

Characteristics of a Gantt Chart :

- The bar in each row identifies the corresponding task
- The horizontal position of the bar identifies start and end times of the task
- Bar length represents the duration of the task
- Task durations can be compared easily
- Good for allocating resources and re-scheduling
- Precedence relationships can be represented using arrows
- Critical activities are usually highlighted
- Slack times are represented using bars with doted lines
- The bar of each activity begins at the activity earliest start time (ES)
- The bar of each activity ends at the activity latest finish time (LF).

Gantt Charts

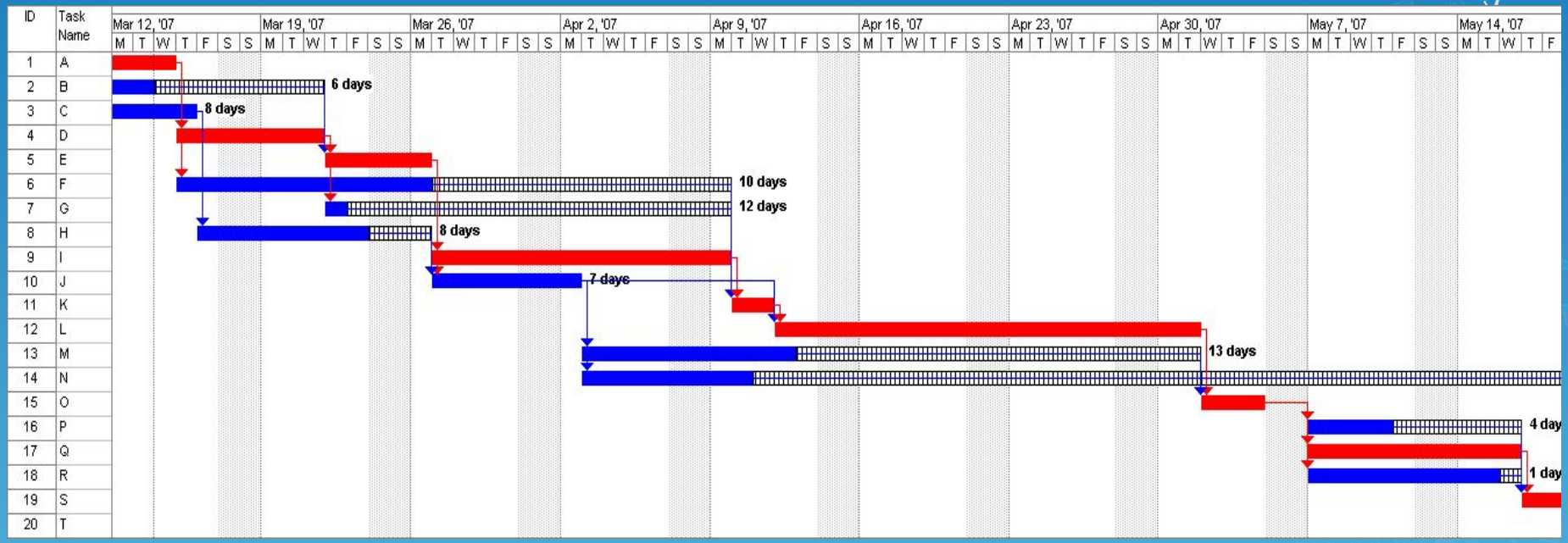
Gantt chart for Frankoni T-shirts project															
		Mon	Tue	Wed	Thu	Fri		Mon	Tue	Wed	Thu	Fri		Mon	Tue
Investigate current stock system	8 days														
Write up report	2 days														
Investigate current invoicing system	5 days														
Write up report	3 days														
Planning meeting	2 days														

What can you see when you look at this Gantt chart and what assumptions can you make?

Gantt Charts

- What can you see when you look at this Gantt chart and what assumptions can you make?
  - The investigations of both existing systems are being undertaken at the same time, therefore they cannot be done by the same individuals
  - The team investigating the current invoicing system will have nothing to do for two days because the stock system investigation team need longer
  - Everyone will be available for the planning meeting since all other processes will have been finished

Gantt Charts Example – From Microsoft Project



Gantt Chart

- Advantages
  - Simple
  - Good visual communication to others
  - Task durations can be compared easily
  - Good for scheduling resources
- Disadvantages
  - Dependencies are more difficult to visualise
  - Minor changes in data can cause major changes in the chart

Constructing Gantt Chart

PERT Charts & Critical Path Analysis (Project Management Tools)

- The steps to construct a GANTT cha[illegible]m t[illegible] information obtained by PERT/CPM are:
  1. Schedule the critical tasks in the correct position.
  2. Place the time windows in which the non-critical tasks can be scheduled.
  3. Schedule the non-critical tasks according to their earliest starting times.
  4. Indicate precedence relationships between tasks.

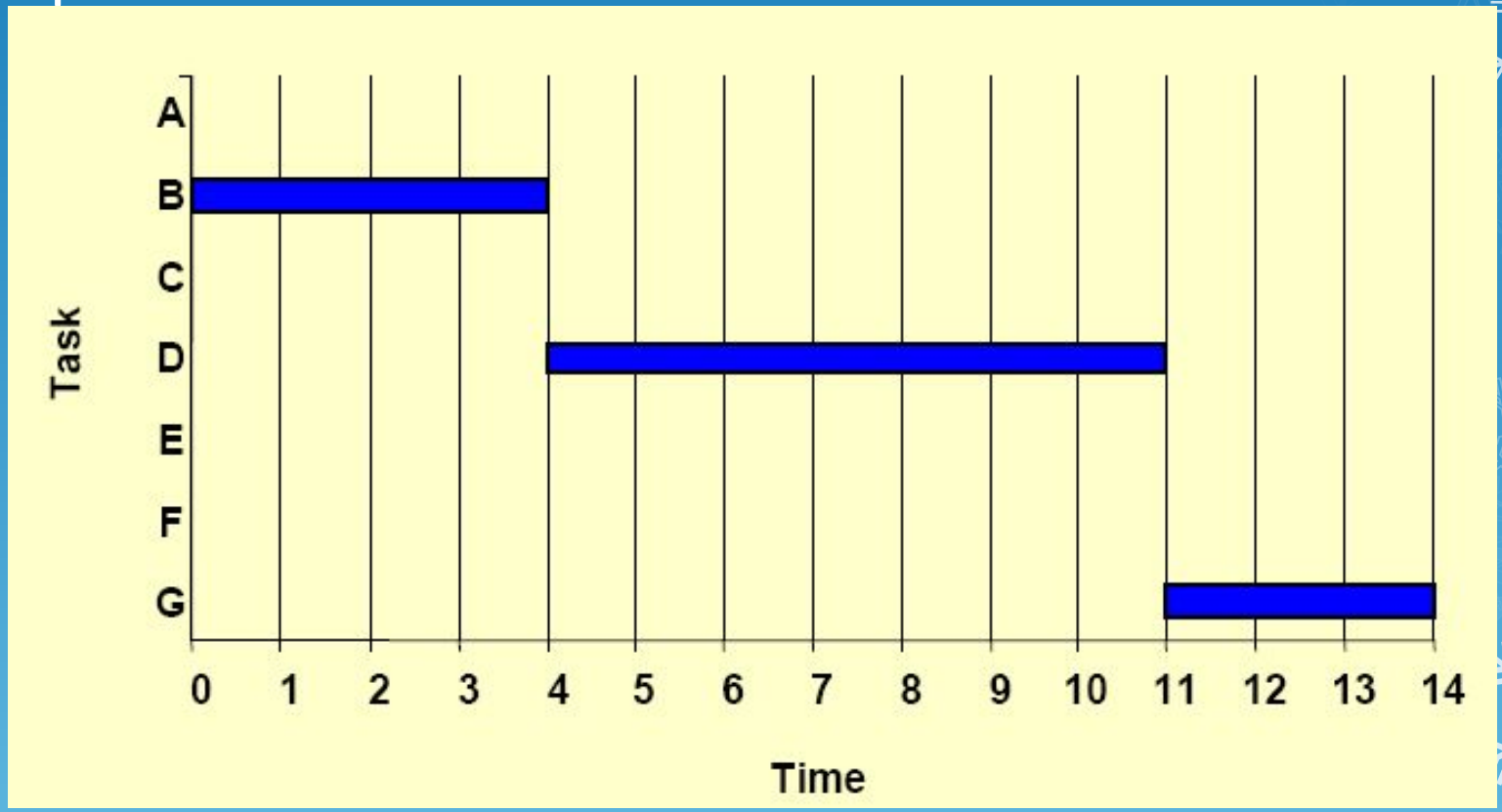
Constructing Gantt Chart

- Example of an early GANTT chart construction:

Task	Duration	Precedence	ES	EF	LS	LF	Slack Time	Critical Task
A	3		0	3	3	6	3	N
B	4		0	4	0	4	0	Y
C	5	A	3	8	6	11	3	N
D	7	B	4	11	4	11	0	Y
E	2	B	4	6	8	10	4	N
F	4	E	6	10	10	14	4	N
G	3	C,D	11	14	11	14	0	Y

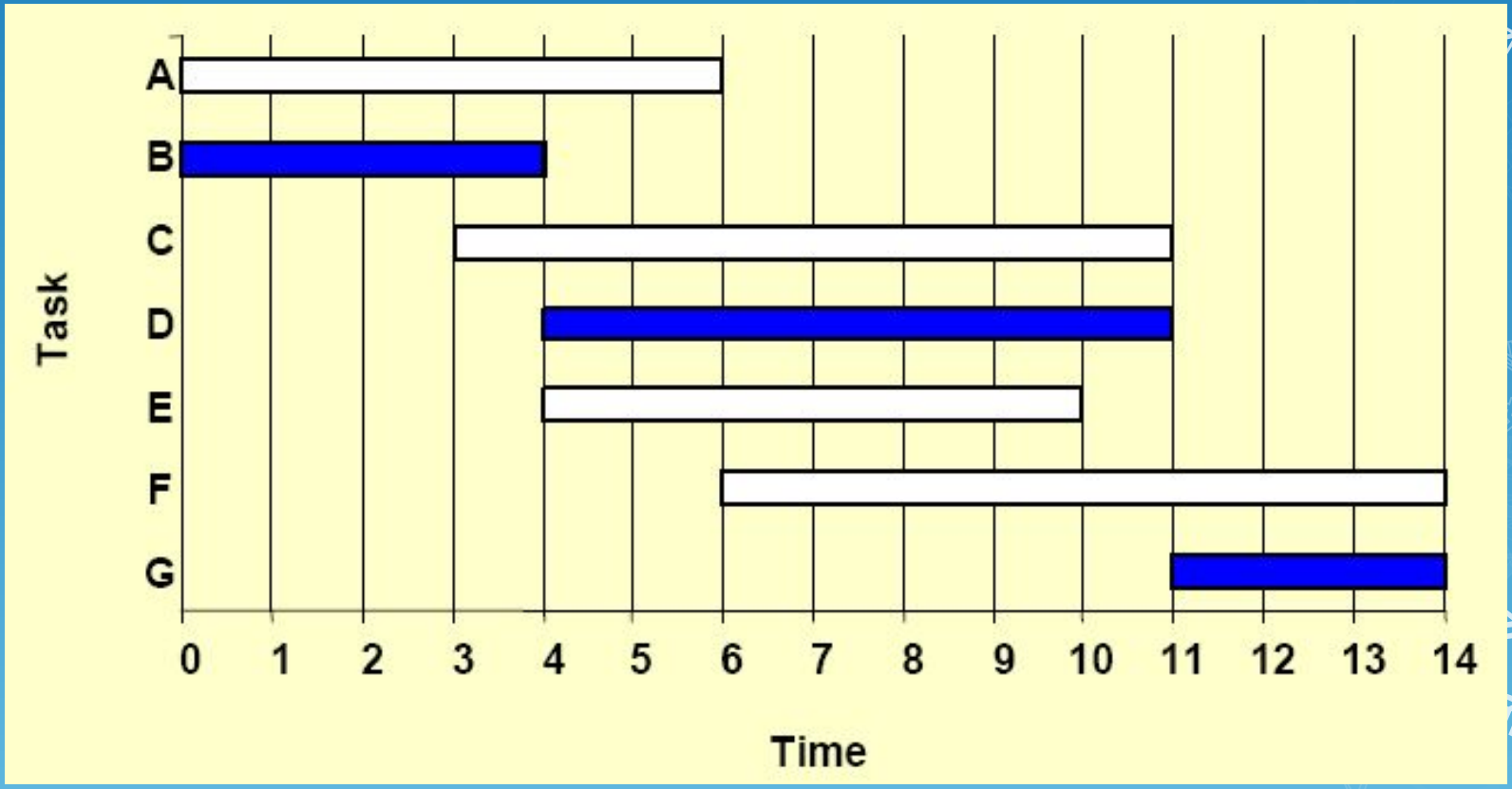
Constructing Gantt Chart

Step 1. Schedule critical tasks:



Constructing Gantt Chart

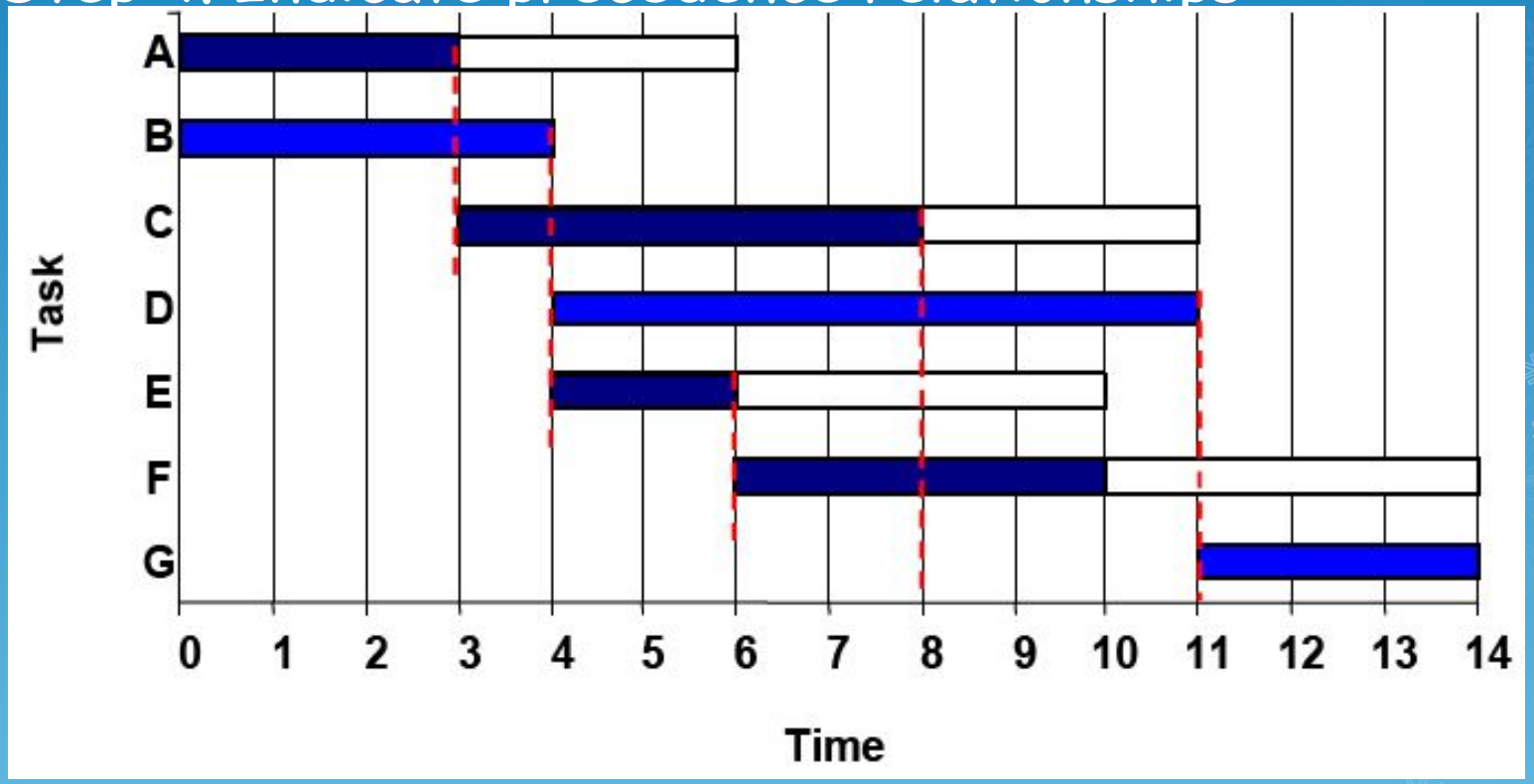
Step 2. Place time windows for non-critical tasks:



Constructing Gantt Chart

Step 3. Schedule non-critical tasks

Step 4. Indicate precedence relationships:



Use Excel to create a Gantt chart to represent the following:

Task	Duration	Start Date	End Date
Project ABC	20 days	01/10/2009	20/10/2009
Requirements Specification:			
Interviews	3 days	01/10/2009	03/10/2009
Observations	2 days	02/10/2009	04/10/2009
Documentation	2 days	04/10/2009	06/10/2009
Requirements Analysis	2 days	07/10/2009	9/10/2009
Requirements Completed	0 days	09/10/2009	09/10/2009
Systems Design	2 days	10/10/2009	11/10/2009
Coding	3 days	12/10/2009	14/10/2009
Coding Completed	0 days	14/10/2009	14/10/2009
Testing:			
Unit & Integration Testing	2 days	15/10/2009	16/10/2009
Function & System Testing	2 days	17/10/2009	18/10/2009
User Acceptance Testing	1 day	19/10/2009	19/10/2009
Testing Completed	0 day	19/10/2009	19/10/2009
Delivery to Operations	1 day	20/10/2009	20/10/2009
Project Completed	3 days	20/10/2009	23/10/2009

Gantt Chart Exercise 2

1. On your Gantt Chart show the progress of the project after 6 days work
2. After the "Delivery to Operations" task add a further task to

Task	Duration	Start Date	End Date
Review Project	2 days	20/10/2009	22/10/2009

3. Add a further day to the "User Acceptance Testing" adjust the project plan accordingly