

Chapter 5	Tools & Equipments
5.1	Introduction to various types of Knives, Hand tools and Small equipments, Measuring devices, Pots, Pans and Containers
5.2	Use and maintenance of Equipment- Cooking range, Mixer, OTG, Refrigerator.
5.3	Properties, Advantages and Disadvantage of various materials used in tools and equipment

5.1 Introduction to various types of Knives, Hand tools and Small equipment's, Measuring devices, Pots, Pans and Containers

At the end of this topic you would be able to understand....

[I.Classification of Equipments](#)

[II.Selection Criteria of Equipments](#)

III.Precaution, Care and Maintenance of Equipments

A kitchen is an area used for cooking and food preparation in commercial establishments. These kitchens are generally larger and equipped with bigger and more heavy-duty equipment than a residential kitchen.

Kitchen equipment is expensive and to justify the expense it is essential that maximum use is made of it. This can be done only if the equipment works efficiently and this depends upon care and maintenance.

[I. Classification](#)

Kitchen equipment may be divided into three categories:

[1. Large Equipment](#)

Ranges, Steamers, boiling pans, fryers, tables, sinks etc.

[2. Mechanical Equipment:](#)

Peelers, Mincing machines, mixers, refrigerators, dishwashers, exhausts etc.

[3. Small Equipments and Utensils:](#)

Pots, pans, whisks, bowls, spoons, knives, graters etc.

[LARGE EQUIPMENTS](#)

Stoves

A large variety of stoves are available operated by gas, electricity, solid fuel, oil, microwave plus convection. Solid tops should be washed clean or wiped clean with a pad of sacking. When cool the stove tops can be more thoroughly cleaned by washing and using an abrasive. Emery paper can also be used if necessary. After any kind of cleaning a solid top should always be lightly greased.

On the top of stove all the bars and racks should be removed, immersed in hot water with detergent, scrubbed clean, dried and put back in place on the stove. All gas jets should then be lit to check that none are blocked. All enamel parts of stoves should be cleaned while warm with hot detergent water, rinsed and dried.

The inside of ovens and even racks should be cleaned while slightly warm, using detergent water and a mild abrasive if necessary. In case of extreme dirt or grease being baked on the stove or oven a caustic jelly may be used, but thorough rinsing must take place afterwards. Oven doors

should not be slammed, as this is liable to cause damage.

The unnecessary lighting or the lighting of ovens too early can cause wastage of fuel, which is a waste of money. This is a bad habit common in many kitchens. When a solid top gas range is lit, the center ring should be removed, but it should be replaced after approximately 5 minutes, otherwise unnecessary heat is lost.

Convention

These are ovens in which a circulating current of hot air is rapidly – forced around the inside of the oven by a motorizing fan or blower. As a result a more even and constant temperature is created throughout the oven, which allows food to be cooked successfully in any part of the oven. This means that the heat is used more efficiently. Cooking temperature can be lower, cooking times shortened and overall fuel economy achieved

Forces air convention can be described as fast conventional cooking: conventional in that heat is applied to the surface of the food but fast since moving air transfers its heat rapidly than does static air. In a scaled oven fast hot air circulation reduces evaporation losses, keeping shrinkage to a minimum, and gives the rapid change of surface texture and colour, which is traditionally associated with certain cooking process.

There are 4 types of convention oven:

1. Where forced air circulation within the oven is accomplished by means of a motor driven fan, the rapid air circulation ensures even temperature distribution to all parts of the oven.
2. Where low velocity, high volume air movement is provided by a power blower and duct system.
3. A combination of a standard oven and a forced convention oven designed to operate as either by the flick of a switch.

A single roll-in rack convention oven with heating element and fan house outside the cooking area. An 18 shelf mobile oven rack makes it possible to roll the filled rack directly from the preparation area into the oven

Microwave cookers

Microwave is a method of cooking and heating food by using high frequency power. The energy used is the same as ray, which carries television from the transmitter to the receiver but is at a higher frequency.

The waves disturb the molecules or particles of food and agitate them, thus causing friction which leaves the effect of cooking in the whole of the food, whereas in the conventional method of cooking, heat faster cooking time, easy maintenance, hygienic, safe, improved working environment (less heat in the kitchen)

However, induction tops are expensive and special cooking utensils are required. Any non magnetic material does not work and aluminum and copper are unsuitable. Stainless steel enameled ware, iron and specially adapted copper pans are suitable

Steamers

There are 4 types of steamers:

1. Atmospheric steamer
2. Pressure steamer
3. High comparison steamer
4. Pressure less convention steamer

The atmospheric steamer is a pressure less. It has a boiling water bath in the bottom of the steaming compartment and a vent so that the steam does not rise above atmospheric pressure. For this reason the door can be opened safely at any time, although some steam is lost. Heat source can be gas or electricity. The pressure steamer is constructed with the pressure safety valve, which only allows steam to escape on reaching a certain pressure. Foods cooked in this type of steamer cook quicker than in the atmospheric steamer. Care must be taken when opening the door, it should be opened slowly so as to allow pressure to go down and no one should be close to the escaping steam. When opening the door stand on the hinge side.

If the atmospheric and pressure type steamers are operated by gas or electricity then an automatic water supply by half valve is provided to ensure a constant level of water in the steam generating tank. It is important to see that the tap controlling the supply of water to the valve is working correctly and that the ball valve arm and washer are both in efficient working order. If these precautions are not taken there is danger of the generating tank burning dry and becoming damaged.

Some pressure steaming ovens heat source is from the main steam, supply. This type of equipment is fitted with a gauge, which registers the steam pressure being supplied, and an overflow valve, which gives a warning whistle if pressure is allowed to rise to a dangerous level. It is essential that a qualified engineer to ensure that they are working correctly check both the gauge and valve.

The high comparison steamer is similar in principle to the pressure steamer but works at a higher pressure, therefore the food cooks more quickly. This equipment is usually fitted with a timer and is designed to batch cook fresh or frozen vegetables in 1-5 minutes, however it does not have a large capacity.

Pressure less convention steamers cook at a low temperature with a convention fan in a pressure less air-free compartment. The steam generator is fitted under the steamer in a separate compartment and it generates purified steam under pressure, which is introduced into the cooking compartment.

Cleaning of steamers is essential, trays and runners should be washed in hot detergent water. The water generating chamber should be cleaned and refitted and the inside of the steamer cleaned with detergent water and rinsed. Steamer door controls should be lightly greased occasionally and the door left open slightly to allow air to circulate when the steamer is not in use.

Brat Pan / Tilting Pan

The brat pan is the most versatile piece of cooking equipment in the kitchen because it is possible to use it for shallow frying, deep frying, stewing, braising, and boiling. Because of the large surface area a brat pan cooks many items of food at one time. A further advantage is that it can be tilted so that the contents can be quickly and efficiently poured out on completion of the cooking process. Brat pans are heated by gas or electricity and several models are available incorporating various features to meet different catering equipments.

Boiling pans / Steam-jacket kettle

Many types are available in different metals-aluminum; stainless steel etc, in various sizes, 10, 15, 20, 30 and 40 liter capacity, and they may be heated by gas. Electricity or steam from the main steam supply. As they are used for boiling or stewing large quantities of food, it is important that they do not allow the food to burn. It is for this reason that the steam jacket type boiler is the most suitable. Many of these boilers are fitted with a tilting device to facilitate the emptying of the content. After use, the pan and lid should be thoroughly washed with mild detergent solution and then well rinsed. Any moving part should be greased occasionally and checked to see that they are in good working order.

Deep Fat Fryers / Furniture

These are among the items of equipment which are used commonly in many catering establishments. The unskilled or careless worker can cause money to be lost by food or fat being split through misuse of a deep fat fryer. Fryers are heated by gas or electricity and most incorporated a thermostatic control in order to save fuel and prevent overheating. There is cool zone below the source of heat into which food particles can sink without burning and thus spoiling the food being cooked. This form of heating also saves fat.

Pressure fryers

Food is cooked in an airtight frying vat thus enabling food to be fried a lot faster and at a lower oil temperature

Hot air Rotary Fryers

These are designed to cook batches of frozen battered foods without any oil in 4 – 6 minutes. Computerized fryers are available which may be programmed to control automatically cooking temperatures and times, on and off switches, basket lifting and product holding times. Operational information is fed from a super sensitive probe which is immersed in the fryer medium and passed information about temperature and rates of temperature changes which may be caused by the initial fat temperature, amount of food being fried, fryer efficiency and capacity, fryer recovery rate, quantity and condition of fat, product temperature and water content.

With all the above information the fryer computes exact cooking time and as automatic signaling device indicates the end of cooking period.

Deep fat-fryers should be cleaned daily after use by:

1. Turning off the heat and allowing the fat to cool.
2. Draining off and straining the fat.
3. Closing the stopcock, filling the fryer with hot water containing detergent and boiling for 10 -15 minutes.
4. Draining off the detergent water, refilling with clean water plus 1/8 liter of vinegar per 5 liters of water and re-boil for 10 – 15 minutes.
5. Drain of the water, drying the fryer, closing the stopcock and refill with clean fat

Grills & Salamander

The salamander or Grill heated from above by gas or electricity probably causes more waste of fuel than any other item of kitchen equipment through being allowed to burn unnecessarily for long unused periods. Most salamanders have more than one set of heating element or jets and it is not always necessary to have them all turned on full.

Salamander bars and draining trays should be cleaned regularly with hot water containing a grease solvent such as soda. After rinsing they should be replaced and the salamander lit for a few minutes to dry the bars.

For under fried grills to work effectively they must be capable of cooking food quickly and should reach a high temperature 15-20 minutes after lighting, and the heat should be turned off immediately after use. When the bars are cooled they should be removed and washed in hot water containing a grease solvent, thoroughly rinsed, dried and replaced on the grill. Care should be taken with the firebrick if they are used for lining the grill, as they are easily broken.

Contact grills

These are sometimes referred to as double size or infra grill, have two heated surfaces arranged facing each other. The food to be cooked is placed on one surface and is then covered by the second. These grills are electrically heated and are capable of cooking certain foods very quickly. Because of this, extra care is needed, particularly when cooks are using this type of grill for the first time.

Fry plate, Griddle plate

These are solid metal plates heated from below. They are used for cooking individual portions of meat, hamburgers, eggs, bacon, etc. they can be heated quickly to a higher temperature and are suitable for rapid and continuous cooking. When cooking is first commenced on the griddle plate, a light film of oil should be applied to the food and the griddle plate to prevent sticking. To clean griddle plates, warm the plates and scrape off the loose food particles. Rub the metal with pumice stone or griddle stone, following the grain of the metal. Clean with hot detergent water, rinse with clean hot water and wipe dry, finally reseason (prove) the surface by lightly oiling with vegetable oil.

Sinks

Different materials are used for sinks according to the purpose for which they are intended:

1. Heavy galvanized iron for heavy pot wash
2. Stainless steel for general purpose
3. Glazed earthenware for general lighting purposes

Sinks, drainages, waste and overflow outlets should be cleaned with a suitable abrasive power cleaner, thoroughly rinsed with plenty of clean water and left to dry.

Tables

Wooden tables should be scrubbed clean with hot soda water, rinsed and wiped as dry as soon as possible to avoid warping.

Formica or stainless steel topped tables should be washed with hot detergent water, rinsed with hot water and dried.

Marble slabs should be scrubbed with hot water and rinsed. All excess moisture should be removed with clean dry tooth.

No cutting chopping should be allowed on tabletops, chopping boards should be used. Hot pans should not be put on tables; triangles must be used to protect the table surface. The legs and racks or shelves of tables are cleaned with hot detergent water and then dried. Wooden table legs require scrubbing

Butchers or Chopping blocks

A scraper should be used to keep the block clean. After scraping the block should be sprinkled with few handful of common salt in order to absorb any moisture, which may have penetrated during the day.

Do not use water or liquids for cleaning unless absolutely necessary as water will be absorbed into the wood and cause swelling.

Storage racks

All types of racks should be emptied and scrubbed or washed periodically.

MECHANICAL EQUIPMENTS

If a piece of mechanical equipment save time and physical effort and still produce a good end result then it should be considered for purchase. The performance of most machines can be closely controlled and is not subject to human variations so that it should be easier to obtain uniformity of production over a period of time. The caterer is faced with two considerations:

- The cost of the machine, installation, maintenance, depreciation and running cost
- The possibility of increased production and a saving of labor cost

The mechanical performance must be carefully assessed and all the manufacture's claims as to the machine's efficiency thoroughly checked. The design should be foolproof, easy to clean and operated with minimum efforts

When a new item of equipment is installed a qualified fitter should test it before being used. The manufacturer's instructions must be displayed in a prominent place near the machine. The manufacturer's advice regarding servicing should be followed and a record book kept showing when and what maintenance the machine is receiving. The following list includes machines typically found in catering premises, which are classified as dangerous under the prescribed dangerous machine order 1964.

A. Power driven machine of the following types

1. Worm type mincing machines
2. Rotary knife bowl type chopping machines
3. Dough mixers
4. Food mixing machines when used with attachments for mincing, slicing, chopping and any other cutting operation or for crumbling
5. Pie and tart making machines
6. Vegetable slicing machines

B. The following machines whether power driven or not

1. Circular knife slicing machines used for cutting bacon and other foods (whether similar to bacon or not)
2. Potato chopping machines. Before cleaning the machine should be switched off and the plug removed from the socket.

Electric Food Pre-Preparation Equipments

1. Potato Peeler

- Potatoes should be free of earth and stones before loading into the machine
- Before any potatoes are loaded the water spray should be turned on
- And the abrasive plate set in motion
- The interior should be cleaned out daily and the abrasive plate, removed to ensure that small particles are not lodged below
- The peel trap should be emptied as frequently as required
- The waste outlet should be kept free from obstruction.

2. Hot Plate: Use as a tawa for making Dosa, Pancakes, Chapaties etc

3. Food mixer: This is an important labor saving electrically operated piece of equipment used for many purposes, for e.g. mixing pastry, cakes, mashing potatoes, beating egg whites, making mayonnaise, whipping cream, mincing of boiled vegetables etc.

- It should be lubricated frequently in accordance with manufacturer's instructions
- The motor should not be overloaded. Overloading can be caused by obstruction to the rotary components. For e.g. if dried bread is being passed through the mince attachment without sufficient care the rotary cog can become so clogged with bread that it is unable to move. If the motor is allowed to run damage can be caused to the machine.
- All components as well as the main machine should be thoroughly washed and dried. Care should be taken to see that no rust occurs on any part. The mince attachment knife and plates will rust if not given sufficient care.

4. Vertical or high speed cutter: This is an extremely fast, versatile labor saving machine, which can deal with a great amount of the repetitive, time consuming work required in some kitchen operations

5. **Liquidizer / Blender:** This is a versatile, labor saving piece of kitchen machinery, which used a high speed motor to drive specially designed stainless steel blades to chop or blend foods efficiently and very quickly. As a safety precaution food must be cooled before being liquidized
6. **Food slicer:** Food slicers are obtainable both manually and electrically operated. They are labor saving devices, which can be dangerous if not operated with care. Because of this the working instructions should be placed in a prominent position near the machine.
 - Care should be taken that no material likely to damage the blades is included in the food to be sliced or chopped. It is easy for careless worker to overlook a piece of bone, which is allowed to come into contact with the cutting blade could cause severe damage
 - Each section in contact with food should be cleaned and carefully dried after use
 - The blade or blades should be sharpened regularly
 - Moving parts should be lubricated but oil must not come in contact with food
 - Extra care must be taken when blades are exposed
7. **Chopper (Hand or Electric):** The manual type should be washed and dried after use. Care should be taken with the interior of the blades; they should be cleaned with a folding cloth. When chopping potatoes, pressure should be applied gradually to prevent damage to the cutting blades, which can be caused by violent jerking. The electric chopper should be thoroughly cleaned and dried after use. Particular attention being paid to those parts, which come in contact with food care should be taken that no obstruction prevents the motor from operating at its normal speed. Moving parts should be lubricated according to the maker's instructions
8. **Masher (Hand or Electric):** The hand type should be washed immediately after use, then rinsed and dried. The electric masher should have the removal sections and the main machine washed and dried after use, extra care must be taken over those parts, which come into contact with food. The same care should be taken as with electric clippers regarding obstruction and lubrication
9. **Food cutters:** Food chopper also known as "buffalo chopper," is a common piece of equipment used for general chopping of foods. A variety of attachments make it a versatile tool.
10. **Water boiling appliances for Tea and Coffee making:** There are two main groups of water boilers from boiling water can only be drawn when all the contents have boiled and automatic boilers, which provide a continuous flow of boiling water.
11. **Bulk Boilers:** These are generally used when large quantities of boiling water are required at a given time. They should be kept scrupulously clean, covered with the correct lid to prevent anything falling in and when not used for some time they should be left filled with clean cold water.
12. **Automatic Boiler:** These boilers have automatic water supply and can give freshly boiled water at intervals. It is important to see that water supply is efficiently maintained, otherwise there is a danger of the boiler burning dry and being damaged.
13. **Pressure Boilers:** This is the type that operates many still sets, consisting of steam heating mil boilers and pressure boiler providing boiling water. Care should be taken with the pilot light to see that it is working efficiently. As with all gas fired equipment, it is essential that gas company fitters carry out regular inspection and maintenance. Coffee and milk heaters water jacket boilers are made for the storage of hot coffee and hot milk with draw-off taps from the storage chamber. Inner linings may be glazed earthenware, stainless steel or heat resistant glass. It is very important that the storage

chambers are thoroughly cleaned with hot water after each use and then left full clean cold water. The draw – off taps should be cleaned through regularly with a special brush.

14. Dishwashing machine: For hygienic washing up the generally recognized requirements are good suppliers of hot water at a temperature of 60°C for general cleaning followed by a sterilizing rinse at a temperature of 82°C for at least one minute? Alternatively low temperature equipment is available which sterilize by means of a chemical. Dishwashing machines take over an arduous job and save a lot of time and labor, ensuring that a good supply of clean sterilized crockery is available.

There are 3 main types:

- Spray types in which the dishes are placed in racks which slide into the machine where they are subjected to a spray of hot detergent water at 48 to 60°C from above and below
- The racks move on to the next section where they are rinsed by a fresh hot shower at 82°C. at this temperature they are sterilized and on passing out the air they dry off quickly
- Brush type machines are revolving brushes for the scrubbing for each article in hot detergent water the articles are then rinsed and sterilized in another compartment
- Agitator water machines in which baskets of dishes are immersed in deep tanks and the cleaning are performed by the mechanical agitation of the hot detergent water. The loaded baskets are then given a sterilizing rinse in another compartment
- Dishwashing machines are costly and it is essential that the manufacturer's instructions with regard to use the maintenance are followed at all times

15. Food Waste Disposal: are operated by electricity and take all manner of rubbish, including bones, fat, scraps and vegetable refuse. Almost every type of rubbish swirl with the exception of rags and tins is finely ground, then rinsed down the drain. It is the most modern and hygienic method of waste disposal. Care should be taken by handlers not to push waste into the machine with a metal object as this can cause damage.

REFRIGERATION EQUIPMENTS

Refrigerators: In order to maintain a refrigerator at peak efficiency the following points should be observed

1. Defrost weekly: If the refrigerator is not of the automatic defrost type the control should be turned to defrost the racks should be emptied and racks and interior surfaces washed, rinsed and dried. If the refrigerator is not defrosted regularly excess frost accumulates on the cooling system, acts as an insulator and causes the refrigerator motor to work longer than is necessary, thus shortening the life of the components.
2. The door or doors should be kept closed as much as possible, otherwise if too much warm air is allowed to enter, the refrigerator plant overworks and excess frost can accumulate on the cooling system.
3. Food should be stored sensibly and in such a way that the cold air can circulate all round. Excessive packing of food into refrigerator should be avoided.
4. A qualified service engineer should be called in at the first sign of any defect in the machinery operating a refrigerator

Cold rooms, Chilled rooms, Deep freeze cabinets and compartment

In large establishments it is necessary to have refrigerated space at different temperatures. The cold rooms may be divided into separate rooms: one at chill

temperature for storing salads, fruits, certain cheeses; one for meat, poultry, game and tinned food which have to be refrigerated; one for deep frozen foods. Frequently the cold room storage is designed so that the chill room, the cold room and the deep freeze compartment lead on from each other.

Refrigerated cabinets, thermostatically controlled to various desired temperatures are also used in large larder. Deep freeze cabinets are used where a walk-in, deep-freeze section is not required and they maintain a temperature of -18°C . Chest type deep freeze cabinet requires defrosting twice a year. It is important to close all refrigerator doors as quickly as possible to contain the cold air.

FOOD HOLDING / STORAGE EQUIPMENTS

Hot food storage equipment:

Several types of equipments are used to keep food hot for service. This equipment is designed to prevent the growth of bacteria that can cause disease. Because food continues to cook at these temperatures it should be held for as short a time as possible

1. **Steam tables:** are standard for holding equipment for servicing lines. Standard size counter pans or hotel pans are used as inserts to hold the food. Flat or domed covers may be used to cover the food.
2. **Bain Marie:** is a hot water bath. Containers of food are set on a rack in a shallow container of water, which is heated by electricity, gas or steam. The Bain Marie is used for more in the production area, while the steam table is used in the service area.
3. **Overhead Infrared lamps:** are used in service area to keep the plated food warm before it is picked up by the service staff. They are also used for keeping large roasts warm.

Cold food storage equipment:

The quantity of the food you serve depends to a great degree on refrigeration equipment. By keeping foods cold, usually below 40°F (5°C), the refrigerator (known in the trade as the cooler or the box) guards against spoilage and bacterial growth.

Freezers are used to hold the food for longer times, or to store foods purchased in frozen form. There are so many sizes, models and designs of refrigeration equipment that it would be futile to try to describe them all. To enable refrigerators and freezers to work at top efficiency, observe the following rules:

1. Place them far enough apart and away from inside walls of refrigerator so that cold air can circulate. Freezers on the other hand work most efficiently when they are full.
2. Keep the doors closed as much as possible. When storing or removing an item, do it quickly and shut the door
3. Keep stored food well wrapped or covered, to prevent drying and transfer of odors.
4. Keep refrigerators spotlessly clean.

Display cabinets: Normally placed in the pastry shop for display of cold desserts, cakes and pastries

Hot Plates and Heated Cupboards

Hot cupboards (commonly referred to in the trade as the hotplate) are use for heating plates and serving dishes and keeping food hot. Care should be taken to see that the amount of heat fed into the hot cupboard and is controlled at a reasonable temperature.

This is important otherwise the plates and food will be too hot or cold and this could obviously affect the efficiency of service. A temperature of 60 to 76°C is suitable for hot cupboards and the thermostat is a help in maintaining this.

SMALL EQUIPMENTS AND UTENSILS

Small equipments and utensils are made from a variety of materials such as non-stick coated metal, iron, steel, copper, aluminum, wood etc.

1. **Sauté use:** this is a shallow long handled vessel with sloping sides and wide surface areas, made of tin – lined copper. It is predominantly used in the preparation of sauces in which reduction or rapid reducing is required. The wide surface ensures a speedy evaporation it is also used for reheating vegetables in butter as sloping side facilitates ‘tossing’ of vegetables during this process and may be used for stove top stewing. It is available in various sizes e.g. 20 cm (8 inch) in diameter 7 cm deep.
2. **Plat a sauté:** this is a shallow long handled vessel made of tin-lined copper or aluminum with straight sides and wide surfaces area. It is ideal for use while preparing meat sauté where the food juices are incorporated as an integral part of finished product. It is available in various sizes e.g. 15 cm diameter upwards.
3. **Frying Pan:** Frying pans are solid based pans made of iron steel aluminum vitrified iron or stainless steel, with shallow sloping sides and a wide surface area to ensure even heat of frying foods. They are available in various sizes with long or side handles e.g. 15 cm base diameter, upwards.
4. **Firture:** whether round or oval, single or double handled, a firture has a wire basket that fits into the pan can be used for all deep fat frying and batch frying small quantities.
5. **Stockpot:** This deep lidded, double handed pan has tap near bottom for letting off stock and is made from heavy duty aluminum. Stockpots are used on top of stoves only for making large quantities of stock.
6. **Stew pan / Sauce pan:** This type of aluminum pan is either single handled type is used on top stove only, whereas the double handled type is also used in the oven. Both types are used for all boiling and stewing.
7. **Boiling Pan:** This aluminum pan has two hand les and a lid is available with wide range of sizes 2-65 liters and used on top of stoves or on the oven for all boiling and stewing.
8. **Braising pan:** This type of pan is as above, but shallower and available in a similarly wide range of sizes 11-30 liter. It is used for Braising vegetables or main meal items on top of stoves.
9. **Omelette pan:** Made from aluminum, copper or wrought steel, this type of pan is hallow, round and single handled. It is used only for omelettes and crepes.

COOKING TINS

1. **Baking Sheet:** They are used
 - a. For bakery and confectionery
 - b. Under large and small containers to act as a drip tray
 - c. To assist in the easy handling of batches of individual items
2. **Pie dishes:** usually made from aluminum, these dishes are available in the range of shapes. They are used for baking savory and sweet pies or stewed items
3. **Pudding sleeves:** These aluminum cylinders are available in portion sizes. These are used for steamed sweet and savory items
4. **Roasting tins:** These are used for open oven roasting as they do not have lids. Tin foil covering can be used to protect meat.

KNIFES

1. **Boning knife:** This is used for boning of raw or cooked meat. The carbon steel blade must be sharpened regularly
2. **Chef's knife, Vegetable knife (103 or 155 mm/4 or 6 inches):** this knife has a small shaped handle and a short carbon steel or stainless steel blade it is used for fine preparation, vegetable pairing and finishing
3. **Chef's knife (205 mm/8 inches):** This is with longer and heavier blade (305mm/ 10 to 12 inches) and are usually made from carbon steel, but can be stainless steel they are used for all preparations and chopping. The knife is rocked, using the whole length of the blade for effective chopping
4. **Filleting knife:** This has a long, flexible carbon steel or stainless steel, (155mm / 6 inches) blade. It is used for skinning and filleting of fish
5. **Palette knife:** This has carbon steel or stainless steel blades, 155, 205, 255 or 305 mm long. They are used for moving prepared food, turning cooked food and lifting cooked food from oven trays. Also used for icing cakes
6. **Steel:** This is a carbon steel bar with either a wooden or polypropylene handle. It is used for sharpening all knives
7. **Paring knife:** Small knife 100 to 120mm / 4 to 5 inches, used for cutting, peeling etc

KITCHEN TOOLS

- | | | |
|-------------------------|----------------------|------------------|
| 1. Peeler | 6. Scraper | 12. Zester |
| 2. Rubber spatula | 7. Sugar Thermometer | 13. Cheeseslicer |
| 3. Balloon whisk | 8. Meat Thermometer | 14. Apple corer |
| 4. Egg beater | 9. Wooden spatula | |
| 5. Scooper/Melon Baller | 10. Wooden spoon | |
| | 11. Scissors | |

Properties, advantages and disadvantages of various materials used in tools & equipment

Iron: Items of equipments used for frying, such as movable fritures and frying pans of all types, are usually made of heavy, black wrought iron.

Frying pans are available in several shapes and sizes

- Omelette pans
- Frying pans
- Oval fish frying pans
- Pancake pans

Baking sheets are made in various sizes of black wrought steel. The less they are washed the less likely they are to cause food to stick. New baking sheets should be well heated in a hot oven, throughout wiped with clean cloth and then lightly oiled. Before being used baking trays should be lightly grease with pure fat or oil. Immediately after use and while still warm they should be cleaned by scraping and dry wiping. Hot soda or detergent water should be used for washing.

Tartlet and Barquette moulds and cake tins should be cared for in the same way as for baking sheets.

Tinned steel: A number of items are made from this metal:

- Conical strainer (Chinois) used for passing sauces and gravies
- Fine conical strainer used for passing sauces and gravies
- Colander used for draining vegetables
- Vegetable reheating container
- Soup machine and mouli strainer used for passing thick soups, sauce and mashed potatoes
- Sieves

Copper: Tin lined copper pans are seldom used today because they are expensive, need periodic re-tinning which is also expensive, they also tarnish easily and look dirty

Aluminum

Note: *Minimum use of aluminum is recommended. Stainless steel should be preferred*

Saucepans, Stockpots, Sauté pans, Braising pans, Fish kettles, large round deep pans and dishes of various sizes are made in cast aluminum. They are expensive, but one advantage is that the pans do not tarnish; also because of their strong, heavy construction they are suitable for many cooking processes.

A disadvantage is that in the manufacture of aluminum, which is not a soft metal, other metals are added to make pans stronger. As a result certain foods can become discolored (care should be taken when mixing white sauces and white gravies). A wooden spoon should be used for mixing then there should be no discoloration. The use of metal whisks or spoons must be avoided.

Water boiled in aluminum pans is unsuitable for tea making as it gives the tea an unpleasant colour. Red cabbage and artichokes should not be cooked in aluminum pans as they will take on a dark colour caused by chemical reaction.

Stainless steel: Heavy duty stainless steel pans, incorporating extra thick aluminum base which gives excellent heat diffusion are available. They are suitable for all surfaces except induction hobs. Stainless steel is also used for many items of small equipments

Non stick metal: An ever increasing variety of kitchen utensils (saucepans, frying pans, baking and roasting tins) are available and are suitable for certain types of kitchen operation, such as small scale or a la carte. Particular attention should be paid to the following points; otherwise the non stick properties of the equipment will be affected:

- Excessive heat should be avoided
- Use plastic or wooden spatulas or spoons when using non stick pans so that contact is not made to the surface with metal
- Extra care needed when cleaning non stick surfaces, the use of cloth or paper is most suitable

Wood, rubber and compound materials

Wooden cutting boards are an important item of kitchen equipment, which should be kept in use on all table surfaces to protect the table and the edges of cutting knives. Wooden cutting boards will warp or splinter if the following points are not observed:

1. A strong well constructed board should be used
2. After use boards should be scrubbed with bristle brush, using hot detergent water, rinsed with, clean water and dried as much as possible
3. The boards should not be put over the stove or in a hot cupboard. Excess heat and water cause wood to warp
4. Occur on boards as this causes splintering. The place for heavy chopping is on the chopping block

Wooden cutting boards do have the following advantages

1. They are porous and therefore retain taste, smell, bacteria, grease and dirt
2. They expand and contract when washed and allow small particles of food to bacteria trapped
3. The cut and scored surfaces also allows food particles and bacteria to become embedded

Rubber: Cutting boards are also made from hard rubber and rubber compound e.g. rubber, styrene and clay. These are hygienic because they are solid, in one piece and should not warp, crack, or absorb flavors. Scrubbing with hot water and then drying cleans them.

Rolling pins, Wooden spoons & Spatulas: These items should be scrubbed in hot detergent water, rinsed in clean water and dried.

Rolling pins: Should not be scrapped with a knife; this can cause the wood to splinter. Adhering paste can be removed with a cloth.

Wooden Sieves & Mandolins:

When cleaning care of the wooden frame should be considered in the light of the previous remarks. The blades of mandolin should be kept lightly greased to prevent rust (stainless steel mandolins are available).

Examples of wooden equipment

Chopping board, Sieve, Triangle, Salt box, Rolling pin, Spoon, Spatula, Mushroom, 12" ruler etc.

MATERIALS

Muslin: The tammy cloth (etamine) which is made from calico. Both muslin and tammy cloth are used for straining soups and sauces

The jelly bag made from thick flannel or nylon for straining jellies

Piping bags (poche) are made from linen, nylon or plastic and are used for piping preparations of all kinds

All materials should be washed immediately after use in hot detergent water, rinsed in hot water and then dried. Tammy cloths, muslin and linen piping bags must be boiled periodically in detergent water.

KITCHEN CLOTHS, PAPER AND FOILS

Kitchen cloths

- a. General purpose – for washing up and cleaning surfaces
- b. Tea Towel (tea cloth) – for drying up and general purpose hand cloths
- c. Bactericide wiping cloths – are impregnated with bactericide to disinfect work surfaces. The cloths have a colored pattern, which fades and disappears when the bactericide is no longer effective; the cloth should then be discarded
- d. Oven cloths – thick cloths designed to protect the hands when removing hot items from the oven. Oven cloths must only be used dry, never damp or wet otherwise the user is likely to be burned.
- e. It is essential that all kitchen cloths are washed or changed frequently, otherwise accumulating dirt and food stains may cause cross contamination of harmful bacteria / germs on to clean food.

Papers

- a. Greaseproof – for lining cake tins, making piping bags and wrapping greasy items of food.
- b. Kitchen – while absorbent paper for absorbing grease from deep – fried foods and for lining trays on which cold foods are kept
- c. General purpose – thick absorbent paper for wiping and drying equipment, surfaces, food etc
- d. Towel – disposable – for drying hands

Foils

Cling wrap – a thin transparent material for wrapping sandwiches, snacks, hot and cold foods. Cling wrap has the advantage of being very flexible and easy to handle and seal. Due to risk of contamination, it is advisable to use a cling wrap that does not contain PVC, or is plasticizer free.

Metal foils – a thin pliable silvered colored metal for wrapping and covering foods and for protecting oven roasted joints during cooking.

China and Earthenware

Examples are: Casserole, Oval dish, Riviera, Bowl, Soufflé dish, Egg cocotte, 12" ruler, Pie dish, Sloe dish, 10 & 11 egg dittos, and basin

II. Selection Criteria

When selecting equipment, capacity, trade name, good quality, simple design and ease to clean should be the prime criteria, whereas the purpose and price should also be considered.

Selection Points:

- Overall Dimension
- Weight
- Fuel Supply
- Drainage
- Water supply
- Usage
- Capacity
- Time
- Ease
- Maintenance
- Attachments
- Extraction
- Noise
- Construction
- Appearance
- Spare Parts

III. Precaution, Care and Maintenance: The routine use, care and cleaning of all equipments are important and this should be appreciated and understood.

Safety Factors

1. Excessive haste should be prevented.
2. Distraction should be avoided.
3. Failure to apply safety rules.

Excessive haste may cause people to take chances, which inevitably lead to mishaps. Accidents may be caused by not concentrating on the job in hand. It is the responsibility of everyone to observe the safety rules. Ensure operational procedure for all machines and equipments, which should be in good working order.

Safety Factors for Machinery

1. See that the machinery is in correct running order before use.
2. Only the person who is engaged for it should operate the machine.
3. Use a particular machine for a particular job only.
4. When using mixing machine, never put your hand in the bowl until the balance hook or whisk have stopped revolving.
5. Remove the plug first before cleaning.
6. There should be proper earth connection of the electrical equipment.
7. In case of any doubt, always inform the maintenance department.

Points to remember:

- Regular use
- Correct use
- Regular maintenance
- AMC (Annual Maintenance Contract)
- Following an SOP

5.2 Use and maintenance of Equipment- Cooking range, Mixer, OTG, Refrigerator.

Preventative Maintenance for Kitchen Appliances

Kitchen appliances are not only expensive investments, but they're also the ones that can cause the greatest inconvenience when they stop working. The good news is that with regular maintenance, you can help your appliances not only last longer, but also operate more efficiently to cut down on energy expenses, too! Here's what you need to know about preventive maintenance for kitchen appliances.

The Refrigerator

Clean is key when it comes to keeping the fridge in top shape. First, make sure you're cleaning under and behind the refrigerator regularly, including the grill, to improve airflow. While you're at it, give the coils a thorough vacuuming so they can cool more effectively and help the refrigerator live a longer life.

Sticky door seals around the fridge and freezer should be wiped down with warm, soapy water to ensure proper closure. If your freezer is not frost-free, periodically defrosting whenever the buildup exceeds a quarter inch will be necessary. This is also a good time to remove all the ice from the dispenser and give it a good cleaning for fresh-tasting ice. Lastly, the water filter in your fridge should be replaced every six months, or sooner if you drink a lot of water!

The Dishwasher

Seems odd to have to clean a machine that does the cleaning, but it's a necessary job. First, if your dishwasher is equipped with a filter to trap bits of food, make sure you're cleaning that out frequently. Spray arms can become clogged with food and mineral deposits, and a toothpick is a simple way to keep them clear and avoid dishwasher repairs down the road. Hard water deposits can be removed by running an empty cycle and using a commercially available dishwasher cleaner.

The Oven & Stove

The exterior of your stove and oven should be wiped down frequently to remove food buildup. Be sure to include the knobs! Burners and grates should be soaked in hot, soapy water before scrubbing away debris. If you have a self-cleaning oven, follow the manufacturer's instructions carefully. If not, scrub down the inside of the oven with soapy water or a degreasing agent. This chore should be done at least once every three months. Lastly, remove the hood fan filters, and soak them in hot water with soap or a degreasing agent and rinse thoroughly.

The Microwave

This handy little appliance can also be one of the messiest! From splattering foods to bubbling spills, it can become covered in grime in a jiffy! Luckily, it's also one of the easiest to clean. First, place a microwave-safe bowl with about a cup of water and a few tablespoons of vinegar into the microwave. Run on high until it's boiling and steamy, and let cool for 15 minutes. The interior walls should wipe down with ease.

Make sure you also wipe the rubber gasket around the door with a damp sponge, and use a household cleaner to wipe down the outside. Always use a soft cloth or sponge on the outside as rough sponges can leave scratches behind.

Notes BY AMAR CHAVN BV/DUIHMCT