

Computing in Industrial Engineering
IE 332 - Fall 2021
LAB REPORT 1- Groups Work – Group of (2)

1. INTRODUCTION

Darma. Tech initiative Company is currently looking to design and develop a new product in mobile phones technology market. The company is carrying this project to **start in January 2022**, and **targeting January 2023 to be the deadline**, one year in total as **52 weeks**.

Product design and development will be carried over **four main stages** over the project period as Sequential order (*Market research and visibility, Product Design, Product testing, Product manufacturing*). Each stage is a collective result of different task. See the tables below.

A. Market Research and visibility			
Task number	Task Name	Predecessor & relation	Task Period (Week)
A.1	Identify customer needs	-	3 Weeks
A.2	Feasibility study	A.1	4 Weeks
A.3	Concept selection	A.2	4 Weeks
A.4	Product specifications	A.3	(Student 1 st ID Digit) + 2

B. Product Design			
Task number	Task Name	Predecessor & relation	Task Period
B.1	System Level Design	A.4	6 Weeks
B.2	Detailed design	B.1 (SF)	5 Weeks
B.3	Material selection	B.1 & (B.2,FF)	Student 2 nd ID Digit
B.4	Process selection	B.2 & B.3	6 weeks

C. Product Test and Refinement			
Task number	Task Name	Predecessor & relation	Task Period
C.1	Laboratory testing	B.4	2 Week
C.2	Experts Testing	B.4 (SS)	2 Week
C.3	Customers testing	B.4	3 Week

D. Manufacturing of Product			
Task number	Task Name	Predecessor & relation	Task Period
D.1	Production planning	C.3	4 Weeks
D.2	Store & distribution plan	C.3 & (D.1, Finish to Finish)	(Student 3rd ID Digit) + 2

Resources in this project differ between skilled technicians, engineers and managers from different discipline As shown in the table, to assign tasks in the project.

Resource Name	Number
Company CEO	1
Marketing Manager	1
Marketing Team Leader	1
Head of Engineering Design	1
Design Engineer	3
Material Specialist	2
CAD/CAM Specialist	3
Plant/Manufacturing Manager	1
Process Engineer	2
Industrial Engineer	4
Production Engineer	2

2. OBJECTIVES

Objectives of this lab include using specific IT tools by Microsoft Project and Microsoft Visio in order to plan and lay down the activities of product development project, which offers visibility for the unique, one time process. Submission should include softcopy of the report, in addition to softcopy of MS Project file.

In addition, you should apply your knowledge from E-Learning material:

- The E-Learning material is available at **E-Learning Platform - > Course Catalogue ->Business Skills Courseware-> Project Effectiveness -> Project Management Curriculum -> Project Time**

3. TASKS:

A. Report describing the steps of product design and development stages in literature review, submitted in hard and soft copies **(400 words)**.

B. Project notes:

- Specify only one student ID to use in duration.
- Working hours are from 8:00 am to 5:00 pm.
- The weekend is two days, Friday and Saturday.
- Include at least two special exceptional days in the year as holiday.

C. In the Methodology section (refer to E-Learning Platform), **(800 words)** please:

- 1) list the inputs in defining activities
- 2) explain why did you include milestones
- 3) discuss the types of dependencies and relationships between activities in the project
- 4) explain shortly how are you planning to monitor schedule performance

D. Gantt Chart using MS Project, The deliverable should include a Gantt chart of the product design plan. Create your Gantt Chart using MS Project software, Applying milestones, tasks and summaries. With the time durations and resources given. It should contain high-level activities of the project, including the activity predecessor relationships and durations.

E. Based on your Gantt chart, discuss and answer the following questions:

- 1) Based on duration given for each task, and including random number of your ID, is the project meeting the specified deadline, yes or No? Comment on your answer and suggest any action if required.
- 2) In MS Project, find the critical path in your project plan and critical tasks. Define what is critical path and its importance for the project management?
- 3) Using MS Project, Capture network diagram of your plan.

4. REPORT FORMAT

Below please find an example of sections of a laboratory report:

- Cover Page
- Introduction
- Procedure, Methodology or Tasks.
- Results
- Discussion/Conclusion

Please follow the guidelines given in the **“Technical Report Writing Guide”** posted in the Moodle page.

5. GRADING SCHEME

The grading scheme will follow the below point distribution:

1. Introduction & Background Material	(Task A)	10%
2. Project Set-up	(Task B)	20%
3. Methodology refer to E-Learning	(Task C)	10%
4. Gantt chart implementation	(Task D)	40%
5. Results and analysis questions	(Task E)	10%
6. Proper report organization		5%
7. Proper use of language		5%