

The Orbit Track Company specializes in developing and selling a wide range of high-quality scooters. Sales representatives report that there is a growing demand for racing scooters. Orbit Track's president, Jon Hala, is excited about the possibilities and predicts that one day these kinds of razor scooters will be featured in X-Game events. Orbit Track is a small company and uses a strong matrix to optimally utilize limited manpower.

Part 1

You are a member of a project team assigned to develop the new razor scooter code named "Green Way." Table 1 contains the information necessary to create a project schedule.

The project begins April 1, 2022. The work on the project will be 7 days per week (No weekends or vacations till the end of the project).

Based on Part 1 result

1. How long will the project take? (Numbers of days)
2. When is the project estimated to be completed? (Date)
3. What is the critical path for the project?

TABLE 1: Green Way Project (Product development project)

ID	Task Name	Duration	Predecessors	Resources
1	Market analysis	30 days	-	Marketing (4)
2	Product design	45 days	1	Marketing (1) Design (4) Development (1) Industrial (1) Purchasing (1)
3	Manufacturing study	20 days	1	Industrial (3) Development (1)
4	Product design selection	15 days	2,3	Marketing (2) Design (3) Development (2) Industrial (2) Purchasing (.25)
5	Detailed marketing plan	15 days	4	Marketing (4)
6	Manufacturing process	30 days	4	Design (1) Development (2) Industrial (4)
7	Detailed product design	55 days	4	Marketing (2) Design (4) Development (2) Industrial (2) Purchasing (.25)
8	Test prototype	15 days	7	Design (3) Development (2)
9	Finalized product design	30 days	6,8	Marketing (2) Design (3) Development (3) Industrial (2)
10	Order components	10 days	9	Purchasing (1)
11	Order production equipment	20 days	9	Purchasing (1)
12	Install production equipment	40 days	10,11	Development (3) Industrial (4) Design (1)
13	Celebrate	1 day	5,12	Development (4) Industrial (4) Design (4) Marketing (4) Purchasing (1)

Part 2

The following personnel have been assigned to the Green Way project team (Table 2 shows the hourly cost for each personal). Assign resources to the project schedule.

TABLE 2: Green Way Project Resources

Resource	\$/hour	Number Available
Marketing Specialist	\$60	6
Design Engineer	\$90	5
Development Engineer	\$80	4
Industrial Engineer	\$70	6
Purchasing Agent	\$50	2

1. Which if any of the resources are over allocated? (Slide 5-27 would help)

Part 3

Top management is not happy with the project deadline obtained from Part One. The management want the project to be end on 29 November 2022.

Dewey Martin, director of product development, has managed to make the following personnel available to work on specific activities on the project. Since there is an acute shortage of personnel at OrbitTrack. He requests that you only use additional manpower that will help meet the new deadline. Your objective is to develop a schedule, which will satisfy the deadline with minimum additional resource usage. The impact on activity duration are presented in Table 3.

TABLE 3: Green Way Project Crashing Options

Activity	Additional Resources	Revised Duration Estimates
Detailed marketing plan	New Marketing Specialist (2)	10 days
Detailed product design	New Design Engineer (1), New Industrial Engineer (2)	47 days
Install production equipment	New Industrial Engineer (2), New Development Engineer (1)	32 days

Pay rates for new personnel (if decide to use them):

Marketing Specialist, \$70/hour.

Design Engineer, \$90/hour.

Development Engineer, \$100/hour.

Industrial Engineer, \$80/hour.

Purchasing agent 70/hour.

1. Which activity would you choose to crash to meet the deadline?