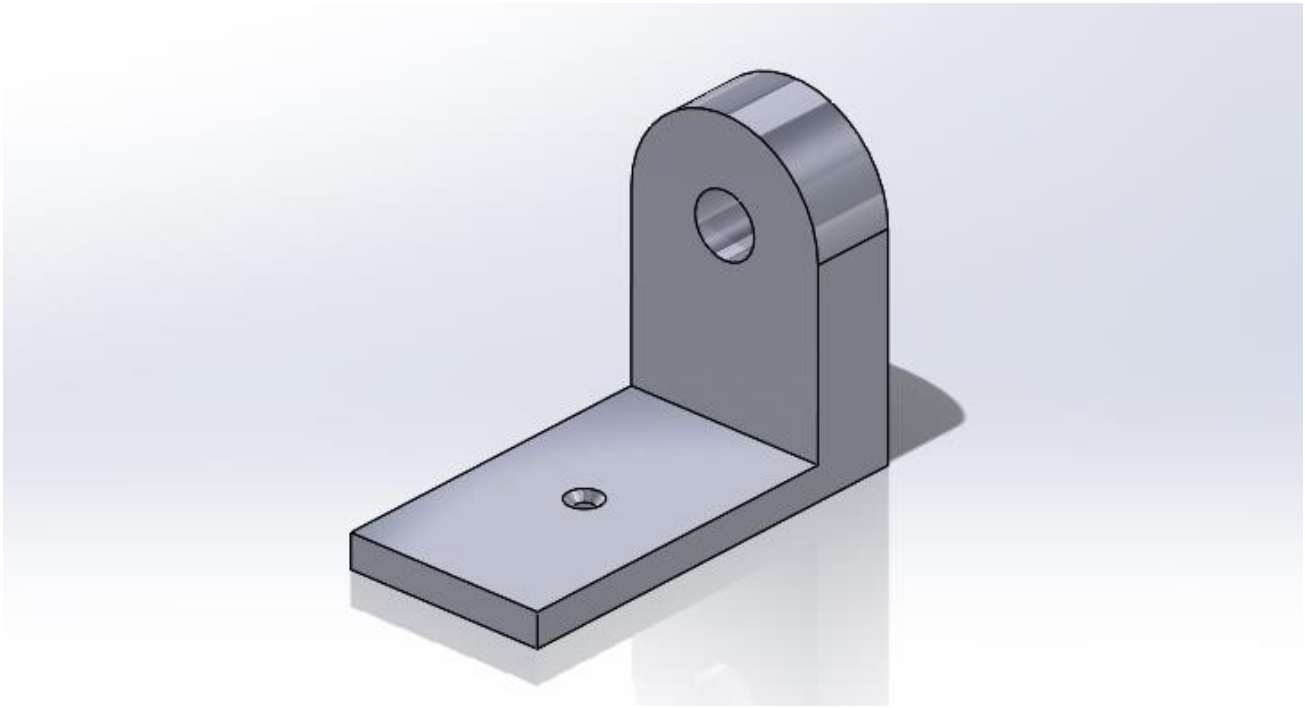
6 – Advanced Assembly and Bill of Materials

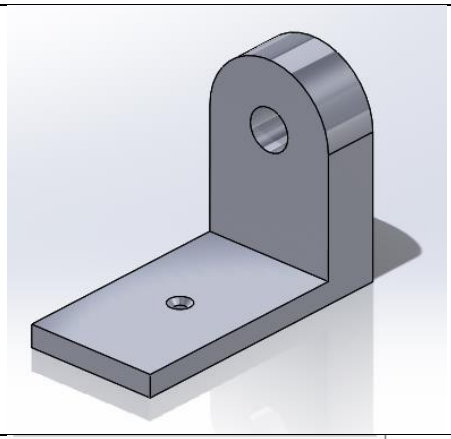
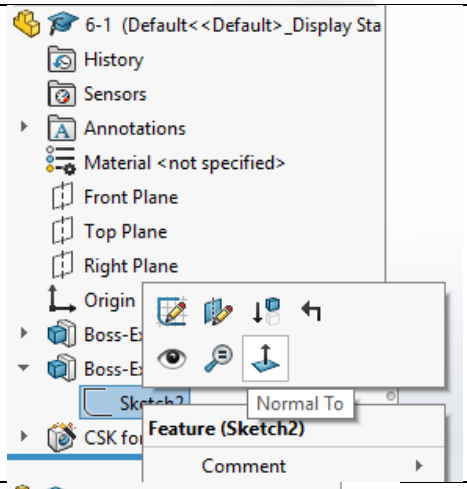
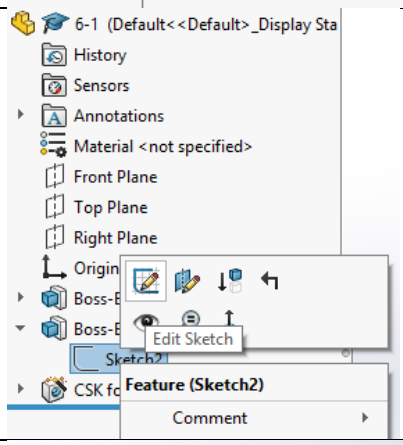
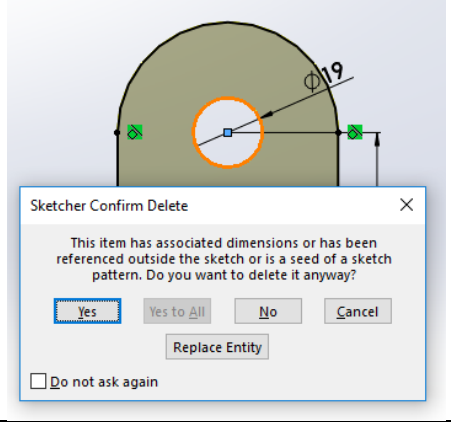
By following this tutorial, you will learn how to:

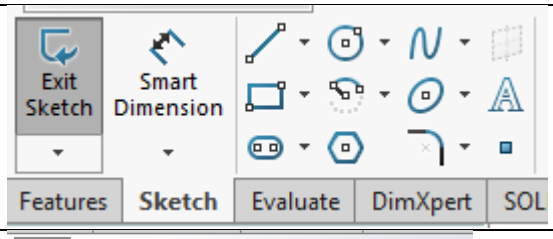
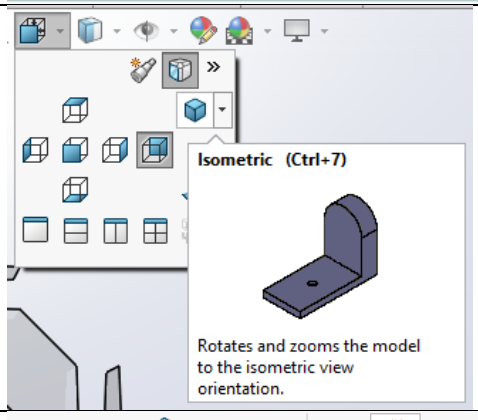
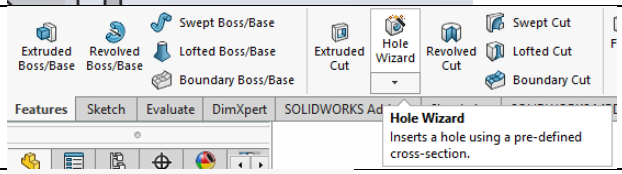
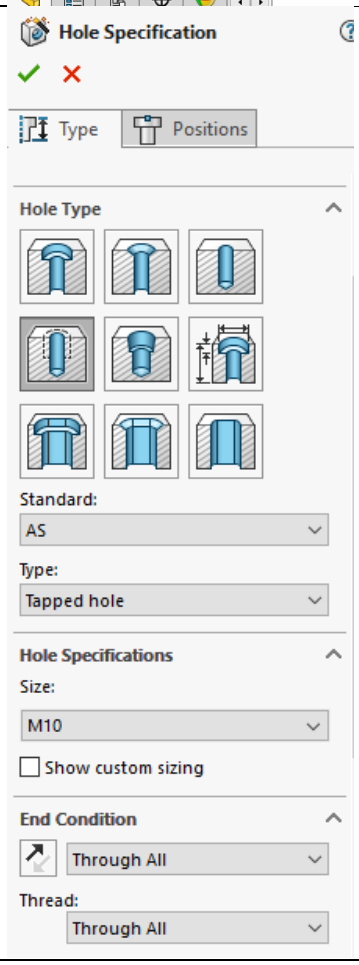
1. Insert standard components using the Toolbox
2. Insert an exploded pictorial view in drawing
3. Use the balloon tool and create a Bill of Materials table

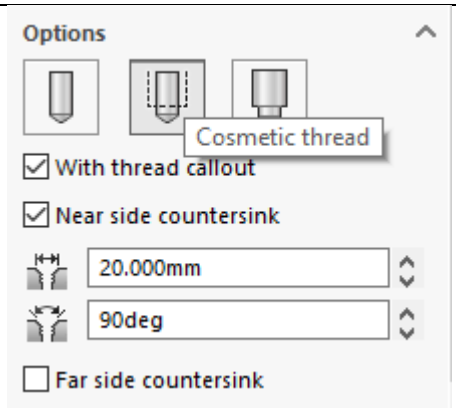
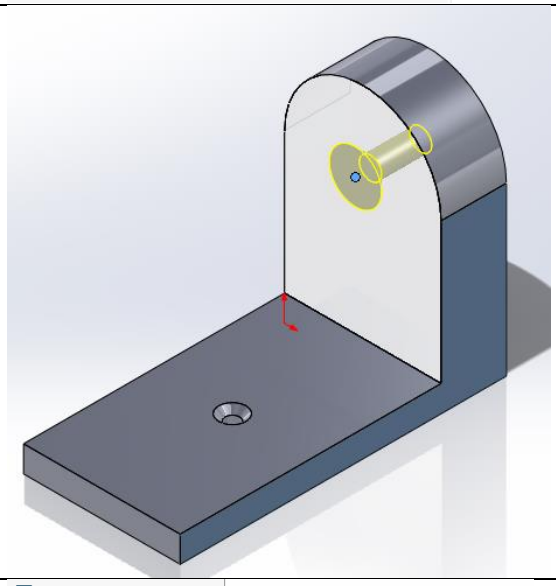
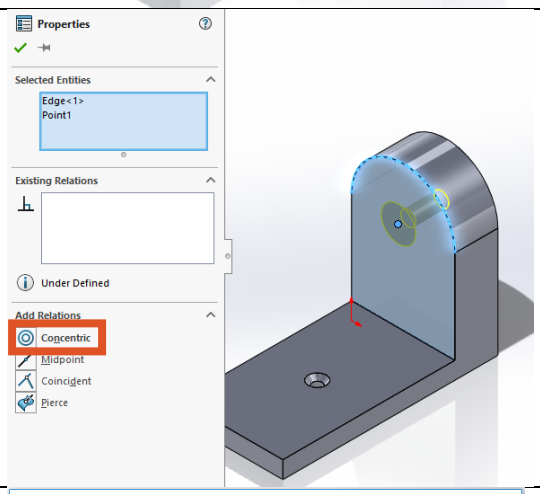
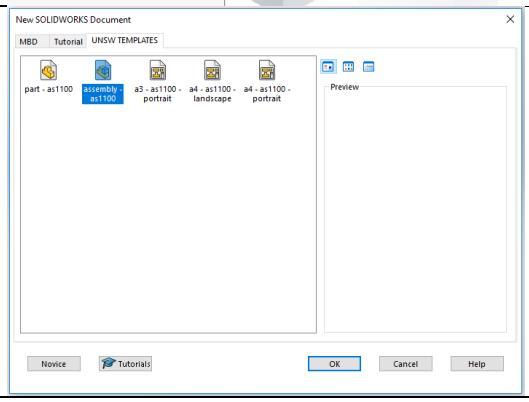
For the purpose of this handout, please download “6-1.SLDPRT” to be used in this tutorial.

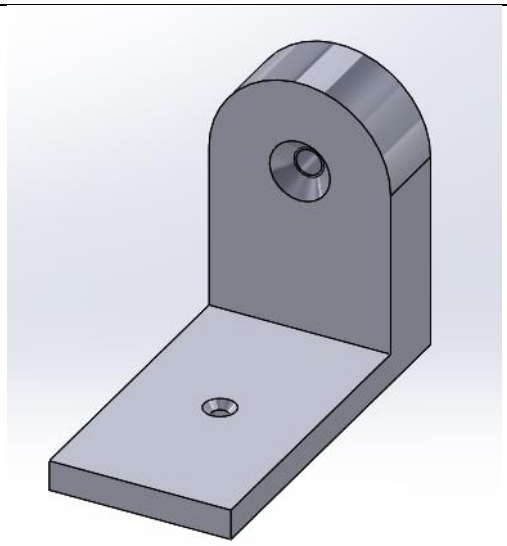
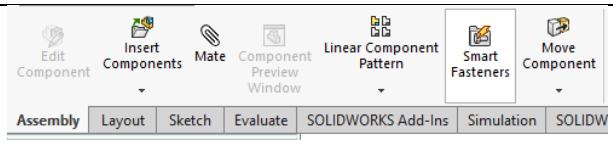
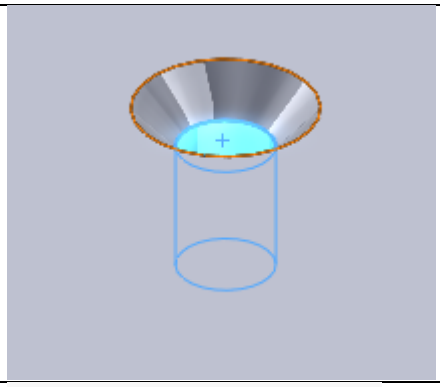
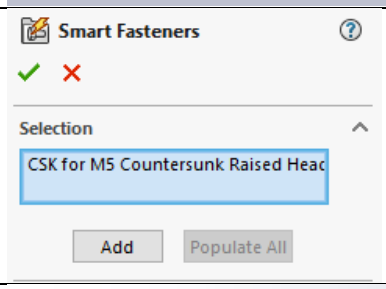
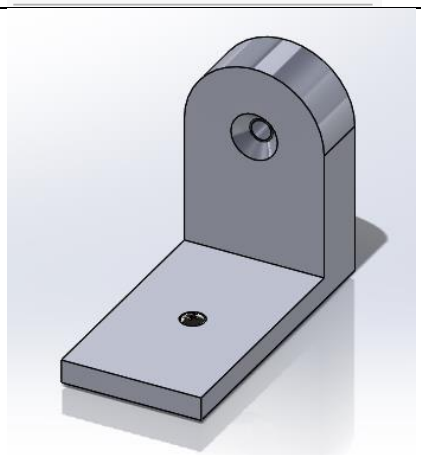


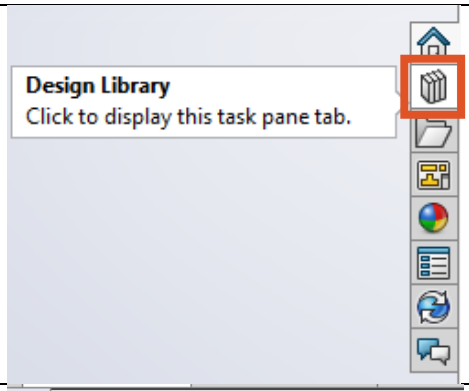
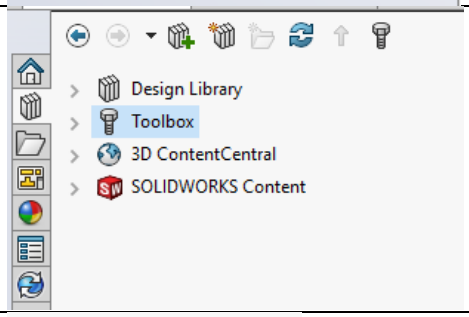
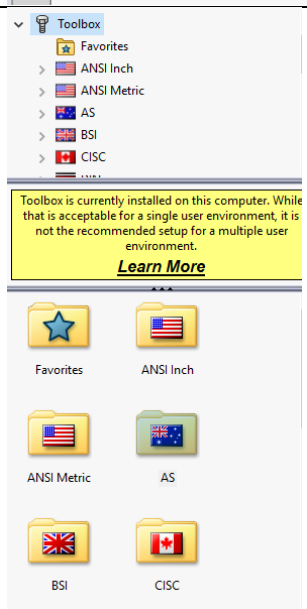
Insert standard components using the Toolbox

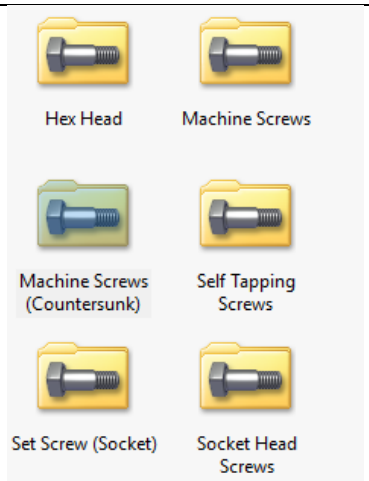
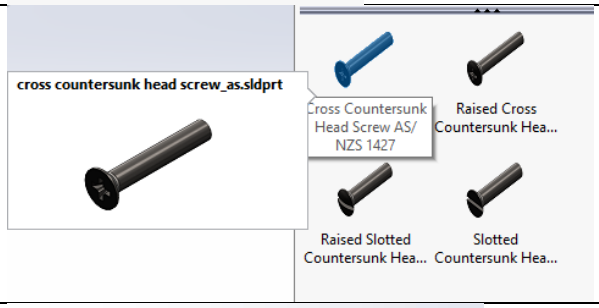
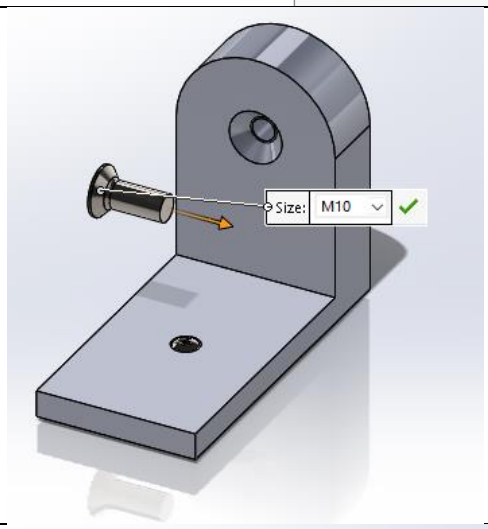
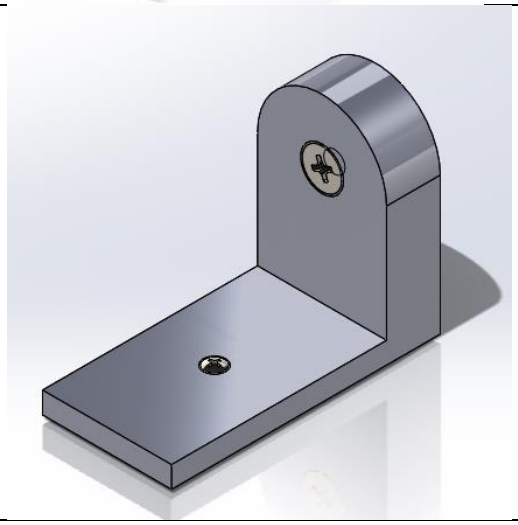
No.	Instruction	Screenshot
1	Open part 6-1 in SolidWorks.	
2	Right click Sketch2 under Boss-Extrude2 in the design tree. Click the Normal To button.	
3	Right click Sketch 2 under Boss-Extrude2 in the design tree. Click the Edit Sketch button.	
4	Select the circle in the centre of the sketch and delete. Click Yes to continue.	

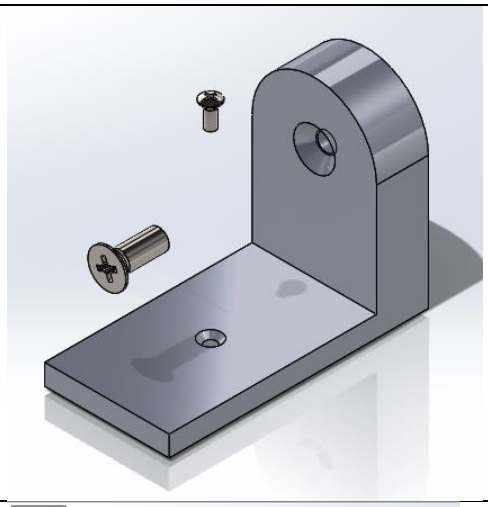
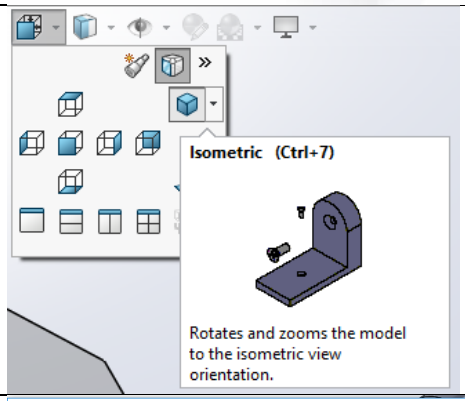
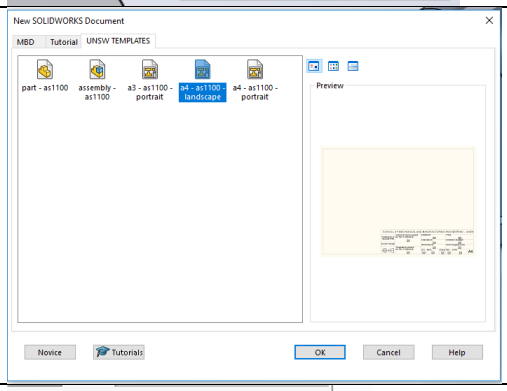
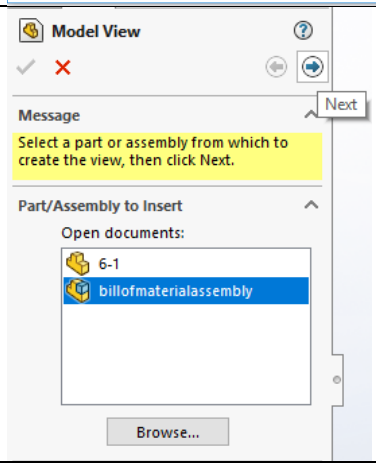
5	Click the Exit Sketch button in the Sketch tab.	
6	Change the view orientation to isometric.	
7	Click the Hole Wizard button in the Features tab.	
8	Select Straight Tap under the Hole Type. Select AS for the standard. Select Tapped hole for the Type. Select M10 for the Size. Select Through All for the end condition.	

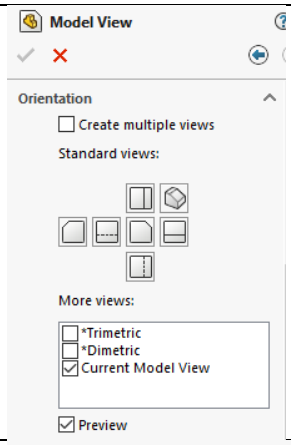
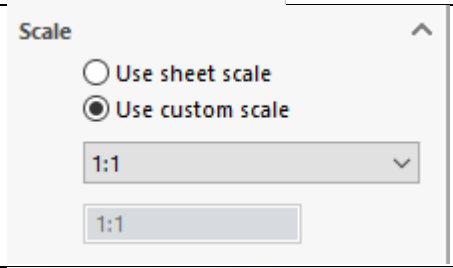
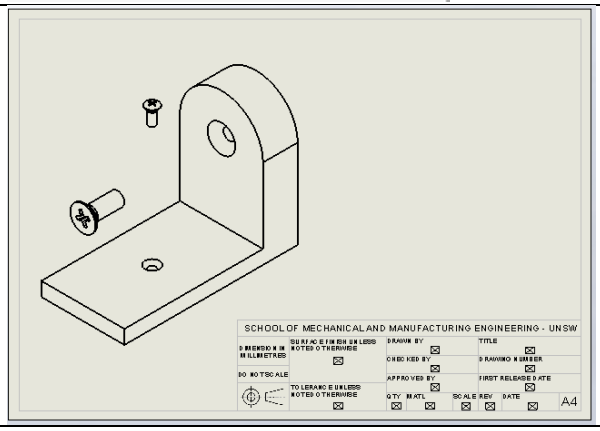
9	Select Cosmetic thread under the Options menu. Ensure Near side countersink is checked. Set the diameter to 20mm. Set the angle to 90 deg.	
10	Click on the Positions tab in Hole Position. Click on the vertical face with the filleted top to place the hole. Press the Escape key on the keyboard to stop placing holes.	
11	Using the Control key on the keyboard, select the hole location point and the round edge on the face. Click the Concentric button under Add Relations. Click OK to confirm.	
12	Create a new assembly file.	

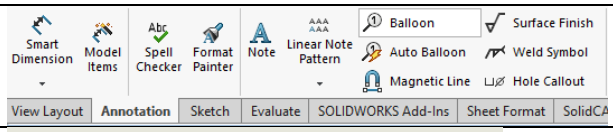
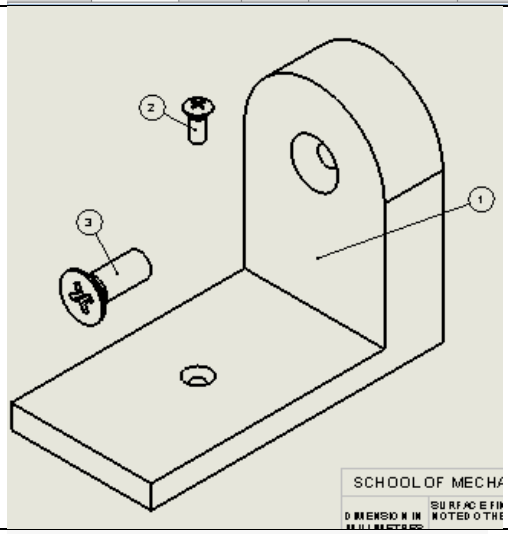
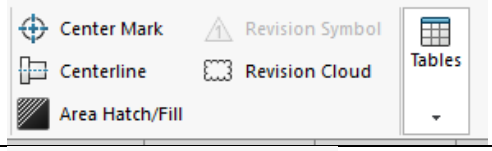
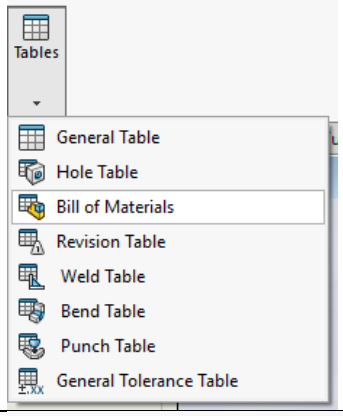
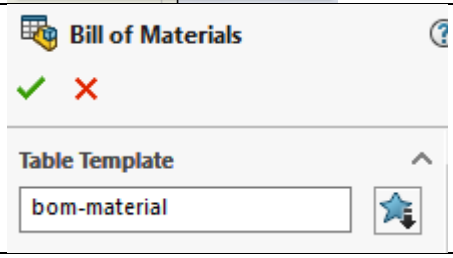
13	Click the part 6-1 in the Open documents list and place the model into the graphics model.	
14	Click the Smart Fasteners button in the Assembly tab. Click OK to continue.	
15	Ensure the Selection box is highlighted blue. Click the CSK M5 hole in the base feature of the part.	
16	Click the Add button.	
17	Click OK to confirm.	

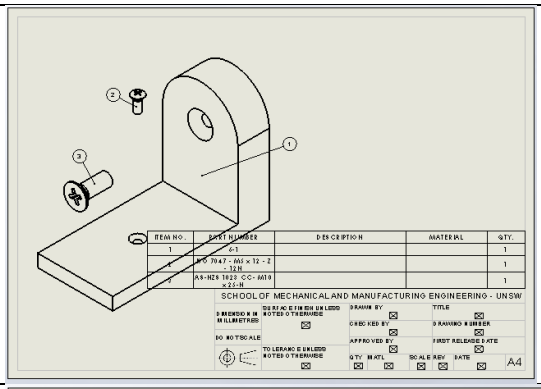
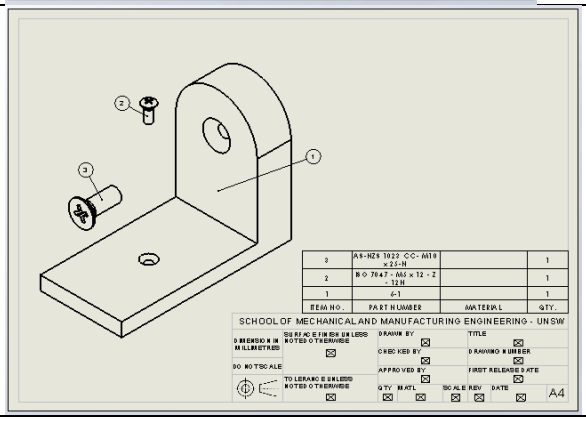
18	Click the Design Library button on the right hand side.	
19	Click the Toolbox option.	
20	Double click on the Australian Standard button.	
21	Double click on the Bolts and Screws folder.	

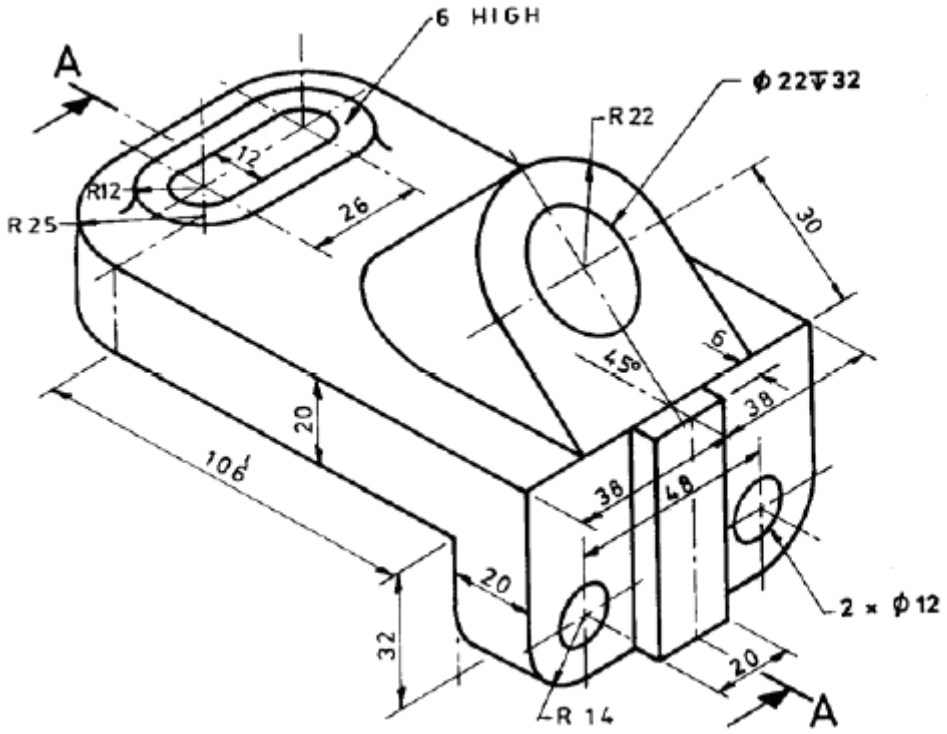
22	Double click the Machine Screws (Countersunk) folder.	
23	Click and drag the Cross Countersunk Head Screw icon into the graphic area.	
24	Change the Size to M10. Change the Length to 25. Click OK to confirm. Click Cancel to exit from Insert Component.	
25	Mate the fastener to the hole as shown.	

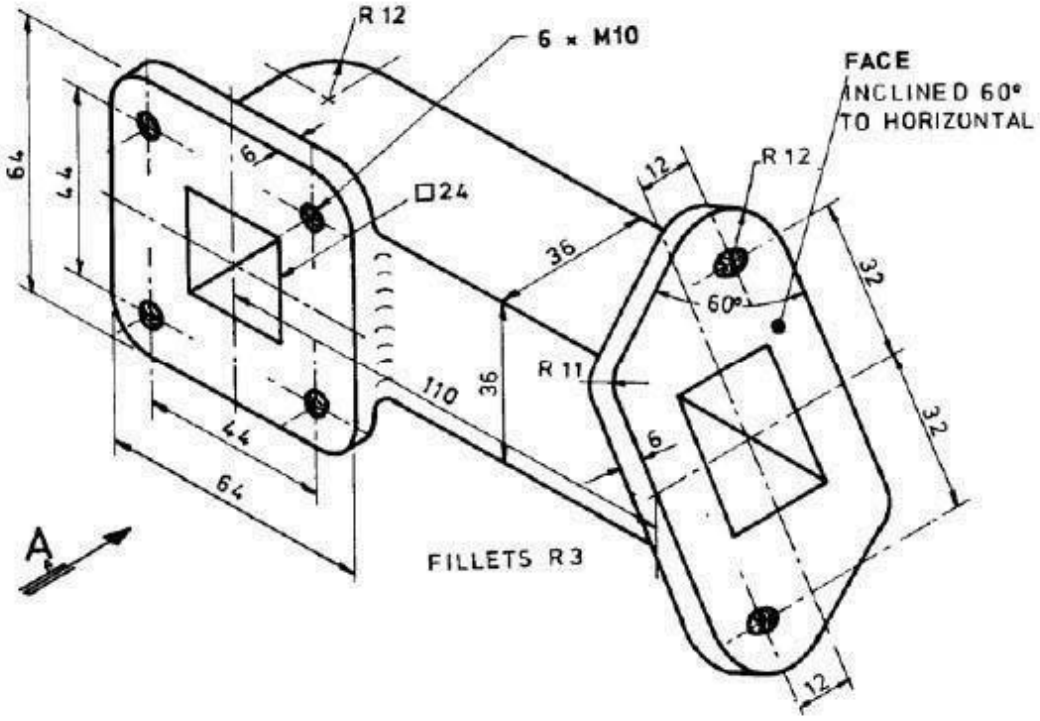
Insert an exploded pictorial view in drawing		
No.	Instruction	Screenshot
1	Use the Exploded View tool to explode the components to be 100mm from the base plate.	
2	Change the View Orientation to be Isometric. Save the file as billofmaterialassembly.	
3	Create a new A4 landscape drawing.	
4	Click the assembly file from the Open documents list. Click the next button in the Model View feature manager.	

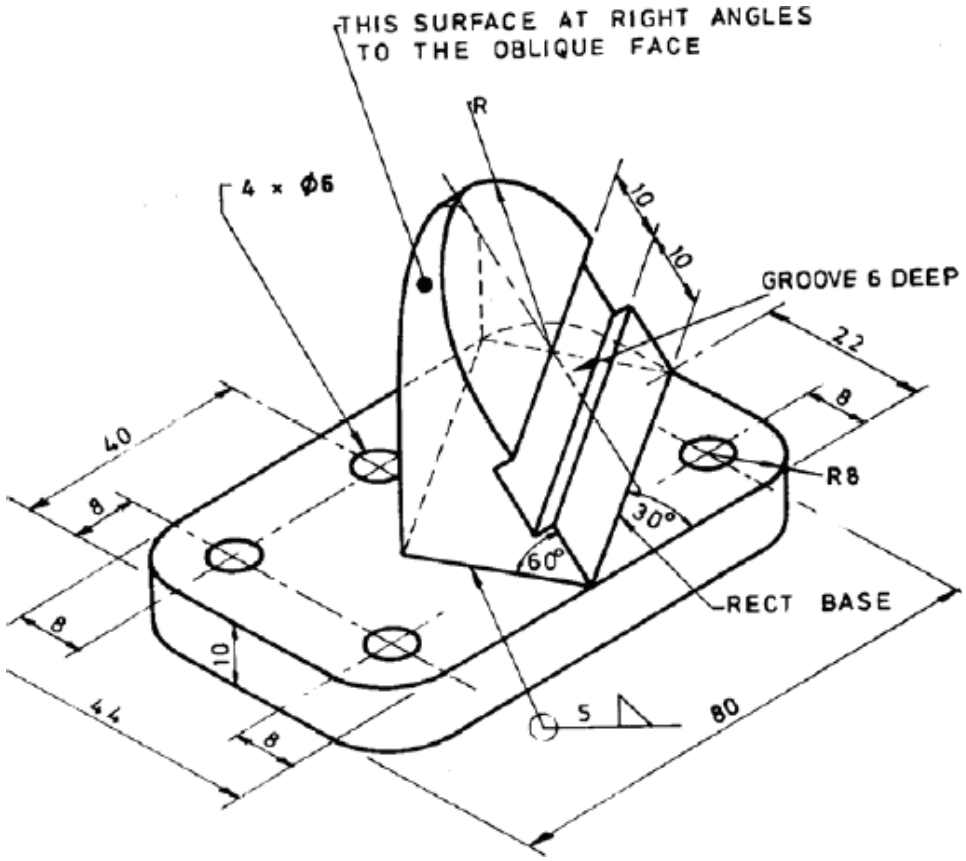
5	From the More views menu select the Current Model View option. Select Preview.	
6	Change the scale option to Use custom scale and choose 1:1 in the drop down list.	
7	Click to place the exploded pictorial view on the top left of the A4 sheet.	

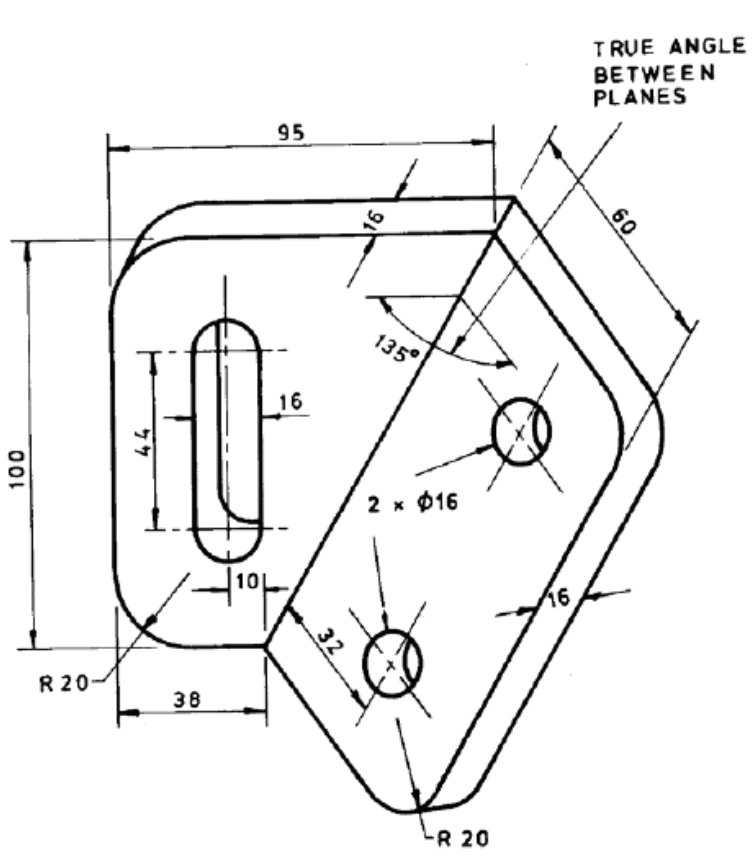
Use the balloon tool and create a Bill of Materials table		
No.	Instruction	Screenshot
1	Click the Balloon button in the Annotations tab.	
2	Click the centres of each part to place the balloons onto the drawing.	
3	Click the Tables menu button in the Annotations tab.	
4	Click the Bill of Materials button. Click on the drawing to specify the model.	
5	Click the Open table template button. Select the bom-material.sldbombt template file from the options.	

6	Click OK to confirm. Click to place the Bill of Materials in the bottom right corner of the sheet.	
7	Modify the BOM table to conform to the standards.	


6 HIGH
A
ϕ 22↧32
R 22
12
R12
26
R 25
30
45°
6
38
20
106
38
48
20
2 × ϕ 12
32
20
R 14
A


R 12
6 × M10
FACE
INCLINED 60°
TO HORIZONTAL
64
44
6
□24
12
R 12
36
60°
32
110
36
R 11
44
64
6
32
A
FILLETS R3
12


THIS SURFACE AT RIGHT ANGLES
TO THE OBLIQUE FACE
R
4 × ϕ6
10
10
GROOVE 6 DEEP
22
8
40
8
R8
30°
60°
8
RECT BASE
10
44
8
5
80


TRUE ANGLE
BETWEEN
PLANES
95
16
60
135°
100
16
44
2 × ϕ16
10
16
32
R 20
38
R 20