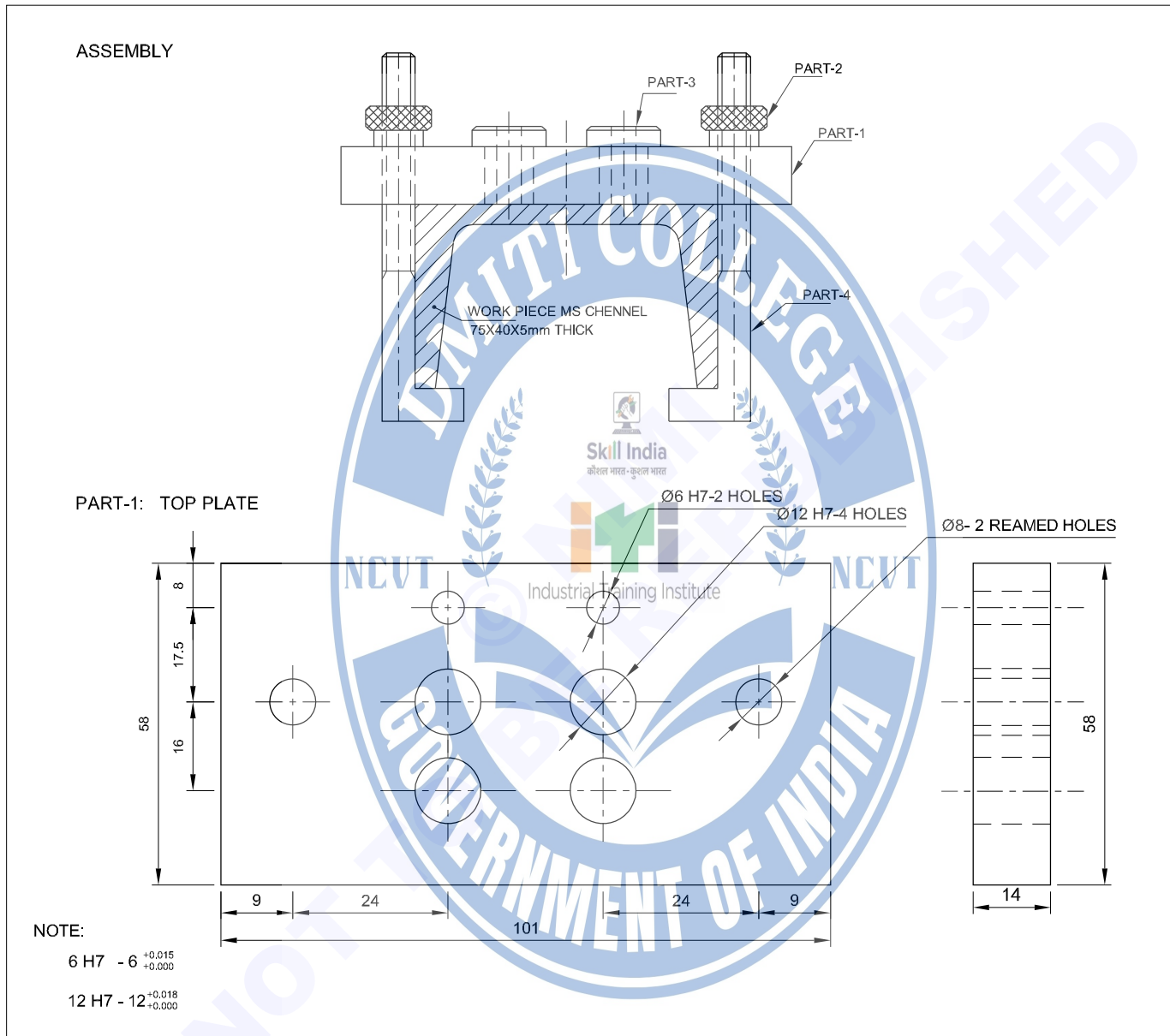


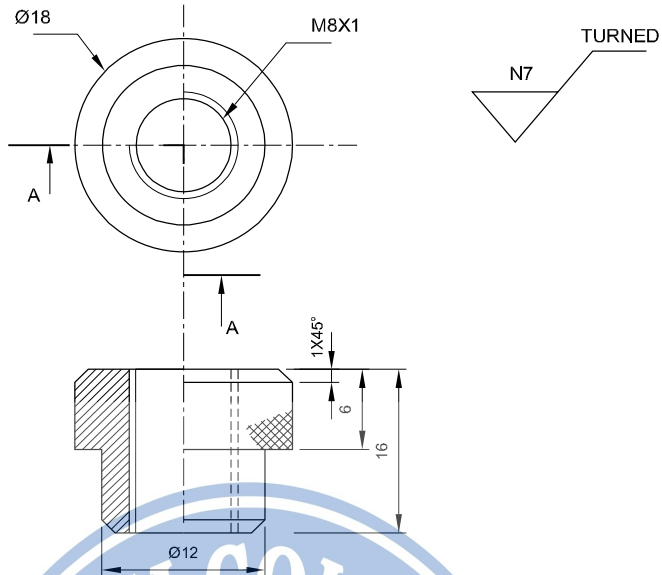
Make a simple drilling jig

- Objectives:** At the end of this exercise you shall be able to
- machine the parts of a drill jig and maintain the same for size
  - assemble the parts of a drill jig as per assembly drawing
  - check the dimensions and locations.

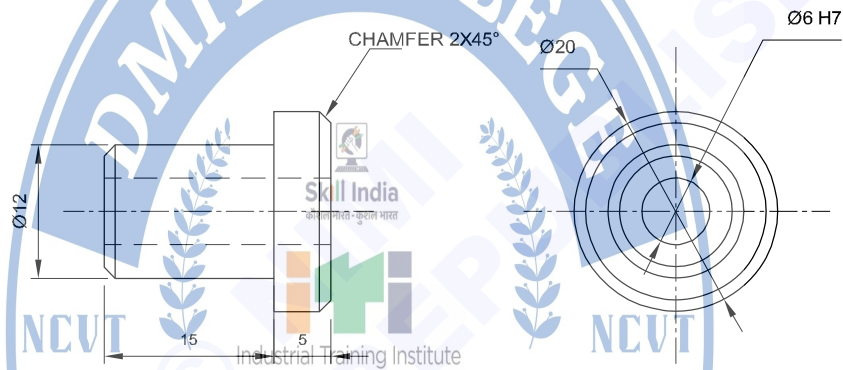


2	Ø6-20	DOWEL PIN	Fe310	-	5	2.4.157	
2	Ø10-120	-	Fe310	-	4		
4	Ø22-25	-	Fe310	-	3		
2	Ø20-18	-	Fe310	-	2		
1	60 ISF 15-105	-	Fe310	-	1		
NO.OFF	STOCK SIZE	SEMI-PRODUCT	MATERIAL	PROJECT NO.	PART NO.	EX. NO.	
SCALE 1:1					TOLERANCE ±0.02 mm		TIME : 20 Hrs
					<b>MAKE A SIMPLE DRILLING JIG</b>		
					CODE NO. F120N24157E1		

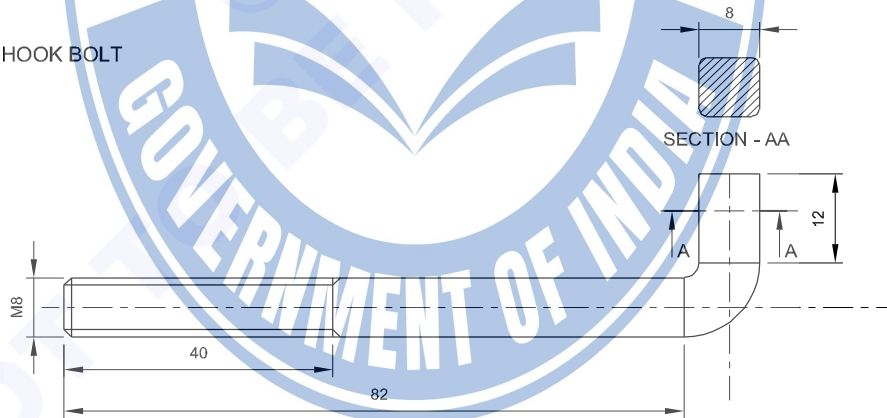
PART-2 : KNOB



PART-3: DRILL JIG BUSH



PART-4 : HOOK BOLT



NOTE:

6 H7 - 6 <sup>+0.015</sup>/<sub>+0.000</sub>

- SMOOTH MACHINING Ra-1.6

-	-	-	-	-	3 & 4	2.4.157
NO.OFF	STOCK SIZE	SEMI-PRODUCT	MATERIAL	PROJECT NO.	PART NO.	EX. NO.
SCALE : NTS	<b>DRILL JIG BUSH AND HOOK BOLT</b>				TOLERANCE ±	TIME :
					CODE NO. F120N24157E2	

## Job sequence

### TASK 1: Top plate (Part 1)

- Check the raw material.
- File and finish the job 58 X 101 X 14 mm as per drawing.
- Mark the hole centres.
- Punch the hole with centre punch and 8mm reamer respectively.
- Set the job on drilling machine.
- Drill the holes  $\varnothing 5.8 \text{ mm} + 7.8 \text{ mm}$  for reaming.
- Ream the hole using 6 mm and 8mm for reamer respectively.
- Drill 4 nos of  $\varnothing 11.8 \text{ mm}$  for fixing bush.
- Ream the  $\varnothing 11.8 \text{ mm}$  hole using 12mm reamer to get H7 finish.
- Remove burr in the sharp corner.

### TASK 2: Knob (Part 2)

- Check the raw material.
- Hold the job in 3 jaw chuck.
- Make centre drill and enlarge the hole to  $\varnothing 6.8 \text{ mm} \pm 0.1$ .
- Turn dia  $18^{+0.1}$  to a length of 20 mm.
- Turn step dia  $12^{+0.1}$  to length of 10 mm.
- Knurl as per drawing.
- Reverse the job hold the knurled portion with soft packings.
- Face to a length of 16 mm.
- Chamfer as per drawing.
- Remove the job from lathe, hold on bench vice and make the thread of M8 using tap.
- Remove the burrs.
- Repeat the above for other knob.

### TASK 3: Jig bush (Part 3)

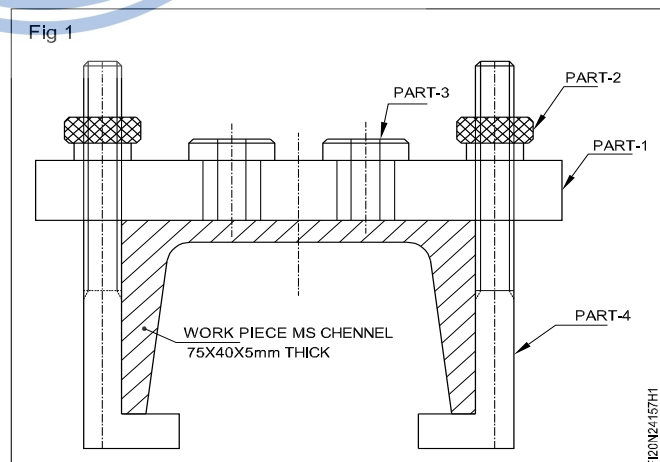
- Check the raw material.
- Hold the job in three jaw chuck.
- Face, centre drill and enlarge the hole to dia 5.8mm.
- Ream the hole  $\varnothing 6 \text{ mm}$ .
- Turn dia 20 mm to required length.
- Turn step of dia 12 mm to a length of 15 mm.
- Chamfer the end of dia 12 mm.
- Part to a length of 20 mm.
- Repeat the same for 4 pieces.
- Hold the dia 12 mm and face the other side to a length of 20 mm.
- Chamfer as per drawing.
- Remove the burrs.

### TASK 4: Hook bolt (Part 4)

- Check the raw material.
- Bend the rod as per drawing using anvil and hammer.
- File flat surface as per section 'AA'.
- Chamfer the length side for threading.
- Make thread using 8 mm hand die with stock.
- Check the thread using  $\varnothing 8 \text{ mm}$  nut
- Finish as per drawing.

### Drill jig assembly (Part 5)

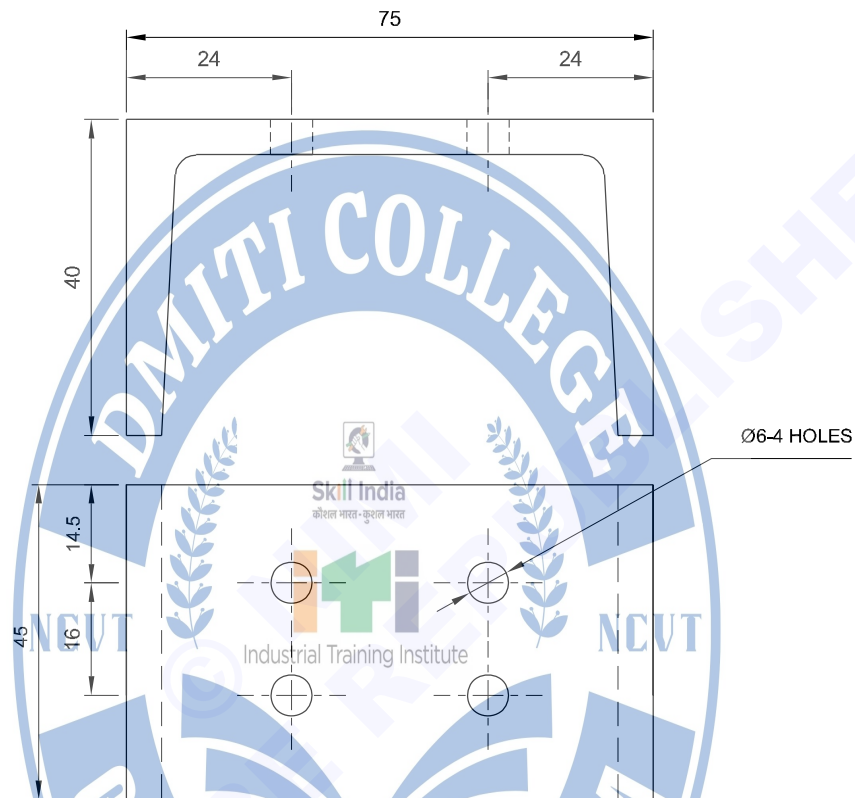
- Clean all the parts.
- Deburr sharp corners if any.
- Fit the bush (Task 3) in the top plate (Task 2).
- Fix the  $\varnothing 6 \text{ mm} \times 16 \text{ mm}$  dowel pin on the top plate.
- Fix the hook bolt 2 nos.
- Insert the channel and locate on dowel pin.
- Now the drill jig is ready for drilling.
- Screw the knob in hook bolt for holding the channel with jig.
- Now the drill jig is ready for drilling.



Use simple jigs and fixtures for drilling

Objectives: At the end of this exercise you shall be able to

- locate the work piece in a jig
- drill the hole on MS Channel
- check for the accuracy.



Job sequence

Plate jig - trial

- Use previous Ex.No. 2.4.157 drill jig.
- Remove the top plate from the plate jig.
- Locate component between the hook bolt and top plate.
- Ensure the component touch with  $\varnothing$  6mm dowel pin (stopper pin) of the top plate.
- Clamp the top plate with the knobs.
- Drill dia 6 x 4 Nos.
- Remove the top plate.
- Take out the component from the jig.
- Check the component with a vernier caliper according to the drawing.

1	ISMC 75X40-50	-	Fe310	-	-	2.4.158
NO.OFF	STOCK SIZE	SEMI-PRODUCT	MATERIAL	PROJECT NO.	PART NO.	EX. NO.
SCALE 1:1		<b>USE SIMPLE JIGS AND FIXTURES FOR DRILLING</b>			TOLERANCE $\pm 0.02$ mm	TIME : 4 Hrs
					CODE NO. F120N24158E1	