

**SANGAM SKM COLLEGE - NADI**  
**LESSON NOTES – WEEK 1**  
**YEAR 12**  
**APPLIED TECHNOLOGY**

<b>Strand</b>	AT 12 .6: APPLIED ENGINEERING
<b>Sub-Strand</b>	TD 12.6.1: Carpentry and Joinery
<b>Learning Outcome</b>	<ul style="list-style-type: none"><li>• Identify and familiarize with applied engineering skills</li><li>• Exhibit competences incorporated in tasks, projects and other artefacts</li></ul>

The process called Joinery is a special kind of carpentry that builds items like bookcases, cabinets, doors, windows, stairs and such special items by joining wood without the use of nails. The difference between joinery and carpentry involves the building of wood items in a woodshop making nail less joints.

### **Safety**

Safety precaution in workshop and Factories are very differ accounted to the nature of different trade. Safety first is a term used when planned measures or precautions are taken to control situations and act in an endeavor to prevent

1. Injury to the person concerned
2. Injury to others
3. Damage to the workshop, its equipment and materials

Type of SAFETY used in carpentry workshop.

#### **Personal safety precaution:-**

1. In workshop wear a short sleeve shirt or boiler suit.
2. If you are wear tie, tuck in or chain, wrist watch, ring or loose ornaments remove it, especially working on machine.
3. Always wear safety shoes

Exercise: Sketch any 2 types of PPE that are mentioned above.

Reference site: <https://www.youtube.com/watch?v=WgLOd2sYYhw>

#### **Tools safety precaution:-**

1. Dull tools are dangerous always keep them sharpening
2. Do not keep hand tools on machine
3. Never keep sharp tools in your pockets,
4. Never use your hands as a brush to sweep away chipping burrs etc.
5. When anybody ask you to give a sharp tools, hold the edge in your hand and the handle to other person.
6. Always use the proper tools to the right job. This will help you to make your job easier, faster and ensure safety.

Exercise: State 3 things that help in maintaining tools from getting damaged inside the workshop.

Reference site: <https://www.youtube.com/watch?v=DuU2mnJcxPM>

#### **Housekeeping safety precaution:-**

1. Keep always your workshop neat and clean.
2. Stack the material neatly so that it will not fall when taking from the stock.
3. Always keep Fire extinguisher at easily reach to hand in emergencies.
4. Do not store any material in the way.

Exercise: State 3 examples of each safety type that people forget to follow.

Reference site: <https://www.youtube.com/watch?v=UuDjWUxmtUk>

Note: if you cannot print and paste the notes you can write in your note book. Answer all exercises in your note book.

**SANGAM SKM COLLEGE - NADI**  
**LESSON NOTES – WEEK 2**  
**YEAR 12**  
**APPLIED TECHNOLOGY**

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## WOODWORKING JOINTS

Successful woodwork depends mainly on the correct and accurate joining of pieces of wood.

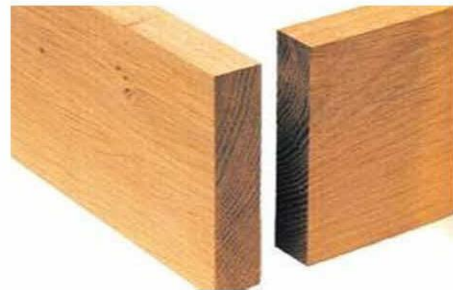
### EDGE JOINTS

These joints are used when fitting together two or more pieces of timber to make up a wide surface. For this reason they are often called widening joints.



### BUTT EDGE JOINT

Is used when a wide board is to be made up of a number of narrow boards glued together, such as table tops and car case ends.



### DOWELLED EDGE JOINT

This joint is prepared in the same way as the cramped butt edge joint; that is, a slight hollow is planted along the length of the boards. Dowel holes are bored at regular intervals into which dowels are glued and the board glued and clamp together to produce a strong joint.



### TONGUED AND GROOVED OR MATCHED JOINT

This is a strong joint which is usually made by machine. Its strength lies in the extra gluing surface presented by the tongue and groove.

### TONGUED EDGE JOINT

This is a strong joint. It is similar to the ordinary butt joint except that a groove is run along the edge of each piece into which a tongue is inserted. For extra strength, the tongue is usually cross-grained or plywood.

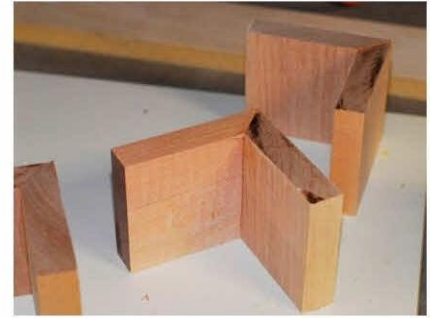


## ANGLE OR CORNER JOINTS

These joints are used in the construction of boxes and plinth, etc., where the pieces are joint with their faces at right angles.

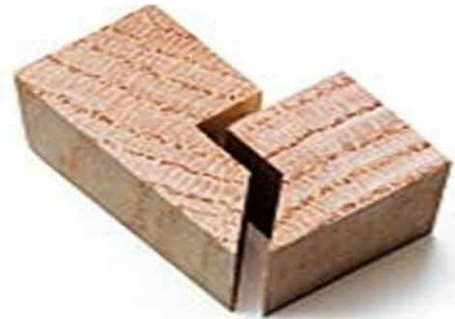
### BUTT ANGLE JOINT

This is the cheapest type of construction. The ends are cut square, butted and nailed together at right angles, it is used in the construction of cheap boxes, packing cases, etc.



### SHOULDERED BUTT OR REBATED BUTT ANGLE JOINT

This is a better type of construction. The end of one piece is fitted and nailed into a rebate cut on the other. It has the disadvantage of having one face free of nail holes and, if glued, provides a strong, neat joint. It is used for boxes, plinths, cheap drawers.



### TONGUED AND GROOVED ANGLE JOINT

When glued and cramped together, this is a strong joint showing no nail holes. It is used extensively for cabinetwork, plinths, carcass ends, etc.



### SHOULDER AND MITRED ANGLE JOINT

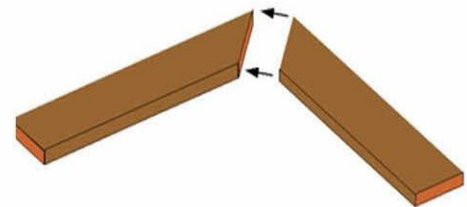
This joint is neat and strong and has the advantage that it does not show end grain. It is used for corners of cabinets, boxes, plinths, etc.

### MITRED ANGLE JOINT OR PLAIN MITRED JOINT

This joint may be left 'plain' or strengthened in one of several ways depending on its intended use.

A glue block is often glued and rubbed behind the joint when it is used for the construction of plinths.

A tongue may be inserted into the grooves cut in the pieces. This gives extra strength and makes the cramping of the joint easier, the tongue preventing the joint from sliding under the pressure of the clamp.



**Exercise: Sketch any 3 joints of choice and label the parts of that particular joint.**

Reference Site: <https://www.youtube.com/watch?v=zqXLYe783qw>

**SANGAM SKM COLLEGE - NADI**  
**LESSON NOTES – WEEK 3**  
**YEAR 12**  
**APPLIED TECHNOLOGY**

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### **COMMON OR THROUGH DOVETAIL ANGLE JOINT**

This is possibly the strongest form of angle joint. It consists of one or more ‘dovetail’ cut on the end of one the other piece. The more dovetails the stronger will be the joint. Use in construction of strong boxes, tool chests and joints where strength is the main requirement.

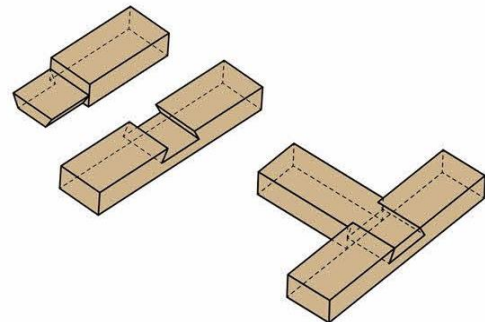


### **HALVED OR HALF-LAP JOINTS AND BRIDLE JOINTS**

These are joint used in making of frames and for this reason often called ‘framing’ joints.

#### **ANGLE HALVING JOINT**

It is used for framing in building work, frames for cores of cheap flush doors, screen doors etc. if glued and screwed from the back; it provides a neat, strong joint.



#### **MITRE HALVING JOINT**

This is similar to the angle halving joint except that the lap or pin of one is mitred to fit against the mitred shoulder of the other. It is used for appearance where the piece is moulded as in mirror frame and picture frame.



#### **TEE HALVING JOINT**

This is a halving joint in the form of a T shape. It is used in frames for connecting cross-pieces and divisions.

#### **DOVETAIL HALVING JOINT**

This is a stronger form of the tee halving joint and is used where pull may be exerted on the cross member, such as in top plates on buildings.

#### **CROSSED HALVING JOINT**

This is used where two piece cross each other, such as the cross rail of table or frame.

#### **ANGLE BRIDLE JOINT**

This is some time called an ‘open mortise and tenon joint’. It is used in the construction of frames where strength is important, such as tennis racket presses.

## **TEE BRIDLE JOINT**

This corresponds to the tee halving joint and is used for the same purpose, but is a much stronger joint. It is also used where a leg meets a rail or rim on a table.

## **MITRED BRIDLE JOINT OR MITRED ANGLE BRIDLE JOINT**

This is a neater type of angle joint, stronger than the mitre halving and having a neater appearance than the angle bridle joint. It is used for frames where both neatness and strength are required such as mirror frames.

## **MORTISE AND TENON JOINTS**

The mortise and tenon joint is one of the oldest framing joints known to man. The 'tenon' is the tongue piece cut in one member and the 'mortise' is the hole or recess cut in the other. The thickness of the tenon is usually one third the thickness of the timber.

### **COMMON OR THROUGH MORTISE AND TENON JOINT**

This is the simplest form of the mortise and tenon joint. It is used when a rail meets a stile some distance in from the end.

### **HAUNCHED MORTISE AND TENON JOINT**

This joint is used when the rails meets the stile or leg at the end.

### **LONG AND SHORT SHOULDERED MORTISE AND TENON JOINT**

When the rails and stiles have been rebated as for panelled and glass door frames, the rail must have one shoulder cut longer than the other to fit into the rebate.

## **HOUSING OR HOUSED JOINTS**

These are essentially carcass joints usually used to connect one piece of wide board to another, such as for shelves and divisions in cupboards.

### **THROUGH HOUSING JOINT**

It is used for cheaper work such as shelving and ladders.

### **STOPPED HOUSING JOINT**

It is used for shelving and divisions where a neat appearance is required.

**Exercise: Sketch any 3 joints of choice and label the parts of that particular joint.**

Reference Site: <https://www.youtube.com/watch?v=zqXLYe783qw>

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