

# RECTANGULAR TRAY MAKING

Practical No. 1  
Sheet Metal Work

Date: September 22, 2021  
Exp No. 1

## AIM:

To make a rectangular Tray of given size from a sheet metal piece

## Application:

cabinets of stabilizer, computer, UPS and use it to store tools or other accessories

## Material specifications:

Material :- galvanized iron

Dimensions of sheet :- 200 mm X 150 mm thickness 33 gauge

## Tools required

- |                 |          |
|-----------------|----------|
| ① steel rule    | ④ mallet |
| ② scribe        | ⑤ stake  |
| ③ straight snip | ⑥ Anvil  |

## Sequence of operation:

- ① Checking
- ② Layout Marking
- ③ Shearing
- ④ Folding
- ⑤ Locking And Finishing

## Working Steps

### 1) Checking

Check whether the given sheet is having its dimension as  $200\text{ mm} \times 150\text{ mm}$ . If the dimension is excess trim off using hand shear. If it is less change the given sheet.

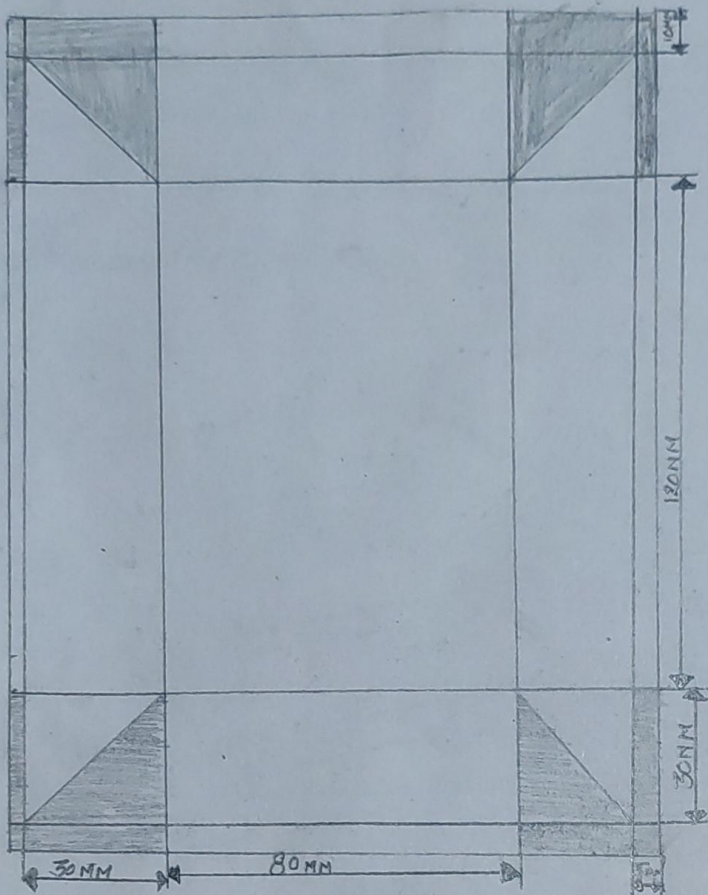
### 2) Layout marking

- 1) Keep  $200\text{ mm}$  side in horizontal position and start marking from bottom left side.
- 2) Using steel rule and scriber draw five vertical lines at distance of  $10\text{ mm}$ ,  $40\text{ mm}$ ,  $160\text{ mm}$ ,  $190\text{ mm}$  from the reference vertical edge.
- 3) Now in your worksheet you have four lines and five spaces.
- 4) The first and last  $10\text{ mm}$  provide for hemming (safety folding).
- 5) Second and before last  $30\text{ mm}$  spaces provide for height and side of the job.
- 6) Third space of  $120\text{ mm}$  provide for base of the job.

### 150 mm Marking:-

- 1) Keep  $150\text{ mm}$  side in horizontal position and start marking from bottom left.
- 2) Using steel rule and scriber draw five vertical lines at a distance of  $5\text{ mm}$ ,  $35\text{ mm}$ ,  $115\text{ mm}$ ,  $145\text{ mm}$  from reference horizontal edge.
- 3) Now you have 5 spaces, first and last  $5\text{ mm}$  space providing for hemming. Second and before last  $30\text{ mm}$  space provide for height and side of the job. Third  $30\text{ mm}$  space provide base for the job.
- 4) After completing both sides ( $150\text{ mm}$  and  $200\text{ mm}$ ) marking in each corner one square in  $30\text{ mm} \times 30\text{ mm}$  with in the square draw diagonal line from the base corner now you have two triangles in the square then identify and shade the unwanted portions as showing in the figure which is called as seam allowances.





Shearing

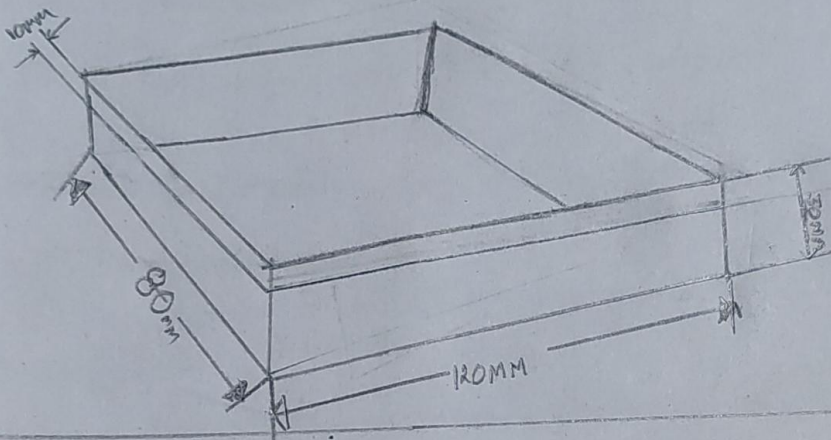
- 1) Remove the unwanted portion shown in the layout
- 2) While cutting, cut along the proper line and remove the unwanted portions

Folding:

- 1) First fold 200mm hem portion 5mm by keeping over the anvil edge for  $180^\circ$  towards the working, repeat this for opposite edge
- 2) Use rectangular stake, fold along base line 80mm x 120mm for  $90^\circ$  opposite to the working. Now you get base and four sides of the tray. Repeat this step for other edges.

## Locking AND FINISHING

- 1) Fold the remaining portion  $180^\circ$  outwards using stake and mallet to lock the triangular folds
- 2) Use mallet to make its shape perfect
- 3) Check for the dimensions



## PRE LAB QUESTIONS

Q How to cut the sheet metal?

The sheet metal must be cut with help of straight snip

Q List of metal used in the sheet metal work  
Different types of metal can be used in sheet metal work such as galvanised steel, stainless steel, Aluminium etc.

Q Why is mallet made of wood?

In the experiment a wooden mallet is used as it will not deform the metal sheet while hemming and folding the sheet metal.

Q Define galvanising  
It is a process in which metal is coated with nonreactive metals such as zinc.



Q What is the use of the tray?

It can be used for storing items such as tools and other accessories in home or office

### Post Lab Questions

Q Why scribes is used for marking?

It is used for marking on sheet metal as they can be easily seen on sheet metal and it does not smudge off while hemming

Q Name the various sheet metal operations

The various sheet metal operations are checking, layout marking, shearing, folding, locking and finishing

Q What is hemming?

It is a process in which sheet metal is joined by bending metal

Q Name the striking tool used in sheet metal work?

Wooden mallet

Q How to identify thickness of sheet metal?

Sheet metal gauge tool is used to identify thickness of sheet metal

### Result

Thus the required rectangular tray is made out of the given sheet metal as per specifications