Chapter 8: Tools for Planning and Control

Key points of chapter

This is the first of the four "tools" chapters as explained starting at the bottom of page *v* in the foreword of the text. It includes step by step directions for four tools: Gantt Charts, PERT Charts, Control Charts and Budgets.

Answers to Study Questions

1. Budgets is the best answer, though control charts could be set up for such a purpose, and there are programs for PERT-Cost, as well (but not discussed in this book).
2. All four of them have some time basis.
3. The more complex the project, the more likely PERT will provide benefits over a traditional Gantt chart.
4. By allowing visual projection or extrapolation of trends indicated.
5. While financial is usually the first thing that comes to mind, many physical types of resources also can be budgeted.
6. The Ravens.

Answers to Exercises

(Individual work – no common answer exists.)

Other Materials

Post test answers from previous chapter (below), and an exercise in which you take a Gantt Chart and use it to create a PERT chart.

Answers to post-test questions from previous chapter:

1 T
2 T
3 T
4 F (maybe urgency but not importance)
5 T
6 T
7 T
8 T
9 T
10 F
11 T
12 T
13 T
14 T (but only limited limits)
15 T
16 T
17 T
18 T (usually)
19 F
20 F (it IS essential)

Gantt & Pert Chart Exercise

Below is a information for a Gantt Chart of the major activities involved in building an airplane and a narrative of the activities required. In reality, each of those twelve would have hundreds of subordinate activities. Your assignment is to first create the Gantt chart and then use it to create a PERT chart. The resulting PERT Chart is in the supplemental material for Chapter 9.

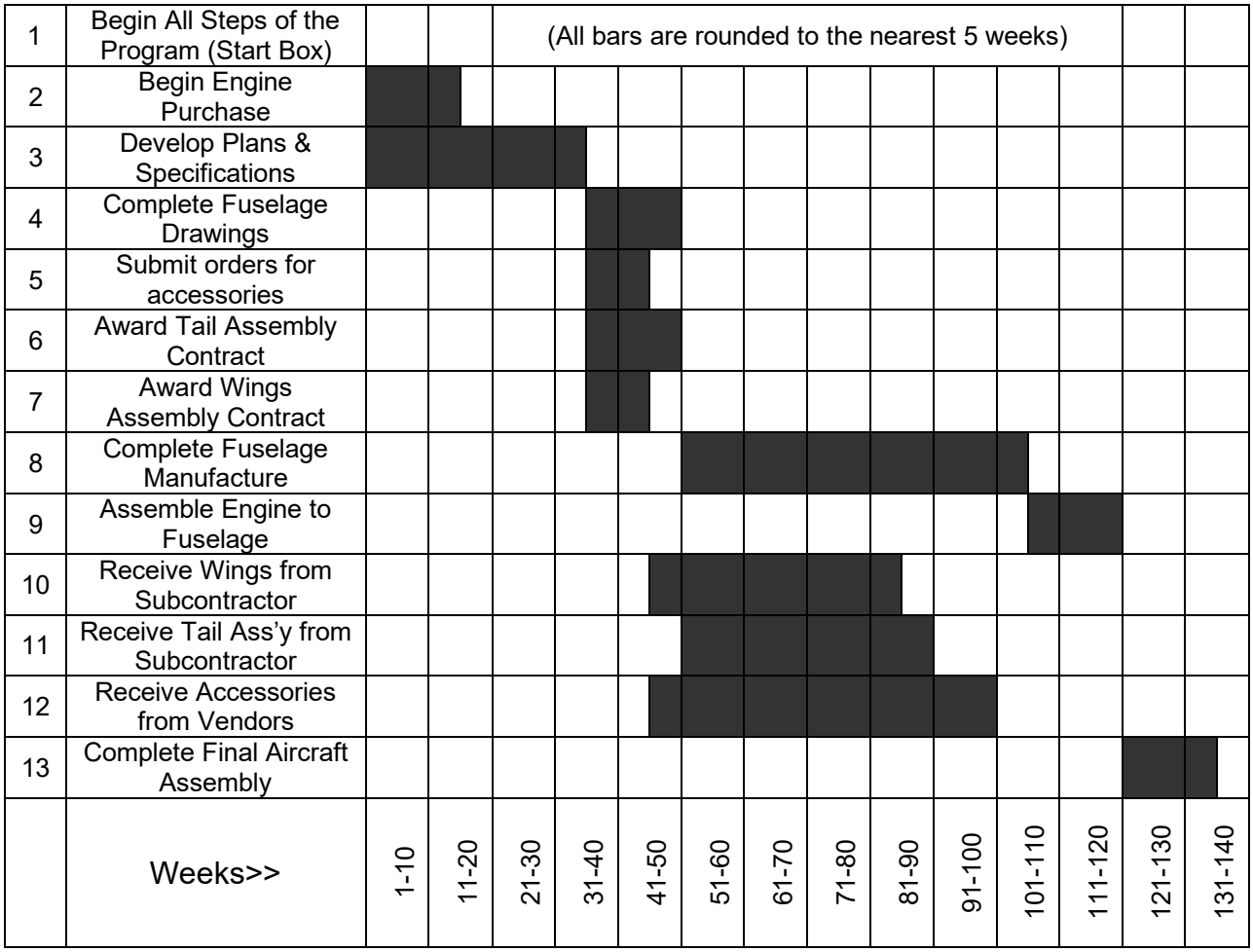
Item #	Activity	Weeks	Description
1	Begin All Steps of the Program	0	Your first box will be the “start” box.
2	Begin Engine Purchase	17	The engine is built by a subcontractor. It will take 17 weeks to submit the details and work with the manufacturer to get the engines modified & produced. This needs to start early because some of the other components depend on engine design.
3	Develop Plans & Specifications	36	The overall plans and specifications for the airplane will take 36 weeks to design and integrate. Except for the engine, all other parts development must await completion of this step before starting.
4	Complete Fuselage Drawings	12	This is done by a subcontractor and requires the plans and specifications to be complete. It will take 12 weeks.
5	Submit orders for accessories	8	Once the plans and specifications are done, things such as the seats, instrumentation, kitchen components, etc. can be ordered. This will take 8 weeks.
6	Award Tail Assembly Contract	12	This is done by a subcontractor and requires the plans and specifications to be complete. It will take 12 weeks.
7	Award Wings Assembly Contract	10	This is done by a subcontractor and requires the plans and specifications to be complete. It will take 10 weeks.
8	Complete Fuselage Manufacture	56	This is done by a subcontractor and requires the plans and specifications to be complete. It will take 56 weeks.
9	Assemble Engine to Fuselage	17	This requires both the engine and fuselage to be complete and will take 17 weeks.
10	Receive Wings from Subcontractor	40	Once the subcontractors have begun the manufacture, it will be 40 weeks until the wings are received.
11	Receive Tail Assembly from Subcontractor	40	Once the subcontractors have begun the manufacture, it will be 40 weeks until the tail assembly is received.
12	Receive Accessories from Vendors	52	After the orders have gone out to the manufacturers, it will require 52 weeks to receive all the accessories from the various vendors.
13	Complete Final Aircraft Assembly	8-18	After all components are delivered, it will take at least 8 and maybe up to 18 weeks to finish putting all things together.

The Gantt chart follows on the next page

Gantt Chart created from information in the exercise

Activity times

1. Order program start (0)
2. Begin engine purchase (17)
3. Develop plans & specifications (36)
4. Complete fuselage drawings (12)
5. Submit orders for accessories (8)
6. Award tail assembly contract (12)
7. Award wings assembly contract (10)
8. Complete manufacture of fuselage (56)
9. Assemble engine to fuselage (17 from #8; 102 from #2)
10. Receive wings from subcontractors (40)
11. Receive tail assembly from subcontractors (40)
12. Receive all accessories (52)
13. Complete assembly (10 from #9; 8 from #10; 8 from #11; 18 from #12)



See the next chapter for the correct PERT Chart answer