TEXAS ★ STATE
INGRAM SCHOOL OF ENGINEERING

I1.02 - Tool Inventory and Facility Planning

Cramer Townsley, Katherine Stuckly
Jordan Vexler

**Monterrey Iron & Metal** SINCE 1895

Problem Statement

- Due to being understaffed and having increased flow of recycled metal at Monterrey Iron and Metal, there is a concern of tool accessibility and safety within the Monterrey Iron and Metal facility.
- The creation of an organized tool inventory spreadsheet and the optimization of shelf and tool placement will help to minimize concerns and improve company efficiency.

Objectives

- Optimize a floor plan for shelf and tool placement within storage shed for easy accessibility using a prioritization matrix comparing 2 different layouts.
- Create a spreadsheet for current inventory and tool checkout system.
- Analyze data for tool usage to determine tool placement on shelf and weight.
- Perform a final time study on the proposed layout to ensure improvement on time to receive tool/part.

Schedule
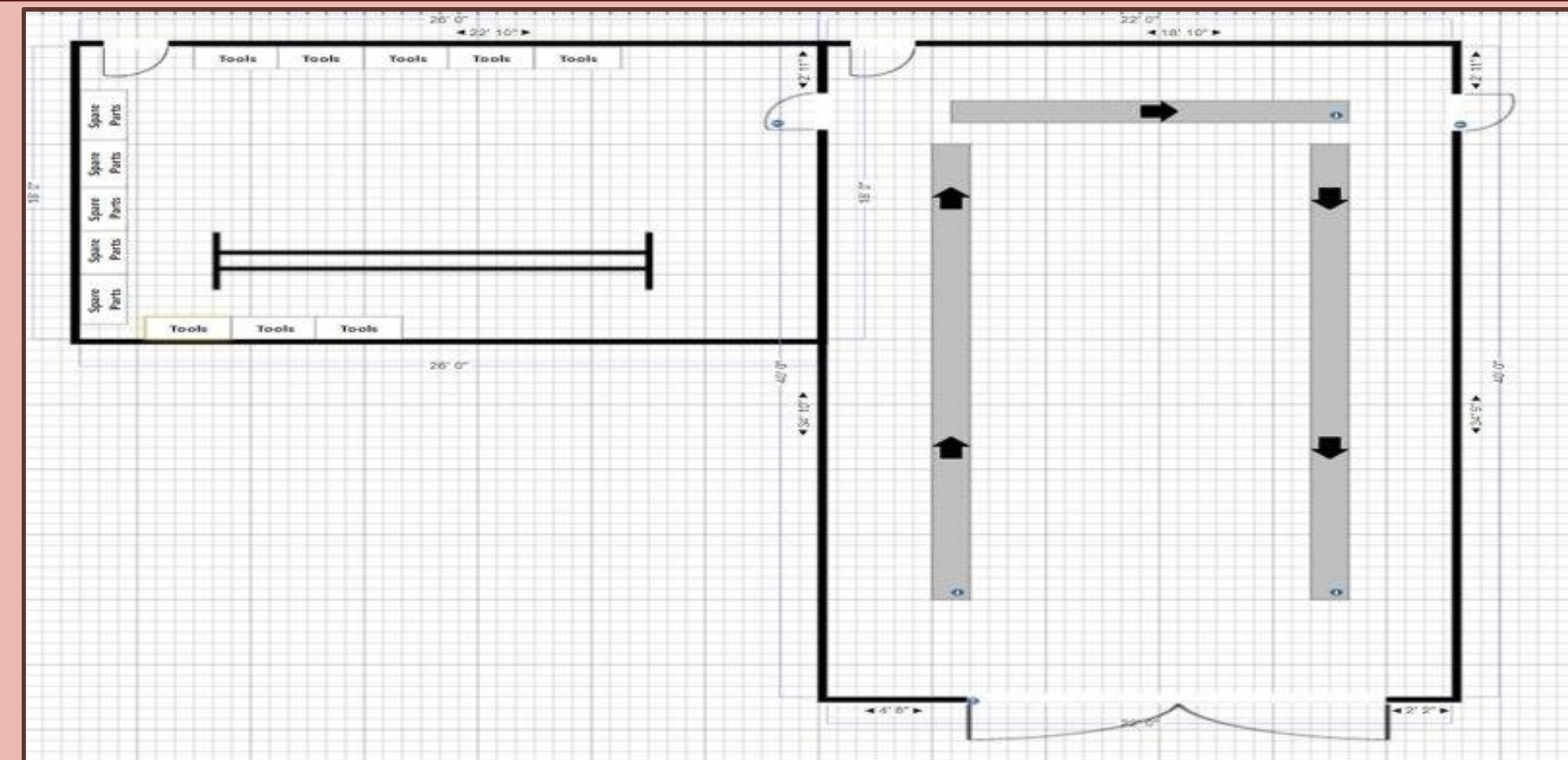
Methodology

Plan-Do-Check-Act
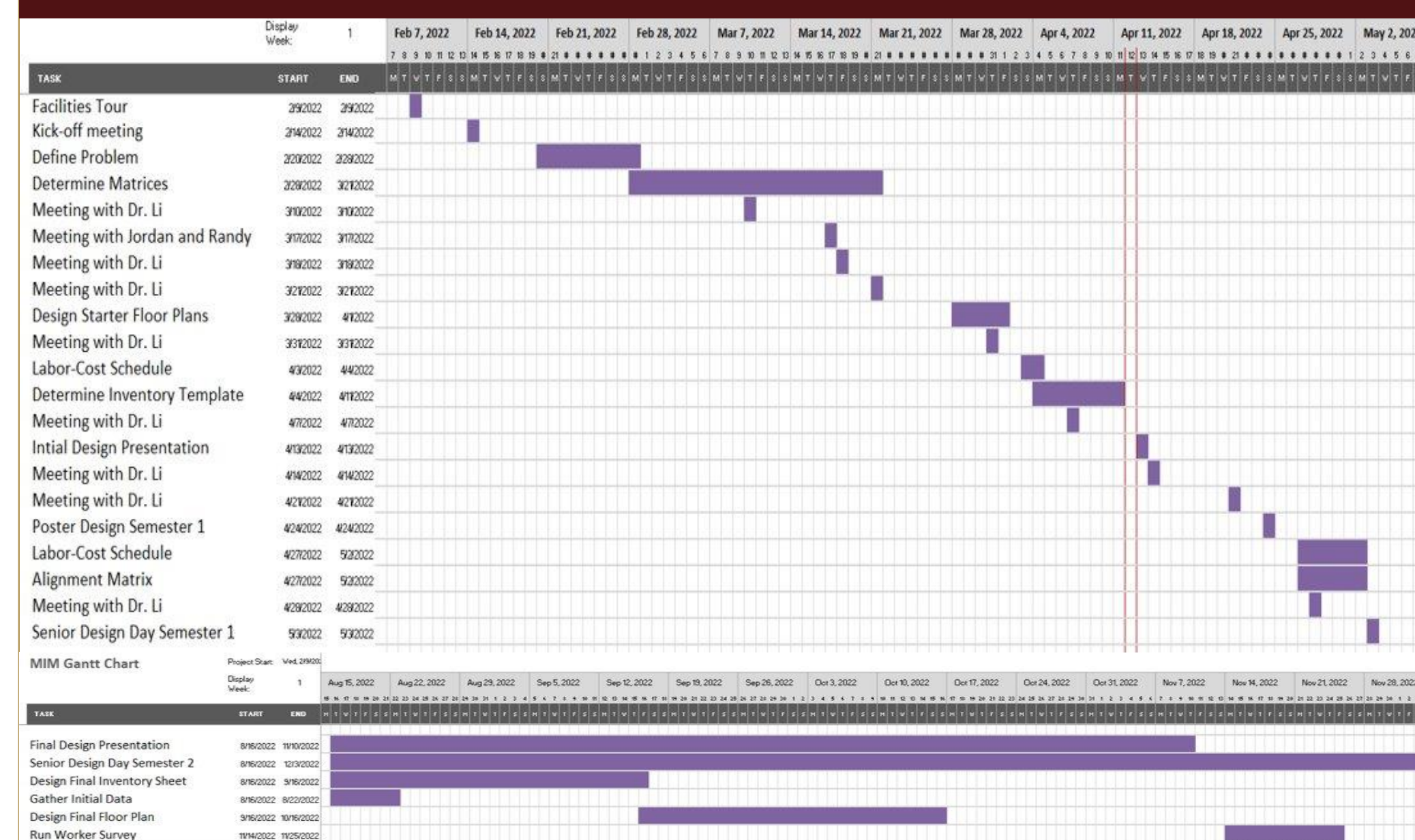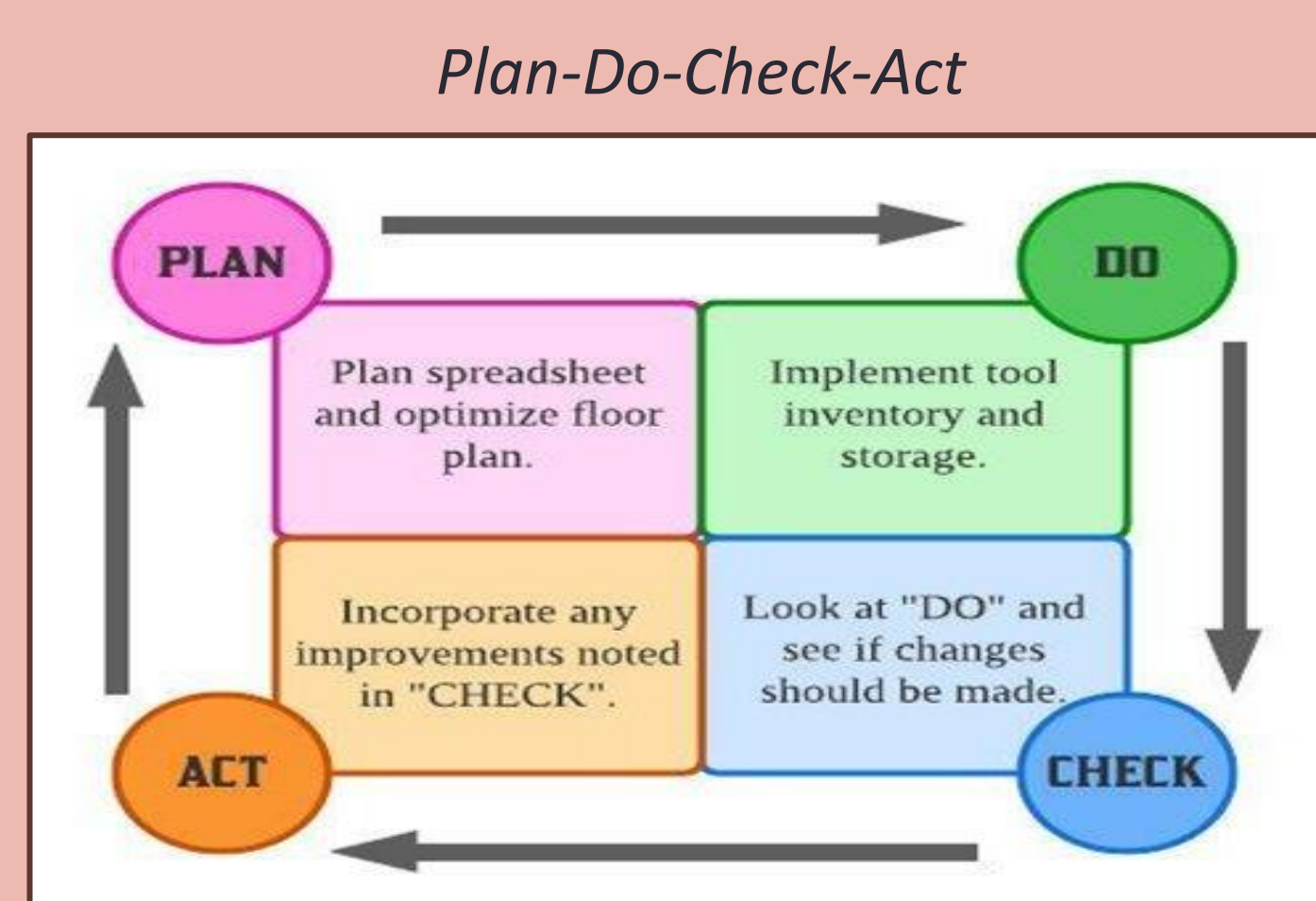
Current Layout [Plan]

- Poor accessibility and visibility when searching for tools/spare parts.
- Currently takes over 30 minutes to find or receive item as there is no inventory tool selection in place.
- Goal to make tool/part selection between 10-15 minutes.
- Receiving/using tools creates a concern within Human Factors.

Facilities Layout [Do]

Human Factors	Weights	Layout 1	Layout 2	Current
Distance/Time	2	6	4	2
Visualization	2	6	5	2
Safety	6	5	4	1
Accessibility	4	5	5	1
Capacity	4	4	3	3
Walking space	5	4	2	3
Lighting	4	5	5	2
Total Weighted score		130	104	53

- Distance/Time
- Visualization
- Safety
- Capacity
- Walking Space
- Lighting Space

Inventory Sheet [Do]

Characteristics	Sheet Type 1	Sheet Type 2	Sheet Type 3
Part Number	✓	✓	✓
Weight of Part	✓	-	✓
Quantity in Stock	✓	-	✓
Quantity Needed	-	-	✓
*Reorder Status	✓	-	✓
*Easy to Update	-	✓	✓
*Location of Part	✓	✓	-
Total Checkmarks	5	3	6

Needed characteristics: "part number", "weight of part", "quantity in stock", and "quantity needed".

*Optional characteristics: "reorder status", "easy to update" and "location of part".

SHEET TYPE 3 EXAMPLE

Sheet Type 3 as it has all the characteristics we need as well as most of the optional characteristics.

SHEET TYPE 1 EXAMPLE

Sheet Type 1 could also be used however Sheet Type 3 is more pleasant to look at and is easy to include the constant updates that will be needed in the future.

Human Factors [Do]

- Encourage workers to use the proper tools for the jobs that they were intended for.
- Proper storage will allow tool life to be extended.
- Having proper tool storage will prevent workplace accidents and save the company money.

Future Plans

- Devise a check in/out system for our inventory sheet using excel to program in that feature.
- Optimize the floor plan using skills learned in facilities planning and AutoCAD.
- Creation of a worker survey to determine if this new system works for the company or if more improvements are needed.
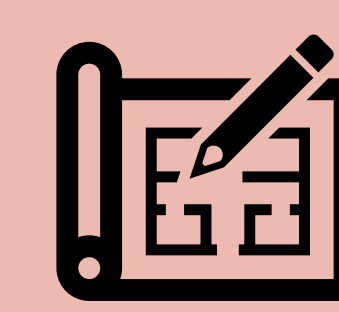
Team Members

Acknowledgments

We would like to extend a special thanks to these individuals who have been guiding us through this project:
Jordan Vexler, Monterrey Iron & Metal
Randy Farrar, Monterrey Iron & Metal
Dr. Liang Li, Technical Advisor
Dr. Michelle Londa, Instructor