

**PMEducation**

GANTT CHART Construction

**WHAT IT IS**

A Gantt Chart is a horizontal bar chart of schedule information where activities are listed on the vertical axis and durations are shown as horizontal lines and bars placed according to start and finish dates. It is sometimes called a “Waterfall” Chart because of its general shape.

The Gantt Chart is the best tool to monitor Time. It can be prepared at any level of detail. When used as a high level report, any significant variances to plan should be further investigated at a lower level of detail.

**HOW IT WORKS**

1. First refer to your Critical Path Diagram (CPM). You inserted the activities, durations, and dependencies there.
2. Decide the time interval: ie) days, weeks, months. You will likely choose the same interval used for planning Time, as per your CPM diagram.
3. Next decide whether you are going to chart Earliest Starts and Finishes, or Latest Starts and Finishes. I prefer Earliest; then look further if the earliest dates are not being met.
4. Then decide what level of activity or sub-activity will be charted. Some activities will need deeper levels (more detail) than others. Exclude trivial sub-activities. For greater detail, create a second Gantt chart of lower level activities.
5. Place the activity or sub-activity names in the left hand column under the heading “Activity”, starting with the earliest one on top.
6. After listing the activities, starting with the earliest one, draw a line from the start date to the finish date for each activity. This is called the ‘duration line’. Put a circle at the start of the duration line and an arrow head at the end of the duration line.
7. Indicate milestones with an open triangle.
8. As work progresses, highlight the duration line accordingly. For example, when 4 days’ worth of work is done, highlight 4 days along the duration line.
9. You can make your Gantt chart even more useful by colour coding. For example, every activity assigned to the same department would have the same colour.

10. Make sure each team member gets a copy of the Gantt chart each

 time it is updated. On larger projects, you can put each team

 members’ activities on their own separate page.

**KEY ELEMENTS**

For this method to be effective, the following key elements must be used:

* A good Time plan, probably consisting of CPM
* Activities and sub-activities that allow analysis at the appropriate level of detail.

ADVANTAGES and DISADVANTAGES

of GANTT CHART

 ADVANTAGES

* Quick to prepare. Needs no special tools. Can be manual, or done on Excel, MS Project, or other software.
* Provides a standard presentation for reporting progress.
* Highly visual. Easy to read and to explain to others.
* Can be presented at any level of detail, but mostly used as a high level report.
* Useful for tracking Activities by Work packages, throughout the project.
* Becomes a historical document for planning future projects.

 DISADVANTAGES

* Does not clearly show dependencies. Attempts to show dependencies on Gantt charts can get cumbersome.
* Requires a good Time plan.

HISTORICAL:

The Gantt Chart was the first formalized scheduling technique developed. It was developed by Henry L. Gantt, (1861-1919), a pioneer in American industrial and management engineering. Gantt, a contemporary of Frederick Winslow Taylor (1856 – 1915), took a much more positive view of worker motivation than did Taylor. Gantt promoted motivational schemes, pay incentives, bonuses; and leadership quality and management skills.

The Gantt chart, was used by the famous Frankford Arsenal Army (Small Arms) Ammunition Plant (Philadelphia, Pennsylvania) during World War I. Gantt accepted a government assignment at the Frankford Arsenal in 1917. The chart developed by Gantt was principally designed to “show a comparison between performance and promises.”

Henry Gantt also broke down all the activities in constructing U.S. Navy ships and diagrammed them using the grids, duration lines, and milestones which we now call a Gantt chart. Gantt accepted another government assignment with the Emergency Fleet Corporation. He died in 1919.

For the next 70 years the Gantt chart changed little; until the 1990’s when links were added to the duration lines to show dependencies.