INTRODUCTION TO FOOD PRODUCTION

Topic Objective:

At the end of the topic student will be able to understand:

- Research and development
- Labour and education
- Regulation
- Food industry technologies
- Foodservice
- Wholesale and distribution
- Just In Time
- Mass production, Batch Production and One Off Production
- Food processing and Agriculture

Definition/Overview:

It is a system of staffing a kitchen. The executive chef leads the brigade, which includes sous-chefs, chefs de partie (station chefs) or area chefs and various assistants and apprentices. The systematic staffing and organization of personnel aids in efficient operation and avoids confusion and redundancy.

Key Points:

1. Professional Chef

The chef coordinates all kitchen activities, directs training, plans menus and sets the standards of conduct. The sous-chef supervises and coordinates the preparation of foods. The line cooks are directly responsible for preparing food items as directed and may operate one or more stations, such as saut and broiler. Carmes meal would feature showpieces, dozens of courses, foods that are elaborately presented, garnished and sauced. Points meal would be much lighter, emphasizing natural flavors and simpler preparations.

Cast-iron stoves: the heat source could be approached and the heat more easily controlled

Canned foods: preservation and extended storage

Transportation: increased availability, freedom from using only locally produced ingredients

The creation and identification of new consumer groups; the increase in the type of facilities providing food, such as schools, resorts, office complexes; the increase of women in the workforce brought an increased need for food services and the financial means to use them.

2. Food Industry

The food industry is the complex, global collective of diverse businesses that together supply much of the food energy consumed by the world population. Only subsistence farmers, those who survive on what they grow, can be considered outside of the scope of the modern food industry. The food industry includes:

- Regulation: local, regional, national and international rules and regulations for food production and sale, including food quality and food safety, and industry lobbying activities
- Education: academic, vocational, consultancy
- Research and development: food technology
- Financial services insurance, credit
- Manufacturing: agrichemicals, seed, farm machinery and supplies, agricultural construction, etc.
- Agriculture: raising of crops and livestock, seafood
- Food processing: preparation of fresh products for market, manufacture of prepared food products
- Marketing: promotion of generic products (e.g. milk board), new products, public opinion, through advertising, packaging, public relations, etc
- Wholesale and distribution: warehousing, transportation, logistics
- Retail: supermarket chains and independent food stores, direct-to-consumer, restaurant, food services

3. Definitions

Food industry is not a formally defined term; however, it is usually used in a broadly inclusive way to cover all aspects of food production and sale. The Food Standards Agency, a government body in the UK, describes it thus:

"...the whole food industry from farming and food production, packaging and distribution, to retail and catering."

The Economic Research Service of the USDA uses the term *food system* to describe the same thing:

"The U.S. food system is a complex network of farmers and the industries that link to them. Those links include makers of farm equipment and chemicals as well as firms that provide services to agribusinesses, such as providers of transportation and financial services. The system also includes the food marketing industries that link farms to consumers, and which include food and fiber processors, wholesalers, retailers, and foodservice establishments.".

4. Industry size

Processed food sales worldwide are approximately US$3.2 trillion.

In the U.S., consumers spend approximately US$1 trillion annually for food, or nearly 10 percent of the Gross Domestic Product (GDP). Over 16.5 million people are employed in the food industry.

5. Agriculture

Agriculture is the process of producing food, feed, fiber and other desired products by the cultivation of certain plants and the raising of domesticated animals (livestock). The practice of agriculture is also known as "farming", while scientists, inventors and others devoted to improving farming methods and implements are also said to be engaged in agriculture. More people in the world are involved in agriculture as their primary

economic activity than in any other, yet it only accounts for four percent of the world's GDP.

6. Food processing

Food processing is the methods and techniques used to transform raw ingredients into food for human consumption. Food processing takes clean, harvested or slaughtered and butchered components and uses them to produce marketable food products.there are several different ways in which food can be produced.

7. **One Off Production**

This method is used when customers make an order for something to be made to their own specifications, for example a wedding cake. The making of One Off Products could take days depending on how intricate the design is and also the ability of the chef making the product.

8. Batch Production

This method is used when the size of the market for a product is not clear, and where there is a range within a product line. A certain number of the same goods will be produced to make up a batch or run, for example at Gregs Bakery they will bake 1 certain number of chicken bakes. This method involves estimating the amount of customers that will want to buy that product.

9. Mass production

This method is used when there is a mass market for a large number of identical products, for example, chocolate bars, ready meals and canned food. The product passes from one stage of production to another along a production line.

10. **Just In Time**

This method of production is mainly used in sandwich bars such as Subway, it is when all the components of the product are there and the customer chooses what they want in their product and it is made for them fresh in front of them.

11. Wholesale and distribution

A vast global transportation network is required by the food industry in order to connect its numerous parts. These include suppliers, manufacturers, warehousing, retailers and the end consumers. There are also those companies that, during the food processing process, add vitamins, minerals, and other necessary requrements usually lost during preparation. Wholesale markets for fresh food products have tended to decline in importance in OECD countries as well as in Latin America and some Asian countries as a result of the growth of supermarkets, which procure directly from farmers or through preferred suppliers, rather than going through markets. The constant and uninterrupted flow of product from distribution centers to store locations is a critical link in food industry operations. Distribution centers run more efficiently, throughput can be increased, costs can be lowered, and manpower better utilized if the proper steps are taken when setting up a material handling system in a warehouse.

12. Retail

With populations around the world concentrating in urban areas, food buying is increasingly removed from all aspects food production. This is a relatively recent development, taking place mainly over the last 50 years. The supermarket is a defining retail element of the food industry, where tens of thousands of products are gathered in one location, in continuous, year-round supply. Food preparation is another area where change in recent decades has been dramatic. Today, two food industry sectors are in apparent competition for the retail food dollar. The grocery industry sell fresh and largely raw products for consumers to use as ingredients in home cooking. The food service industry offers prepared food, either as finished products, or as partially prepared components for final "assembly".

13. Food industry technologies

Sophisticated technologies define modern food production. They include many areas. Agricultural machinery, originally led by the tractor, has practically eliminated human

labor in many areas of production. Biotechnology is driving much change, in areas as diverse as agrichemicals, plant breeding and food processing. Many other areas of technology are also involved, to the point where it is hard to find an area that does not have a direct impact on the food industry. Computer technology is also a central force, with computer networks and specialized software providing the support infrastructure to allow global movement of the myriad components involved.

14. Marketing

As consumers grow increasingly removed from food production, the role of product creation, advertising, publicity become the primary vehicles for information about food. With processed food as the dominant category, marketers have almost infinite possibilities in product creation.

15. Labour and education

Until the last 100 years, agriculture was labor intensive. Farming was a common occupation. Food production flowed from millions of farms. Farmers, largely trained from generation to generation, carried on the family business. That situation has changed dramatically. In North America, over 50% of the population were farm families only a few decades ago; now, that figure is around 1-2%, and some 80% of the population lives in cities. The food industry as a complex whole requires an incredibly wide range of skills. Several hundred occupation types exist within the food industry.

16. Research and development

Research in agricultural and food processing technologies happens in great part in university research environments. Projects are often funded by companies from the food industry. There is therefore a direct relationship between the academic and commercial sectors, as far as scientific research.

Topic : Food Safety And Sanitation

Topic Objective:

At the end of the topic student will be able to understand:

- History
- Sanitation in the food industry
- Sanitation in the developing world
- Sanitation in developed countries
- Solid waste disposal
- Global access to improved sanitation
- Sanitation and public health
- Ecological sanitation
- Reuse of wastewater
- Wastewater treatment
- Wastewater collection
- Sanitation and wastewater
- Sanitation

Definition/Overview:

Sanitation is the hygienic means of preventing human contact from the hazards of wastes to promote health. Hazards can be physical, microbiological, biological or chemical agents of disease. Wastes that can cause health problems are human and animal feces, solid wastes, domestic wastewater (sewage, sullage, greywater), industrial wastes, and agricultural wastes and now appliances in disuse wastes like cars, computers,household appliances, electronic appliances(bulbs, regulators) Hygienic means of prevention can be by using engineering solutions (e.g. sewerage and wastewater treatment), simple technologies (e.g.latrines, septic tanks), or even by personal hygiene practices (e.g. simple handwashing with soap).

The term "sanitation" can be applied to a specific aspect, concept, location, or strategy, such as:

- Basic sanitation - refers to the management of human feces at the household level. This terminology is the indicator used to describe the target of the Millennium Development Goal on sanitation.

- On-site sanitation - the collection and treatment of waste is done where it is deposited. Examples are the use of pit latrines, septic tanks, and imhoff tanks.
- Food sanitation - refers to the hygienic measures for ensuring food safety.
- Environmental sanitation - the control of environmental factors that form links in disease transmission. Subsets of this category are solid waste management, water and wastewater treatment, industrial waste treatment and noise and pollution control.
- Ecological sanitation - a concept and an approach of recycling to nature the nutrients from human and animal wastes.

Key Points:

Biological: Food contains an unsafe number of disease-causing microorganisms, such as bacteria or mold.

Chemical: Food is contaminated with chemicals, such as cleaners or pesticides.

Physical: Food is contaminated with foreign matter, such as broken glass or metal shavings.

Bacteria thrive when provided with food (especially proteins), the right temperature (60 F to 120 F), time, moisture and a neutral pH (acid/alkali balance). Oxygen may or may not be necessary. Temperature is the easiest to control. Keep all potentially hazardous foods out of the temperature danger zone (40 F to 140 F). Keep hot foods hot and cold foods cold. The temperature range, 40 F to 140 F, in which bacteria thrive. Foods must not be within this range of temperatures for more than four hours total. So, foods should be heated or cooled quickly, and only small amounts should be removed from refrigeration for fabrication or preparation. Rodents and insects carry bacteria on their bodies. These pests then contaminate any surfaces with which they come into contact. The failure to control pests, preferably by preventing infestations in the first place, can lead to food-borne illnesses. Hazard Analysis Critical Control Points is a system of managing and maintaining sanitary conditions through a rigorous process of self-inspection. Any food service facility can begin to use this system by closely examining the flow of foods through the operation, beginning with the decision to include an item on the menu. Special attention is paid to any point in this flow at which a mistake could result in the risk of contamination or bacterial growth.

1. **Sanitation**

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2. Wastewater collection

The standard sanitation technology in urban areas is the collection of wastewater in sewers, its treatment in wastewater treatment plants for reuse or disposal in rivers, lakes or the sea. Sewers are either combined with storm drains or separated from them as sanitary sewers. Combined sewers are usually found in the central, older parts or urban areas. Heavy rainfall and inadequate maintenance can lead to combined sewer overflows or sanitary sewer overflows, i.e. more or less diluted raw sewage being discharged into the environment. Industries often discharge wastewater into municipal sewers, which can complicate wastewater treatment unless industries pre-treat their discharges.

The high investment cost of conventional wastewater collection systems are difficult to afford for many developing countries. Some countries have therefore promoted alternative wastewater collection systems such as condominial sewerage, which uses

smaller diameter pipes at lower depth with different network layouts from conventional sewerage.

3. Wastewater treatment

In developed countries treatment of municipal wastewater is now widespread, but not yet universal (for an overview of technologies see wastewater treatment). In developing countries most wastewater is still discharge untreated into the environment. For example, in Latin America only about 15% of collected sewerage is being treated (see water and sanitation in Latin America)

4. Reuse of wastewater

The reuse of untreated wastewater in irrigated agriculture is common in developing countries. The reuse of treated wastewater in landscaping (esp. on golf courses), irrigated agriculture and for industrial use is becoming increasingly widespread.

In many peri-urban and rural areas households are not connected to sewers. They discharge their wastewater into septic tanks or other types of on-site sanitation.

5. Ecological sanitation

Ecological sanitation is sometimes presented as a radical alternative to conventional sanitation systems. Ecological sanitation is based on composting/vermicomposting toilets where an extra separation of urine and feces at the source for sanitization and recycling has been done. It thus eliminates the creation of blackwater and eliminates fecal pathogens from any still present wastewater (urine). If ecological sanitation is practiced municipal wastewater consists only of greywater, which can be recycled for gardening. However, in most cases greywater continues to be discharged to sewers.

6. Sanitation and public health

The importance of waste isolation lies in an effort to prevent water and sanitation related diseases, which afflicts both developed countries as well as developing countries to differing degrees. It is estimated that up to 5 million people die each year from

preventable water-borne disease, as a result of inadequate sanitation and hygiene practices.

7. Global access to improved sanitation

The Joint Monitoring Program for water and sanitation of WHO and UNICEF has defined improved sanitation as

- connection to a public sewer
- connection to a septic system
- pour-flush latrine
- simple pit latrine
- ventilated improved pit latrine

According to that definition, 62% of the world's population has access to improved sanitation in 2008, up 8% since 1990. Only slightly more than half of them or 31% of the world population lived in houses connected to a sewer. Overall, 2.5 billion people lack access to improved sanitation and thus must resort to open defecation or other unsanitary forms of defecation, such as public latrines or open pit latrines. This includes 1.2 billion people who have access to no facilities at all. This outcome presents substantial public health risks as the waste could contaminate drinking water and cause life threatening forms of diarrhea to infants. Improved sanitation, including hand washing and water purification, could save the lives of 1.5 million children who suffer from diarrheal diseases each year. In developed countries, where less than 20% of the world population lives, 99% of the population has access to improved sanitation and 81% were connected to sewers.

8. Solid waste disposal

Disposal of solid waste is most commonly conducted in landfills, but incineration, recycling, composting and conversion to biofuels are also avenues. In the case of landfills, advanced countries typically have rigid protocols for daily cover with topsoil,

where underdeveloped countries customarily rely upon less stringent protocols. The importance of daily cover lies in the reduction of vector contact and spreading of pathogens. Daily cover also minimises odour emissions and reduces windblown litter. Likewise, developed countries typically have requirements for perimeter sealing of the landfill with clay-type soils to minimize migration of leachate that could contaminate groundwater (and hence jeopardize some drinking water supplies). For incineration options, the release of air pollutants, including certain toxic components is an attendant adverse outcome. Recycling and biofuel conversion are the sustainable options that generally have superior life cycle costs, particularly when total ecological consequences are considered. Composting value will ultimately be limited by the market demand for compost product.

9. Sanitation in developed countries

In US, sanitation is a legislative requirement of OSH, which is governed by 29 CFR Part 1910.141 .

10. Sanitation in the developing world

The United Nations Millennium Development Goals (MDGs) include a target to reduce by half the proportion of people without access to basic sanitation by 2015. In December 2006, the United Nations General Assembly declared 2008 'The International Year of Sanitation', in recognition of the slow progress being made towards the MDGs sanitation target. The year aims to develop awareness and action to meet the target. Particular concerns are:

- Removing the stigma around sanitation, so that the importance of sanitation can be more easily and publicly discussed.
- Highlighting the poverty reduction, health and other benefits that flow from better hygiene, household sanitation arrangements and wastewater treatment.

Research from the Overseas Development Institute suggests that sanitation and hygiene promotion needs to be better 'mainstreamed' in development, if the MDG on sanitation is to be met. At present, promotion of sanitation and hygiene is mainly carried out through water institutions. The research argues that there are, in fact, many institutions that should

carry out activities to develop better sanitation and hygiene in developing countries. For example, educational institutions can teach on hygiene, and health institutions can dedicate resources to preventative works (to avoid, for example, outbreaks of cholera).

11. Sanitation in the food industry

Sanitation within the food industry means to the adequate treatment of food-contact surfaces by a process that is effective in destroying vegetative cells of microorganisms of public health significance, and in substantially reducing numbers of other undesirable microorganisms, but without adversely affecting the product or its safety for the consumer (U.S. Food and Drug Administration, Code of Federal Regulations, 21CFR110, USA). Sanitation Standard Operating Procedures are indispensable for food industries in US, which are regulated by 9 CFR part 416 in conjunction with 21 CFR part 178.1010. Similaly in Japan, food hygiene has to be reached through the compliance of Food Sanitation Law . Additionally, in the food and Biopharmaceutical industries, the term sanitary equipment means equipment that is fully cleanable using Clean-in-place (CIP), and Sterilization in place (SIP) procedures: that is fully drainable from cleaning solutions and other liquids. The design should have a minimum amount of deadleg or areas where the turbulence during cleaning is not enough to remove product deposits. In general, to improve cleanability, this equipment is made from Stainless Steel 316L, (an alloy containing small amounts of molybdenum). The surface is usually electropolished to an effective surface roughness of less than 0.5 micrometre, to reduce the possibility of bacterial adhesion to the surface.

12. History

The earliest evidence of urban sanitation was seen in Harappa, Mohenjo-daro and the recently discovered Rakhigarhi of Indus Valley civilization. This urban plan included the world's first urban sanitation systems. Within the city, individual homes or groups of homes obtained water from wells. From a room that appears to have been set aside for bathing, waste water was directed to covered drains, which lined the major streets. Houses opened only to inner courtyards and smaller lanes. Roman cities and Roman villas had elements of sanitation systems, delivering water in the streets of towns such as Pompeii, and building stone and wooden drains to collect and remove wastewater from populated areas - see for instance the Cloaca Maxima into the River Tiber in Rome. But

there is little record of other sanitation in most of Europeuntil the High Middle Ages. Unsanitary conditions and overcrowding were widespread throughout Europe and Asia during the Middle Ages, resulting periodically in cataclysmic pandemics such as the Plague of Justinian (541-42) and the Black Death (1347-1351), which killed tens of millions of people and radically altered societies. Very high infant and child mortality prevailed in Europe throughout medieval times, due not only to deficiencies in sanitation but to insufficient food for a population which had expanded faster than agriculture. This was further complicated by frequent warfare and exploitation of civilians by brutal rulers. Life for the average person at this time was indeed 'nasty, brutish and short.'

Topic : Nutrition

Topic Objective:

At the end of the topic student will be able to understand:

- Nutrition
- Overview
- Nutrients
- Carbohydrates
- Fat
- Essential fatty acids
- Fiber
- Minerals
- Macrominerals
- Trace minerals
- Vitamins
- Water
- A manual water pump in China
- Other nutrients
- Antioxidants

- Blackberries are a source of polyphenol antioxidants
- Phytochemicals

Definition/Overview:

Nutrition is the provision, to cells and organisms, of the materials necessary (in the form of food) to support life. Many common health problems can be prevented or alleviated with good nutrition. The diet of an organism refers to what it eats. Dietitians are health professionals who specialize in human nutrition, meal planning, economics, preparation, and so on. They are trained to provide safe, evidence-based dietary advice and management to individuals (in health and disease), as well as to institutions.

Poor diet can have an injurious impact on health, causing deficiency diseases such as scurvy, beriberi, and kwashiorkor; health-threatening conditions like obesity and metabolic syndrome, and such common chronic systemic diseases as cardiovascular disease, diabetes, and osteoporosis.

Key Points:

1. Nutrition

Nutrition (also called nourishment or aliment) is the provision, to cells and organisms, of the materials necessary (in the form of food) to support life. Many common health problems can be prevented or alleviated with a healthy diet. The diet of an organism refers to what it eats. Dietitians are health professionals who specialize in human nutrition, meal planning, economics, preparation, and so on. They are trained to provide safe, evidence-based dietary advice and management to individuals (in health and disease), as well as to institutions. Poor diet can have an injurious impact on health, causing deficiency diseases such as scurvy, beriberi, and kwashiorkor; health-threatening conditions like obesity and metabolic syndrome, and such common chronic systemic diseases as cardiovascular disease, diabetes, and osteoporosis.

2. Overview

Nutritional science investigates the metabolic and physiological responses of the body to diet. With advances in the fields of molecular biology, biochemistry, and genetics, the study of nutrition is increasingly concerned with metabolism and metabolic pathways: the sequences of biochemical steps through which substances in living things change from one form to another. The human body contains chemical compounds, such as water, carbohydrates (sugar, starch, and fiber), amino acids (in proteins), fatty acids (in lipids), and nucleic acids (DNA and RNA). These compounds in turn consist of elements such as carbon, hydrogen, oxygen, nitrogen, phosphorus, calcium, iron, zinc, magnesium, manganese, and so on. All of these chemical compounds and elements occur in various forms and combinations (e.g. hormones, vitamins, phospholipids, hydroxyapatite), both in the human body and in the plant and animal organisms that humans eat. The human body consists of elements and compounds ingested, digested, absorbed, and circulated through the bloodstream to feed the cells of the body. Except in the unborn fetus, the digestive system is the first system involved. In a typical adult, about seven liters of digestive juices enter the lumen of the digestive tract.[clarification needed] These break chemical bonds in ingested molecules, and modulate their conformations and energy states. Though some molecules are absorbed into the bloodstream unchanged, digestive processes release them from the matrix of foods. Unabsorbed matter, along with some waste products of metabolism, is eliminated from the body in the feces. Studies of nutritional status must take into account the state of the body before and after experiments, as well as the chemical composition of the whole diet and of all material excreted and eliminated from the body (in urine and feces). Comparing the food to the waste can help determine the specific compounds and elements absorbed and metabolized in the body. The effects of nutrients may only be discernible over an extended period, during which all food and waste must be analyzed. The number of variables involved in such experiments is high, making nutritional studies time-consuming and expensive, which explains why the science of human nutrition is still slowly evolving. In general, eating a wide variety of fresh, whole (unprocessed), foods has proven favorable compared to monotonous diets based on processed foods. In particular, the consumption of whole-plant foods slows digestion and allows better absorption, and a more favorable balance of essential nutrients per Calorie, resulting in better management of cell growth, maintenance, and mitosis (cell division), as well as better regulation of appetite and blood sugar. Regularly scheduled meals (every few hours) have also proven more wholesome than infrequent or haphazard ones.

3. Nutrients

There are seven major classes of nutrients: carbohydrates, fats, fiber, minerals, protein, vitamins, and water. These nutrient classes can be categorized as either macronutrients (needed in relatively large amounts) or micronutrients (needed in smaller quantities). The macronutrients are carbohydrates, fats, fiber, proteins, and water. The micronutrients are minerals and vitamins. The macronutrients (excluding fiber and water) provide energy, which is measured in Joules or kilocalories (often called "Calories" and written with a capital C to distinguish them from gram calories). Carbohydrates and proteins provide 17 kJ (4 kcal) of energy per gram, while fats provide 37 kJ (9 kcal) per gram. Vitamins, minerals, fiber, and water do not provide energy, but are necessary for other reasons. Molecules of carbohydrates and fats consist of carbon, hydrogen, and oxygen atoms. Carbohydrates range from simple monosaccharides (glucose, fructose, galactose) to complex polysaccharides (starch). Fats are triglycerides, made of various fatty acid monomers bound to glycerol. Some fatty acids, but not all, are essential in the diet: they cannot be synthesized in the body. Protein molecules contain nitrogen atoms in addition to the elements of carbohydrates and fats. The nitrogen-containing monomers of protein are amino acids, and they include some essential amino acids. They fulfill many roles other than energy metabolism; and when they are used as fuel, getting rid of the nitrogen places a burden on the kidneys. Other micronutrients include antioxidants and phytochemicals. Most foods contain a mix of some or all of the nutrient classes. Some nutrients are required regularly, while others are needed only occasionally. Poor health can be caused by an imbalance of nutrients, whether an excess or a deficiency.

4. Carbohydrates

A pack of toasted bread is a cheap, high calorie nutrient (usually unbalanced, i.e., deficient in essential minerals and vitamins, because of removal of grain bran) food source with a long shelf-life. Carbohydrates may be classified as monosaccharides, disaccharides, or polysaccharides by the number of monomer (sugar) units they contain. They constitute a large proportion of foods such as rice, noodles, bread, and other grain-based products. Monosaccharides contain one sugar unit, disaccharides two, and polysaccharides three or more. Polysaccharides are often referred to as complex carbohydrates because they are long chains of sugar units, whereas monosaccharides and disaccharides are simpler. The difference is important: complex carbohydrates take longer

to digest and absorb since their sugar units are processed one-by-one off the ends of the chains. The spike in blood-sugar levels after ingestion of simple sugars is thought to be involved in causing heart and vascular disease. Simple sugars form a greater part of modern diets, leading to more cardiovascular disease in populations. Simple carbohydrates are absorbed quickly, and therefore raise blood-sugar levels more rapidly.

5. Fat

A molecule of fat consists of several fatty acids (containing long chains of carbon and hydrogen atoms), bonded to a glycerol. They are typically found as triglycerides (three fatty acids attached to one glycerol backbone). Fats may be classified as saturated or unsaturated. Saturated fats have all of the carbon atoms in their fatty acid chains bonded to hydrogen atoms, whereas unsaturated fats have some of these carbon atoms double-bonded, so their molecules have relatively few hydrogen atoms. Unsaturated fats may be further classified as monounsaturated (one double-bond) or polyunsaturated (many double-bonds). Trans fats are a type of unsaturated fat with trans-isomer fatty acid, typically created in an industrial process called (partial) hydrogenation. Many studies have shown that unsaturated fats, particularly monounsaturated fats, are best in the human diet. Saturated fats, typically from animal sources, are next, while trans fats are to be avoided. Saturated and trans fats are typically solid at room temperature (such as butter or lard), while unsaturated fats are typically liquids (such as olive oil or flaxseed oil). Trans fats are very rare in nature, but have properties useful in the food processing industry.

6. Essential fatty acids

Most fatty acids are non-essential, meaning the body can produce them as needed. However, in humans at least two fatty acids are essential and must be included in the diet. An appropriate balance of essential fatty acidsomega-3 and omega-6 fatty acidsis important for health. Both of these "omega" long-chain polyunsaturated fatty acids are substrates for a class of eicosanoids known as prostaglandins, which have roles throughout the human body. They are hormones, in some respects. The omega-3 eicosapentaenoic acid (EPA), which can be made in the human body from the omega-3 essential fatty acid alpha-linolenic acid (LNA), or taken in through marine food sources, serves as a building block for series 3 prostaglandins (e.g. weakly inflammatory PGE3). The omega-6 dihomo-gamma-linolenic acid (DGLA) serves as a building block for series

1 prostaglandins (e.g. anti-inflammatory PGE1), whereas arachidonic acid (AA) serves as a building block for series 2 prostaglandins (e.g. pro-inflammatory PGE 2). Both DGLA and AA can be made from the omega-6 linoleic acid (LA) in the human body, or can be taken in directly through food. An appropriately balanced intake of omega-3 and omega-6 partly determines the relative production of different prostaglandins: one reason a balance between omega-3 and omega-6 is important for cardiovascular health. In industrialized societies, people typically consume large amounts of processed vegetable oils, which have reduced amounts of the essential fatty acids along with too much of omega-6 fatty acids relative to omega-3 fatty acids. The conversion rate of omega-6 DGLA to AA largely determines the production of the prostaglandins PGE1 and PGE2. Omega-3 EPA prevents AA from being released from membranes, thereby skewing prostaglandin balance away from pro-inflammatory PGE2 (made from AA) toward anti-inflammatory PGE1 (made from DGLA). Moreover, the conversion (desaturation) of DGLA to AA is controlled by the enzyme delta-5-desaturase, which in turn is controlled by hormones such as insulin (up-regulation) and glucagon (down-regulation). The amount and type of carbohydrates consumed, along with some types of amino acid, can influence processes involving insulin, glucagon, and other hormones; therefore the ratio of omega-3 versus omega-6 has wide effects on general health, and specific effects on immune function and inflammation, and mitosis (i.e. cell division). Good sources of essential fatty acids include most vegetables, nuts, seeds, and marine oils, Some of the best sources are fish, flax seed oils, soy beans, pumpkin seeds, sunflower seeds, and walnuts.

7. Fiber

Fiber is a carbohydrate (or a polysaccharide) that is incompletely absorbed in humans and in some other animals. Like all carbohydrates, when it is metabolized it can produce four Calories (kilocalories) of energy per gram: but in fact it accounts for less than that because of its limited absorption. Dietary fiber consists mainly of cellulose, a large carbohydrate polymer that is indigestible because humans do not have the required enzymes. There are two subcategories: soluble and insoluble fiber. Whole grains, fruits (especially plums, prunes, and figs), and vegetables are rich in dietary fiber. Fiber is important to digestive health and is thought to reduce the risk of colon cancer. It can help in alleviating both constipation and diarrhea. Fiber provides bulk to the intestinal contents, and insoluble fiber stimulates peristalsis: the rhythmic muscular contractions

passing along the digestive tract. Some soluble fibers produce a solution of high viscosity: a gel, which slows the movement of food through the intestines. Fiber, especially from whole grains, may help lessen insulin spikes and reduce the risk of diabetes [type 2].

8. Protein

Most meats such as chicken contain all the essential amino acids needed for humans

Proteins are the basis of many animal body structures (e.g. muscles, skin, and hair). Each molecule is composed of amino acids, sometimes many thousands, which are characterized by inclusion of nitrogen and sometimes sulphur. The body requires amino acids to produce new proteins (protein retention) and to replace damaged proteins (maintenance). Excess amino acids are discarded, typically in the urine. For all animals, some amino acids are essential (an animal cannot produce them internally) and some are non-essential (the animal can produce them from other nitrogen-containing compounds). About twenty amino acid are found in the human body, and about ten of these are essential, and therefore must be included in the diet. A diet that contains adequate amounts of amino acids (especially those that are essential) is particularly important when there is greater need: in early development and maturation, pregnancy, lactation, or injury. A complete protein source contains all the essential amino acids; an incomplete protein source lacks one or more essential amino acid. It is possible to combine two incomplete protein sources (e.g. rice and beans) to make a complete protein source. Sources of dietary protein include meats, tofu and other soy-products, eggs, grains, legumes, and dairy products such as milk and cheese. A few amino acids from protein can be converted into glucose and used for fuel through a process called gluconeogenesis. The amino acids remaining after such conversion are discarded.

9. Minerals

Dietary minerals are the chemical elements required by living organisms, other than the four elements carbon, hydrogen, nitrogen, and oxygen that are present in common organic molecules. The term "mineral" is archaic, since the intent is to describe simply the less common elements in the diet: heavier than the four just mentioned; including several metals; and often occurring as ions in the body. Some dietitians recommend that these be supplied from foods in which they occur naturally, or at least as complex compounds, or

sometimes even from natural inorganic sources (such as calcium carbonate from ground oyster shells). On the other hand, minerals are often artificially added to the diet as supplements, the most famous being iodine in iodized salt.

10. Macrominerals

Many elements are essential in quantity; also called "bulk minerals". Some are structural, but many play a role as electrolytes. Elements with recommended dietary allowance (RDA) greater than 200 mg/day are the following, in alphabetical order (with informal or folk-medicine perspectives in parentheses):

- Calcium, a common electrolyte, but also structural (for muscle and digestive system health, builds bone, neutralizes acidity, clears toxins, helps blood stream)
- Chlorine as chloride ions; very common electrolyte; see sodium, below
- Magnesium, required for processing ATP and related reactions (builds bone, causes strong peristalsis, increases flexibility, increases alkalinity)
- Phosphorus, required component of bones; essential for energy processing
- Potassium, a very common electrolyte (heart and nerve health)
- Sodium, a very common electrolyte; not generally found in dietary supplements, despite being needed in large quantities, because the ion is very common in food: typically as sodium chloride, or common salt
- Sulfur for three essential amino acids and therefore many proteins (skin, hair, nails, liver, and pancreas)

11. Trace minerals

Many elements are required in trace amounts, usually because they play a catalytic role in enzymes. Some trace mineral elements (RDA < 200 mg/day) are, in alphabetical order:

- Cobalt required for biosynthesis of vitamin B12 family of coenzymes
- Copper required component of many redox enzymes, including cytochrome c oxidase
- Chromium required for sugar metabolism
- Iodine required for the biosynthesis of thyroxin; needed in larger quantities than others in this list, and sometimes classified with the macrominerals
- Iron required for many enzymes, and for hemoglobin and some other proteins

- Manganese (processing of oxygen)
- Molybdenum required for xanthine oxidase and related oxidases
- Nickel present in urease
- Selenium required for peroxidase (antioxidant proteins)
- Vanadium (Speculative: there is no established RDA for vanadium. No specific biochemical function has been identified for it in humans, although vanadium is found in lower organisms.)
- Zinc required for several enzymes such as carboxypeptidase, liver alcohol dehydrogenase, carbonic anhydrase

12. Vitamins

As with the minerals discussed above, twelve vitamins are recognized as essential nutrients, necessary in the diet for good health. (Vitamin D is the exception: it can alternatively be synthesized in the skin, in the presence of UVB radiation.) Certain vitamin-like compounds that are recommended in the diet, such as carnitine, are indispensable for survival and health; but these are not strictly "essential" because the human body has some capacity to produce them from other compounds. Moreover, thousands of different phytochemicals have recently been discovered in food (particularly in fresh vegetables), which may have desirable properties including antioxidant activity (see below). Other essential nutrients not classed as vitamins include essential amino acids (see above), choline, essential fatty acids (see above), and the minerals discussed in the preceding section. Vitamin deficiencies may result in disease conditions: goitre, scurvy, osteoporosis, impaired immune system, disorders of cell metabolism, certain forms of cancer, symptoms of premature aging, and poor psychological health (including eating disorders), among many others. Excess of some vitamins is also dangerous to health (notably vitamin A); and deficiency or excess of minerals can also have serious health consequences.

13. Water

About 70% of the non-fat mass of the human body is made of water. To function properly, the body requires between one and seven liters of water per day to avoid dehydration; the precise amount depends on the level of activity, temperature, humidity, and other factors. With physical exertion and heat exposure, water loss will increase and

daily fluid needs may increase as well. It is not clear how much water intake is needed by healthy people, although some experts assert that 810 glasses of water (approximately 2 liters) daily is the minimum to maintain proper hydration. The notion that a person should consume eight glasses of water per day cannot be traced back to a scientific source. The effect of water intake on weight loss and on constipation is also still unclear. Original recommendation for water intake in 1945 by the Food and Nutrition Board of the National Research Council read: "An ordinary standard for diverse persons is 1 milliliter for each calorie of food. Most of this quantity is contained in prepared foods." The latest dietary reference intake report by the United States National Research Council in general recommended (including food sources): 2.7 liters of water total for women and 3.7 liters for men. Specifically, pregnant and breastfeeding women need additional fluids to stay hydrated. According to the Institute of Medicinewho recommend that, on average, women consume 2.2 litres and men 3.0 litresthis is recommended to be 2.4 litres (approx. 9 cups) for pregnant women and 3 litres (approx. 12.5 cups) for breastfeeding women since an especially large amount of fluid is lost during nursing. For those who have healthy kidneys, it is rather difficult to drink too much water, but (especially in warm humid weather and while exercising) it is dangerous to drink too little. People can drink far more water than necessary while exercising, however, putting them at risk of water intoxication, which can be fatal. In particular large amounts of de-ionized water are dangerous. Normally, about 20 percent of water intake comes in food, while the rest comes from drinking water and assorted beverages (caffeinated included). Water is excreted from the body in multiple forms; including urine and feces, sweating, and by water vapor in the exhaled breath.

14. Other nutrients

Other micronutrients include antioxidants and phytochemicals. These substances are generally more recent discoveries which: have not yet been recognized as vitamins; are still under investigation; or contribute to health but are not necessary for life. Phytochemicals may act as antioxidants, but not all phytochemicals are antioxidants.

15. Antioxidants

Antioxidants are a recent discovery. As cellular metabolism/energy production requires oxygen, potentially damaging (e.g. mutation causing) compounds known as free radicals

can form. Most of these are oxidizers (i.e. acceptors of electrons) and some react very strongly. For normal cellular maintenance, growth, and division, these free radicals must be sufficiently neutralized by antioxidant compounds. Some are produced by the human body with adequate precursors (glutathione, Vitamin C) and those that the body cannot produce may only be obtained through the diet through direct sources (Vitamin C in humans, Vitamin A, Vitamin K) or produced by the body from other compounds (Beta-carotene converted to Vitamin A by the body, Vitamin D synthesized from cholesterol by sunlight). Phytochemicals (Section Below) and their subgroup polyphenols are the majority of antioxidants; about 4,000 are known. Different antioxidants are now known to function in a cooperative network, e.g. vitamin C can reactivate free radical-containing glutathione or vitamin E by accepting the free radical itself, and so on. Some antioxidants are more effective than others at neutralizing different free radicals. Some cannot neutralize certain free radicals. Some cannot be present in certain areas of free radical development (Vitamin A is fat-soluble and protects fat areas, Vitamin C is water soluble and protects those areas). When interacting with a free radical, some antioxidants produce a different free radical compound that is less dangerous or more dangerous than the previous compound. Having a variety of antioxidants allows any byproducts to be safely dealt with by more efficient antioxidants in neutralizing a free radical's butterfly effect.

16. Phytochemicals

Blackberries are a source of polyphenol antioxidants: A growing area of interest is the effect upon human health of trace chemicals, collectively called phytochemicals. These nutrients are typically found in edible plants, especially colorful fruits and vegetables, but also other organisms including seafood, algae, and fungi. The effects of phytochemicals increasingly survive rigorous testing by prominent health organizations. One of the principal classes of phytochemicals are polyphenol antioxidants, chemicals which are known to provide certain health benefits to the cardiovascular system and immune system. These chemicals are known to down-regulate the formation of reactive oxygen species, key chemicals in cardiovascular disease. Perhaps the most rigorously tested phytochemical is zeaxanthin, a yellow-pigmented carotenoid present in many yellow and orange fruits and vegetables. Repeated studies have shown a strong correlation between ingestion of zeaxanthin and the prevention and treatment of age-related macular degeneration (AMD). Less rigorous studies have proposed a correlation between

zeaxanthin intake and cataracts. A second carotenoid, lutein, has also been shown to lower the risk of contracting AMD. Both compounds have been observed to collect in the retina when ingested orally, and they serve to protect the rods and cones against the destructive effects of light. Another carotenoid, beta-cryptoxanthin, appears to protect against chronic joint inflammatory diseases, such as arthritis. While the association between serum blood levels of beta-cryptoxanthin and substantially decreased joint disease has been established, neither a convincing mechanism for such protection nor a cause-and-effect have been rigorously studied. Similarly, a red phytochemical, lycopene, has substantial credible evidence of negative association with development of prostate cancer. The correlations between the ingestion of some phytochemicals and the prevention of disease are, in some cases, enormous in magnitude.Even when the evidence is obtained, translating it to practical dietary advice can be difficult and counter-intuitive. Lutein, for example, occurs in many yellow and orange fruits and vegetables and protects the eyes against various diseases. However, it does not protect the eye nearly as well as zeaxanthin, and the presence of lutein in the retina will prevent zeaxanthin uptake. Additionally, evidence has shown that the lutein present in egg yolk is more readily absorbed than the lutein from vegetable sources, possibly because of fat solubility. At the most basic level, the question "should you eat eggs?" is complex to the point of dismay, including misperceptions about the health effects of cholesterol in egg yolk, and its saturated fat content. As another example, lycopene is prevalent in tomatoes (and actually is the chemical that gives tomatoes their red color). It is more highly concentrated, however, in processed tomato products such as commercial pasta sauce, or tomato soup, than in fresh "healthy" tomatoes. Yet, such sauces tend to have high amounts of salt, sugar, other substances a person may wish or even need to avoid.

Topic : Recipes And Menus

Topic Objective:

At the end of the topic student will be able to understand:

- History of the Recipe
- Recipe
- Digital menu boards
- Menu prose
- History
- Factors
- Menu

Definition/Overview:

A recipe is a set of instructions that show how to prepare or make something, especially a culinary dish.

Modern culinary recipes normally consist of several components:

- The name (and often the locale or provenance) of the dish,
- How much time it will take to prepare the dish
- The required ingredients along with their quantities or proportions
- Equipment and environment needed to prepare the dish
- An ordered list of preparation steps
- The number of servings that the recipe will provide

Some recipes will note how long the dish will keep and its suitability for freezing.

Earlier recipes often included much less information, serving more as a reminder of ingredients and proportions for someone who already knew how to prepare the dish. Recipe writers sometimes also list variations of a traditional dish.

Key Points:

1. Menu

The four types of menus can each type of menu offer foods la carte, semi la carte and/or table dhte

- Static: The same foods are offered every day.
- Cycle: The menu covers a set time period and then repeats.

- Market: The menu is based on the product availability during a specific time period.
- Hybrid: Combines two or more menu types.

All four menu types can offer foods la carte, semi la carte or table dhte because these categories indicate only how items are ordered and priced.

2. Factors

Three factors in food preparation that affect successful recipe size changes. Equipment: Changing a recipe may require changing the equipment used. Evaporation: A change in the cooking vessel may alter the rate of evaporation, which may change the cooking time and alter the strength of the seasonings. Recipe errors: Errors that werent apparent when small quantities were prepared may become big problems when the recipe size is increased. Calculate the portion cost of a recipe in professional food service operations. Unless the entire recipe is sold as a portion, you must calculate the cost per portion in order to determine an appropriate selling price. Several factors, other than kitchen procedures, that a chef should examine when looking for ways to control food costs. Food costs may be excessive because of poor menu design, a lack of control over purchasing or ordering, a breakdown in proper receiving procedures, improper food storage, problems with the front-of-the-house staff or a failure to record sales properly. Most of these problems can be corrected with proper training and supervision.

3. History

The word *menu*, like much of the terminology of cuisine, is French in origin. It ultimately derives from Latin *minutus*, something made small; in French it came to be applied to a detailed list or *rsum* of any kind. The original menus that offered consumers choices were prepared on a small chalkboard, in French a*carte*; so foods chosen from a bill of fare are described as *la carte*, "according to the board." Along with the development of the earliest restaurants catering largely to the middle merchant class, the menu also found its origins in Chinaduring the Song Dynasty (9601279). The original restaurants had no menus in the modern sense; these *table d'hte* establishments served dishes that were chosen by the chef or the proprietors, and those who arrived ate what the house was

serving that day, as in contemporary banquets. The contemporary menu first appeared in the second half of the eighteenth century. Here, instead of eating what was being served from a common table, restaurants allowed diners to choose from a list of unseen dishes, which were produced to order by the customer's selection. A *table d'hte* establishment charged its customers a fixed price; the menu allowed customers to spend as much or as little money as they chose.

4. Menu prose

As a form of advertising, the prose found on printed menus is famous for the degree of its puffery. They frequently emphasize the processes used to prepare foods, call attention to exotic ingredients, and add French or other foreign language expressions to make the dishes appear sophisticated and exotic. Part of the function of menu prose is to impress customers with the notion that the dishes served at the restaurant require such skill, equipment, and exotic ingredients that the diners could not prepare similar foods at home.

5. Digital menu boards

With the invention of LCD and Plasma displays, some menus have moved from a static printed model, to one which can change dynamically. By using a screen and a computer server, menus can be digitally displayed allowing moving images, animated effects and the ability to edit details and prices. For fast food restaurants, a benefit is the ability to update prices and menu items as frequently as needed, across an entire chain. Digital menu boards also allow restaurant owners to control the day parting of their menus. Various software tools and hardware developments have been created for the specific purpose of managing a digital menu board system.

6. Recipe

A recipe is a set of instructions that show how to prepare or make something, especially a culinary dish. Modern culinary recipes normally consist of several components:

- The name (and often the locale or provenance) of the dish
- How much time it will take to prepare the dish
- The required ingredients along with their quantities or proportions
- Equipment and environment needed to prepare the dish

- An ordered list of preparation steps
- The number of servings that the recipe will provide

Some recipes will note how long the dish will keep and its suitability for freezing. Nutritional information, such as calories per serving and grams of protein, fat, and carbohydrates per serving, may also be given. Earlier recipes often included much less information, serving more as a reminder of ingredients and proportions for someone who already knew how to prepare the dish. Recipe writers sometimes also list variations of a traditional dish, to give different tastes of the same recipes.

7. History of the Recipe

The earliest known recipes date from approximately 1600 BC and come from an Akkadian tablet from southern Babylonia. The ancient Egyptians painted hieroglyphics depicting the preparation of food. Many ancient Greek recipes are known. Mithaecus's cookbook was an early one, but most of it has been lost; Athenaeus quotes one short recipe in his Deipnosophistae. Athenaeus mentions many other cookbooks, all of them lost. Roman recipes are known starting in the 2nd century BCE with Cato the Elder's De Agri Cultura. Many other authors of this period described eastern Mediterranean cooking in Greek and in Latin. Some Punic recipes are known in Greek and Latin translation. Much later, in the 4th or 5th century, appears the large collection of recipes conventionally entitled 'Apicius', the only more or less complete surviving cookbook from the classical world. It chronicles the courses served which are usually referred to as Gustatio (appetizer), Primae Mensae (main course) and Secundae Mensae (dessert). The Romans introduced many herbs and spices into western cuisine, Renfrew states that thyme, bay, basil, fennel, rue, mint, parsley and dill were all common in Roman cooking. Arabic recipes are documented starting in the 10th century; see al-Warraq and al-Baghdadi. King Richard II of Englandcommissioned a recipe book called "Forme of Cury" in 1390, around the same time another book was published entitled "Curye on Inglish". Both books give an impression of how food was prepared and served in the noble classes of Englandat that time. The revival of the European class system at this time brought entertainment back to the palaces and homes of the nobility and along with it the start of what can be called the modern recipe book. By the 1400s, numerous manuscripts were appearing, detailing the recipes of the day. Many of these such as the Harleian MS 279, Harleian MS 4016, Ashmole MS 1429, Laud MS 553 and Dure MS 55 give very

good information and record the re-discovery of many herbs and spices including coriander, parsley, basil and rosemary, many of which had been brought back from the Crusades. During the 1500s and 1600s competition between the large houses became common place and numerous books were written on how to manage households and prepare food. In Hollandand Englandcompetition grew between the noble families as to who could prepare the most lavish banquet. By the 1660s cookery had progressed to an art form and good cooks were in demand. Many of them published their own books detailing their recipes in competition with their rivals. Many of these books have now been translated and are available online. By the 1800s, cooking had become a passion throughout the world. Using the latest technology and using a new concept in publishing, Mrs Beeton published her famous Book of Household Management, in the new format of 24 monthly parts between 1857 and 1861. Around the same time the American cook Fannie Farmer was born and having devoted herself to cooking published in 1896 her famous work The Boston Cooking School Cookbook which contained some 1849 recipes. By the mid 1900s, there were literally thousands of cookery and recipe books available. The next revolution came with introduction of the TV cooks. The first TV cook in England was Fanny Craddock who had her show on the BBC, later followed by chefs such as Graham Kerr (known as the Galloping Gourmet). These TV cookery programs brought the recipes of these cooks to a new audience who were keen to try out new ways of cooking. In the early days, the recipes were available by post from the BBC and later with the introduction of the CEEFAX text on screen system, they became available on the television. The new companies of Channel 4 and S4C also brought recipes to the television with their own text system called ORACLE. Today the television is still a major source of recipe information, with international cooks and chefs such as Jamie Oliver, Gordon Ramsey, Nigella Lawson and Rachael Ray having prime time shows and backing them up with Internet websites giving the details of all their recipes. Today, despite the Internet, cookery books are as popular if not more so than they have ever been.

Topic : Tools And Equipment

Topic Objective:

At the end of the topic student will be able to understand:

- Miscellaneous
- Pots and Pans
- Sieves and Colanders
- Spatulas
- Mixing Utensils
- Spoons
- Measuring Cups and Spoons
- Knives
- Fire Extinguishers
- Equipment

Definition/Overview:

NSF International and its significance with regard to commercial kitchen equipment.

NSF sets standards for the designs, construction and installation of tools and equipment. NSF certification is voluntary, but many state and local health departments require that food service operations use only NSF-certified equipment. Tip, spine, cutting edge, bolster, hell, tang, rivets. A piece of metal is cut, stamped or forged into a blade. A portion of the blade known as the tang fits inside the handle where it is held in place with rivets. The handle is usually hardwood or plastic.

Key Points:

Six materials used to make commercial cookware and describe the advantages and disadvantages of each:

- Copper: an excellent heat conductor, but heavy and expensive
- Aluminum: lightweight and a good heat conductor but a soft metal that reacts chemically with many foods
- Stainless steel: strong, durable and non-reactive but conducts and retains heat poorly
- Cast iron: holds and distributes heat well, inexpensive but brittle and heavy and rusts easily
- Glass: holds heat well and is non-reactive but fragile and conducts heat poorly
- Ceramic: conducts and retains heat well and is non-reactive but easily broken

1. Equipment

Six pieces of equipment that can be used to slice or chop foods:

- Knife,
- electric slicer,
- mandoline,
- food processor,
- buffalo chopper,
- vertical cutter/mixer

2. Fire Extinguishers

Four classes of fire extinguishers are for each one, describe its designating symbol and identify the type or types of fires it should be used to extinguish.

- Class A (green triangle): wood, paper, cloth or plastic
- Class B (red square): oil, grease, chemicals
- Class C (blue circle): electrical fires

The relationship between work sections and work stations and the kitchen brigade system. A work section is a large group of specific work stations. Each section would be headed by a chef de partie with individual brigade members roughly corresponding to the specific stations within that section.

3. **Knives**

made of high carbon stainless steel

- 3 or 4" paring knife
- a serrated knife
- 8 or 10" chef's knife

4. **Measuring Cups and Spoons**

- Various sizes, in metal and plastic
- Get at least two sets of each, so you're not continually washing them as you cook
- glass measuring cups with spout, for liquids

5. **Spoons**

- slotted spoon
- wooden spoons
- sturdy metal spoons
- Soup ladle

6. **Mixing Utensils**

- hand held electric mixer
- Wire whisks in different sizes
- Eggbeater

7. **Spatulas**

- straight spatulas
- angled handle spatulas
- rubber scraper spatulas

8. **Sieves and Colanders**

- nested varying size sieves, in stainless steel (work as flour sifters too)
- steel or plastic colander

9. **Pots and Pans**

- 1, 2, 4, and 8-quart saucepans with covers

- 12" skillet with covers
- 6 or 8" nonstick skillet
- roasting pan
- two 9" round cake pans
- 9" square cake pan
- 9"x13" baking pan
- 9"x5" loaf pan
- 9" pie pan
- 12 cup muffin tin
- cooling racks
- two cookie sheets

10. **Miscellaneous**

- swivel-bladed vegetable peeler
- grater with various sized holes
- rolling pin
- can opener
- kitchen timer
- kitchen shears
- corkscrew

Topic : Knife Skills

Topic Objective:

At the end of the topic student will be able to understand:

- Procedure
- Cutting Styles
- The purpose of steel & cutting
- Knife Using

- Kitchen Ninja
- Blade Lust
- Knife Safety

Definition/Overview:

A kitchen knife is any knife that is intended to be used in food preparation. While much of this work can be accomplished with a few general-purpose knives, there are also many specialized knives that are designed for specific tasks. Kitchen knives can be made from several different materials.

Key Points:

1. Knife Using

The step-by-step procedures for sharpening a knife using a three-sided whetstone. Place the heel of the knife blade against the stone at a 20-degree angle. Press down on the blade while pushing it away from you in one long arc. The entire length of the blade should come into contact with the stone. Repeat on both sides of the blade. With a triple-faced whetsone, begin with the coarsest surface and progress to the finest.

2. The purpose of steel & cutting

Steel hones or straightens a knife blade after or between sharpenings.

- To cut vegetables into uniform shapes and sizes
- Uniformly cut foods cook more evenly and look more attractive.
- The following cutting procedures: slicing, chopping and dicing.
- Slicing: cutting an item into broad, thin pieces
- Chopping: cutting an item into small pieces where uniformity isnt necessary or possible
- Dicing: cutting an item into cubes
- The dimensions of the following cuts: julienne, btonnet, brunoise, small dice, medium dice, large dice and paysanne.

3. **Cutting Styles**

- Julienne: 1/8-inch x 1/8-inch x 2-inch stick
- Fine julienne: 1/16-inch x 1/16-inch x 2-inch stick
- Batonnet: 1/4-inch x 1/4-inch x 2-inch stick
- Brunoise: 1/8-inch cube
- Fine brunoise: 1/16-inch cube
- Small dice: 1/4-inch cube
- Medium dice: 1/2-inch cube
- Large dice: 3/4-inch cube
- Paysanne: 1/2-inch x 1/2-inch x 1/8-inch square

4. Procedure

The procedure for making tourned vegetables

Begin by cutting the item into a 2-inch length with flat ends. Hold the item between your thumb and forefinger and then use a small knife to cut seven curved sides or edges from end to end. The result should be a football-shaped item with seven equal sides and blunt ends. Three preparations for which a mandoline would be useful. Slicing large quantities of carrots, zucchini and so on into julienne; slicing apples or pears uniformly for tarts or pies; make gaufrettes (ruffle-cut potatoes) for a side dish. Some advantages: price comparisons are easy, a wide variety of brands can be viewed, and products are usually in stock and shop quickly. Disadvantages: unable to handle the knives to test for personal fit and preferences.

5. Kitchen Ninja

For certain foods, like onions and garlic, or for serious undertakings like boning chickens, a few tricks of the trade will make your blade-work quick and efficient. For in-depth advice on how best to tackle these techniques, take a look at our knife skills articles.

6. Knife Safety

A sharp edge and a dexterous hand guiding the blade are keys to coming away with all your digits intact. Keep fingertips straight below the knuckles and mind the thumb of the food-holding hand. When done, store knives in racks, in knife trays or safely sheathed in drawers. Never leave them at the counters edge where they can be easily swept off.

7. Blade Lust

Most functions requiring the service of a knife can be accomplished with a good 8- or 9-inch chefs knife or paring knife. However, many cooks soon develop knife fever, acquiring numerous knives with different grips and blade lengths, and those designed for specific purposes (like tomato and clam knives).

Topic : Flavors And Flavorings

Topic Objective:

At the end of the topic student will be able to understand:

- Wines
- Fryer Fat
- Condiments used by chefs and by customers
- Herb and Spice
- Some factors that can affect flavors
- Flavorant

Definition/Overview:

Flavor or flavour is the sensory impression of a food or other substance, and is determined mainly by the chemical senses of taste and smell. The "trigeminal senses", which detect chemical irritants in the mouth and throat, may also occasionally determine flavor. The flavor

of the food, as such, can be altered with natural or artificial flavorants, which affect these senses.

Key Points:

1. Flavorant

Flavorant is defined as a substance that gives another substance flavor, altering the characteristics of the solute, causing it to become sweet, sour, tangy, etc.

Of the three chemical senses, smell is the main determinant of a food item's flavor. While the taste of food is limited to sweet, sour, bitter, salty, and savory (umami)--the basic tastes--the smells of a food are potentially limitless. A food's flavor, therefore, can be easily altered by changing its smell while keeping its taste similar. Nowhere is this better exemplified than in artificially flavored jellies, soft drinks and candies, which, while made of bases with a similar taste, have dramatically different flavors due to the use of different scents or fragrances.

Although the terms "flavoring" or "flavorant" in common language denote the combined chemical sensations of taste and smell, the same terms are usually used in the fragrance and flavors industry to refer to edible chemicals and extracts that alter the flavor of food and food products through the sense of smell. Due to the high cost or unavailability of natural flavor extracts, most commercial flavorants are nature-identical, which means that they are the chemical equivalent of natural flavors but chemically synthesized rather than being extracted from the source materials.

2. Some factors that can affect flavors

Temperature, consistency, the presence of contrasting tastes, the presence of fats and color all affect flavor perceptions. For example, a cold soup will taste saltier than the same soup will hot because cold foods taste more salty, and pured potatoes will taste different from boiled potatoes because of the difference in consistency.

Herbs and spices are both examples of flavorings, ingredients that create distinctive flavors in prepared foods. Each kitchen keeps a stock of different flavorings depending on the chefs preferences, the menu and the cooking methods used.

3. Herb and Spice

The differences between an herb and a spice

Herbs: leaves, stems, flowers; may be fresh or dried

Spices: bar, roots, seeds, berries; usually dried

Examples: dill, coriander, cilantro

Dried herbs are stronger; you should simply use less than the amount of fresh herb called for in the recipe. Begin with approximately 1/3 as much of the dried herb, then add more if necessary.

4. Condiments used by chefs and by customers

Condiments such as prepared mustard, relishes or bottled sauces are used by chefs as marinades or to flavor dishes during cooking. They are used by customers to alter or enhance the flavor or a complete dish at the table.

5. Fryer Fat

The fat becomes very dark, foams excessively or adds off-flavors to foods. Fryer fat breaks down because food particles or salt are not removed from the fryer, excessive water comes in contact with the fat, the fat is overheated or infrequently filtered. Prolonged exposure to air and light turns fat rancid; store fat in tightly sealed containers away from strong light; cover the fat in the fryer when not in use; skim and remove food particles from the fats surface during frying; do not salt food over the fat; prevent excessive water from coming into contact with the fat; do not overheat the fat; and filter the fat each day or after each shift.

6. Wines

Wines and other alcoholic beverages are used to flavor foods. Wines and other alcoholic beverages are used to flavor sauces, stews and many dessert items, such as custards, and they are used as main ingredients in marinades and sauces.

Topic : Dairy Products

Topic Objective:

At the end of the topic student will be able to understand:

- Types of dairy products
- Cheese
- Milk fat
- Dairy

Definition/Overview:

Dairy products are generally defined as foodstuffs produced from milk. They are usually high-energy-yielding food products. A production plant for such processing is called a dairy or a dairy factory. Raw milk for processing generally comes from cows, but occasionally from other mammals such as goats, sheep, water buffalo, yaks, or horses. Dairy products are commonly found in European, Middle Eastern and Indian cuisine, whereas they are almost unknown in East Asian cuisine.

Key Points:

1. **Dairy**

A dairy is a facility for the extraction and processing of animal milkmostly from goats or cows, but also from buffalo, sheep, horses, or camels for human consumption. Terminology differs slightly between countries. In particular, in the U.S. a dairy can also be the facility that processes and distributes the milk or the store that sells dairy products, and in New Zealand English a dairy means a corner shop, or Superetteand dairy factory is the term for what is elsewhere a dairy. As an adjective, the word dairy describes milk-based products, derivatives and processes, for example dairy cattle, dairy goat. A dairy farm produces milk and a dairy factory processes it into a variety of dairy products.

2. **Milk fat**

Milk fat used in classifying milk-based products, the fat that is naturally found in whole milk. The percentage of milkfat is used to categorize products as skim, low-fat or cream.

Dried milk can be reconstituted with water and used in place of fresh milk. Milk powder can sometimes be added directly to a recipe, relying on liquid in the recipe to dissolve and reconstitute it.

3. **Cheese**

Cheeses are categorized as fresh, soft, semi-soft, firm and hard. Give two examples of each and explain how they are generally used.

- Fresh: cream cheese, ricotta; used in desserts or cooked preparations
- Soft: Brie, Camembert; eating cheeses, especially before and after meals or as dessert
- Semi-soft: Fontina, Gorgonzola; sliceable cheeses used in sandwiches, sauces and for snacking
- Firm: cheddar, Swiss; melting or slicing; used in sauces, sandwiches and for snacking
- Hard: Parmesan, Romano; grating cheeses used as a condiment or in prepared dishes.

The Food and Drug Administration (FDA) has proposed extending the mandatory aging period for cheeses made from raw (unpasteurized) milk beyond the 60 days currently required. The FDA has also proposed banning importation of raw-milk cheeses altogether on food safety grounds. Several groups, including the American Cheese Society and Oldways Preservations & Exchange Trust, are fighting these proposals.

4. **Types of dairy products**

- Milk, after optional homogenization, pasteurization, in several grades of bacteria Streptococcus lactis and Leuconostoc citrovorum

o Crme frache, slightly fermented cream

Smetana, Central and Eastern European variety of sour cream

Clotted cream, thick spoonable cream made by heating

- o Cultured buttermilk, fermented concentrated (water removed) milk using the same bacteria as sour cream
- o Kefir, fermented milk drink resembling buttermilk but based on different yeast and bacteria culture
- o Milk powder (or powdered milk), produced by removing the water from milk
  - Whole milk & buttermilk
  - Skim milk
  - Cream
  - High milk-fat & nutritional powders (for infant formulas)
  - Cultured and confectionery powders
- o Condensed milk, milk which has been concentrated by evaporation, often with sugar added for longer life in an opened can
- o Evaporated milk, (less concentrated than condensed) milk without added sugar
- o Ricotta cheese, milk heated and reduced in volume, known in Indian cuisine as Khoa
- o Infant formula, dried milk powder with specific additives for feeding human infants
- o Baked milk, a variety of boiled milk that has been particularly popular in Russia

- Butter, mostly milk fat, produced by churning cream
  - o Buttermilk, the liquid left over after producing butter from cream, often dried as livestock food

- Ghee, clarified butter, by gentle heating of butter and removal of the solid matter
- Anhydrous milkfat

- Cheese, produced by coagulating milk, separating from whey and letting it ripen, generally with bacteria and sometimes also with certain molds
  - Curds, the soft curdled part of milk (or skim milk) used to make cheese (or casein)
  - Whey, the liquid drained from curds and used for further processing or as a livestock food
  - Cottage cheese
  - Quark
  - Cream cheese, produced by the addition of cream to milk and then curdled to form a rich curd or cheese made from skim milk with cream added to the curd
  - Fromage frais
- Casein
  - Caseinates
  - Milk protein concentrates and isonates
  - Whey protein concentrates and isonates
  - Hydrolysates
  - Mineral concentrates

- Yogurt, milk fermented by Streptococcus salivarius ssp. thermophilus and Lactobacillus delbrueckii ssp. bulgaricus sometimes with additional bacteria, such as Lactobacillus acidophilus
    - o Ayran
    - o Lassi
- Gelato, slowly frozen milk and water, lesser fat than ice cream
- Ice cream, slowly frozen cream and emulsifying additives
    - o Ice milk
    - o Frozen custard
    - o Frozen yogurt, yogurt with emulsifiers that is frozen
- Other
    - o Kumis/Airag, slightly fermented mares' milk popular in Central Asia
    - o Viili
    - o Kajmak
    - o Kefir
    - o Filmjlk
    - o Piim
    - o Vla
    - o Dulce de leche
    - o Uloo kao patha laeen ka

In Section 2 of this course you will cover these topics:

- Mise En Place
- Principles Of Cooking
- Stocks And Sauces
- Soups
- Principles Of Meat Cookery
- Beef
- Veal
- Lamb

Topic : Mise En Place

Topic Objective:

At the end of the topic student will be able to understand:

- Breading Procedure
- Breading And Battering Foods
- Preparation list
- Mis en place

Definition/Overview:

Mis en place (pronounced [miz ɑ̃ plas], literally "put in place") is a French phrase defined by the Culinary Institute of America as "everything in place", as in set up. It is used in U.S.kitchens to refer to the ingredients, such as cuts of meat, relishes, sauces, par-cooked items, spices, freshly chopped vegetables, and other components that a cook requires for the menu items that they expect to prepare during their shift.

Key Points:

1. Mis en place

Recipes are reviewed, to check for necessary ingredients and equipment. Ingredients are measured out, washed, chopped and placed in individual bowls. Equipment such as

spatulas and blenders are prepared for use, while ovens are preheated. Preparing the mis en place ahead of time allows the chef to cook without having to stop and assemble items, which is desirable in recipes with time constraints.

It also refers to the preparation and layouts that are set up and used by line cooks at their stations in a commercial or restaurant kitchen. The concept of having everything in its place as applied to the work in a kitchen is likely to have become a staple around the time of Auguste Escoffier who is well known for his development of the brigade system of running a kitchen. '"Mise en Place" is also the name of a post-punk band from Edina, Minnesota.

2. Preparation list

Preparation list can make work flow more smoothly; the first step in organizing your work, a prep list involves reading through all of the recipes and composing a list of all of the tasks necessary to prepare them. A detailed prep list prioritizes work and leaves nothing to memory, so that every detail will be handled in time for service.

3. Breading And Battering Foods

Breading coats are the food with layers of liquid and dry ingredients in order to seal the food from fat during frying. Foods can usually be breaded in advance of cooking. Battering involves dipping the food in a liquid batter (starch-based solution) then immediately dropping the item into hot fat for frying. Breading usually forms a thicker, crisper crust over the food being cooked.

4. Breading Procedure

Separate pans should contain the food to be breaded, flour, egg/liquid mixture, the final coating and the breaded product. Work from left to right, using one hand for dry ingredients and the other hand for liquids. The proper mise en place should including selecting and arranging tools and baking equipment; preheating an oven; measuring ingredients; and preparing pans or bakeware as necessary for the chosen recipe. The concept of mise en place be applied to activities outside of the kitchen. Prior planning and organization techniques can be applied in all activities, whether studying, preparing a class project, or looking for employment. The concept of mise en place requires you to

think about what you are trying to achieve and the best, most logical and efficient way to reach that goal. It also requires you to select and organize your work materials, whether you are preparing a casserole, a resume or an examination essay.

Topic : Principles Of Cooking

Objective:

At the end of the topic student will be able to understand:

- Swimming, basket and double-basket methods
- Gelatinization
- Coagulation
- Caramelization
- Broiling And Grilling
- Conduction

Definition/Overview:

Cooking is the act of preparing food for eating by the application of heat. It encompasses a vast range of methods, tools and combinations of ingredients to alter the flavor or digestibility of food. It is the general preparation process of selecting, measuring and combining of ingredients in an ordered procedure in an effort to achieve the desired result. Factors affecting the final outcome include the variability of ingredients, ambient conditions, tools, and the skill of the individual doing the actual cooking.

Key Points:

1. Conduction

Conduction is the movement of heat energy through direct contact. Convection is the transfer of heat through a liquid or a gas, such as air. It involves mixing either natural or mechanical. All cooking methods rely on conduction to transfer heat through the food,

but any cooking method involving submersion in fat or liquid (deep-frying, pan-frying, boiling, etc.) is really using both conduction and convection to transfer heat to the food.

2. Broiling And Grilling

Broiling and grilling over an open fire. The difference is the location of the heat source: with broiling it is above the food; with grilling it is below the food. Food cooks faster in a convection oven because the oven fan circulates the heat more quickly.

3. Caramelization

Caramelization is the cooking (browning) of sugars, which occurs at temperatures above 338 F (170 C). The sugars may be those added to a dish or those naturally found in virtually all foods. Braised foods will have a caramelized surface only if they were browned before any liquid was added. Caramelization cannot occur in liquids that cannot reach 338 F (170 C).

4. Coagulation

Coagulation is the irreversible transformation of proteins from a liquid or semiliquid state to a solid state. This firming and solidification gives foods structure and texture. (Consider the coagulation of eggs in a custard.) A pure fat will not coagulate because it does not contain protein.

5. Gelatinization

Gelatinization is the process by which starch granules absorb water, causing them to swell, soften and clarify. When gelatinization occurs, the liquid thickens because the water is being absorbed and the swollen starch granules occupy more space. A pure fat will not gelatinize because it does not contain starch.

6. Swimming, basket and double-basket methods

The swimming method allows the food to move freely in the fat. The basket and double-basket methods place the food in fryer baskets submerged in the fat. The latter method requires that a second basket be placed into the one containing the food to keep the food from floating on the surface during cooking.

Topic : Stocks And Sauces

Topic Objective:

At the end of the topic student will be able to understand:

- Vegetable Juice Sauces
- Salsas And Relishes
- Temperatures important when making hollandaise sauce
- Mother Sauces
- Production Of A White Stock
- The bones of younger animals preferred for making stocks
- History
- Broth
- Sauce
- Herbs and spices
- Mirepoix
- Bones

Definition/Overview:

Stock is a flavoured liquid. It forms the basis of many dishes, particularly soups and sauces. Stock is prepared by simmering various ingredients in water, including some or all of the following:

Key Points:

1. Bones

Veal, beef, and chicken bones are most commonly used. The flavour of the stock comes from the cartilage and connective tissue in the bones. Connective tissue has collagen in it, which gets converted into gelatin that thickens the liquid. Stock made from bones needs to be simmered for longer than stock made from meat (often referred to as broth).

2. Mirepoix

Mirepoix is a combination of onions, carrots, celery, and sometimes other vegetables. Often the less desirable parts of the vegetables (such as carrot skins and celery ends) are used since they will not be eaten.

3. Herbs and spices

The herbs and spices used depend on availability and local traditions. In classical cuisine, the use of a bouquet garni (or bundle of herbs) consisting of parsley, bay leaves, a sprig of thyme and possibly other herbs, is common. This is often wrapped in a cheesecloth "bag" and tied with string to make it easier to remove it once the stock is cooked.

4. Sauce

In cooking, a sauce is liquid or sometimes semi-solid food served on or used in preparing other foods. Sauces are not consumed by themselves; they add flavor, moisture, and visual appeal to another dish. Sauce is a French word taken from the Latin salsus, meaning salted. Sauces need a liquid component, but some sauces (for example, salsa or chutney) may contain more solid elements than liquid. Sauces may be prepared sauces, such as soy sauce, which are usually bought, not made, by the cook; or cooked sauces, such as Bchamel sauce, which are generally made just before serving. Sauces for salads are called salad dressing. Sauces made by deglazing a pan are called pan sauces.

5. Broth

Broth is very similar to stock, and often the terms are used interchangeably. Usually, broth refers to finished product while stock is used as an ingredient (thus stock may become broth). Other times, broth is used to refer to a liquid made in the same way as stock but meat is substituted for bones. However, with some stock/broth made from vegetables and some made from both bones and meat, this cannot be considered a hard-and-fast rule. Today, ready-made stock and stock cubes consisting of dried, compressed stock ingredients are readily available. These are commonly known as bouillon cubes (or oxo cubes, after a common brand of stock cube sold in Britain) or cooking base.

6. History

Date back to Medieval times. There were hundreds of sauces in the culinary repertoire. In 'classical' French cooking (19th and 20th century until nouvelle cuisine), sauces were a major defining characteristic of French cuisine. In the 19th century, the chef Antonin Carme classified sauces into four families, each of which was based on a mother sauce (Also called grand sauces). Carme's four mother sauces were:

- Allemande, based on white stock, thickened with egg yolk.
- Bchamel, based on milk, thickened with roux.
- Espagnole, based on brown stock (usually veal), thickened with roux.
- Velout, based on a white stock, thickened with roux.

In the early 20th century, the chef Auguste Escoffier updated the classification, adding new sauces such as Tomato Sauce, butter sauces and emulsified sauces such as Mayonnaise and Hollandaise. Most sauces commonly used in classical cuisine are derivatives of one of the above mentioned mother sauces. Mother sauces are not commonly served as-is, instead they are augmented with additional ingredients to make derivative sauces. For example, Bechamel can be made into Mornay by the addition of Gruyere, and Espagnole can be made into Borderlaise by the addition of reduced red wine and poached beef marrow.

7. The bones of younger animals preferred for making stocks

The bones of younger animals have higher collagen content than those of older animals. As stocks cook, the collagen is converted into gelatin, which adds richness and body to the finished stock. A stock made from beef or veal bones cook longer than a stock made from fish bones Different bones release their flavor at different rates; beef and veal bones, which are thick and heavy, release flavor more slowly than do the smaller, more delicate chicken and fish bones. When bones are not cooked long enough, it results in a stock lacking flavor and color. Impurities in the stock usually caused by boiling the stock, starting the stock with hot water or not properly skimming the stock during cooking. Cloudiness can be prevented by simmering the stock slowly throughout the cooking period, starting the stock with cold water and frequently skimming the stock.

8. Production Of A White Stock

Three differences in the production of a white stock and a brown stock

For brown stock, the bones and mirepoix are caramelized before being simmered; a tomato product is added when making a brown stock but not a white stock; and bones can be washed or blanched for white stock but not for brown stock.

9. Mother Sauces

Five classic mother sauces and explain how they are used to prepare small sauces.

Bchamel, velout, espagnole (brown), tomato and hollandaise. Herbs, spices, wine, dairy products, such as cream and cheese, and other flavorings and ingredients are added to a mother sauce in order to create specific small sauces. Demi-glace is used instead of brown sauce because it is richer and more flavorful. Jus li is similar to demi-glace but generally lighter in consistency. Jus li can be used in place of demi-glace in almost any application.

10. Temperatures important when making hollandaise sauce

If the egg yolks are heated too much or overcooked, they lose their ability to emulsify the sauce and the sauce will break; the butter must be warm but not so hot that it further cooks the egg yolks when the two are combined or the sauce will break. Precautions: always store hollandaise in clean, sanitized containers; schedule sauce production as close to the time of service as possible; never hold hollandaise-based sauces more than 1 1/2 hours; make small batches of sauce; and never mix an old sauce with a new one. Beurre blanc and hollandaise sauces are both emulsified butter sauces and proper temperatures are very important to their production. Unlike hollandaise, beurre blanc does not use egg yolks for emulsification; a properly made beurre blanc has a lighter consistency than a hollandaise sauce. Compound butters, or beurres composs, are incorporated into sauces using the finishing technique called monter au beurre, or they can be used alone by placing a slice of the butter on top of hot grilled or broiled foods. Maitre dhotel butter contains whole butter, chopped parsley, lemon juice and white pepper.

11. Salsas And Relishes

Salsas and relishes are generally cold, chunky mixtures of herbs, spices, fruits and/or vegetables. Chutneys are generally mixtures of fruits and/or vegetables cooked with sugar and vinegar; they may or may not retain recognizable pieces of their ingredients. Salsas, relishes and chutneys can be used in lieu of classic sauces in most applications. They are generally lower in fat and considered healthier than more traditional sauces and are enjoying great popularity because of their intense fresh flavors, ease of preparation and low calorie contents.

12. Vegetable Juice Sauces

Vegetable juice sauces are made by liquefying or extracting the juice from one or more vegetables. A broth is made in the same manner as a stock, by extracting flavors from one or more vegetables into water or another liquid in which the main item was cooked.

Topic : Soups

Topic Objective:

At the end of the topic student will be able to understand:

- Add the cold stock
- Cream soups
- Portable Soup
- History
- Restaurant
- Soup

Definition/Overview:

Soup is a food that is made by combining ingredients such as meat, vegetables in stock or hot/boiling water, until the flavor is extracted, forming a broth.

Traditionally, soups are classified into two broad groups: clear soups and thick soups. The established French classifications of clear soups are bouillon and consomm. Thick soups are classified depending upon the type of thickening agent used: pures are vegetable soups thickened with starch; bisques are made from pured shellfish thickened with cream; cream soups are thickened with bchamel sauce; and velouts are thickened with eggs, butter and cream. Other ingredients commonly used to thicken soups and broths include rice, flour, and grain. One of the first types of soups can be dated to about 6000 BC. Boiling was not a common cooking technique until the invention of waterproof containers (which probably came in the form of pouches made of clay or animal skin) about 9,000 years ago.

Key Points:

1. Soup

The word soup originates from "sop", a dish originally consisting of a soup or thick stew which was soaked up with pieces of bread. The modern meaning of sop has been limited to just the bread intended to be dipped.

2. Restaurant

The word restaurant was first used in Francein the 16th century, to describe a highly concentrated, inexpensive soup, sold by street vendors called restaurer, that was advertised as an antidote to physical exhaustion. In 1765, a Parisian entrepreneur opened a shop specializing in restaurers. This prompted the use of the modern word restaurant to describe the shops.

3. History

In America, the first colonial cookbook was published by William Parks in Williamsburg, Virginia, in 1742, based on Eliza Smith's The Compleat Housewife; or Accomplished Gentlewoman's Companion and it included several recipes for soups and bisques. English cooking dominated early colonial cooking; but as new immigrants arrived from other countries, other national soups gained popularity. In particular, German immigrants living in Pennsylvania were famous for their potato soups. In 1794, Jean Baptiste Gilbert Payplat dis Julien, a refugee from the French Revolution, opened an eating establishment in Boston called Restorator, and became known as "The Prince of Soups." The first

American cooking pamphlet dedicated to soup recipes was written in 1882 by Emma Ewing: Soups and Soup Making.

4. Portable Soup

Portable soup was devised in the 18th century by boiling seasoned meat until a thick, resinous syrup was left that could be dried and stored for months at a time. The Japanese miso is an example of a concentrated soup paste. Unlike stocks, broths are made with meat, not just bones. Broths can be served as finished dishes, while stocks are generally used to prepare other items. A consomm has been clarified while a broth has not. They are similar in that both begin as a broth made with meat.

5. Cream soups

Cream soups are thickened with starch; pure soups generally do not use additional starch for thickening. They depend on the starch content of the main ingredient to thicken the soup. Pure soups are generally coarser than cream soups and are typically not strained after pureing. Both can be made by cooking vegetables in a stock or broth, and both are sometimes finished with milk or cream. A recipe for veal consomm should include egg whites, ground beef or veal, mirepoix, a tomato product, brown veal stock, an oignon brle, sachet and salt. Garnishes may be included. Key steps in the procedure include:

Combine the clearmeat ingredients (beaten egg whites, ground meat, mirepoix and tomato product) in a stockpot.

6. Add the cold stock

- Bring slowly to a simmer, allowing a raft to form; stop stirring as the consomm begins to simmer.
- Simmer for 1 1/2 hours to extract the flavors from the raft ingredients.
- Strain and degrease the consomm.

Most soups can be made in advance. Reheat small batches of soups as needed throughout meal service. Take care not to overcook garnishes that have already been added to a soup. Refrigerate thick soups as a base; finish the soup with boiling milk or cream, a light bchamel sauce or a liaison and adjust the seasonings just before service. Heat clear soups

to 210 F and thick soups to 190 F-200 F. Keep cold soups well chilled. Serve hot soups in hot cups, bowls or plates and cold soups in cold ones.

Garnishes can be added to make the soup more attractive (for example, snipped chives on a bowl of vichyssoise) or as a component of the soup (for example, barley and beef for beef barley soup). If possible, add garnishes to hot soups at the last minute to prevent the garnishes from overcooking. Although the noodles in chicken noodle soup are an integral component of the soup, they are considered a garnish because they are not cooked in the broth but are added to it.

Topic : Principles Of Meat Cookery

Topic Objective:

At the end of the topic student will be able to understand:

- Larding
- Barding
- Marinating
- Primal Cuts
- Diversity Of Cooking

Definition/Overview:

Cooking is the act of preparing food for eating by the application of heat. It encompasses a vast range of methods, tools and combinations of ingredients to alter the flavor or digestibility of food. It is the general preparation process of selecting, measuring and combining of ingredients in an ordered procedure in an effort to achieve the desired result. Factors affecting the final outcome include the variability of ingredients, ambient conditions, tools, and the skill of the individual doing the actual cooking.

Key Points:

1. Diversity Of Cooking

The diversity of cooking worldwide is a reflection of the myriad nutritional, aesthetic, agricultural, economic, cultural, social and religious considerations that impact upon it.

Applying heat to a food usually, though not always, chemically transforms it, thus changing its flavor, texture, consistency, appearance, and nutritional properties. There is archaeological evidence of roasted foodstuffs, both animal and vegetable, in human (Homo erectus) campsites dating from the earliest known use of fire, some 800,000 years ago. Other methods of cooking that involve the boiling of liquid in a receptacle have been practiced at least since the 10th millennium BC, with the introduction of pottery.

2. Primal Cuts

Primal cuts are the primary divisions of muscle, bone and connective tissue produced by the initial butchering of the carcass. Subprimal cuts are the basic cuts produced from each primal. Fabricated cuts are the individual portions cut from a subprimal. Being skilled in meat fabrication creates flexibility in purchasing and provides the opportunity to cut meats to exact specifications. Most connective tissue is composed of collagen and elastin. It forms the walls of long muscle cells and binds them into bundles. It surrounds the muscle as a membrane and also appears as tendons and ligaments that attach the muscles to the bones. Collagen breaks down into gelatin and water when cooked using moist-heat cooking methods. Elastin remains tough and stringy under normal cooking temperatures.

All meats produced for public consumption in the United States are subject to USDA inspection. Quality grading and yield grading are voluntary USDA programs.

Fresh meats should be stored between 30 F and 45 F (-1 C and +2 C). Frozen meats should be stored at 0 F (-18 C) or colder. Meats with a great deal of connective tissue should be cooked using moist-heat or combination-heat cooking methods, such as braising. Braising causes some of the connective tissue (collagen) to break down, thus making the meat more tender. Grilling does not have a tenderizing effect. Tendons, ligaments and silverskin are made up primarily of elastin, which will not break down or become tender during cooking and should be trimmed away before the meat is cooked.

3. Marinating

Soaking meats in a flavorful liquid (often acidic) that helps to tenderize the meat and add flavor.

4. Barding

It is covering the surface of lean meats with thin sheets of fat that continuously baste it during cooking.

5. Larding

Inserting small strips of pork fat into meat using a larding needle; during cooking the added fat contributes moisture and flavor to the meat. Both are dry-heat cooking methods using fat as the cooking medium; only tender meats should be used. Sauting uses less fat than pan-frying. Pan-fried items are usually breaded; sauted meats are not. Sauted meats are usually accompanied by a sauce that is made in the pan after the meat is removed. Pan-fried meats are usually served with a sauce made separately. Braising and stewing are both combination cooking methods best suited to meats that are relatively high in connective tissue. Braised meats are generally carved for service like roasts. Stewed meats are generally cut into smaller, bite-sized pieces before cooking.

Topic : Beef

Topic Objective:

At the end of the topic student will be able to understand:

- Rib eye steak
- T-bone steaks and porterhouse steaks
- Flank
- Sirloin
- Short loin

- Short plate
- Rib
- Brisket and shank
- Chuck
- Cuts
- Beef muscle meat

Definition/Overview:

Beef is the culinary name for meat from bovines, especially domestic cattle. Beef is one of the principal meats used in the cuisine of Australia, Europe and the Americas, and is also important in Africa, East Asia, and Southeast Asia. In the Middle East, lamb is usually preferred over beef. Beef is not normally eaten by the Hindu population in India as it is not allowed for religious reasons. It is also discouraged among some Buddhists.

Key Points:

1. Beef muscle meat

Beef muscle meat can be cut into steaks, pot roasts or short ribs, or it can be ground/minced. The blood is used in some varieties of blood sausage. Other parts which are eaten include the meaty tail, tongue, tripe from the stomach, various glandsparticularly the pancreas and thymusreferred to as sweetbreads, the heart, the brain (although forbidden where there is a danger of bovine spongiform encephalopathy, BSE), the liver, the kidneys, the tender testicles of the bull (known in the US as "calf fries", "prairie oysters", or "Rocky Mountain oysters"), intestines, and the udder. Beef bones are used for making soup stock.

2. Cuts

The better cuts are usually obtained from the steer; the heifer tends to be kept for breeding. Older animals are used for beef when they are past their reproductive prime. The meat from older cows and bulls is usually tougher, so it is frequently used for mince (UK)/ground beef (US). Cattle raised for beef may be allowed to roam free on grasslands, or may be confined at some stage in pens as part of a large feeding operation called a feedlot, where they are usually fed grain. The United States, Brazil,Japan and the People's

Republic of Chinaare the world's four largest consumers of beef . The world's largest exporters of beef are Australia, Brazil, Argentinaand Canada. Beef production is also important to the economies of Uruguay, Nicaragua, R ussia and Mexico.

3. Chuck

forequarter, the animals shoulder; stew meat, ground chuck

4. Brisket and shank

forequarter, below the chuck; brisket, pastrami, ground beef

5. Rib

forequarter, behind the chuck; prime rib, rib eye steaks, beef ribs, beef short ribs

6. Short plate

forequarter, below the primal rib; short ribs, skirt steak, ground beef

7. Short loin

just behind the rib, the first primal cut when the side of beef is divided into forequarter and hindquarter; tenderloin, club steaks, T-bone steaks, porterhouse steaks, strip loin and strip steaks

8. Sirloin

Hindquarter, behind the short loin and the round; sirloin roast, sirloin steaks, butt tenderloin

9. Flank

- Hindquarter, beneath the loin and behind the short plate; flank steak, ground beef
- Round: hindquarter, the animals hind leg; top round, outside round, eye round (the outside round and the eye round together are called the bottom round), knuckle and shank
- The chuck is high in connective tissue and is tough. Meat from the chuck responds well to slow, moist-heat cooking methods, such as stewing.

10. T-bone steaks and porterhouse steaks

These steaks are very tender and are best suited to dry-heat cooking methods, such as grilling or broiling.

11. Rib eye steak

It is tender because the rib eye muscle is not used regularly. It has a fine grain and a high degree of marbling.

Topic : Veal

Topic Objective:

At the end of the topic student will be able to understand:

- Leg
- Loin
- Rib
- Shoulder
- Veal

Definition/Overview:

Veal is the meat of calves (young cattle). Though veal can be produced from any calf, most veal comes from male calves of dairy cattle breeds. Compared to other meats, veal has a delicate taste and tender texture.

Key Points:

1. Veal

There are four types of veal:

- Bob Veal, from calves that are culled a few days after birth when they weigh 150 lb. (USA only)
- Formula-Fed (or "milk-fed") veal, from calves that are raised on a nutritionally complete milk formula supplement. The meat colour is ivory or creamy pink, with a firm, fine and velvety appearance. Usually marketed as veal when they reach 18-20 weeks of age (450-500 lb).
- Non-Formula-Fed ("red" or "grain-fed") veal, from calves that are raised on grain, hay or other solid food in addition to milk. The meat is darker in colour, and some additional marbling and fat may be apparent. Usually marketed as calf rather than veal at 22-26 weeks of age (650-700 lb).
- Ros Veal UK is from calves reared on farms in association with the UK RSPCA's stringent Freedom Foods programme. Its name comes from its pink colour, which is a result of the calf's being culled at around 35 weeks.

Veal is lighter in color than beef, has a more delicate flavor and is generally tenderer. Unlike beef, veal has very little fat and little or no marbling. Calves producing formula-fed veal are tethered in pens to restrict their movement and fed specific formulas. Their meat is nearly white in color. Calves producing free-range veal are allowed to roam freely and eat grasses and other natural foods. Their meat is rosy pink or slightly red and has a stronger flavor than formula-fed veal. After slaughter, beef carcasses are cut into two bilateral halves. Veal carcasses are usually cut into a foresaddle and a hindsaddle by a cut between the eleventh and twelfth ribs. A beef carcass can weigh from 500 to 800 pounds, while a veal carcass typically weighs between 60 and 245 pounds.

2. Shoulder

foresaddle, same as the beef chuck; ground veal, stew meat, chops can be cut but they are inferior to those cut from the rib or loin Foreshank and bread: foresaddle below the shoulder and rib; bread, osso buco, ground veal, stew meat

3. Rib

foresaddle, directly behind the shoulder; veal hotel rack, veal chops, veal rib eye, short tenderloin

4. Loin

hindsaddle, directly behind the rib; boneless strip loin, loin chops

5. Leg

Hindsaddle, consists of the sirloin and hind leg; cutlets, scallops, osso buco. The veal loin is tender and low in connective tissue and fat. It responds best to dry-heat cooking methods, such as grilling, broiling, roasting or sauting. Sweetbreads are calf thymus glands. The procedure for preparing sweetbreads is: Blanch them in a court bouillon and cool. Pull off any sinew or membranes. Wrap the sweetbreads in cheesecloth and tie the ends with butchers twine. Press the sweetbreads to improve their texture.

Topic : Lamb

Topic Objective:

At the end of the topic student will be able to understand:

- Leg
- Loin
- Rack
- Breast
- Shoulder
- Meat from sheep features
- Meat Of A Lamb

Definition/Overview:

Lamb, hogget, and mutton are the meat of domestic sheep. The meat of an animal in its first year is lamb; that of an older sheep is hogget and later mutton.

Key Points:

1. Meat of a Lamb

The meat of a lamb is taken from the animal between one month and one year old, with a carcass weight of between 5.5 and 30 kilograms (12 and 65 lbs). This meat generally is tenderer than that from older sheep and appears more often on tables in some Western countries. Hogget and mutton have a stronger flavour than lamb because they contain a higher concentration of species-characteristic fatty acids and are preferred by some. Mutton and hogget also tend to be tougher than lamb (because of connective tissue maturation) and are therefore better suited to casserole-style cooking.

2. Meat from sheep features

Meat from sheep features prominently in cuisines of the Mediterranean, North Atlantic islands, Australia, North Africa, the Middle East, South Asia, and certain parts of Chinabecause other red meats are eschewed for religious or economic reasons. Barbecued mutton is also a speciality in some areas of the United States & Canada. After slaughter, beef carcasses are cut into two bilateral halves; lamb carcasses are usually reduced to the primal cuts: shoulder, breast, rack, loin and leg. Like veal primals, these primals are crosscut sections and contain both bilateral halves. A beef carcass can weigh from 500 to 800 pounds. A lamb carcass typically weighs between 41 and 75 pounds.

3. Shoulder

Foresaddle, includes the arm and four ribs, same location as the beef chuck; shoulder chops, stew meat and ground lamb

4. Breast

Foresaddle, beneath the primal rack; Denverribs, foreshanks and ground lamb

5. Rack

foresaddle, between the shoulder and loin; Frenched rack of lamb, lamb chops

6. Loin

Hindsaddle, between the primal rib and leg; boneless roast, chops, noisettes

7. Leg

Hindsaddle, the animals rear leg; boned, rolled, tied leg of lamb, steaks, shanks, stew meat or ground lamb

- Lamb breast is flavorful but tough. It contains a great deal of connective tissue that is broken down during slow, moist-heat cooking methods.
- Trim the ribs to approximately 3 inches on each side of the rack.
- Cut down both sides of the feather bones.
- With a saw, cut between the ribs and the chine bone at a 45-degree angle, separating the ribs and eye muscle from the chine bone.
- Cut away the thick layers of fat on the racks surface.
- Make a cut through the fat perpendicular to the ribs, 1 inch from the rib eye.
- Trim away all meat and fat from the rib ends.
- Trim the surface fat from the racks as desired.
- Purchase lamb as a lamb back. The back is the rack and loin sections in one piece. Rib and loin chops can be produced from the back with relatively little trim or waste.

In Section 3 of this course you will cover these topics:

- Pork
- Poultry
- Game
- Fish And Shellfish
- Eggs And Breakfast
- Vegetables
- Potatoes, Grains And Pasta

Topic : Pork

Topic Objective:

At the end of the topic student will be able to understand:

- Bacon
- Ham and bacon
- Pork

Definition/Overview:

Pork is the culinary name for meat from the domestic pig (Sus scrofa), often specifically the fresh meat but can be used as an all-inclusive term. It is one of the most commonly consumed meats worldwide, with evidence of pig husbandry dating back to 5000 BC.

Key Points:

1. Pork

Pork is eaten in various forms, including cooked (as roast pork), cured or smoked (ham, including the Italian Prosciutto) or a combination of these methods (gammon, bacon or Pancetta). It is also a common ingredient of sausages. As with beef in Hinduism, pork consumption is taboo in Islam, Judaism, Rastafarianism and Adventism. Pork is particularly common as an ingredient of sausages. Many traditional European sausages are made with pork, including chorizo, fuet, and salami. Most brands of American hot dogs and breakfast sausage are made from pork.

2. Ham and bacon

Ham and bacon are made from fresh pork by curing with salt (pickling) and/or smoking. Shoulders and legs are most commonly cured in this manner for ham whereas streaky and round bacon usually comes from the loin, although it may also come from the side and belly.

Ham and bacon are popular foods in the west, and their consumption has increased with industrialisation. Non-western cuisines also use preserved meat products. For example, salted preserved pork or red roasted pork is used in Chinese and Asian cuisine.

3. Bacon

Bacon is defined as any of certain cuts of meat taken from the sides, belly or back that have been cured and/or smoked. In continental Europe, it is used primarily in cubes (lardons) as a cooking ingredient valued both as a source of fat and for its flavour. In Italy, besides being used in cooking, bacon (pancetta) is also served uncooked and thinly sliced as part of an antipasto. Bacon is also used for barding and larding roasts, especially game birds. Many people prefer to have their bacon smoked, using various types of wood. This process can take up to ten hours depending on the intensity of the flavour desired. Bacon may be eaten fried, baked, or grilled. A side of unsliced bacon is a flitch or slab bacon, while an individual slice of bacon is a rasher (United Kingdom, Republicof Ireland, Australiaand New Zealand) or simply a slice or strip (North America). Slices of bacon are also known as collops. Traditionally, the skin is left on the cut and is known as bacon rind. Rindless bacon, however, is quite common. In the United Kingdom and Republicof Ireland, bacon comes in a wide variety of cuts and flavours whereas bacon in the United States and is predominantly what is known as "streaky bacon", or "streaky rashers". Bacon made from the meat on the back of the pig is referred to as back bacon and is part of traditional Full breakfast commonly eaten in Britain and Ireland. In the United States, back bacon may also be referred to as Canadian-style Bacon or Canadian Bacon. The USDA defines bacon as "the cured belly of a swine carcass", while other cuts and characteristics must be separately qualified (e.g. "smoked pork loin bacon"). "USDA Certified" bacon means that it has been treated for trichinella. The canned meat Spam is made of chopped pork shoulder meat and ham.

Topic : Poultry

Topic Objective:

At the end of the topic student will be able to understand:

- Meatiest Parts Of A Bird
- Kinds Of Poultry
- Chicken
- Trussing
- Poultry

Definition/Overview:

Poultry is the category of domesticated birds kept for meat, eggs, and feathers. These most typically are members of the superorder Galloanserae (fowl), especially the order Galliformes (which includes chickens and turkeys) and the family Anatidae (in order Anseriformes), commonly known as "waterfowl" (e.g. domestic ducks and domestic geese). Poultry also include other meat birds such as pigeons or doves or game birds like pheasants. The term also refers to the flesh of such birds.

Key Points:

1. Meatiest Parts Of A Bird

The meatiest parts of a bird are the flight muscles on its chest, called breast meat, and the walking muscles on the first and second segments of its legs, called the thigh and drumstick respectively. White meat has less oxygen-carrying myoglobin than the walking muscles, or dark meat, and is thus lighter in color.

2. Kinds Of Poultry

Six categories or kinds of poultry recognized by the USDA

Kinds of poultry are divided into classes based upon the birds age, weight and/or sex:

- Chicken: gam hen, broiler/fryer, roaster, capon, hen/stewing
- Duck: broiler/fryer, roaster, mature
- Goose: young, mature
- Guinea: young, mature
- Pigeon: squab, pigeon
- Turkey: fryer/roaster, young, yearling, mature

3. Chicken

Fresh chickens and other small birds should be stored on ice at 32 F-34 F (0-2 C) for up to two days. Large birds can be stored for up to four days at these temperatures. To prevent cross-contamination be sure the work surfaces, cutting boards, knives, hands and other equipment used to prepare poultry products are clean and sanitary. Be careful that juices and trimmings from poultry do not come into contact with other foods. Anything coming into contact with raw poultry should be cleaned and sanitized before it comes into contact with any other food. Cooked foods should never be placed in containers that were used to hold raw products. Kitchen towels that are used to handle or clean up after poultry should be sanitized before being reused. A suprme, also know as an airline breast, is half of a boneless chicken breast with the first wing bone attached. To prepare:

- Remove the legs and wishbone from a whole chicken.
- Cut along one side of the breast bone following the natural curvature of the ribs, and continue cutting to remove the meat from the bones.
- Cut through the wing joint, keeping the wing attached to the breast portion. Cut the breast free from the carcass.
- Make a cut on the back of the joint between the first and second wing bones.
- Break the joint and pull the meat and skin back to expose a clean bone. Trim the wing bone.

4. Trussing

Trussing is tying a bird into a more compact shape with thread or butchers twine. Trussing allows the bird to cook more evenly, helps the bird retain moisture and improves the appearance of the finished product. Small birds, such as Cornish hens, chickens and squab. Large birds are very difficult to cook thoroughly on a grill or broiler because their surfaces tend to burn before their centers are cooked.

5. Poultry

Properly roasted poultry is attractively browned on the surface and tender and juicy throughout. Proper cooking temperatures ensure a crisp exterior and juicy interior. Almost every kind of poultry is suitable for roasting, but younger birds produce a tenderer finished

product. Foie gras is the enlarged liver of ducks or geese. Foie gras has such a high fat content that overcooking will cause the liver to melt away.

Topic : Game

Topic Objective:

At the end of the topic student will be able to understand:

- Hanging
- By region
- Preparation
- Cooking

Definition/Overview:

Wild game is hunted in the wild. The USDA and most states restrict the sale of such game. Farm or ranch-raised antelope, bison, deer, rabbit, boar, partridge, pheasant and quail are commonly referred to as game or domestic game and are commercially available.

Key Points:

1. Hanging

Hanging is the process of aging (maturing) game before it is cooked. During hanging, glycogen stored in muscle tissues is converted to lactic acid. This tenderizes the flesh and strengthens its flavor. Commercially sold game is generally fully aged and ready to use. It does not benefit from hanging.

Loins and racks are best suited to dry-heat cooking methods. Other cuts are generally tougher and should be cooked using combination cooking methods.

Game birds can be purchased whole and are fabricated using the same procedures used for poultry. Because game birds tend to have less fat than other poultry, they are often barded with fat and cooked to medium rare. If cooked well done, they become dry and stringy.

2. By region

In some countries, game is classified, including legal classification with respect to licenses required, as either small game or large game. Small game includes small animals such as rabbits, pheasants, doves, geese or ducks. A single small game license may cover all small game species and be subject to yearly bag limits. Large game includes animals like deer, bear, and elk and are often subject to individual licensing where a separate license is required for each individual animal taken(tags). Big game is a term sometimes used interchangeably with large game although in other contexts it refers to large, usually African, mammals (like elephants) which are hunted mainly for trophies, not for food.

3. Preparation

Once obtained, game meat must be processed. The method of processing varies by game species and size. Small game and fowl may simply be carried home to be butchered. Large game such as deer is quickly field-dressed by removing the viscera in the field, while very large animals like moose may be partially butchered in the field because of the difficulty of removing them intact from their habitat. Commercial processors often handle deer taken during deer seasons, sometimes even at supermarket meat counters. Otherwise the hunter handles butchering. The carcass is kept cool to minimize spoilage. Some believe the meat tastes better and is more tender if it is hung and aged for a few days before processing; however, this adds to the risk of contamination. Small game can be processed essentially intact; after gutting and skinning or defeathering (by species), small animals are ready for cooking although they may be disjointed first. Large game must be processed by techniques commonly practiced by commercial butchers.

4. Cooking

Generally game is cooked in the same ways as farmed meat. Because some game meat is leaner than store-bought beef, overcooking is a common mishap which can be avoided if properly prepared. It is sometimes grilled or cooked longer or by slow cooking or moist-heat

methods to make it more tender, since some game tends to be tougher than farm-raised meat. Other methods of tenderizing include marinating as in the dish Hasenpfeffer. Traditionally, game meat used to be hung until "high", i.e. approaching a state of decomposition. The term 'gamey', 'gamy' refers to this usually desirable taste (haut got).

- Game recipes
- About Game Meats
- Highland Game Recipes

Topic : Fish And Shellfish

Topic Objective:

At the end of the topic student will be able to understand:

- Shallow Poaching And Submersion Poaching
- Methods
- Market Forms For Fish
- Flatfish And A Round Fish
- Techniques For The Freshness Of Fish
- Clamming
- Lobster
- Shellfish

Definition/Overview:

Shellfish is a culinary term for aquatic invertebrates used as food: molluscs, crustaceans, and echinoderms. Both saltwater and freshwater invertebrates are considered shellfish. Shellfish is a misnomer, because these invertebrates are definitely not fish. The term finfish is sometimes used to distinguish ordinary (vertebrate) fish from shellfish. Some do not include shrimp, crab, or lobster in the category of "shellfish." Molluscs commonly used as food include the clam, mussel, oyster, winkle, and scallop. Some crustaceans commonly eaten are

the shrimp, prawn, lobster, crayfish, and crab. Echinoderms are not eaten as commonly as mollusks and crustaceans. In Asia, sea cucumber and sea urchins are eaten. Edible cephalopods, such as squid, octopus, and cuttlefish and terrestrial snails, though all molluscs, are sometimes classified as shellfish and sometimes not.

Key Points:

1. Shellfish

Archaeology has shown that humans have been making use of shellfish for thousands of years. Nowadays shellfish dishes are a feature of all the cuisines of the world, with a few exceptions. In Japanese cuisine, chefs often use shellfish and their roe. Sushi and sashimi feature both raw and cooked shellfish.

2. Lobster

Lobster in particular is a great delicacy in the United States, where families in the northeast region make them into the centerpiece of a clam bake, usually for a special occasion. Lobsters are eaten on much of the East Coast; the American lobster ranges from Newfoundland down to about the Carolinas, but is most often associated with Maine. A typical meal involves boiling the lobster with some slight seasoning and then serving with drawn butter, baked potato, and corn on the cob.

3. Clamming

Clamming is done both commercially and recreationally along the Northeast coastline of America. Various types of clams are incorporated into the cuisine of New England. Notable is the soft-shelled clam, which is eaten fried or steamed, where they are called 'steamers.' Many types of clams can be used for clam chowder, but quahogs, a hard shelled clam also know as a chowder clam, are often used because the long cooking time softens its tougher meat.

4. Techniques For The Freshness Of Fish

Six techniques for determining the freshness of fish or shellfish

- Smell: slight sea smell or no odor

- Eyes: clear and full
- Gills: intact and bright red
- Texture: firm
- Fins and scales: moist and full
- Appearance: moist and glistening
- Movement: shellfish purchased live should show movement

5. Flatfish And A Round Fish

The physical differences between a flatfish and a round fish

Round fish have eyes on both sides of their heads. Their bodies (in cross-section) may be truly round, oval or compressed. Flatfish have both eyes on top of their heads. Their bodies are asymmetrical and compressed. Scaling and pan-dressing procedures are very similar. Filleting procedures differ greatly. Round fish produce two fillets, one from each side of the fish. Flatfish produce four fillets, two bilateral fillets from the top and two smaller fillets from the bottom.

6. Market Forms For Fish

Market forms for fish and discuss several factors that may determine the form most appropriate for an operation to purchase.

- Whole or round: As caught, intact.
- Drawn: Viscera are removed; most whole fish are purchased this way.
- Pan-dressed: Viscera and gills are removed; fish is scaled and fins and tail are trimmed; the head is usually removed, but small fish may be pan-dressed with the head still attached.
- Butterflied: A pan-dressed fish, boned and opened flat like a book; the two sides remain attached by the back or belly skin.
- Fillet: The side of a fish removed intact, boneless or semi-boneless with or without skin.
- Steak: Cross-section slice with a small section of backbone attached; usually prepared from large round fish.
- Wheel or center-cut: Used for swordfish and sharks, which are cut into large boneless pieces from which steaks are then cut.

Purchasing decisions should be influenced by the operations ability to utilize the bones and trim that cutting whole fish produces, the employees ability to fabricate fillets, steaks or portions as three categories of mollusks and give an example of a commonly used food from each category

- Univalves: abalone, conch
- Bivalves: clams, mussels, oysters, scallops
- Cephalopods: octopus, squid

7. Methods

Four methods for determining the doneness of fish or shellfish

Translucent flesh becomes opaque, flesh becomes firm, flesh separates from the bones easily, and flesh begins to flake. Overcooked fish becomes dry quickly. It may also fall apart and be unattractive.

8. Shallow Poaching And Submersion Poaching

With shallow poaching, the item to be cooked is not completely covered with the cooking liquid (cuisson), and the liquid is usually used to make a sauce to accompany the fish or shellfish. With submersion poaching, the item is completely covered with the cooking liquid, and the foods are usually served with a sauce made separately. Most fish contain very little connective tissue and are inherently tender. These factors make them an excellent choice for poaching.

Topic : Eggs And Breakfast

Topic Objective:

At the end of the topic student will be able to understand:

- Typical breakfast and a typical brunch

- Soft-Cooked Egg And A Hard-Boiled Egg
- Types Of Pan-Fried Eggs
- Frittatas
- Bird eggs

Definition/Overview:

An egg is a round or oval body laid by the female of many animals, consisting of an ovum surrounded by layers of membranes and an outer casing, which acts to nourish and protect a developing embryo and its nutrient reserves. Most edible eggs, including bird eggs and turtle eggs, consist of a protective, oval eggshell, the albumen (egg white), the vitellus (egg yolk), and various thin membranes. Every part is edible, although the eggshell is generally discarded. Nutritionally, eggs are considered a good source of protein and choline.

Key Points:

1. Bird eggs

Bird eggs are a common food and one of the most versatile ingredients used in cooking. They are important in many branches of the modern food industry. The most commonly used bird eggs are those from the chicken. Duck and goose eggs, and smaller eggs such as quail eggs are occasionally used as a gourmet ingredient, as are the largest bird eggs, from ostriches. Gull eggs are considered a delicacy in England, as well as in Scandinavian countries, particularly in Norway. In some African countries, guineafowl eggs are commonly seen in marketplaces, especially in the spring of each year. Pheasant eggs and emu eggs are perfectly edible but less widely available.Sometimes they are obtainable from farmers, poulterers, or luxury grocery stores. Most wild bird's eggs are protected by laws in many countries, which prohibit collecting or selling them, or only permit these during specific periods of the year.

2. Frittatas

Frittatas are essentially open-faced omelets. They can be prepared as individual portions or in large pans and cut into wedges for service. Omelets are typically prepared to order as an individual serving.

3. Types of Pan-Fried Eggs

Four different types of pan-fried eggs

- **Sunny-side-up**

  The egg is not turned during cooking, and its yolk remains visible. It should be cooked over medium-low heat long enough to firm the white and partially firm the yolk.

- **Over-easy**

  The egg is partially cooked on one side, then gently flipped and cooked on the other side until done. The yolk should remain very runny.

- **Over-medium**

  Same as for an over-easy egg, but the yolk should be practically set.

- **Over-hard**

  Same as for an over-easy egg, but the yolk should be completely cooked.

  Basted: A variation of sunny-side-up. The egg is not flipped; it is cooked over low heat while the cooking fat is spooned over it to cook the surface.

4. Soft-Cooked Egg And A Hard-Boiled Egg

The difference is time. Soft-cooked eggs take between 3 and 5 minutes to cook, while hard-cooked eggs take between 12 and 15 minutes. Boiling may damage the eggs. It also toughens and discolors them.

5. Typical breakfast and a typical brunch

Create a sample menu for each of these meals. Breakfast is often an on-the-go, rushed experience. Brunch is a leisurely experience, combining breakfast and lunch into a social occasion. Brunch menus include traditional breakfast foods along with almost anything else. Unlike breakfast, brunch is often accompanied by champagne or other alcoholic beverages

and concludes with a dessert. Pancakes, waffles, French toast and crepes are all considered griddlecakes. Pancakes and waffles are made with a chemical leavening agent. Waffles are not actually cooked on a griddle but must be prepared in a special piece of equipment known as a waffle iron. Crepes and French toast are made without liveners. French toast is made by soaking bread in an egg batter. Crepes are made by cooking an egg batter in a saut pan.

Topic : Vegetables

Topic Objective:

At the end of the topic student will be able to understand:

- Mise en place
- Drying
- Freezing
- Canning
- Vegetables

Definition/Overview:

The term "vegetable" generally refers to edible parts of plants. The definition of the word is traditional rather than scientific, and is somewhat arbitrary and subjective, as it is determined by individual cultural customs of cooking and food preparation.

Generally speaking, a herbaceous plant or plant part which is regularly eaten as unsweetened or salted food by humans is considered to be a vegetable. Mushrooms, though belonging to the biological kingdom Fungi, are also generally considered to be vegetables, at least in the retail industry. Nuts, seeds, grains, herbs, spices and culinary fruits, are usually not considered to be vegetables, even though they are all parts of plants. (There are of course numerous exceptions to this, including tomatoes, corn, etc.)

Key Points:

1. Vegetables

In general, vegetables are regarded by cooks as being suitable for savory or salted dishes, rather than sweet dishes, although there are many exceptions, such as pumpkin pie.

Some vegetables, such as carrots, bell peppers and celery, are eaten either raw or cooked; while others, such as potato, are traditionally eaten only when cooked.

Vegetables are eaten in a variety of ways, as part of main meals and as snacks. The nutritional content of vegetables varies considerably, though generally they contain a small proportion of protein and fat, and a relatively high proportion of vitamins, provitamins, dietary minerals, fiber and carbohydrates. Many vegetables also contain phytochemicals which may have antioxidant, antibacterial, antifungal, antiviral and anticarcinogenic properties. When vegetables are at peak season, their prices are generally at their lowest, their quality is at its highest and their availability greatest.

Irradiation: Foods are exposed to gamma rays in order to sterilize them (parasites, insects and bacteria are destroyed), for slow ripening and to prevent sprouting. Some nutrients may be destroyed.

2. Canning

Raw vegetables are cleaned and placed in a sealed container, then subjected to high temperatures for a specific period of time. Heating destroys the microorganisms that cause spoilage. The sealed environment created by the can eliminates oxidation and retards decomposition. The heat required by the canning process also softens the texture of most vegetables and alters their nutritional content. Many vitamins and minerals may be lost through the canning process. Green vegetables may also suffer color loss.

3. Freezing

Freezing inhibits the growth of microorganisms that cause spoilage without destroying many nutrients. The appearance and texture of most vegetables may be altered because of their high water content. Ice crystals form from the water in the cells and burst the cells walls. Frozen

vegetables often require some cooking, and expensive freezer space is necessary if an inventory is to be maintained.

4. Drying

Few vegetables are preserved by drying. Drying dramatically alters flavor, texture and appearance. The loss of moisture concentrates flavors and sugars and greatly extends shelf life.

Most vegetables benefit from cold storage at temperatures between 34 F and 40 F with high levels of humidity. Greens and other delicate vegetables should be stored away from apples, tomatoes, bananas and melons as this produce emits a great deal of ethylene gas, which accelerates spoilage. Winter squashes, potatoes, onions, shallots and garlic should be stored at temperatures between 40 F and 60 F. If stored at lower temperatures, their starches turn to sugar, changing the texture and flavor.

Timing is not a reliable method for determining doneness, so always rely on objective tests (sight, feel, taste and aroma) and evaluate each item on a recipe-by-recipe basis. Most cooked vegetables are done when they are just tender when pierced with a fork or the tip of a paring knife. Leafy vegetables should be wilted but still have a bright color. Some carryover cooking will occur through the residual heat contained in the foods, so slightly undercook vegetables and allow the residual heat to finish cooking them. If appropriate, refresh vegetables immediately upon removal from the cooking liquid.

Acids cause vegetables to resist softening and require longer cooking times. Red and white vegetables (those with flavonoid pigments) may be cooked with a small amount of acid, such as lemon juice, vinegar or white wine to help retain their color.

5. Mise en place

Boiling cooking liquid, ice water, a spider or perforated spoon. Procedure: Blanch, parboil or boil the vegetables to the desired doneness, then removed the vegetables from the cooking liquid and submerge them in ice water until cool. The advantages involve freshness and seasonality of foodstuffs and support for local farmers. The disadvantages involve the lack of consistency, possibly small amounts of product and shorter periods of availability.

Topic : Potatoes, Grains And Pasta

Topic Objective:

At the end of the topic student will be able to understand:

- Risotto
- Simmering
- Germ
- Endosperm
- Grains
- Grain Products
- Fresh pasta
- Ample water
- Pasta
- Still-frying method
- Tossing method
- Potatoes

Definition/Overview:

Potato (informally tattie, tater, spud,tato,pota,spudzie or tate) is the term which applies either to the starchy, tuberous root vegetable crop from the various subspecies of the perennial plant Solanum tuberosum of the Solanaceae, or nightshade, family, or to the plant itself. In the region of the Andes, the word is also used to refer to other closely-related species of the genus Solanum. Potato is the world's most widely grown tuber crop, and the fourth largest food crop in terms of fresh produce after rice, wheat, and maize (corn). Whole grains are cereal grains that retain the bran and germ as well as the endosperm, in contrast to refined grains, which retain only the endosperm. Whole-meal products are made from whole-grain flour. Pasta is an Italian food made from a dough using flour, water and/or eggs.

Key Points:

1. Potatoes

Nutritionally, potatoes are best known for their carbohydrate content (approximately 26 grams in a medium potato). Starch is the predominant form of carbohydrate found in potatoes. A small but significant portion of the starch in potatoes is resistant to enzymatic digestion in the stomach and small intestine and, thus, reaches the large intestine essentially intact. This resistant starch is considered to have similar physiological effects and health benefits of fiber (e.g., provide bulk, offer protection against colon cancer, improve glucose tolerance and insulin sensitivity, lower plasma cholesterol and triglyceride concentrations, increase satiety, and possibly even reduce fat storage). The amount of resistant starch found in potatoes is highly dependent upon preparation methods. Cooking and then cooling potatoes significantly increases resistant starch. For example, cooked potato starch contains about 7% resistant starch, which increases to about 13% upon cooling. Mealy (starchy) potatoes have a high starch content and thick skin. They are best for baking. Their low sugar content also makes them a good choice for deep-frying and, as they tend to fall apart when boiled, they are often whipped or pured. Mealy potatoes include the russet, white rose and purples. Waxy potatoes have a low starch content and thin skin. They are best for boiling. Their high sugar and moisture contents make them a poor choice for deep-frying. Waxy potatoes include the red and new (red).

2. Tossing method

It is used to cook relatively small pieces of potatoes in a small amount of fat. The potatoes are tossed using the pans sloped sides so that they brown evenly on all sides.

3. Still-frying method

It is used to create a disc-shaped potato product. The shredded or sliced potatoes are added to the pan, usually covering its bottom, and allowed to cook without stirring or flipping until they are well-browned on the first side. The entire mass is then turned and cooked on the second side.

4. Pasta

There are approximately 350 different shapes of pasta. A few examples include spaghetti (solid cylinders), macaroni (tubes or hollow cylinders), fusilli (swirls), lasagna (sheets), and gnocchi (balls), although this is considered a separate dish by some. The two basic styles of pasta are dried and fresh. There are also variations in the ingredients used in pasta. The time for which pasta can be stored varies from days to years depending upon whether the pasta is made with egg or not, and whether it is dried or fresh. Pasta is boiled prior to consumption.

5. Ample water

Ample water should be used to allow the pasta to move freely during cooking, otherwise the starch released by the dough will make the pasta gummy and sticky. Salt should be added to the water. Pasta absorbs water and salt during cooking; adding salt to the pasta after it is cooked will not provide the same seasoning effect. Chefs disagree on whether to add oil to the cooking water. Some feel the oil causes the pasta to cook unevenly; others add oil to reduce surface foam.

6. Fresh pasta

Fresh pasta sometimes cooks in as little as 15 seconds and easily becomes overcooked. Therefore, it should only be cooked to order. Dried pasta can be cooked in advance and refreshed for later use. When precooking pasta, toss the cooked, refreshed, well-drained pasta with a small amount of olive oil to prevent it from sticking together.

7. Grain Products

Common whole-grain products include oatmeal, popcorn, brown rice, whole-wheat flour, sprouted grains, and whole-wheat bread. Common refined-grain products include white rice, white bread, hominy, and pasta (although whole-grain varieties of pasta are available).

8. Grains

All grains are composed of three parts

Bran: The tough outer layer covering the endosperm; bran is a good source of fiber and B vitamins.

9. Endosperm

The largest part of the kernel and a source of protein and carbohydrates (starch); it is the part used primarily in milled products, such as flour.

10. Germ

The smallest portion of the grain and the only part that contains fat; it is also rich in thiamin.

11. Simmering

Grains are cooked in a measured amount of liquid until the liquid is absorbed and the grains are tender.

12. Risotto

Grains are coated but not cooked in hot fat, hot liquid is then gradually added to the grains so that the mixture is kept at a simmer; it is stirred frequently.

Pilaf: Grains are lightly sauted in oil or butter, usually with onions or seasonings; liquid is then added, the pan is covered and left to simmer until the liquid is absorbed.

Unlike simmered grains, those cooked by either the risotto or pilaf method are first coated with hot fat. The primary distinction between the pilaf and risotto methods is the manner in which the liquid is added to the grains. With the pilaf method, the liquid is added all at once; with the risotto method the liquid is added gradually throughout the cooking process. Simmered grains and those cooked by the pilaf method are not stirred during the cooking process. Grains cooked using the risotto method are stirred almost constantly.

In Section 4 of this course you will cover these topics:

- Vegetarian Cooking
- Salads And Salad Dressings
- Fruits
- Sandwiches
- Charcuterie

- Hors Doeuvre And Canaps
- Principles Of The Bakeshop

Topic : Vegetarian Cooking

Topic Objective:

At the end of the topic student will be able to understand:

- Forms Of Vegetarian Meal Plans
- Tempeh
- Tofu
- Vegetarian diet
- Vegetarian Cuisine
- Vegetarian Cooking

Definition/Overview:

Vegetarian cuisine refers to food that meets vegetarian standards by excluding meat and animal tissue products. For lacto-ovo vegetarianism (the most common type of vegetarianism in the Western world), eggs, and dairy products such as milk, and cheese are permitted. The strictest forms of vegetarianism are veganism and fruitarianism, which exclude all animal products, including dairy products as well as honey, and even some refined sugars if filtered and whitened with bone char.

Key Points:

1. Vegetarian Cooking

Vegetarian foods can be classified into several different types:

- Traditional foods that have always been vegetarian (Cereals/grains, fruits, vegetables, nuts, etc.)
- Soy products including Tofu and Tempeh are common protein sources.

- Textured vegetable protein (TVP), made from defatted soy flour, is often included in chili and burger recipes in place of ground meat.
- Meat analogues, which mimic the taste, texture, and appearance of meat and are often used in recipes that traditionally contained meat. Vegans may also use analogues for eggs and dairy products.

2. Vegetarian Cuisine

Food usually regarded as suitable for all types of the vegetarian cuisine usually include:

- Cereals/grains: maize, corn, wheat, rice, barley, sorghum, millet, oats, rye, triticale, buckwheat, fonio, quinoa; derived products such as flour (dough, bread, pasta, baked goods) (assuming they have been made without dairy products, such as butter-crust bread).
- Vegetables (fresh or pickled) and mushrooms (though some strict Indian vegetarians do not eat mushrooms); derived products such as vegetable fats and oils
- Fruit (fresh or dried)
- Legumes: beans (including soybeans and soy products such as tempeh, tofu, soy milk, and TVP), chickpeas, peas, lentils, peanuts)
- Tree nuts and seeds
- Spices and herbs
- Other foods such as olives, seaweed (however seaweed is considered inedible by some strict vegitarians for the same reason it can be considered as non-kosher by some; the possibility that tiny seahorses may be found on it.

3. Vegetarian diet

Individuals have many reasons for choosing a vegetarian diet, including religious, ethical, health and environmental motivations. In recent years, more individuals elect to follow a vegetarian diet for health and environmental reasons, and as a result more and more restaurants and food service institutions are offering non-animal-based food options.

4. Tofu

made by processing soymilk into bean curd; can replace meat protein in a main dish

5. Tempeh

A whole bean cake made from fermented whole soybeans and grains; can replace meat protein in a main dish. Analogous protein products, such as sausage or hot dogs made from soy, wheat, grains and other plant materials, can be substituted for their meat-based counterparts.

6. Forms Of Vegetarian Meal Plans

Five most common forms of vegetarian meal plans and what are the types of foods each group permits itself to eat:

- Ovo-vegetarian: eats eggs but not dairy products
- Ovo-lacto-vegetarian: eats eggs and dairy products
- Lacto-vegetarian: eats dairy products but not eggs
- Demi-vegetarian: eats fish in addition to eggs and dairy products
- Vegan: does not eat any food derived from animal products, including meat, fish, poultry, milk, cheese, eggs, honey or gelatin

Topic : Salads And Salad Dressings

Topic Objective:

At the end of the topic student will be able to understand:

- Bound Salad
- Procedure For Making Mayonnaise
- Concept Of Salad
- Creamy mayonnaise dressings
- Green Salad

Definition/Overview:

It is a mixture of cold foods, usually including vegetables and/or fruits, often with a dressing, occasionally nuts or croutons, and sometimes with the addition of meat, fish, pasta, cheese, or whole grains. Salad is often served as an appetizer before a larger meal.

Key Points:

1. Green Salad

The "green salad" or "garden salad" is most often composed of some vegetables, built up on a base of leaf vegetables such as one or more lettuce varieties, spinach, or rocket (arugula) put together in a manner known as vegtabling. The salad leaves are cut or torn into bite-sized fragments and tossed together (called a tossed salad), or may be placed in a predetermined arrangement. Other common vegetables in a green salad include cucumbers, peppers, mushrooms, onions, spring onions, red onions, avocado, carrots, celery, and radishes. Other ingredients such as tomatoes, pasta, olives, hard boiled egg, artichoke hearts, heart of palm, roasted red peppers, cooked potatoes, rice, sweetcorn, green beans, black beans, croutons, cheeses, meat (e.g. bacon, chicken), or fish (e.g. tuna, shrimp) are sometimes added to salads. In a restaurant, a small salad without meat is called a dinner salad. The entree salads may contain chicken, either grilled or fried chicken fingers on top of the salad, or seafood in the form of grilled or fried shrimp, or a fish steak, such as tuna, mahi-mahi, or salmon. Steak such as sirloin can be grilled and sliced and placed upon the salad.

A green salad is often served with a dressing. Some examples include:

- Balsamic vinegar
- Caesar dressing

2. Creamy mayonnaise dressings

Creamy mayonnaise or yoghurt-based dressings:

- Bleu cheese or blue cheddar dressing
- Louis dressing
- Ranch dressing

- Russian dressing
- Honey Dijon
- Thousand Island dressing

Oil and vinegar, lemon, or soy sauce based dressings:

- French dressing
- Italian dressing
- Vinaigrette
- Wafu dressing
- Tahini
- Hummus

3. Concept Of Salad

The concept of salad dressing varies across cultures. There are many commonly used salad dressings in North America. Traditional dressings in southern Europe are vinaigrettes, while mayonnaise is predominant in eastern European countries and Russia. In Denmarkdressings are often based on crme frache. In China, where Western salad is a recent adoption from Western cuisine, the term salad dressing tends to refer to mayonnaise or mayonnaise-based dressings. Greens should be stored in their original protective cartons in a specifically designated refrigerator at temperatures between 34 F and 38 F. Storing greens with fruits that emit ethylene gas such as tomatoes or apples causes the greens to deteriorate quickly. Do not wash greens long before they are to be used; excess water causes them to deteriorate quickly. Fill a sink with very cold water. Place the cut or torn greens in the water. Gently stir the water and greens by hand and remove the greens. Do not allow the greens to soak. Using fresh water each time, repeat the procedure until no grit can be detected on the bottom of the sink after the greens are removed. Greens may be dried in a salad spinner or by draining them well in a colander and blotting them with absorbent cloth or paper towels. A simple vinaigrette dressing is a mixture of oil and vinegar seasoned with salt and pepper. When whisked together, the oil and vinegar form a temporary emulsion; they will separate quickly, however, and must be whisked together before using. Emulsified vinaigrette is a mixture of oil and vinegar that uses lecithin in the form of egg yolks to help the oil and vinegar emulsify. An emulsified vinaigrette dressing is thinner than mayonnaise but thicker than simple vinaigrette and will not separate.

4. Procedure For Making Mayonnaise

The procedure for making mayonnaise

- Gather mise en place and hold at room temperature.
- Whip the egg yolks until frothy.
- Add the seasonings to the yolks and whip to combine.
- Add a small amount of liquid from the recipe and whip to combine.
- With the mixer on high or whisking vigorously by hand, begin to add the oil very slowly until an emulsion forms.
- After the emulsion forms, reduce the speed of the mixer slightly and begin to add the oil more quickly, in a steady stream.
- When the mayonnaise becomes very thick, add a small amount of the liquid from the recipe. Alternate adding oil and liquid several times until all the ingredients are incorporated.
- Taste the mayonnaise and adjust the seasonings. Refrigerate the mayonnaise immediately.

5. Bound Salad

A typical bound salad consists of cooked meats, poultry, fish, shellfish, pasta or potatoes bound with a dressing. Its flavors blend well and complement each other; it has contrasting colors; its ingredients are all cut precisely and uniformly, and all the ingredients are cut small enough to be eaten easily. A bound salad is generallymuch hardier than a dressed salad, consisting of one or more main ingredients combined with one or more garnishes and seasonings and held together in a cohesive mass by a dressing. Both tossed and composed salads may consist of similar ingredients, but they are not held together by a dressing. Salads can be offered as an appetizer, a second course served after the appetizer, an entre (especially at lunch), a course following the entre in the European manner or as a dessert (fruit salad).

Topic : Fruits

Topic Objective:

At the end of the topic student will be able to understand:

- Drying
- Freezing
- Canning
- Ripe fruit
- Fruits

Definition/Overview:

The term fruit has many different meanings depending on context. In botany, a fruit is the ripened ovarytogether with seeds of a flowering plant. In many species, the fruit incorporates the ripened ovary and the surrounding tissues. Fruits are the means by which flowering plants disseminate seeds. In cuisine, when food items are called "fruit", the term is most often used for those plant fruits that are edible and sweet and fleshy, examples of which include plums, apples and oranges. But in cooking, the word fruit may also rarely be loosely applied to other parts of a plant, such as the stems of rhubarb, which are made into sweet pies, but which are not botanically a fruit at all.

Key Points:

1. Fruits

Fruits are generally high in fiber, water and vitamin C. Fruits also contain various phytochemicals that do not yet have an RDA/RDI listing under most nutritional factsheets, and which research indicates are required for proper long-term cellular health and disease prevention. Regular consumption of fruit is associated with reduced risks of cancer, cardiovascular disease, stroke, Alzheimer disease, cataracts, and some of the functional declines associated with aging.

2. Ripe fruit

Ripe fruit is full-grown and developed. The fruits flavor, texture, and appearance are at their peak and the fruit is ready to use as food. Depending upon the species, fresh fruit can be purchased either fully ripened or unripened. Figs and pineapples ripen only on the plant and are harvested at or just before their peak of ripeness. They should not be purchased unripened as they will never attain full flavor or texture after harvesting. Bananas and pears continue to ripen after harvesting and can be purchased unripened. Store most fruits under refrigeration. Fruits that continue to ripen after harvesting will ripen more quickly if left at room temperature. Never refrigerate bananas. As they ripen, apples, tomatoes, melons and bananas emit ethylene gas. Ethylene gas can be use to encourage ripening in most fruits by storing unripened fruits with ethylene-producing fruits in closed containers away from drafts.

Apples with firm textures that retain their shape better during cooking are the best choice where the appearance of the cooked item is important. Granny Smith and Pippins are good examples. Any type of apple can be eaten out of hand; it depends on personal preference. Soft-textured red delicious apples are very popular for eating out of hand, but they also disintegrate into a pure when cooked and are preferred for making applesauce.

Pineapples, apples, grapefruits, bananas, persimmons and peaches are suitable for dry-heat cooking methods. They are firm enough to handle easily and retain their shapes if not overcooked. Sugar is usually added when cooking fruits because it is absorbed into the cells and helps the fruit retain its structure.

3. Canning

Almost any type of fruit can be canned successfully. Raw fruits are cleaned and placed in a sealed container, then subjected to high temperatures for a specific amount of time. Heating destroys the microorganisms that cause spoilage, and the sealed environment eliminates oxidation and retards decomposition. The heat required by the canning process softens the texture of most fruits.

4. Freezing

Freezing inhibits the growth of microorganisms that cause fruits to spoil. The appearance and texture of most fruits can be affected because of their high water content, however.

5. Drying

Drying removes moisture, concentrates flavors and sugars and dramatically extends shelf life. Dried fruits retain from 16% to 25% residual moisture and are often treated with sulfur dioxide before they are dried to prevent browning and extend shelf life.

Topic : Sandwiches

Topic Objective:

At the end of the topic student will be able to understand:

- Sandwich ingredients
- Hot Open-Faced Sandwich
- Filling
- Spread
- Bread
- Trenchers
- Sandwiches

Definition/Overview:

A sandwich is a food item made of two or more slices of leavened bread with one or more layers of filling, typically meat or cheese, with the addition of vegetables or salad. The bread can be used as is, or it can be coated with butter, oil, mustard or other condiments to enhance flavor and texture. In North American usage, sandwich may also refer to what is more commonly referred to in the rest of the world as a hamburger.

Key Points:

1. Sandwiches

Sandwiches are commonly carried to work, school or picnics to be eaten as the midday meal as part of a packed lunch. They are generally made of a combination of vegetables, meat, and/or a variety of sauces. They are widely sold in restaurants and cafes. They are popular throughout the world. The first form of sandwich is attributed to the ancient Jewish sage Hillel the Elder, who is said to have put meat from the Paschal lamb and bitter herbs inside matzo (or flat,unleavened bread) during Passover. The filling between the matzos served as a reminder to Israelites of their forced labor constructing Egyptian buildings.

2. Trenchers

During the Middle Ages, thick slabs of coarse and usually stale bread, called "trenchers", were used as plates. After a meal, the food-soaked trencher was fed to a dog, less fortunate beggars, or eaten by the diner. Trenchers were as much the harbingers of open-face sandwiches as they were of disposable dishware. The immediate cultural precursor with a direct connection to the English sandwich was to be found in seventeenth-century Holland, where the naturalist John Ray observed that in the taverns beef hung from the rafters "which they cut into thin slices and eat with bread and butter laying the slices upon the butter" explanatory specifications that reveal the Dutch belegde broodje was as yet unfamiliar in England.

3. Bread

Tortillas, yeast rolls, sliced bread (toasted or untoasted), pita, foccacia

4. Spread

It is the butter (plain or flavored), mayonnaise, peanut butter, mustard, cream cheese, pured chickpeas.

5. Filling

It is the sliced meats and cheeses, vegetables (raw and cooked), ham and bacon precuts, bound salads, fish fillets, hot dogs, ground beef

6. Hot Open-Faced Sandwich

In a hot open-faced sandwich the bread simply forms a base for the filling and other ingredients, which are usually topped with sauce or melted cheese. These sandwiches must be eaten with a fork. In a hot closed sandwich, either some of the filling ingredients (i.e., a hamburger) or the entire sandwich (i.e., a Monte Cristo) is heated for service and can be eaten out of hand. Plenty of spatulas, spreaders, knives, cutting boards and portion scoops should be available so that production speed is increased and the risk of cross-contamination is reduced.

7. Sandwich ingredients

Sandwichingredients tend to be potentially hazardous foods that may be precooked but not reheated, or served raw. The repeated use of spatulas, spreaders, knives, cutting boards and human hands makes cross-contamination particularly common. You should wash your hands frequently when preparing sandwiches, and clean work surfaces and tools often with a sanitizer. Hot ingredients should be kept about 140 F and cold ingredients should be kept below 40 F as much as possible prior to service.

Topic : Charcuterie

Topic Objective:

At the end of the topic student will be able to understand:

- Cold smoking
- Mousseline
- Basic
- Charcuterie items
- Spices And Herbs
- Sweeteners
- Charcuterie

Definition/Overview:

Charcuterie, derived from the French words for flesh (chair) and cooked (cuit), is the branch of cooking devoted to prepared meat products such as bacon, ham, sausage, terrines, galantines, pts, and confit, primarily from pork.

Key Points:

1. Charcuterie

Charcuterie is part of the garde manger chef's repertoire. Originally intended as a way to preserve meats before the advent of refrigeration, these preparations are prepared today for their flavors that are derived from the preservation processes.

2. Sweeteners

Sweeteners and other flavoring agents are necessary in the production of many cured products due to the harsh flavors of the curing salts. A number of sweeteners can be used in curing foods, including dextrose, sugar, corn syrup, honey, and maple syrup. Dextrose is seen often in cured meats as it not only mellows the harshness, but it also increases the moisture content of the cured product while not adding a sweet flavor to the cured meat. The sweeteners also assist in stabilizing the colors in meats and it also helps the fermentation process by giving a nutrient to the bacteria.

3. Spices And Herbs

Numerous spices and herbs are used in the curing process to assist with the flavor of the final product. The sweet spices regularly used include cinnamon, allspice, nutmeg, mace, and cardamom. Other flavoring agents may include dried and fresh chilies, wine, fruit juice, or vinegar.

4. Charcuterie items

Although an ancient art, many charcuterie items are more popular today than ever. Producing forcemeats and products using forcemeats, brining, curing, and hot and cold smoking are common procedures practiced in both large and small food service facilities.

Country style: heavily seasoned with a course texture; usually includes some liver and is usually marinated and seasoned prior to grinding

5. Basic

Well-seasoned, smoother and more refined than country style; sometimes includes liver

6. Mousseline

Delicately seasoned with a light and airy texture; most often made with fish or shellfish

Common factors for all forcemeats: the ratio of fat to other ingredients must be precise; temperatures must be maintained below 40 F (4 C); the ingredients must be mixed properly, and special care must be taken to prevent food-borne illnesses. Today, the words terrine and pt are almost used interchangeably. Traditionally, a pt was wrapped in pastry and served hot or cold; a terrine was considered more basic, consisting of coarsely ground and highly seasoned meats baked in an earthenware mold and served cold. Pt is a general term referring to any forcemeat baked in a mold. Pt en crote refers to forcemeat baked in a crust. A galantine is prepared from whole ducks, chickens, game animals, veal, fish or shellfish. When appropriate, the forcemeat is stuffed into the skin, which has been removed in one piece. The forcemeat and skin is then formed into a cylindrical shape and poached. A ballotine is similar to galantine, except the forcemeat is stuffed into a poultry leg, poached or braised and served hot with a sauce made from the cooking liquid.

7. Cold smoking

Cold smoking is the process of exposing foods to smoke at temperatures of 50 F85 F; cold smoking does not actually cook the food. Examples include smoked salmon and bacon. Hot smoking is the process of exposing foods to smoke at temperatures of 220 F250 F, which actually cooks the foods. Examples include fully cooked ham and Canadian bacon.

Topic : Hors Doeuvre And Canaps

Topic Objective:

At the end of the topic student will be able to understand:

- Sevruga
- Osetra
- Beluga
- Garnish
- Spread
- Base
- Canap
- Catering
- Hors d'oeuvre
- Hors dOeuvre and Canaps

Definition/Overview:

Hors d'oeuvre 'outside the work'; English IPA: or appetizers are food served before the main courses of a meal. A canap or canape (French for couch and known in Italy as tartina) is a small, prepared and usually decorative food, held in the fingers and often eaten in one bite. Because they are often served during cocktail hours, it is often desired that a canap be either salty or spicy, in order to encourage guests to drink more.

Key Points:

1. Hors dOeuvre and Canaps

If there is an extended period between when guests arrive and when the meal is served (for example, during a cocktail hour), these might also serve the purpose of sustaining guests during the wait. Hors d'oeuvre are sometimes served with no meal served afterward. This is the case with many reception and cocktail party events.

2. Hors d'oeuvre

Hors d'oeuvre may be served at the table as a part of the sit-down meal or they may be served before sitting at the table. Hors d'oeuvre prior to a meal are either stationary or passed. Stationary hors d'oeuvre are also referred to as "table hors d'oeuvre." Passed hors d'oeuvre are also referred to as butler-style, butlered or butler-passed hors d'oeuvre. Though any food served prior to the main course is technically an hors d'oeuvre, the phrase is generally limited to individual items, not crudits, cheese or fruit. For example, a glazed fig topped with mascarpone and wrapped with prosciutto is considered an "hors d'oeuvre," whereas figs on a platter are not.

3. Catering

In catering, both frozen and fresh hors d'oeuvre are served. Generally the fresh, handmade items are more flavorful, beautiful and expensive.

4. Canap

A canap may also be referred to as finger food, although not all finger foods are canaps. Crackers or small slices of bread or toast or puff pastry, cut into various shapes, serve as the base for savory butters or pastes, often topped with a "canopy" of such savory foods as meat, cheese, fish, caviar, foie gras, purees or relish. Traditionally, canaps are built on stale white bread (though other foods may be used as a base), cut in thin slices and then shaped with a cutter or knife. Shapes might include circles, rings, squares, strips or triangles. These pieces of bread are then prepared by deep frying, sauteing, or toasting. The foods are sometimes highly processed and decoratively applied (i.e. piped) to the base with a pastry bag. Decorative garnishes are then applied. The canaps are usually served on a canap tray and eaten from small canap plates. The technical composition of a canap consists of a base (i.e. the bread or pancake), a spread, a main item, and a garnish. The spread traditionally is either a compound butter or a flavored cream cheese. Common garnishes can range from finely chopped vegetables, scallions, and herbs to caviar or truffle oil.

5. Base

A thin slice of toasted bread cut into a shape, melba toasts, crackers or slices of firm vegetables such as cucumbers or zucchini

6. Spread

It is usually butter, cream cheese or a combination of the two, flavored with a wide variety of ingredients. A spread provides much of the canaps flavor; its texture should be smooth; it should be firm enough to hold its shape when piped onto the base; and its flavor should compliment the garnishes.

7. Garnish

The variety of canap garnishes is vast; the garnish can dominate or complement the spread or it can be as simple as a sprig of parsley

8. Beluga

The dark gray and well-separated eggs are the largest and most fragile kind.

9. Osetra

The eggs are medium-sized, golden yellow to brown in color and quite oily.

10. Sevruga

The eggs are quite small and light to dark gray in color. Sturgeon roe caviar is considered the highest quality. Although sturgeon caviar is produced in the United States, it is considered inferior to imported Russian and Iranian caviar and costs less. Other caviars are produced in the United States, but they must be qualified on their labels as golden whitefish caviar, lumpfish caviar, salmon caviar, etc. Imported beluga, osetra and sevruga caviar consist of sturgeon roe and salt, and many of the lower caviars contain artificial colors and preservatives.

Topic : Principles Of The Bakeshop

Topic Objective:

At the end of the topic student will be able to understand:

- Baking Process
- Chocolate liquor
- Sweeteners
- Gluten

Definition/Overview:

A bakery or baker's is an establishment which produces or/and sells bread, pies, pastries, cakes, biscuits, cookies, etc. Many retail bakeries are also cafs, serving coffee and tea to customers who wish to enjoy the freshly baked goods on the bakery's premises. Bakers work there.

Key Points:

1. Gluten

Gluten is an elastic network of proteins created when wheat flour is combined with moisture and manipulated. Gluten is responsible for the volume, texture, and appearance of baked goods. It provides structure and enables dough to retain the gases given off by leavening agents.

2. Sweeteners

Sweeteners provide flavor and color (through caramelization), they tenderize products by weakening gluten strands, provide food for yeast, serve as a preservative and act as a creaming or foaming agent to assist with leavening. Use a clean heavy saucepan; stir to dissolve the sugar but do not stir after the solution begins to boil; add an interferent; wash sugar crystals from the pans sides. Fats shorten gluten strands, thus making the product more tender. Fats also provide baked goods with flavor and color, add moisture and richness, assist with leavening and extend a products shelf life.

3. Chocolate liquor

Chocolate liquor has no sugar added; semisweet chocolate has sugar added for flavor. These two products cannot be used interchangeably because of the chocolate liquors total lack of sweetness. Semisweet and bittersweet chocolate can be used interchangeably.

4. Baking Process

Nine steps in the baking process

- Gases form from chemical leavening agents and steam.
- Gases are trapped in the gluten network.
- Starches gelatinize, absorbing water and swelling.
- Proteins coagulate, firming and providing structure.
- Fats melt, releasing steam and dispersing fat throughout the product.
- Water evaporates, creating steam and drying the product.
- Sugars caramelize, providing color and flavor.
- Carryover baking: continuing cooking after the product is removed from the oven.
- Staling: loss of moisture and change in the structure of starch granules, which begins as soon as the product begins to cool.

In Section 5 of this course you will cover these topics:

- Quick Breads
- Yeast Breads
- Pies, Pastries And Cookies
- Cakes And Frostings
- Custards, Creams, Frozen Desserts And Dessert Sauces
- Plate Presentation
- Buffet Presentation

Topic : Quick Breads

Topic Objective:

At the end of the topic student will be able to understand:

- Baking soda
- Creaming Method
- Basic Methods
- Quick Breads

Definition/Overview:

A quick bread is a type of bread which is leavened with chemical leaveners such as baking powder, sodium bicarbonate, or cream of tartar. Unlike yeast breads which often take hours to rise and can vary greatly based on external factors such as temperature, breads made with chemical leaveners are relatively uniform, reliable, and quick. Many common foods are quick breads including banana bread, cornbread, biscuits, muffins, pancakes, scones, and soda bread.

Key Points:

1. Quick Breads

The type of bread produced is variable based predominantly on the major flavoring, the method of mixing, and the ratio of liquid in the batter.

2. Basic Methods

There are three basic methods for making quick breads; the quick-bread method, the creaming method, and the biscuit method. These three methods combine the rise of the chemical leavener with advantageous lift from other ingredients. The quick-bread method also known as the "Blending Method" calls for measurement of dry and wet ingredients separately, then quickly mixing the two. Often wet ingredients will include beaten eggs which have trapped air for added rise. Usually mixing is done using a tool with a wide head

such as a spoon or spatula to prevent the dough from becoming over beaten and deflating the egg's lift.

3. Creaming Method

The creaming method is frequently used for cake batters. The butter and sugar are creamed, or beaten together, until smooth and fluffy. Eggs and liquid flavoring mixed in, and finally dry and liquid ingredients are added in. The creaming method combines rise gained from air pockets in the creamed butter with the rise from the chemical leaveners. Gentle folding of the final ingredients is important to prevent destroying these pockets.

The biscuit method is a technique which is used for biscuits, scones, and pie crusts. This method cuts chilled fat (whether lard, butter, or shortening) into dry ingredients using a food processor, pastry blender, or fork. The layering from this process gives rise and adds flakiness as the folds of fat melt during baking. Aside from mixing methods, quick breads also vary widely in the consistency of their dough or batter. There are three main types of quick bread batter: pour batter, drop batter, and stiff dough. Pour batters have a dry:liquid ratio of 1:1 and is the most moist type of quick bread batter. Drop batters have a dry:liquid ratio of 3:1. Stiff dough, being the stiffest, has a ratio of about 7:1.

4. Baking soda

- Baking soda reacts with acids to create carbon dioxide gas.
- Double acting baking powder reacts first with moisture, then with heat to produce carbon dioxide gas.
- When carbon dioxide gas is trapped within a batter or dough it expands when heated, causing the product to rise.
- Biscuit method: Fat must be cold and solid, which creates a flaky product.
- Muffin method: Fat must be liquid, which creates a tender product.
- Creaming method: Fat must be softened, which helps trap air to assist with leavening.

Topic : Yeast Breads

Topic Objective:

At the end of the topic student will be able to understand:

- Sourdough Starter
- Active dry yeast
- Yeast Breads

Definition/Overview:

Many breads are leavened by yeast. The yeast used for leavening bread is Saccharomyces cerevisiae, the same species used for brewing alcoholic beverages. This yeast ferments carbohydrates in the flour, including any sugar, producing carbon dioxide. Most bakers in theU.S.leaven their dough with commercially produced baker's yeast. Baker's yeast has the advantage of producing uniform, quick, and reliable results, because it is obtained from a pure culture. Many artisan bakers produce their own yeast by preparing a 'growth culture' which they then use in the making of bread. This culture kept in the right conditions will continue to grow and provide leavening for many years.

Key Points:

1. Yeast Breads

Lean doughs, such as those for French or Italian bread, contain little or no sugar or fat. These breads stale quickly and have a hard, crisp crust. Rich doughs, such as those for brioche or challah, contain significant amounts of sugar and/or fat. They tend to be softer and tender and stay fresh longer.

2. Active dry yeast

Active dry yeast has had virtually all of the moisture removed, which causes the organism to become dormant. Dry yeast can be stored for long periods without refrigeration. It is usually rehydrated in lukewarm liquid (110 F) before being added to other ingredients. Compressed

or fresh yeast is a mixture of active yeast cells, moisture and starch. It must be refrigerated and has a 2 to 3 week shelf life. It should be activated with liquid that is 70 F90 F.

3. Sourdough Starter

A sourdough starter is a mixture of flour and liquid used to capture wild yeasts from the air. A portion of this mixture is used to leaven doughs; the mixture is then replenished with additional flour and liquid and reserved for later use. A sourdough starter can be used and maintained for years. A sponge is a mixture of yeast and part of the ingredients from a specific yeast-dough formula. This mixture is allowed to ferment until spongy looking, then the remaining ingredients are added. None of the sponge is reserved for later use. Combine all ingredients and mix; examples include Soft Yeast Dinner Rolls, French Bread and White Sandwich Bread. A yeast-dough base is prepared, then fat is incorporated into the dough through a process of rolling and folding; this results in hundreds of flaky layers. Examples include croissants and Danish pastries. Scaling, mixing, fermenting, punching down, portioning, rounding, shaping, proofing, baking, cooling and storing. Scaling, mixing, portioning, baking, cooling and storing apply to quick breads. The stages that do not apply to quick breads are required because of the use of yeast and the development of gluten.

Topic : Pies, Pastries And Cookies

Topic Objective:

At the end of the topic student will be able to understand:

- Baked fruit filling
- Cooked juice filling
- Cooked fruit filling
- Cream fillings
- Cookies
- Pastry
- Pies

Definition/Overview:

Pie: A pie is a baked dish which is usually made of a pastry dough shell that covers or completely contains a filling of fruit, meat, fish, vegetables, cheeses, creams, chocolate, custards, nuts, or other sweet or savoury ingredients.

Pastry: Pastry is the name given to various kinds of baked goods made from ingredients such as flour, butter, shortening, baking powder or eggs. It may also refer to the dough from which such baked goods are made. Pastry dough is rolled out thinly and used as a base for baked goods. Common pastry dishes include pies, tarts and quiches.

Cookies: In the United States and Canada, a cookie is a small, flat baked dessert. In most English-speaking countries outside North America, the most common word for this is biscuit; in many regions both terms are used, while in others the two words have different meaningsa cookie is a plain bun in Scotland, while in the United States a biscuit is a kind of quick bread not unlike a scone.

Key Points:

1. Pies

Pies can be either "filled", where a dish is covered by pastry and the filling is placed on top of that, "top-crust," where the filling is placed in a dish and covered with a pastry/potato mash top before baking, or "two-crust," with the filling completely enclosed in the pastry shell. Cream filled or topped pies are favourite props for humour, particularly when aimed at the pompous. Throwing a pie in a person's face has been a staple of film comedy since the early days of the medium, and is often associated with clowns in popular culture. Pranksters have taken to targeting politicians and celebrities with their pies, an act called pieing. Activists sometimes engage in the pieing of political and social targets as well. One such group is the Biotic Baking Brigade. "Pieing" can result in injury to the target and assault or more serious charges against the pie throwers.

2. Pastry

Pastry is distinguished from bread by having a higher fat content, which contributes to a flaky or crumbly texture. A good pastry is light and airy and fatty, but firm enough to support the

weight of the filling. When making a shortcrust pastry, care must be taken to blend the fat and flour thoroughly before adding any liquid. This ensures that the flour granules are adequately coated with fat and less likely to develop gluten. On the other hand, overmixing results in long gluten strands that toughen the pastry. In other types of pastry, such as Danish pastry and croissants, the characteristic flaky texture is achieved by repeatedly rolling out a dough similar to that for yeast bread, spreading it with butter, and folding it to produce many thin layers.

3. Cookies

Cookies are most commonly baked until crisp or just long enough that they remain soft, but some kinds of cookies are not baked at all. Cookies are made in a wide variety of styles, using an array of ingredients including sugars, spices, chocolate, butter, peanut butter, nuts or dried fruits. The softness of the cookie may depend on how long it is baked. When combining pie crusts and fillings, consider flavor, texture, and cooking method. Fillings that tend to make crusts soggy should be paired with mealy or sweet dough crusts, which resist sogginess. Mealy dough would probably be best for an uncooked fruit filling; the crust and filling will be baked simultaneously, and a mealy dough crust should remain crisp. During baking, the small pieces or thin layers of fat melt and release steam, which creates a pocket or flake between the layers of dough. When the fat is completely and evenly dispersed through the dough, as with sweet dough, the layers that create the flakes are not formed.

4. Cream fillings

Cream fillings are actually flavored pastry cream, which is a starch-thickened custard, fully cooked before being placed in the pie crust. Examples include chocolate, coconut and lemon cream pies. Custard fillings are made with liquid mixtures that are poured into the crust and then baked along with the crust. Examples included pumpkin, egg custard and pecan pies.

5. Cooked fruit filling

Fruit and flavorings are cooked usually with starch on the stove top, then used to fill a pre-baked pie crust.

6. Cooked juice filling

Juice is cooked and thickened with starch on the stove top, then the fruit is folded in and the filling is used in a pre-baked pie crust.

7. Baked fruit filling

The fruit, flavorings and starch are combined in an unbaked pie crust. The dough and filling are then baked simultaneously.

Flour is added to boiling liquid (the first cooking) in order to break down and begin gelatinizing the starches. This produces a smooth batter-like dough. clair paste is baked into finger shapes for clairs, deep-fried for churros and crullers and baked in rounds for cream puffs and profiteroles.

The egg whites are uncooked in common meringue, warmed with sugar in Swiss meringue and cooked with hot sugar syrup in Italian meringue. All three of these mixing methods can be used to produce hard or soft meringues, depending on the ratio of sugar used.

Topic : Cakes And Frostings

Topic Objective:

At the end of the topic student will be able to understand:

- Glaze
- Fudge
- Italian buttercream
- Sponge cake
- Cheesecake
- Yeast cakes
- Cake

Definition/Overview:

Cake is a form of food that is usually sweet and often baked. Cakes normally combine some kind of flour, a sweetening agent (commonly sugar), a binding agent (generally egg, though gluten or starch are often used by vegetarians and vegans), fats (usually butter, shortening, or margarine, although a fruit pure such as applesauce is sometimes substituted to avoid using fat), a liquid (milk, water or fruit juice), flavors and some form of leavening agent (such as yeast or baking powder), though many cakes lack these ingredients and instead rely on air bubbles in the dough to expand and cause the cake to rise. Cake is often frosted with buttercream or marzipan, and finished with piped borders and crystallized fruit.

Key Points:

1. Cake

Cake is often the dessert of choice for meals at ceremonial occasions, particularly weddings, anniversaries and birthdays. There are literally millions of cake recipes (some are bread-like and some rich and elaborate) and many are centuries old. Cake making is no longer a complicated procedure; while at one time considerable labor went into cake making (particularly the whisking of egg foams), baking equipment and directions have been simplified that even the most amateur cook may bake a cake. Cakes are broadly divided into several categories, based primarily on ingredients and cooking techniques.

2. Yeast cakes

Yeast cakes are the oldest, and are very similar to yeast breads. Such cakes are often very traditional in form, and include such pastries as babka and stollen.

3. Cheesecake

Cheesecakes use mostly some form of cheese (often cream cheese, mascarpone, ricotta or the like), and have very little to no flour component (though it sometimes appears in the form of a (often sweetened) crust). Cheesecakes are also very old, with evidence of honey-sweetened cakes dating back to ancient Greece.

4. Sponge cake

Sponge cakes are thought to be the first of the non-yeast-based cakes and rely primarily on trapped air in a protein matrix (generally of beaten eggs) to provide leavening, sometimes with a bit of baking powder or other chemical leaven added as insurance. Such cakes include the Italian/Jewish pan di Spagna and the French Gnoise.

Butter cakes, including the pound cake and devil's food cake, rely on the combination of butter, eggs, and sometimes baking powder to provide both lift and a moist texture.

In a spongecake, the eggs are separated, the yolks incorporated with other ingredients, the whites are whipped and folded in. In a genoise, the whole eggs are warmed then whipped, usually with sugar, until triple in volume. The remaining ingredients are then folded into the whipped eggs.

5. Italian buttercream

Whip egg whites, add hot sugar syrup, whip until whites are cool, then beat in softened butter and flavorings.

6. Fudge

Blend powered sugar and corn syrup, add melted fat, then blend in hot liquid and flavorings; use while still warm.

7. Glaze

Blend a small amount of liquid and flavorings into sifted powdered sugar.

Level the cake layers and trim the edges. Split the cake horizontally into a thin layer if desired. Top the bottom layer with a mound of frosting, spreading it evenly to the edges with a spatula. Place the second layer over the frosting, top with additional frosting and repeat the procedure for the third layer. Cover the sides with excess frosting from the top, adding more as necessary. Smooth and even the frosting and decorate as desired.

Topic : Custards, Creams, Frozen Desserts And Dessert Sauces

Topic Objective:

At the end of the topic student will be able to understand:

- Custard
- Creams
- Frozen Desserts

Definition/Overview:

Custard is a range of preparations based on milk and eggs, thickened with heat. Most commonly, custard refers to a dessert or dessert sauce, but custard bases are also used for quiches and other savoury foods. As a dessert, it is made from a combination of milk or cream, egg yolks, sugar, and vanilla. Sometimes flour, corn starch, or gelatin are also added. Cream (from Greek chrisma, literally "an anointing") is a dairy product that is composed of the higher-butterfat layer skimmed from the top of milk before homogenization. Dessert is a course that typically comes at the end of a meal, usually consisting of sweet food but sometimes of a strongly-flavored one, such as some cheeses. The word comes from the Old French desservir, "to clear the table." Common desserts include cakes, cookies, fruits, pastries, ice cream, and candies.

Key Points:

1. Custard

Custard is usually cooked in a double boiler (bain-marie) or heated very gently on the stove in a saucepan, though custard can also be steamed, baked in the oven with or without a hot water bath, or even cooked in a pressure cooker. The trick to getting custard instead of sweetened eggs is to add heated milk to the eggs, not to add eggs directly into the pan on the stove. Cooking until it is set without cooking it so much that it curdles is a delicate operation, because only 5-10F (3-5C) separate the two. A water bath slows heat transfer and makes it easier to remove the custard from the oven before it curdles.

In un-homogenized milk, over time, the lighter fat rises to the top. In the industrial production of cream this process is accelerated by using centrifuges called "separators". In many countries, cream is sold in several grades depending on total butterfat content. Cream can be dried to a powder for shipment to distant markets.

2. Creams

Cream produced by cows (particularly Jersey cattle) grazing on natural pasture often contains some natural carotenoid pigments derived from the plants they eat; this gives the cream a slight yellow tone, hence the name of the yellowish-white colour cream. Cream from cows fed indoors, on grain or grain-based pellets, is white.

3. Frozen Desserts

The word dessert is most commonly used for this course in U.S.,Canada, Australia, and Ireland, while sweet, pudding or afters would be more typical terms in the UK and some other Commonwealth countries, including India. According to Debrett's, pudding is the proper term; dessert is only to be used if the course consists of fruit, and sweet is colloquial. This, of course, reflects the upper-class/upper-middle-class usage. More commonly, the words simply form a class shibboleth; pudding being the upper-class and upper-middle-class word to use for sweet food served after the main course, sweet, afters and dessert being considered non-U. However, dessert is considered slightly better than the other two, owing to many young people, whose parents say pudding, acquiring the word from American media.

Topic : Plate Presentation

Topic Objective:

At the end of the topic student will be able to understand:

- Arrangement
- Shapes
- Textures

- Colors
- Hippen masse
- Herbs
- Plate dusting
- Appropriate serviceware
- Plate Presentation

Definition/Overview:

Cutting and molding foods are techniques that preserve the integrity of the good; that is, neither changes the food itself, they only change the way the food is presented. Garnishes are foods cut or shaped into designs strictly for decoration and are usually not meant to be consumed.

Key Points:

1. Plate Presentation

A customers opinion of a food service operation is based on more than the taste and quality of the foods served. The manner in which the goods are served as well as their presentation are also important.

2. Appropriate serviceware

Appropriate serviceware adds to the attractiveness of the food. Choose plates that highlight the food and support the composition. Be careful when using oversized plates, however, as the food may look sparse, creating poor value perception.

3. Plate dusting

Powdered sugar or cocoa powder is sprinkled on a plate that has been covered with a stencil; when the stencil is removed, an attractive design remains.

4. Herbs

A sprig of fresh herbs is one of the simplest and most effective methods for garnishing a plate; the herbs should be consistent with the seasonings of the dish.

Garnishing plates with herbs, spices or crumbsspecific parts of the plates rim can be decorated by applying a light coating of oil or butter to the plate with a pastry brush then sprinkling the coated area with herbs, spices or crumbs. The herbs, spices or crumbs should be consistent with the foods served on the decorated plate.

5. Hippen masse

Using crisp, cookie-like garnishes can create height and add texture.

Sauces: Sauces with contrasting colors and tastes (but of equal viscosity) can be applied to plates with squeeze bottles. Designs are then created by drawing a toothpick or paring knife through the sauces.

6. Colors

Use foods of different colors to provide balance and contrast.

7. Textures

Texture refers to how smooth or rough, course or fine a food looks; use foods with varying textures to add contrast to each plate.

8. Shapes

Combine foods with different shapes for a more dramatic presentation.

9. Arrangement

Strike a balance between overcrowding the plate and leaving too much space; choose a focal point for the plate and then arrange the foods so the composition flows naturally from that point. Slicing and fanning foods also creates flow.

Topic : Buffet Presentation

Topic Objective:

At the end of the topic student will be able to understand:

- Understand the basic principles of buffet presentation
- Use a variety of techniques to create and maintain appealing buffets

Definition/Overview:

Larger restaurants and hotels may have the need for the grade manger to perform additional duties, such as creating decorative elements of buffet presentation like table arrangements and edible centerpieces made from materials such as ice, cheese, butter, salt dough or tallow.

Key Points:

1.Planning the Buffet

Theme

Sets the tone of the event

Defines the menu, decorations, props, linens and dinnerware

2. Menu Planning

- Offer foods:
- Featuring different principal ingredients
- Cooked by different methods
- With different colors
- With different textures
- That are seasonally appropriate
- That are appropriate for the time of year

3. Arranging Food on Serving Pieces

The chef should consider:

Height

Pattern

Color

Texture and shape

Negative space

4. Arranging Food on a Buffet

Flow

Food must be placed in a logical order

Spacing

- 1 linear foot for each item on the buffet

Reach

4.4 Accompaniments

Should be located close to the food they go with

Centerpieces

Increase the visual appeal

Decorations

Labels

Attractively printed cards with the name of each dish

5. Presenting Hot foods

- Do not add new food to old
- Do not use a chafing dish to heat food
- Check temperatures regularly
- Be careful of steam when changing pans in a chafing dish
- Provide clean utensils
- Provide an ample supply of plates

6. Presenting Cold Food

- Serve in relatively small quantities

- Place foods on a bed of ice when possible
- Change un-iced items regularly