

141-662 Information Technology Project Management

Assignment 1

Due: Sunday 29th July 2007

To be undertaken in groups of 3 students

Introduction

You work for a large mobile phone manufacturer. You have been nominated project manager for the design project of a new mobile phone model. The project scope has already been determined. You have chosen a very simple work breakdown structure, and the included activities have been named. You must now plan the project schedule and calculate project duration, as well as estimate the resources needed. Your boss wants the schedule and resource plan on his table in a few weeks' time.

You have already made the Table 1 that includes all the activities required in the project, the duration of each activity (in weeks), and resources (in number of persons). Also, dependencies between activities have been identified. Dependency refers to the activity number of the preceding activity. The preceding activity must be fully completed before work on the following activity can be started (all dependencies are Finish to Start dependencies).

Problem 1:

Draw an activity-on-node project network consisting of the activities included in the project. Mark the starting and finishing times, floats and other information concerning the activities in the network. Calculate the shortest possible duration for the project. Draw the critical path in the project network.

Draw a Gantt-chart corresponding to the shortest duration for the project. Mark the two most important milestones in the Gantt chart according to your own best judgment. Explain why you chose these places for the milestones.

Problem 2:

Draw a preliminary resource diagram (as a histogram with time on the x-axis) so that it shows the resources consumed by single activities.

Table 1: Activities, their duration and required resources

Activity no.	Activity name	Dependency	Duration (weeks)	Resource requirement
Requirements specification				
1	Entire product	-	3	6
2	Software	1	5	4
3	Hardware	1, 2	4	4
4	Market research	2, 3	1	3
Content specification				
11	Software	2	6	6
12	Hardware	3	5	4
13	Market research	4	2	4
Design				
21	User interface	11	7	4
22	Functionality	11, 51	3	5
23	Battery	12	2	1
24	Circuits	12, 22	8	4
25	Display	12	3	3
26	Outer cover	12	6	4
27	Camera	11, 12, 51	2	1
Implementation				
31	User interface	21, 52	4	4
32	Functionality	22	4	3
33	Battery	23	2	2
34	Circuits	24	7	5
35	Display	25	5	3
36	Outer cover	26	5	4
Integration				
41	Software	31, 32, 53	4	6
42	Hardware	33, 34, 35, 53	3	3
43	Entire product	36, 41, 42	1	6
44	Testing	43	5	3
Subcontracting				
51	Market research (implementation)	13	12	
52	Games (design & implementation)	11, 51	5	
53	Camera (implementation)	27	8	

Problem 3:

You are informed that you will have at the most 10 people at a time to work on your project. You can assume here that all employees can do any task.

Level the resources according to the above limitation so that the activities are started as early as possible. Draw an updated resource diagram, where the required changes can be seen. Notice that tasks cannot be broken into pieces or stretched out to a longer period.

Draw also a new Gantt chart that corresponds to the resource usage described in the new resource diagram, that is possible to realize and that

describes the shortest possible duration for the project. Explain what happened to the duration of the entire project. How does the resource constraint change your perception of the criticality of the activities in the new Gantt chart? Mark in the Gantt chart the activities that are now critical in terms of time and/or resources.

Note:

- This assignment also aims you to gain a working experience on Microsoft Project. So, you are expected to learn this program.
- In addition to the needed diagram in the problems, you are free to include any extra diagrams that could enhance your explanation in the report.

Submission:

- A report in form of PDF file for each group is expected to submit via the VCR web site within the due date. Please do not forget to include all member details such as Student Name and ID, in the report.