

CHAPTER 16: PROJECT SCHEDULING

Chapter outline

- Responsibility Allocation Matrix (RAM chart)
- Gantt chart

Whenever you're working on a large project, it's crucial to share the workload, coordinate your activities, and establish and stick to a schedule. Successful teams use meeting minutes, the course syllabus, and two other important tools to help them stay on top of things: the Responsibility Allocation Matrix, commonly called a RAM chart, and the Gantt chart. The RAM chart details who's in charge of what and when it's due; the Gantt chart is a schedule of tasks using a timeline.

You may wonder why you need a RAM and Gantt chart in addition to a syllabus. The answer is, they offer something more: A RAM chart gives you a detailed view of tasks (not all of which are specified on the syllabus) and shows who is responsible for performing the task and by what date. A Gantt chart displays at a glance what work needs to be completed, when it should start and finish, and which tasks need to be worked on simultaneously.

A Gantt chart is the overall plan for the project, whereas the RAM is the weekly "to do" list to help you follow through on that plan. Activities on the Gantt chart generally take a week or two (with the exception of milestones, which are single events). The RAM includes the specific tasks embedded in those activities. If you were to try to include that level of fine detail in a Gantt chart, you would spend more time managing the chart than doing the work. A RAM chart is a quicker, more effective means to plan and manage the details on a week-to-week basis and to help the team stay on target with the Gantt chart schedule.

16.1 RESPONSIBILITY ALLOCATION MATRIX (RAM CHART)

The RAM chart is a good project-planning tool because it shows the primary and secondary tasks of each **individual** on the team. It is also a good record-

keeping tool because it helps instructors, supervisors, and others know who did (or was supposed to do) what. The most useful RAM charts divide complex tasks and major deliverables into subtasks. For instance, testing a mockup might be divided into getting materials for the mockup, building it, writing the user interview guide, testing the mockup, and writing up the results. Some RAM charts include a column for noting who completed a task or when it was completed. This helps the team keep a record of whether people are actually doing their work and doing it on time.

A RAM chart takes the form of a grid, with tasks listed on one axis and team members and due dates on the other. If a square is marked with an X, a 1, or an equivalent mark, this means the person assigned to that task has primary responsibility for seeing it is done. A corresponding mark, such as an O or a 2, shows who else is working on that task. A blank square means the corresponding team member is not involved in that task. A well-written RAM chart divides large tasks among team members, rather than giving all members primary responsibility for all or most tasks.

Here’s a RAM chart that fails: Because the tasks are not subdivided sufficiently, it allocates responsibility to everyone for almost all tasks. And even if everyone is involved in a task, it’s best to make one person responsible (i.e., the “leader” for that job).

Example 16.1: RAM Chart with ineffective task division

RAM chart (5/19 to 5/28)						
Task	Due date	Sinem	Sharifah	Jeff	Sean	Person who completed task
Mockups	5/19	X	X	X	X	
Write Client Meeting Summary # 2	5/19			0	X	
Design Review	5/24	X	X	X	X	
Proposal Draft	5/26	X	X	X	X	
Write Progress Report # 3	5/28	0	X	0	0	
Write Meeting Agenda for Team Meeting # 3	5/28				X	

The following revised RAM chart succeeds because it sufficiently divides tasks and indicates what each team member needs to do and by what date:

Example 16.2: Revised RAM chart with effective task division

RAM chart (5/12 to 5/28)						
Task	Due date	Sinem	Sharifah	Jeff	Sean	Person who completed task
Prepare alternatives matrix	5/12	X	0	0	0	
Schedule appointment with shop professional	5/12		X	0		
Prepare mockup planning sheets	5/14			X	0	
Order materials for mockups	5/15	X	0			
Build mockups	5/19	0	X			
Write client meeting summary # 2	5/19			X	0	
Do lab testing of mockups	5/20	X	0			
Analyze test results	5/22			X	0	
Synthesize information for design review	5/22	0	X			
Make design review slides	5/23			0	X	
Make design review questionnaires	5/23	X	0			
Write first proposal draft	5/26			X	0	
Write progress report # 3	5/26	0	X	0	0	
Write meeting agenda for team meeting # 3	5/28				X	

Key: X=primary responsibility 0=secondary responsibility

Creating the RAM chart should be a team activity so that it draws on everyone's knowledge and makes members feel invested in performing the tasks. After your team has figured out the necessary tasks, has assigned them based on members' skills and interests, and has chosen realistic due dates, have one member type up the chart, post it to the team's online workspace, and place it in the project notebook.

Because it is difficult to know weeks in advance what tasks will be required and who will do them, you should prepare a new RAM chart every one to two weeks, detailing who will do what in the coming weeks. In EDC, you are required to submit a RAM chart with your written deliverables, and to include all charts in your project notebook as a way of documenting teamwork.

16.2 GANTT CHART

Named for its inventor, management theorist Henry Gantt, the Gantt chart is the most widely used method of scheduling **group** work by due dates. Using both a table and bar graph format, the Gantt chart lists key project tasks on the vertical axis, and time frames (by weeks or months) on the horizontal axis. A bar across the columns indicates the time span for each task. These bars also indicate which tasks overlap, are interdependent, or take place simultaneously.

Gantt charts are used for internal team planning, as in a progress report to a supervisor or client, and for external reporting, as in a project proposal. Like all project documentation, a Gantt chart undergoes modification as you complete portions of your project and better understand it. That's why you need to keep updating the chart throughout the project.

Here is an explanation of a generic Gantt chart, produced with Microsoft Excel:

- At the top are the project title, section number, team name (or number), and last update of the chart.
- Along the left column are the main and subtasks. (In your chart you will give the tasks specific names. For example, you might name the first major task "Preliminary research" and the subtasks "Interview client," "Analyze Competitive/model products," and "Observe users.") Be sure to use action verbs to identify tasks, and include only those tasks related to the team's design process, not individual assignments (such as the individual essay).
- Darkly shaded bars indicate completed tasks; unshaded or lightly shaded bars indicate uncompleted tasks. Notice that the bars show which tasks can proceed simultaneously and which need to be completed before another task can begin.
- The stars indicate project milestones. These are events that need to happen at particular times in order to meet project goals. In EDC, it's useful to consider two types of milestones. The first includes deadlines imposed by the course syllabus, such as the due dates for assigned written reports and oral presentations. The second type includes milestones that your team has set in order to stay on target, such as the date when user testing must be completed in order to allow you enough time to choose a final design direction and construct a high-quality prototype.

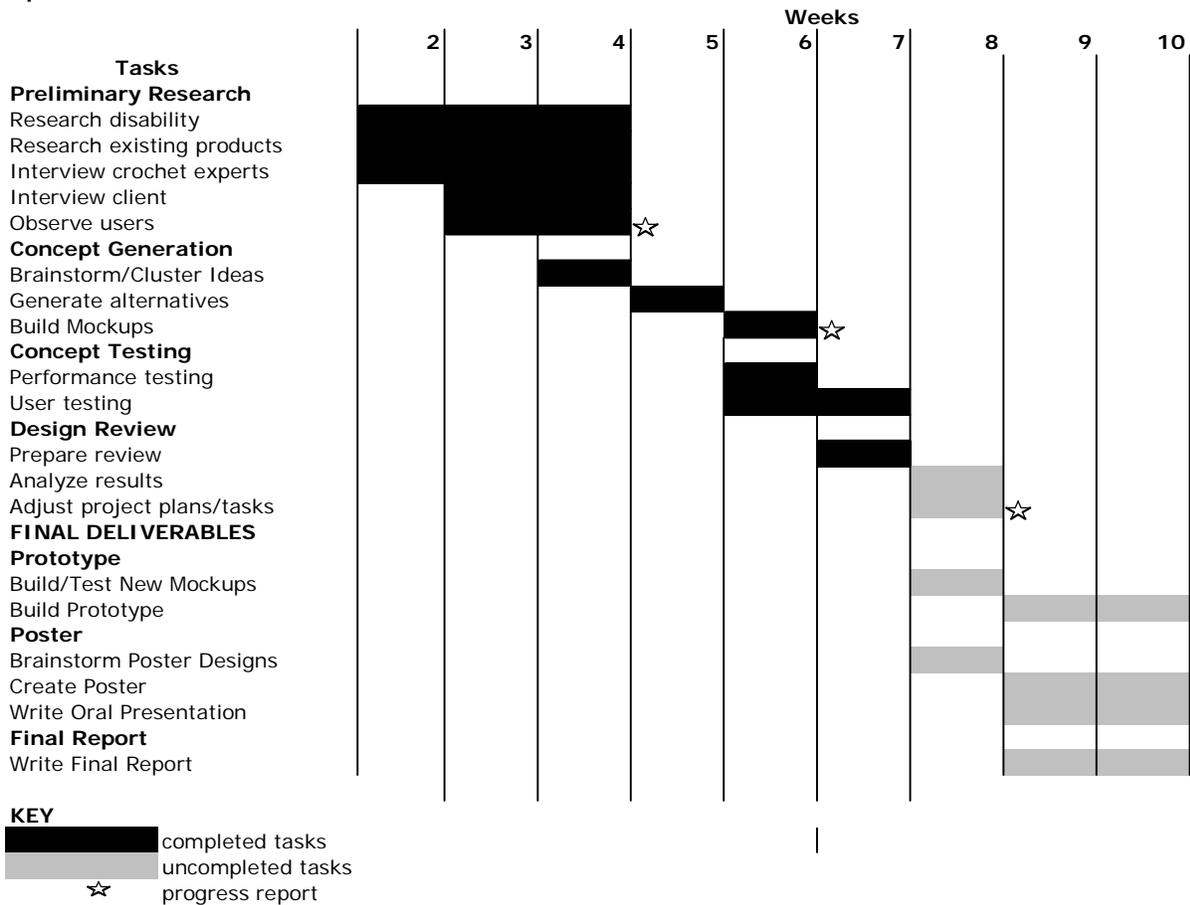
Example 16.3: Generic Gantt chart

Project ABC Team 2 Updated 1/31/06											
WEEKS											
	1	2	3	4	5	6	7	8	9	10	11
Tasks											
Task A											
Subtask A1	■	■	■								
Subtask A2	■	■									
Subtask A3	■	■	■	■							
Subtask A4	■	■	■	■							
Task B											
Subtask B1			■	■	■						
Subtask B2			■	■	■						
Subtask B3			■	■	■	★					
Task C											
Subtask C1				■	■						
Subtask C2				■	■	■					
Subtask C3				■	■	■					
Subtask C4						■	■	■	★		
Task D											
Subtask D1							■	■			
Subtask D2							■	■			
Subtask D3							■	■			
Subtask D4									■	★	
Task E											
Subtask E1								■	■		
Subtask E2								■	■		
Subtask E3								■	■	■	■
Task F											
Subtask F1								■	■		
Subtask F2								■	■		
Subtask F3									■	■	■

Below is an example of a Gantt chart for a winter quarter EDC project:

Example 16.4: EDC winter quarter gantt chart

One-handed crocheting project - Gantt Chart
 Team 2 Section 12
 Updated 2/16/05



16.2.1 Team guidelines for creating Gantt charts

1. Brainstorm all the tasks that need to be done for your project.
2. Group these tasks into categories, differentiating between main and sub-tasks.
3. List the tasks along your vertical axis.
 - Begin at the top, listing tasks that must be done first.
 - Use a hierarchical column to distinguish between main and subtasks. Omit the least important subtasks if your list gets too long.
 - End the list with your final deliverables.

4. Divide your horizontal axis into columns, labeling each by week.
5. Use a horizontal bar to show the estimated beginning and end of each task.
6. Review your Gantt chart weekly to check your progress; revise the chart as you add tasks to your project plan.
7. Include updated Gantt charts in your progress reports and project notebook.
8. NOTE: Here's how to use Microsoft Excel to create easily updateable Gantt charts (Dufee & Chase, 2003):
 - Under "Page Setup" in the "File" menu, do the following:
 - Go to "Page" and select "Landscape orientation." Also select "Fit to" one page.
 - Go to "Margins" and select "Center on page" horizontally and vertically.
 - Go to "Sheet" and make sure that "Gridlines" is un-selected.
 - Under "View," go to "Toolbars" and click "Border" and "Drawing."
 - Use the Border commands to make the bars.
 - Use the Fill command on the Drawing toolbar to fill bars as you complete tasks.
 - Use the Autosshapes command on the Drawing toolbar to make stars indicating project milestones.

16.3 REFERENCES

- Anderson, P. V. (1998). *Technical communication: a reader-centered approach*. 4th ed. San Diego, CA: Harcourt Brace.
- Dufee, W. & Chase, T. (2003). Brief tutorial on Gantt charts. Retrieved July 27, 2003, from <http://www.me.umn.edu/courses/me4054/assignments/gantt.html>
- Markel, M. (1998). *Technical communication: situations and strategies*. 5th ed. New York, St. Martin's Press.
- Woolever, K.R. (1998). *Writing for the technical professions*. New York: Longman.

