

Hands on Activity

Module Eight: Design for Assembly

Goal: Explore assembly and the best way to optimize the assembly of an object.

Task 1: Think Like a Design Engineer

1. As a design engineer, you are designing a joint consisting of two bolts that carry a load. Based on your design analysis, you determine the minimum size for one of the fasteners is 6mm and for the other fastener it is 8mm. From an assembly and repair perspective, briefly discuss 4 reasons why specifying both fasteners as 8mm would be a better design decision than specifying one 6mm and one 8mm.

Discuss answer in space below. Draw pictures if necessary

2. We assemble things in everyday life. For example, inserting a USB drive is an assembly process. Comment on how well the USB geometry works from an assembly stand point. Does it violate any “rules of thumb” for assembling parts? Sketch a viable alternative geometry that may improve the USB assembly process.

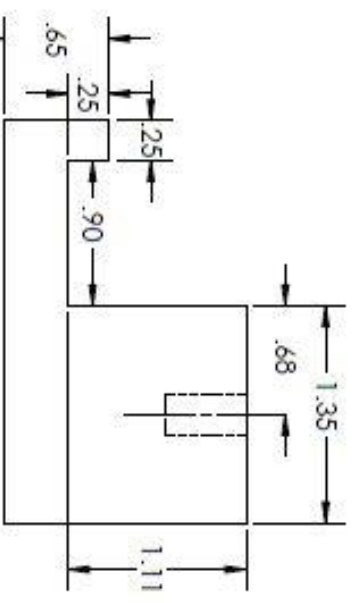
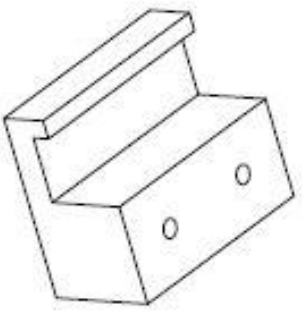
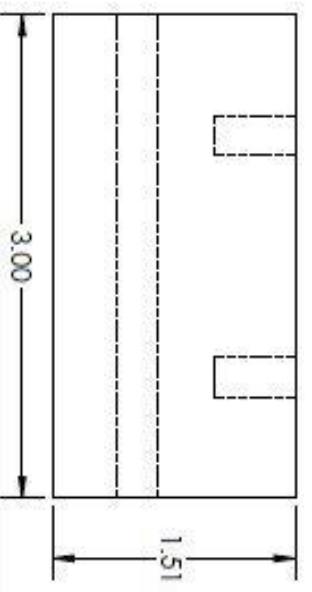
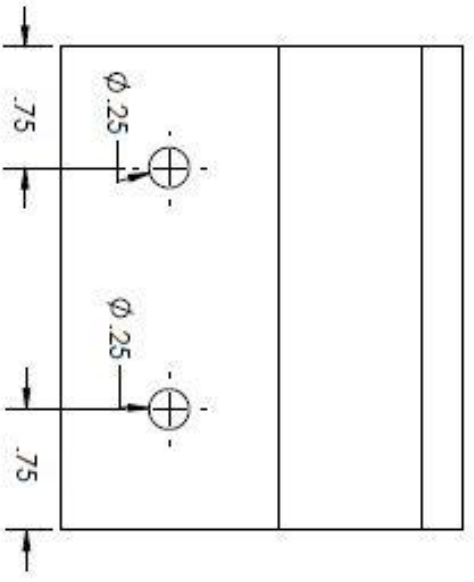
Task 2: Optimize assembly of an object

Inside the toolkit you will find a milled part labelled “Part A”. It is a business card and pencil holder created out of a hard wax. You will be milling this exact part next week for your final. Today, you need to examine the part and the part drawing to determine the best order of operations for the part. Write out what steps you need to complete, and which tools and procedures you will need to employ. Be thorough and think critically. In the space below, write out the order in which you would complete the project.

The part drawing is included on the third page of this handout.

2

1



PROPRIETARY AND CONFIDENTIAL
 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF NEW FINE PROJ. ANY REPRODUCTION IN WHOLE OR IN PART WITHOUT THE WRITTEN PERMISSION OF NEW FINE PROJ. IS PROHIBITED.

UNLESS OTHERWISE SPECIFIED:	DIMENSIONS ARE IN INCHES
TOLERANCES:	FRACTIONAL ±
ANGULAR: MATCH	BRND ±
TWO PLACE DECIMAL ±	MFG APPR. ±
THREE PLACE DECIMAL ±	Q.A.
KEEPING CHAINING	COMMENTS:
ISOLATING THE	
MATERIAL	
FINISH	
USED ON:	
NEW ASBY	
APPLICATION	
DO NOT SCALE DRAWINGS	

DRAWN	NAME	DATE
CHECKED		
BND APPR.		
MFG APPR.		
Q.A.		

TITLE:		ALL DIMENSIONS IN INCHES
SIZE	DWG. NO.	REV
SCALE: 1:1	WEIGHT:	SHEET 1 OF 1
NEW FINAL PROJ		

2

1

Bonus Activity:

Look for the part labelled “Part B.” It is a part that serves no purpose other than to demonstrate numerous milling, turning and other manufacturing operations. For bonus points, try and figure out all the operations performed to create this part, including a potential order of operations, and write them in the space below. Also think about the type of work holding that might be involved.

You are to complete one short quiz. The link for which can be found in the final slide of the PowerPoint for this module and on the class website.

I have completed the tasks and module to the best of my ability on my own:

_____ Signature

_____ Date