

SOFT2101 HW4

1)

**Project Duration:** 58 weeks.

**Critical Path:** T1.1 → T1.2 → T1.3 → T3.1 → T3.2 → T5.3 → T5.4 → T5.5 → T5.6

**Minimum Number of People Required:**

Project schedule shows that the maximum number of tasks running at the same time is 3 (peak workload period is around weeks ~22–32, where tasks such as T1.6, T3.1/T3.2, and T4.3/T4.4 overlap).

Assuming one person can handle one task at a time, the minimum number of people required is 3 to complete the project without delaying the schedule.

**Answer: 3 people**

**Scenario Analysis (If Task T1.6 Takes 40 Weeks):**

Effect:

The end of Task T1.6 is in week 33, and Task T5.3 is to begin in week 38, so Task T1.6 is not delaying the project as it still has slack time between week 33 and week 38.

But, assuming Task T1.6 will take 40 weeks, it will thereby complete around week 63 (week 23 + 40). Consequently, the onset of Task T5.3 will be shifted from week 38 to week 63, thereby rescheduling the entire series: T5.3 → T5.4 → T5.5 → T5.6. Consequently, the entire project shall be extended from the present schedule of 58 weeks to about 83 weeks, thereby creating a lag of about 25 weeks.

Contingency Plan: If feasible, initiate procurement work earlier, work on alternative providers, and dedicate further/more experienced staff to T1.6.

Task	Duration(week)	Dependency	Start	Finish
T1.1	6	-	0	6
T1.2	12	T1.1	6	18
T1.3	4	T1.2	18	22
T1.4	1	T1.3	22	23
T1.5	5	T1.1	6	11
T1.6	10	T1.4	23	33
T2.1	8	T1.2	18	26
T2.2	12	T2.1	26	38
T2.3	4	T2.2	38	42
T3.1	8	T1.3	22	30
T3.2	8	T3.1	30	38
T3.3	4	T3.2	38	42
T4.1	8	T1.1	6	14
T4.2	8	T4.1	14	22
T4.3	6	T1.3	22	28
T4.4	4	T4.3	28	32
T5.1	4	T1.6 & T2.3	42	46
T5.2	2	T5.1	46	48
T5.3	6	T1.6 & T3.2 & T4.4	38	48
T5.4	4	T5.3	48	52
T5.5	2	T5.4	52	54
T5.6	4	T5.5	54	58

Critical Path:

T1.1 → T1.2 → T1.3 → T3.1 → T3.2 → T5.3 → T5.4 → T5.5 → T5.6

Total Project Duration: 58 weeks

Task	Start	Duration
T1.1	0	6
T1.2	6	12
T1.3	18	4
T1.4	22	1
T1.5	6	5
T1.6	23	10
T2.1	18	8
T2.2	26	12
T2.3	38	4
T3.1	22	8
T3.2	30	8
T3.3	38	4
T4.1	6	8
T4.2	14	8
T4.3	22	6
T4.4	28	4
T5.1	42	4
T5.2	46	2
T5.3	38	6
T5.4	48	4
T5.5	52	2
T5.6	54	4

