

Consider the following project (**Start Date: 06/21/19**):

Sr No	WBS	Tasks	Duration	Predecessors	Team Members
1	1	Certification Project			
2	1.1	Application			
3	1.1.1	Hiring the consultancy			
4	1.1.1.1	Contact the Company	1 day		PM(25%)
5	1.1.1.2	Finalise the contracts	2 days	4	PM(25%)
6	1.2	Kickoff Meeting			
7	1.2.1	Organize the Kickoff meeting with the consultancy	1 day	5	PM(35%),QE(25%),PE(25%),PC(25%),HD(25%),PL(25%)
8	1.2.2	Apply for the audit of U-Stamp	1 day	7	PM(20%)
9	1.3	Preparation of Quality Control Manual			
10	1.3.1	Review of existing methods and operations	1 day	5	PM(75%),QE(65%),PE(40%),PC(40%),HD(50%),PL(25%)
11	1.3.2	Quality Chapters	4 days	10	QE(75%)
12	1.3.3	Design Chapters	2 days	10	HD(60%)
13	1.3.4	Procurement Chapters	1 day	10	PC(50%)
14	1.3.5	Production Chapters	2 days	10	PE(25%),PL(25%)
15	1.3.6	Quality and Production Exhibits	2 days	11,14	QE(75%),PE(25%)
16	1.3.7	Design Exhibits	1 day	12	HD(50%)
17	1.3.8	Procurement Exhibits	1 day	13	PC(10%)
18	1.3.9	Review and Formatting	1 day	15,16,17	PM(35%),QE(25%),PE(25%),PC(25%),HD(25%),PL(25%)
19	1.3.10	Distribute Uncontrol copies of the manual	1 day	18	PM(10%),QE(5%)
20	1.4	Audit Meetings			
21	1.4.1	Shop Visits	1 day	8	PM(25%),PE(15%),QE(15%)
22	1.4.2	Meeting 1	1 day	36	PM(35%),QE(25%),PE(25%),PC(25%),HD(35%),PL(25%)
23	1.4.3	Review	1 day	22	PM(40%),HD(40%)

24	1.4.4	Meeting 2	1 day	44	PM(35%),QE(35%),PE(25%),PC(35%),HD(25%),PL(25%)
25	1.4.5	Review	1 day	24	PM(40%),QE(30%),PE(20%)
26	1.4.6	Meeting 3	1 day	50,54,55,56,57	PM(35%),QE(35%),PE(35%),PC(25%),HD(35%),PL(25%)
27	1.4.7	Review	1 day	26	PM(40%),QE(30%),PE(30%)
28	1.4.8	Internal Mock Audit	3 days	58	PM,QE,PE,HD,PL(25%),PC(50%)
29	1.4.9	Mock Audit	3 days	60	PM,QE,PE,HD,PL(25%),PC(50%)
30	1.4.10	Review	1 day	29	PM,QE,PE,HD,PL(25%),PC(50%)
31	1.5	Design of the Model Equipment			
32	1.5.1	Finalize dimensions	1 day	19	PM(50%),HD(80%)
33	1.5.2	Create a CAD Model in 2D and 3D	1 day	32	HD(80%)
34	1.5.3	Perform software analysis	2 days	33	HD(80%)
35	1.5.4	Manual Calculations	3 days	32	HD(80%)
36	1.5.5	Final review and stamping	1 day	34,35	PM(50%),HD(80%)
37	1.6	Procurement			
38	1.6.1	Calculations in standard sizes	1 day	36	PL(30%)
39	1.6.2	Make Purchase Requisition	1 day	38	PL(40%)
40	1.6.3	Purchase Raw Materials	3 days	39	PC(50%)
41	1.6.4	Purchase Consumables	3 days	39	PC(50%)
42	1.6.5	Purchase Asthetic Materials	6 days	39	PC(50%)
43	1.6.6	Purchase uniform and safety gear	8 days	39	PC(50%)
44	1.6.7	Hospitality Bookings and Food Araangement on Audit Days	2 days	39	PC(50%)
45	1.7	Production			
46	1.7.1	Production of Model			
47	1.7.1.1	Shell	4 days	57	PE(50%),FW(300%)
48	1.7.1.2	Dishends	4 days	57	PE(50%),FW(400%)
49	1.7.1.3	Nozzles	4 days	57	PE(50%),FW(300%)

50	1.7.2	Welding Joints	2 days	47,48,49	PE(50%),FW(300%)
51	1.7.3	Initial Inspection	1 day	50	PE(50%),FW(200%)
52	1.7.4	Assembly	3 days	51	PE(50%),FW(400%)
53	1.8	Quality			
54	1.8.1	Welder Qualification	4 days	19	QE(75%),FW(200%)
55	1.8.2	Instrument Calibration	3 days	19	QE(45%)
56	1.8.3	Radiography Testing	2 days	50	QE(25%),FW(150%)
57	1.8.4	Raw Material and Consumables Inspection	2 days	40,41	QE,FW(200%)
58	1.8.5	Shell, Dishend and Nozzle Inspection	1 day	50	QE,FW(200%)
59	1.8.6	Welding and Assembly Inspection	1 day	52	QE,FW(200%)
60	1.8.7	Final Inspection and Review	2 days	59	QE,PM,PE(40%)
61	1.9	Final Audit			
62	1.9.1	Office and Shop Audit	0.5 days	43, 44, 45, 14 days after 30	PM,QE,PE,HD,PL(25%),PC(50%)
63	1.9.2	Quality Audit	0.5 days	62	PM,QE
64	1.9.3	Procurement Audit	0.5 days	62	PM,PC
65	1.9.4	Production Audit	0.5 days	63	PM,PE,PL(50%),FW(150%)
66	1.9.5	Final Meeting	0.5 days	65	PM,QE,PE,HD,PL,PC

Team Member	Member Code	Hourly Salary	Max # Available
Project Manager	PM	55	1
Quality Engineer	QE	35	1
Production Engineer	PE	30	1
Procurement Coordinator	PC	30	1
Head Design	HD	45	1
Planning Engineer	PL	35	1
Factory Workers	FW	25	6

1. Develop a bar chart representing project timeline in MS® Excel.
2. Develop the Resource Graph for each employee, how many of each will you need on average through the life of the project and where are your deficits? How would you manage that? (1 paragraph, 5 lines max)
3. Develop the S Curve with cumulative costs. Does it really look like an “S” curve? Why or Why not? (1 paragraph, 5 lines max)
4. Based in the resource allocation (% of time for each person), explain the project management culture of this organization at different phases (Functional  $\leftrightarrow$  Task Force) and comment how you might improve it to reduce the cost of *this* project and explain its implications of this change (risk, efficiency, backfire on cost saving, etc.). Provide one specific example (1 paragraph, 5 lines max)
5. What (other) leadership *wisdom* can this tool give you (Provide ONLY one example, 1 paragraph, 5 lines max)

#### **Clarification Notes and Simplifying Assumptions:**

- Percentages in front of the resource name reflect how much of the resource time is spent on that tasks on a daily basis (if <100%) or how many of that resource is needed for that task on a daily basis (if >100%)  
*Example: if R1 costs \$50/Hr and is assigned to task A with 50% load and R2 is \$30/Hr and is assigned to task A with 20% load, the hourly cost of task A is  $\$50 \times 50\% + \$30 \times 20\% = \$31/\text{Hr}$ . If Task A is 5 days long, its total cost will be  $\$31/\text{Hr} \times 8 \text{ Hrs/day} \times 5 \text{ days} = \$1,240.00$*
- Duration is in Calendar Days and Work is done 7 days a week (working on weekends and holidays)
- Assume 8 hours a day work
- There are no other costs (no other resources, no indirect costs)