

Dumka Engineering
College

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Section:- A

Batch:- CSE

Session:- 2020-24

Carpentry Shop

Carpentry Tools

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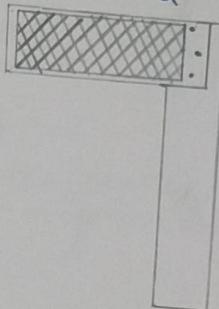
→ Measuring Tools:-

Measuring tools are used for measure the dimension of given wood long or piece.

Some of commonly used measuring tools are:-

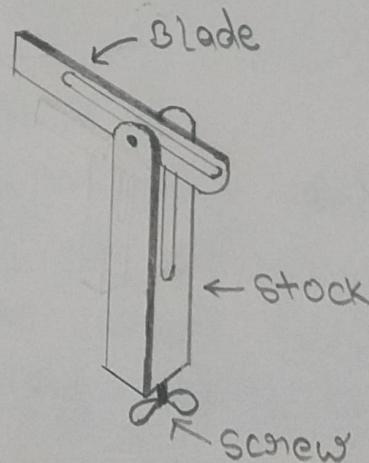
• Try Square:-

It is used for check for the perpendicularity of wood block or piece. It is also used to draw perpendicular lines when used with scriber or pencil.



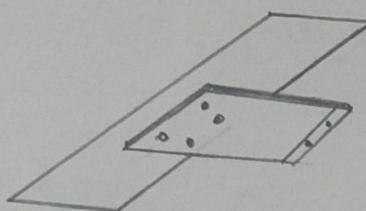
• Bevel square:-

It is used for setting, duplicating, testing and comparing angles and bevels. The blade can be adjusted at any point along the slot and at any angle from 0° to 180° because of its structure.



• Mitre Square:-

Mitre Square are used to measure an angle of 45°. They are made of all metal with a nickel-plated finish or with a steel blade, and an ebony or rose-wood stock.



Mitre Square

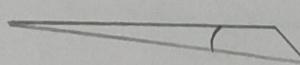
→ Marking Tools :-

Marking tools are used to make marks on wood after measuring.

Some of commonly used marking tools are:-

• Scriber:-

It is a steel rod with a sharp point at one end and flat blade at one end. Mainly used to make point or cut on wood.



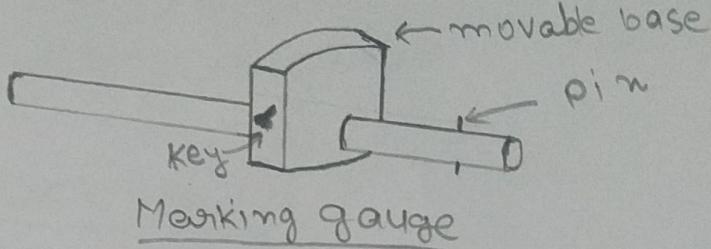
Scriber

• Marking gauge:-

It is mainly used to mark parallel lines to edge of wood piece. It consists of a movable wood base which can be fitted by a key. After fixing the key at

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specific point, you can use it to mark parallel lines with help of pin, on non-movable rod.



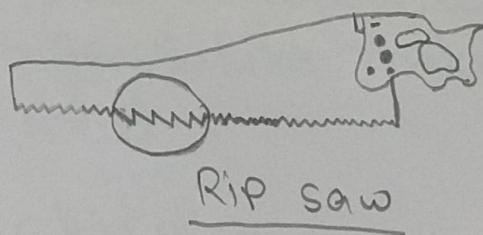
Cutting tools :-

Saws :-

Saws are most commonly used carpentry tools, used to cut wood log.

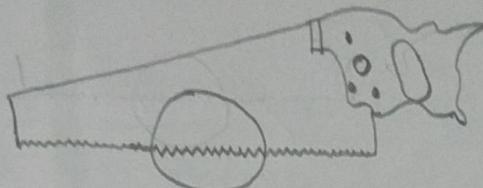
Rip Saw :-

Rip saw are used for cutting along the grain in thick wood. It's blade is made of high grade steel. It's blade is about 700mm long with 3-5 teeth per inch.



Cross Cut :-

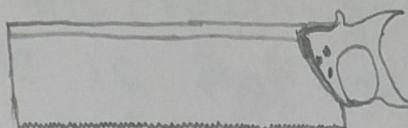
Cross cut or hand saw are used for cutting across the grain. It's blade is about 600 to 650mm long with 8 to 10 teeth per inch.



Cross-cut saw

- Tenon or back saw :-

It is mostly used for cross cutting when a finer and more accurate finish is required. Its blade is 250 to 400 mm in length and have 13 teeth per inch.



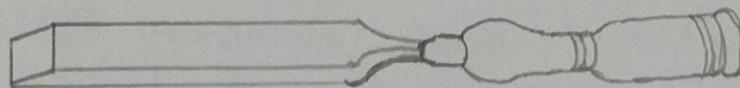
back saw

→ Chisels :-

They are used when we have to cut small section or part of wood, which can't be done with saws, like makes rectangular holes in wood.

- Firmer chisel :-

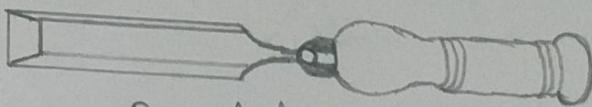
Most useful general purpose chisel, used by hand pressure of mallet. It has a flat blade of 125 mm long and width varies from 1.5 - 50 mm.



Firmer chisel

- Beveled edge firmer chisel:-

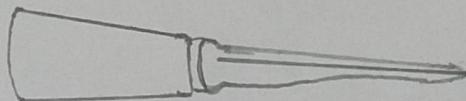
It is used for more delicate work than firmer chisel. They can go to corner where normal firmer chisel can't reach.



Beveled edge firmer chisel

- Mortise chisel:-

It is used for chopping out mortise. One part of blade is flat whereas other part is oval shaped. Width of blade varies from 3-16 mm.



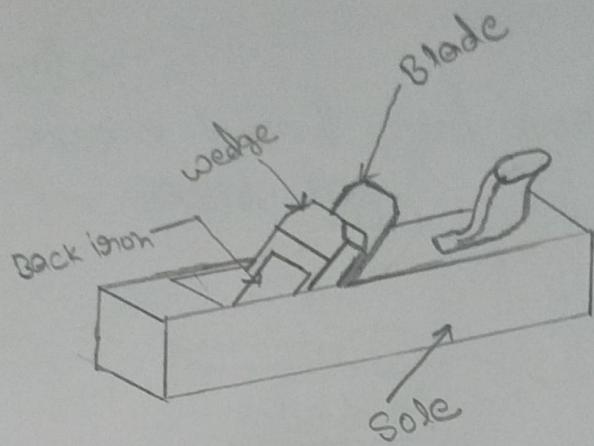
Mortise chisel

- Planing tools:-

They are used to make uneven surfaces of wood plane and even.

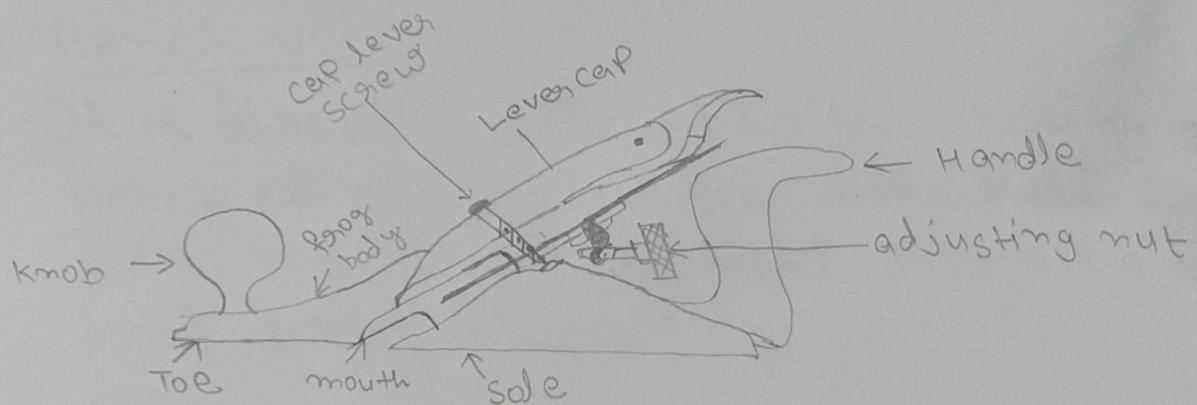
- Jack plain:-

It consists of a block of wood into which the blades are fixed by wooden wedge. The blade is set at an angle of 45° to the sole. On the cutting blade another blade is fixed called cap iron.



- Metal jack plane :-

It has same purpose as jack plane but gives smoother and better finish.

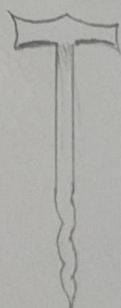


- Boring tools :-

They are used to bore in wood log.

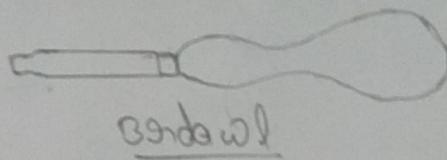
- Gimlet :-

It is a hand operated tool, used to bore small hole.



• Bendawl :-

It is also a hand used tool as Gimlet to bore in wood log.



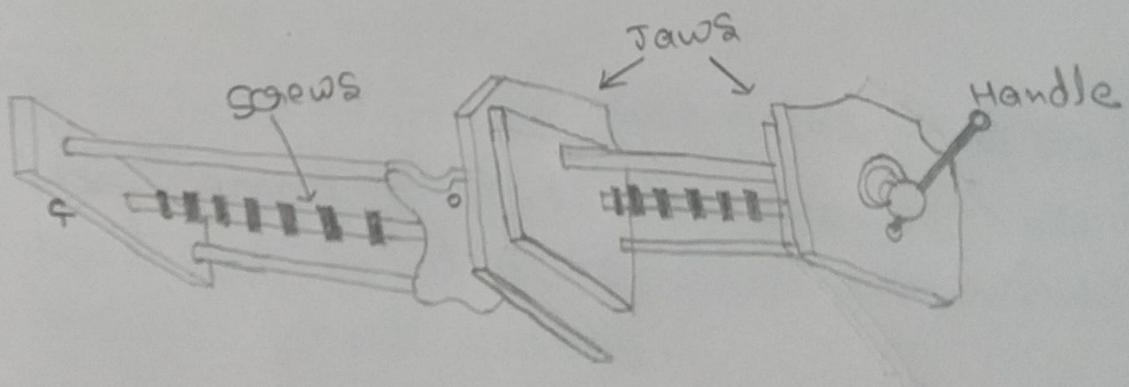
Bendawl

→ Holding tools :-

They are used to hold the wood piece to work on them.

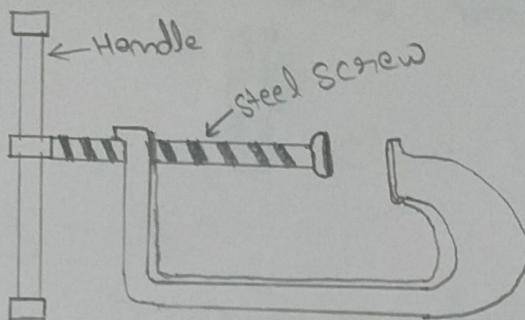
• Bench vice :-

It is directly attached with working bench of the carpenter. After that you can use screw to tight this vice to hold wood piece.



• F-clamp:-

It is a small piece of equipment which is used to hold the piece of wood while doing fine works like chiseling.

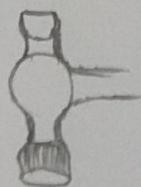


→ Striking Tools:-

They are used to apply force of chisels to cut wood pieces and to pin nails in wood or to do something like that.

• Cross peen hammer:-

It is used to strike using its flat part and its second part is like peen which is used to bend or scratch or hammer inside small curves.



CROSS - PEEN hammer

• Claw hammer:-

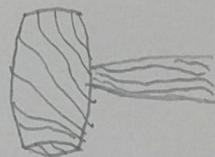
One end of hammer is flat to strike and other end has claw like structure to remove the nails stuck in wood.



claw - hammer

• Mallet:-

It is a hammer made of wood. Used when we need low strength strike.



Mallet

Carpentry shop

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Job no. 2 - Mortise and tenon joint

AIM:- To make Mortise and tenon joint from given wood piece.

Material required :- Teak wood of size $280 \times 40 \times 22$ in mm.

Tools required :-

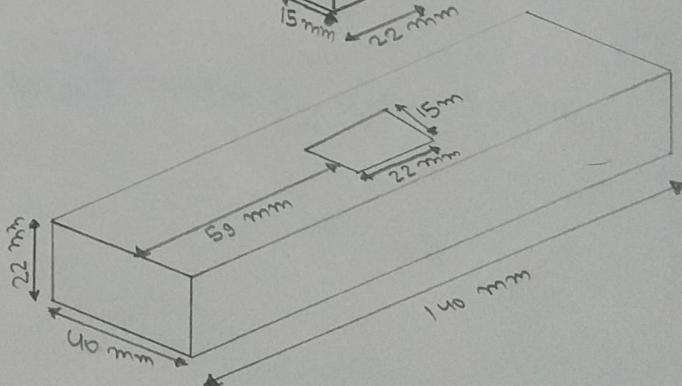
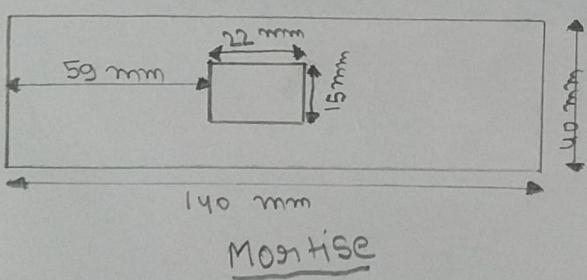
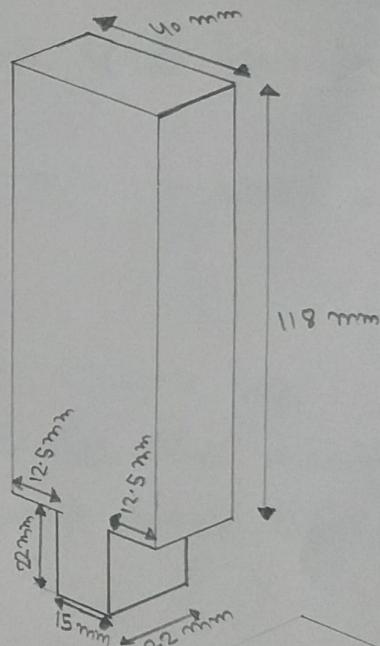
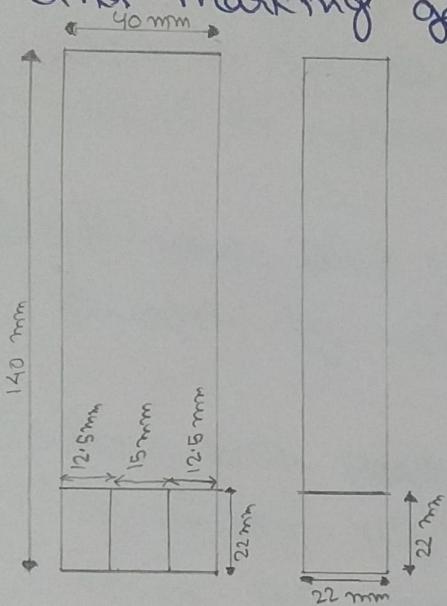
- i> Scribe or
- ii> Meter scale
- iii> Marking gauge
- iv> Try square
- v> back Saw
- vi> bench vice
- vii> F-clamp
- viii> Mortise chisel
- ix> Mallet
- x> Firmer chisel of $\frac{1}{2}$ "
- xi> Metal jack plane

Operations to be carried out :-

- Marking and measuring
- Sawing
- Chiselling
- Finishing

Procedure :-

- i> All sides of given wood piece is already smooth so, first cut the wooden piece in two equal part across it's length i.e. make the two wood pieces each of size (140x10x22 mm).
- ii> With the help of try square check for squareness of pieces. If they are not square make them by using metal jack plane.
- iii> If pieces are square mark the pieces with scribe and marking gauge as shown in figure.



- (T2)
- iv) Hold the tenon with bench vice and remove excess material with back saw. Cut the unwanted material in such a way that tenon size is slightly larger than required size. So, cut outside the scribed line.
 - v) Now, hold second wood piece with F-clamp and cut the marked hole by using mortise chisel. We need to cut the hole half from one side and half from other side.
 - vi) Since, width of mortise chisel is 10mm and we have to cut 15 mm width hole, use $\frac{1}{2}$ " firmer chisel to remove rest of excess wood from hole.
 - vii) If inner part of hole is not smooth, make it smooth by using chisel.
 - viii) Now, both parts are complete so, check for assembly. If part do not fit, finish the mortise/tenon as required by chisel and check again if you get required fit.
 - ix) If both get assembled thet mean, you have completed the job.

Precaution:-

- Use hand gloves always while working in carpentry shop.
- Use eye goggles in working shop to keep your eye protected from wood dust.
- If there is loud noise use ear muffs.

Result:-

Mortise and tenon jointed made successfully.