BHARATH COLLEGE OF SCIENCE AND MANAGEMENT, THANJAVUR – 05.

DEPARTMENT OF HOTEL MANAGEMENT

ADVANCED ACCOMODATION OPERATIONS MANAGEMENT
16SCCHM8

Prepared by,
Dr. K. Maheshwari,
Asst. prof,
Dept. of HM & CS,
BCSM,
Thanjavur – 05.

Unit : 1

Fibers and Fabrics

Textile

I Natural and Natural Textile Fibers

1. Vegetable – Vegetable fibers found in a cell wall of plants are cellulosic. (ex: Cotton linen, Jute)
2. Mineral – Mineral fibers are obtained from certain types of rock. Asbestos is mined from certain types of rocks. X- Zypsom + Y- Clay = Cement = Asbestos. (ex: Asbestos, Cement)
3. Animal – Animal fibers derived from both insects and sheep. Mammas are proteins. (ex: Wool, Silk)

Natural Vegetable source

1. Seed fiber (Cotton fiber)
2. Leaf fiber (Sisal fiber)
3. Fruit fiber (Coir fibers)
4. Bastar fiber (Jute)
5. Stalk fiber (Bamboom)

II Man-Made

1. Synthetic (ex: Polyester, Nylon, Acrylic, Modacrylic)
2. Regenerated (ex: Viscose Rayon, Acetate Rayon, Modal, Cupra)
3. Inorganic (Metallic) (ex: (i) Metal Fiber - Aluminum, Silver, Gold, (ii) Glassfiber)

Fabric:

Fabric is a cloth material made by weaving or knitting threads together. Fibers are flexible and may be spun into yarn and made into fabrics. Fibers naturally occur in both plants & animals.

More than half of the fibers produced are natural fibers. Natural fibers are including cotton, hair, fur, silk, wool.

What is the Difference between fiber and fabric?

Fiber is the basic filament from which yarn is spun which is further woven into fabric. Fibers can be natural like cotton, flax, hemp, wool, silk or synthetic such as polyester, nylon, acrylic etc.,

How is fiber turned into fabric?

In order to make textiles the first requirement is a source of fibers from which a yarn can be made primarily by spinning. The yarn is processed by knitting or weaving to create cloth. The machine used for weaving is the loom. The fabric may be dyed printed or decorated by embroidering with colored yarns.

What is difference between fabric and cloth?

Cloth is fabric used to make a garment or anything that has a specific purpose. Thus cloth is just a type of woven fabric. All cloths are fabrics. While all fabrics are not cloths.

How to fibers converted into yarns?

To create a fabric, fibers are spun into yarns and then woven into fabric spinning yarns, The process of converting cotton fibers from ginned lint into a yarn involves a number of processes that aim to clean, remove short fibers align fibers and ultimately spin the yarn and prepare it for delivery.

What is difference between fiber and yarn?

A fiber is converted to yarn and yarn is converted to fabric. So in order they serve as raw material to other in subsequent stage. Once the thread is made (which is yarn) it is used to make fabric process called as weaving.

Yarn

A single yarn can make a sweater, knitted socks. Single yarn knitting used single yarn. Two yarns called weaving made fabric. Two different sets of yarn interlacing to gather make a fabric can be done by handloom (or) power loom. Yarn is spiting into 10 strands called fibers. (Ex. Needle with thread can seen many threads insert tuff)

Origin of Cloth

A single cloth only they use in olden day that is like saree, lungi.

Identify the cloth

1. Touch & feel
2. Separate fiber
3. Test strength
4. Obscene luster

Cloth to protect out body particularly heat, cold, insects, dust.

Linen Cloth

Linen Cloth comes from Flax Plant. It's off white – spinning – weaving – dyeing – bleaching – washing – color coated – were house.

Origin (or) History

The word fiber become from Fibra. It is a Latin word (fiber, filament, entrails) The word fibre it is a French word. It means labe of the liver. Textile liberally means 'woven'. Latin word 'texere' which means to weave. The development of spinning and weaving began inanclent Egypt around 3400 BC. The tool originally used for weaving was the loom. Textile consists of filaments and endless threads as.

In middle ages broad cloth because popular and broad cloth industry clustened in particular in northern France. Holland broad cloth was wear free water, sail, release long lastly. Around 1780 textile could be produced more cheaply and in much longer quantities thank to the mechanically driven loom.

At the end of the 19th century the first synthetic fibers were made and discovery of nylon, polestar followed in the 20th century. There days synthetic fibers are still being invented, large majority of textile product continues to be made from natural material.

Advantage of Cotton

1. Cotton is easily dry cleaned
2. Cotton is durable since fiber is strong
3. We feel comfort during summer by wearing cotton dress
4. Cotton is good conduction of heat

Disadvantage of Cotton

1. Cotton is flammable
2. Damp cotton may be affected by mildews (Fungi)
3. Cotton fabries take long time to dry rather than synthetic fibires.
4. Cotton weakness & tuns yellow after repeated expose to sunlight

Advantage and Disadvantage of Wool

This fiber is obtained from the fleece of the sheep the fiber is not smooth in nature advantage of wool. (1) Wool does not soil easily, (2)Wide range of color available, (3) Wool can be laundered and dry cleaned, (4) Wool has excellent absorbency power which makes the garments to wear in winter.

Advantage and Disadvantage of Silk

1. Silk is the strangest of all natural fibers
2. Silk has the natural shrink resistance
3. Silk does not soil easily as the fibers are smooth
4. Silk is having natural feel. These are all advantages of Silk.
1. Silk is weakened by sunlight
2. Silk is very expensive
3. Silk becomes yellow with the age
4. Silk fibers are become weaker, when wet.

Advantage and Disadvantage of Man made

1. It was and wears fabrics
2. It can be laundered or dry cleaned easily
3. Synthetic fibers are the good resistance of sunlight
5. Synthetic fibers are moth and mildew resistant. These are all advantages of Manmade.
1. At very high temperature the fibers can meet.
2. Synthetic fibers are low absorbency

Yarn is long continuous length of inter locked fibers, suitable for use in the production of textile sewing, knitting, weaving, embroidery, rope making.

Spun thread used for knitting, weaving or sewing. A long or rambling story especially one that is implausible.

Yarn is a long continuous length of inter locked fibres, suitable for use in the production of textile, sewing, crocheting, knitting, weaving embroidery or rope making. Thread is a type of yarn intended for sewing by hand or machine.

A continuous often plied strand composed of either natural or man – made fibers or filaments and used in weaving and knitting to form cloth. A continuous tisted strand of natural or synthetic fibers used in weaving, knitting etc. informal a long and often involved story or account usually telling of incredible or fantastic events spin a yarn informal.

Type of Yarns

- ✦ Animal fiber based yarns include wool silk and cashmere
- ✦ Plant fiber based yarns include hemp, cotton and bamboo
- ✦ Synthetic fiber based yarns include nylon polyester and rayon

What is simple yarn?

Yarn is a long continuous length of fibers that have been spun or felted together yarn is used to make cloth by knitting, crocheting or weaving. Yarn is sold in the shape called a skein to prevent the yarn from becoming tangled or knotted.

Filament

1. A Slender thread like object or fiber especially one found in animal or plant structures. (each myosin filament is usually surrounded by 12 act in filaments.
2. Filament is a very fine thread or thread like structure, a fiber or fibric.
3. A single fibril of natural or synthetic textile fiber of indefinite length, some times several miles long.
4. A long slender cell or series of attached cells as in some algae and fungi.
5. Botany the stalk like portion of a stamen, supporting the anther.
6. Ornithology the barb of a down feather.
7. (in a light bulb or other incandescent lamp) the thread like conductor often of tungsten in the bulb that is heated to incandescence by the passage of current origin of filament.

1585 – 95 (New Latin filamentum, equivalent to Late Latin Filacre) to wind thread spin.

Definition of filament

A Single thread or a thin flexible thread like object process of appendage synonyms for filament – bristle, fiber, hair, thread.

PLY

A PLY is a layer of material which has been combined with other layers in order to provide strength. The number of layers is indicated by prefixing a number for example 4- ply indicating material composed of 4 layers.

Ply Yarn

In textile ply yarns. Ply plied or folded. Yarns are composed of two or more single yarns twisted together. Two ply yarns for example is composed of two single strands three ply yarns is composed of three single strands. In making ply yarns from spun stands.

Ply yarn when both the single strands and the final ply yarns are twisted in the same direction the fiber is firmer, producting harder texture and reducting flexibility. Ply yarns provide strength for heavy industrial fabrics and also used for delicate looking sheer fabrics.

Fibers

Fiber or fiber is a natural or synthetics substance that is significantly longer thtan it.. For other uses see fiber (disambiguation). They can be classified according to their origin.

Define of fiber:

Fiber is a long thin strand or thread of material. Fabric is a cloth material made by weaving or knitting threads together. Fiber is a thread or filament (leaf) from which a vegetable tissue, mineral, substance or textile is formed. Fiber is a basic unit from which any fabric is made.

A thread or filament from which a vegetable tissue, mineral substance or textile is formed. Dietary material containing substances such as cellulose, lignin and pectin that are resistant to the action of digestive enzymes.

Classification of Fiber:

I. Natural Fiber

1. Palnt
2. Animal
3. Mineral

II. Man-Made Fiber

1. Regenerated
2. Organic
3. Inorganic
4. Synthetic

Characteristics of Natural Fiber:

1. They are comfortable
2. They are strong and durable
3. They have high moisture absorbing capacity

4. They provide excellent look & feel.

Vegetable fibers are generally based on arrangements of cellulose often with lignin; examples include cotton hemp. Jute, flax, ramie, sisal, bagasses and banana. Plant fibers are employed in the manufacture of paper and textile and dietary fiber is an important component of human nutrition.

Natural fibers

Natural fibers are fibres that are produced by plants, animals and geological process.

1. They can be used as a component of composite materials, where the orientation of fibers impacts the properties.
2. Natural fibers can also be matted into sheets to make products such as paper felt or fabric. There are two type of fibers. (i) Natural fibers (ii) Human – made fibers.

I. Natural fibers:

Natural fibers develop (or) occur in the fiber shape and include those produced by plants, animals and geological processes. They can be classified according to their origin. There are vegetable fibers, wood fiber, animal fibers, mineral fibers, biological fibers.

II. Vegetable Fibers:

Cotton, hemp, jute, flax, plant fibers are employed in the manufacture of paper and textile (cloth) and dietary fiber is an important component of human nutrition.

(a) Wood Fibers: It is from tree sources.

(b) Animal Fibers:

It is consists largely of particular proteins. Instances are silk worm silk, spider silk, sinew, catgut, wool, sea silk and hair such as cashmere wool, mohair and angora, fur such as sheeps king, rabbit, mink fox, beaver, etc., Hand spinners are wool from domestic sheep and silk. Alpaca fiber and mohair from angora goats.

III. Human – Made Fibers:

Human-made or chemical fibers are fibers whose chemical composition, structure and properties are significantly modified during the manufacturing process, man-made fibers consist of regenerated fibers and synthetic fibers. They are Semi- synthetic fibers, Cellulose regenerated fibers, Synthetic fibers, Metallic fibers, Corbon fibers, Silicon carbide fibers, Fiber glass, Polymer fibers, Mineral fibers and Micro fibers.

1. **Semi – Synthetic Fibers**

   Semi – Synthetic Fibers are made from raw materials with naturally long – chain polymer structure and are only modified and partially degraded by chemical processes in contrast to completely synthetic fibers such as Nylon (polyimide) or Dacron (polyester) which the chemist synthesizes from low molecular weight compounds by polymerization (chain – building) reactions. The earliest semi – synthetic fiber is the cellulose regenerated fiber, rayon most semi – synthetic fibers are cellulose regenerated fibers.

2. **Cellulose Regenerated Fibers**

   Cellulose Regenerated Fibers are a subset of man – made fibers regenerated from natural cellulose. (ex: Rayon, Bamboo Fiber, Lyocell (a brand of Rayon), modal (using beech trees as in put) diacetate fiber, triacetate fiber.

3. **Synthetic Fibers**

   Synthetic come entirely from synthetic materials such as petrochemicals unlike those man - made fibers derived from such natural substances as cellulose or protein.

4. **Metallic Fibers**

   Metallic Fibers can be drawn from ductile metals such as copper, gold or silver and extruded or deposited from more brittle ones such as nickel, aluminum or iron see also stainless steel fibers.

5. **Carbon Fibers**

   Carbon Fibers are often based on oxidized and via pyrolysis carbonized polymers like pan, but the end product is almost pure carbon.

6. **Silicon Carbide Fibers**

   Where the basic polymers are not hydrocarbons but polymers, where about 50% of the carbon atoms replaced bysilicon atoms, so – called polly carbo – silanes

7. **Fiber Glass**

Fiberglass or fiberglass is a common type of fiber – reinforced plastic using glass fiber. The fibers may be randomly arranged, flattened into a sheet, or woven into a fabric. It is typically used in storage tank, personal protective equipment, piping artificial lift.

8. Polymer Fibers

Polymer fiber is a natural or synthetic substance that is significantly longer than it is wide. Polymer fibers are a subset of mad-made fibers, which are based on synthetic chemicals (often from petrochemical sources) rather than arising from natural materials by a purely physical process. These fibers are made from polyamide nylon.

9. Mineral Fibers

Mineral fibers are asbestos, graphite and glass. Asbestos occurs naturally as fibers. Synthetic mineral fibers called slag wool or rock wool are produced by blowing air or steam through molten rock or slag. Mineral fibers are used as fillers in thermal insulation and fireproofing materials. Mineral wool is any fibrous material formed by spinning or drawing molten mineral or rock materials such as slag and ceramics. Applications of mineral wool include thermal insulation, filtration, soundproofing, and hydroponic growth medium.

10. Micro Fibers

Micro fiber or microfiber is synthetic fiber finer than one denier or decitex / thread having a diameter of less than ten micro meters. Microfiber is used to make mats, knits and weaves for apparel upholstery industrial filters and cleaning products. Micro fiber easily cleans the dustiest and grimiest surfaces.

IV. Mineral Fibers

These are fibers derived from natural mineral sources or are manufactured from inorganic and mineral salts. Asbestos is a mineral fiber (silicate of magnesium and calcium) and clot made of this fiber is mostly used for industrial purposes.

(a) Metallic fibers

Aluminum, silver, gold, stainless steel are also used to make fibers. Metallic fibers are manufactured, manmade fibers with luster composed of metal, plastic coated metal or metal coated plastic. They are used to make fabric as well as decorative yarn.

(b) Glass fibers

These are fine translucent man-made fibers with great tensile strength, excellent resistance to heat and flame retarduncy they are mostly used to make home furnishing rather than clothing.

V. Regenerated fibers

(a) Rayon fibers

These are beautiful silk-like fibers made from cotton linters, wooden pulp (cellulose) the drape ability or rayon fabrics make them a favorite in making clothes. The rayon fibers take dye very well and they have good water absorbency. Rayon fibers are used for clothing (especially to make women's clothing) and home furnishing they are also used to make caps, hats, wet tissue etc,.

(b) Polynosic fibers

This fiber is very similar to rayon fibers but the tenacity of this fiber is more than that of rayon.

(c) Cuprammonium rayon fiber

Cuprammonium rayon fiber are made from cellulose dissolved in a Cuprammonium solution (Copper and ammonia) fabric made of this fiber is very delicate and thin but of high quality.

(VI) Semi – Synthetic fibers

(a) Acetate fibers

This fiber also uses wooden pulp as a raw material, which is then treated with acetic acid. Acetate fibers are beautiful soft shiny fibers which are very strong.

(b) Triacetate fibers

These are fibers to which more acetic acid is combined than to acetate fibers.

(c) Azlon fibers

These are man-made / synthetic fibers made from naturally occurring proteins like milk, soy and eggs.

(VII) Synthetic fibers

(a) Polyester fibers

Polyester fibers are one of the most used of all synthetic fibers. They are extremely fine fibers and can be blended with other fibers like cotton and wool to create better fabrics with

multiple advantages. They have very unique characteristics like stability strength, resistance to wrinkling which make them great for dress making.

(b) Nylon fibers

This is one of the strongest of all textile fibers with qualities like resistance to abrasion, ease of maintenance resistance to wrinkling resistance to chemicals. Nylon fibers are used to make all kinds of clothing but it is especially used in making sportswear and lingerie.

(c) Polyurethane fibers

You will know these fibers by the name spandex. They are very stretchable fibers. Garments are made by blending the polyurethane fibers with others fibers, they are used to make swimwear, lingerie etc,.

(d) Acrylic fibers

It is expensive so is used in limited quantities. Acrylic - a synthetic fiber. It was created as an alternative to wool and is also used as an alternative to cashmere. It is soft, comfortable, durable, holds color well, plus resists shrinkage, stains, wear and wrinkles.

How to become fabric?

Much fiber – Yarn – fabric. Fiber obtained – cotton twisted & thicken, stron. It is called yarn. Making this are spindle, Chakha, spinning machine. They outputs (i) Hand Loom, (ii) Power Loom. Fabric is made of many yarns. A yarn is made of many fibers. Fiber are obtained from P – A – M Chemical used – Synthetic fibers.

Fibers are converted in yarn by spinning machine. Yarns are converted to fabric by weaving and knitting. Weaving is the process of inter long two sets of yarn to get back fabric. Knitting is the Inter looping of one or more set of yarn to get back fabric. (ex. Natural fabric – Cotton, Wool and Synthetic fabric – Nylon, Polestar)

Construction of fabrics

Fabric construction involves the convention of yarn and sometimes fibers into a fabric most fabrics are presently produced by the method of inter caring such as hutting.

Woven fabrics

Woven fabrics are made of yarns intervened in a regular order called a hinding system or weave weaving is a process of combining weft components to mate a woven structure are composed of two sets of components both flexible and crossing at right angles.

Weaving

Weaving is a widely wed construction method because it's cheap basically simple woven fabrics have vamable charuten wove fabrics have are used in house hold and industrial textile.

Textile designers can produce a very large variety of cloth by selection of yarn finishing process and binding system yarn vary in thickness smoothness fiber content twist color.

Knitted fabrics

Knitted fabrics are textile that results from knitting. Its properties are different foam woven fabric more flexible can be constructed into smaller pieces making it udeal for socks and hots. They are two basic varieties of knitting fabric welt – knit, warp – knit fabric. The topology

of a knitted fabric is relatively complex woven fabrics where strends usually run straight horizontally and vertically.

Bonded fabrics

Bonded fabrics come into main forms non – woven textiles layer of woven jointed by means of bonding agent like fabric give bonded. Fabrics also known as emgineed fabrics. These fabrics include medical garments like mask hygienic products such as diapers. (i) Bonded fabric are stronger and durable. (ii) Bonded fabrics can be made reversible.

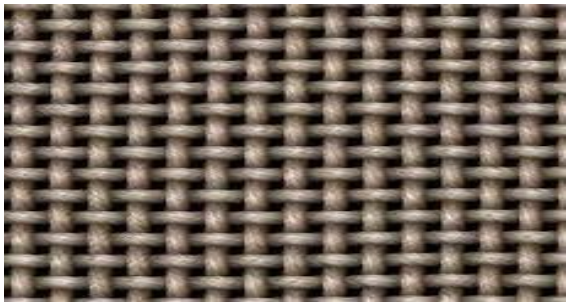
Type of Weaves

- Plain
- Twill
- Satin
- Sateen
- Velvet
- Velveteen

- Figured

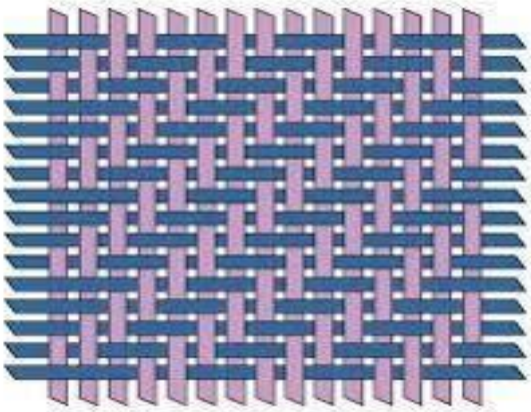
Plain Weaves

It is the most fundamental type of textile weaves which from a strong durable. In plain weave the warp rap weft are in terleed in a basic cross gross pattern with the weft thread passing over the warp in over under sequence.



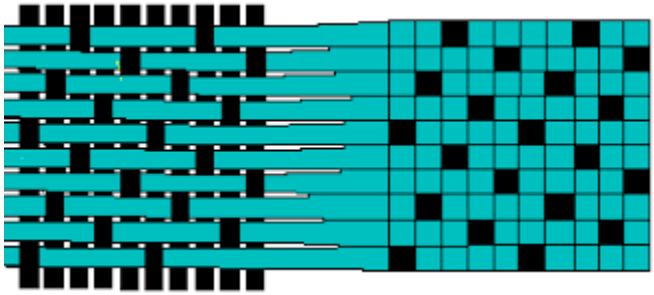
Twill Weave

It among the most widely used weaves within textile production twill weave is used to create strong fabric such as denin taweed.



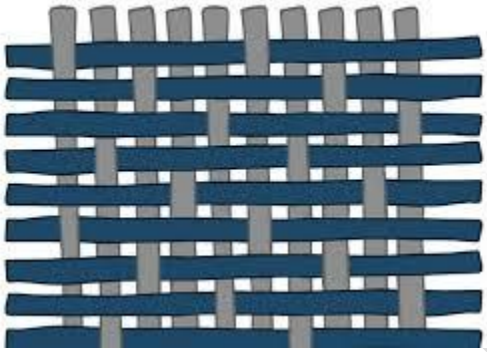
Satin Weave

Satin weave creates a supers mooth fabric that has a soft hand. It is long distance between the inter locking of the yarn which helps to create a smooth on the face of the fabric.



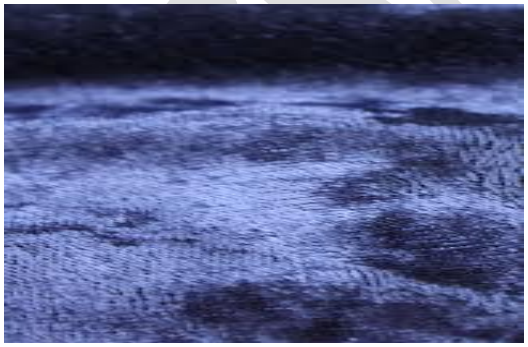
Sateen weaves

This is a satin weave with short staple yarn like cotton the long float produce a surface that smooth to the touch.



Velvet Weave

Velvet mode entirely from silk cotton is also used velvet can to also be made from fibers such as linen wool, velvet can be made from either synthetic or natural fibers.



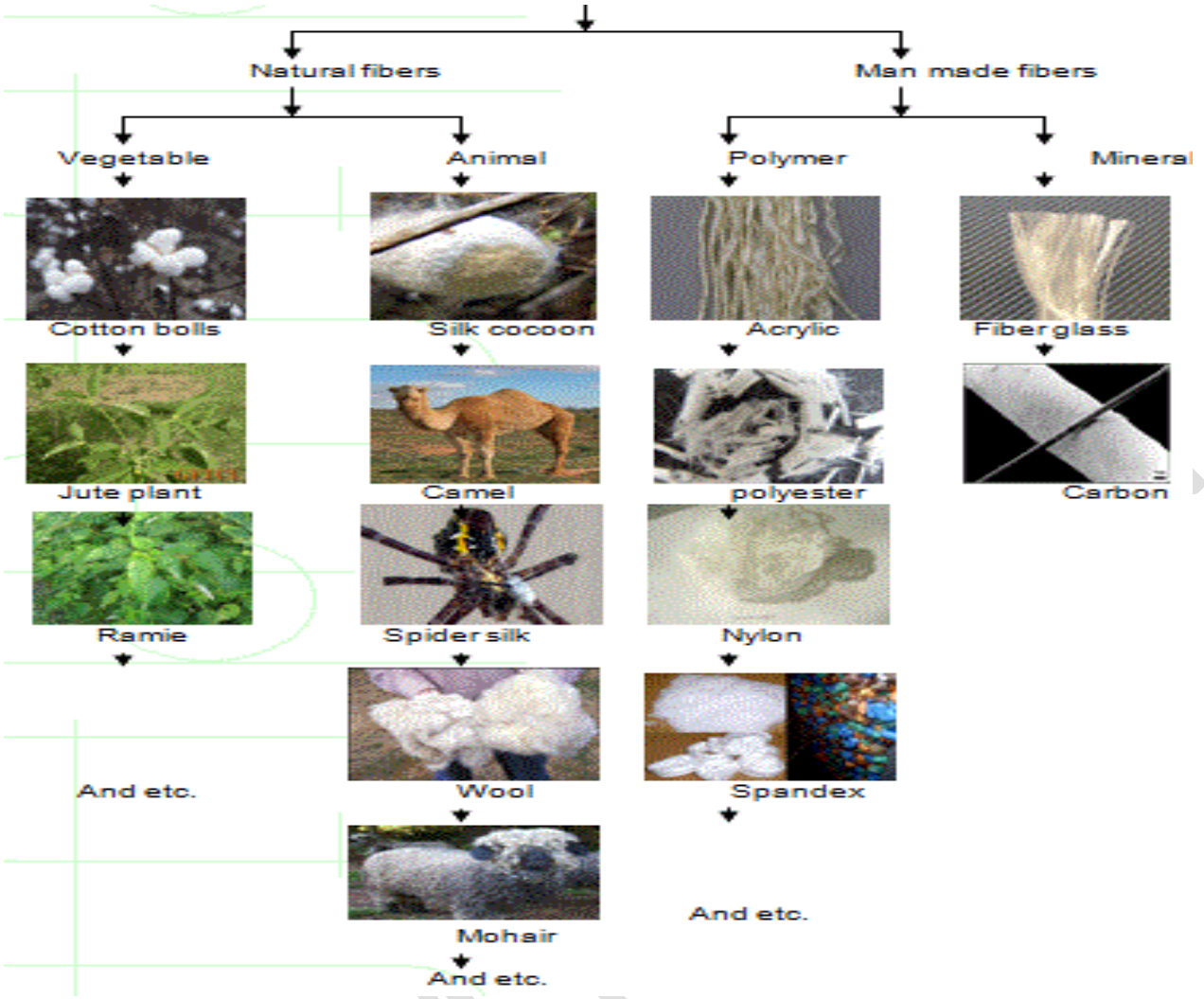
Velveteen weave

This type of the cloth mixture of silk and cotton this fabric has a pile that is short.

Figured damask

Sarerersible figured fabrod fabric of silk, wool, linen, cotton, synthetic fibers dio mask are woven with one warp yarn and one weft yarn.

CLASSIFICATION OF TEXTILE FIBERS



Fibers are classified by their chemical origin, falling into two groups or families: natural fibers and manufactured fibers. Manufactured fibers are also referred to as man made or synthetic fibers. The classification system used in the United States is dictated by the Textile Fiber Products Identification Act (TFPIA). Figure 1 gives a breakdown of textile fibers by these groupings, and the Appendix compares the properties of some of the most commonly used fibers.

2.1NaturalFibers

Natural fibers are those that occur in fiber form in nature. Traditionally, natural fiber sources are broken down into animal, plant, or mineral. Fibers from plant or vegetable sources are more properly referred to as cellulose-based and can be further classified by plant source. They may be separated from the plant stalk, stem, leaf, or seed. Fibers from animal sources are more properly known as protein-based fibers. They are harvested from an animal or removed from a cocoon or web. Mineral fibers are those that are mined from the earth. Except for silk, all natural cellulose- and protein-based fibers are obtained in short lengths and are called staple fibers. Silk is a continuous filament fiber.

Aclassnamefor various genera of fibers (including filaments) of:

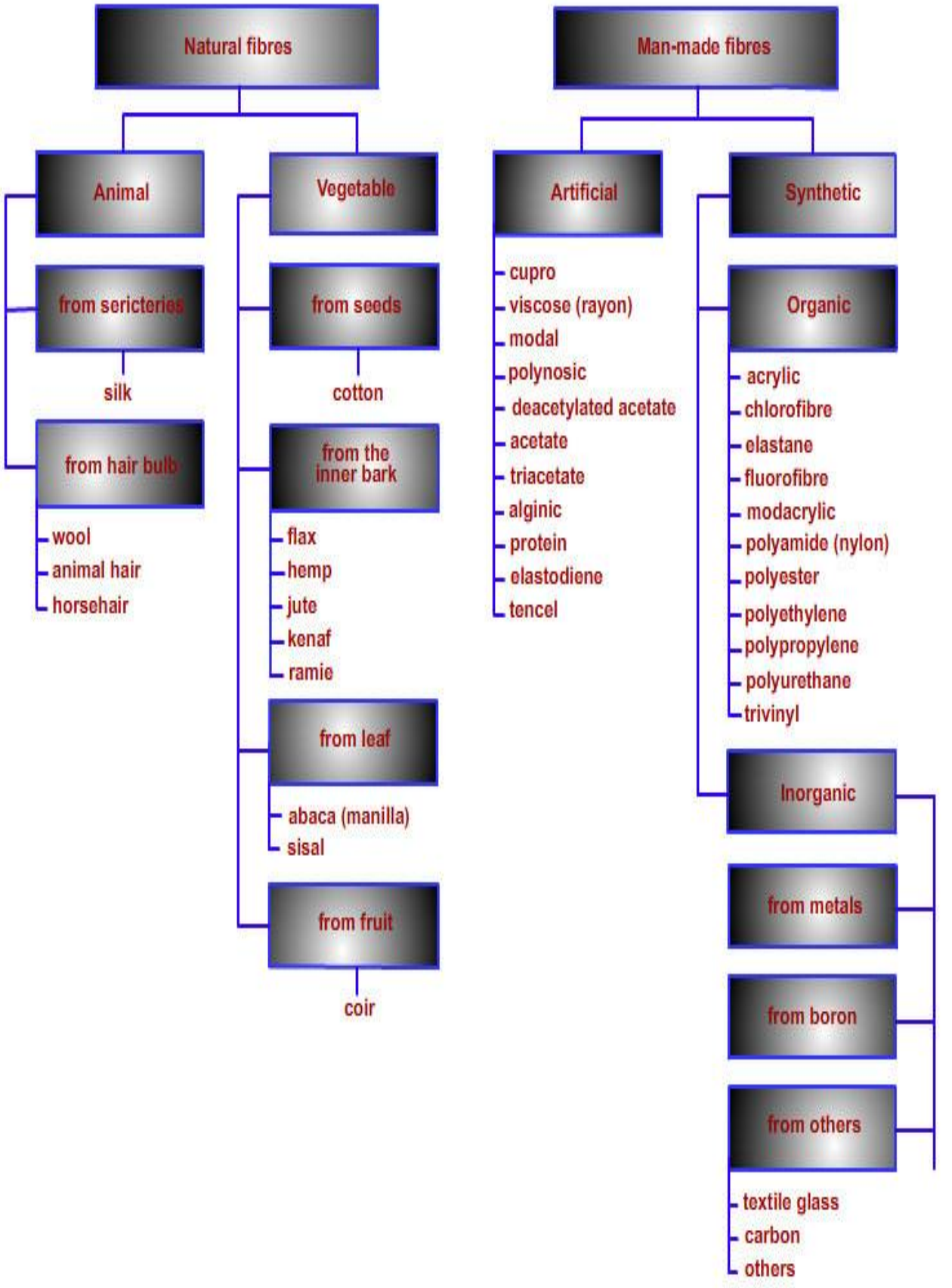
(1)animal (i.e.,**silkfiber**, **woolfiber**)
(2) mineral (i.e., asbestos fiber) or
(3) vegetable origin (i.e., cotton. flex, jute and ramie fiber).

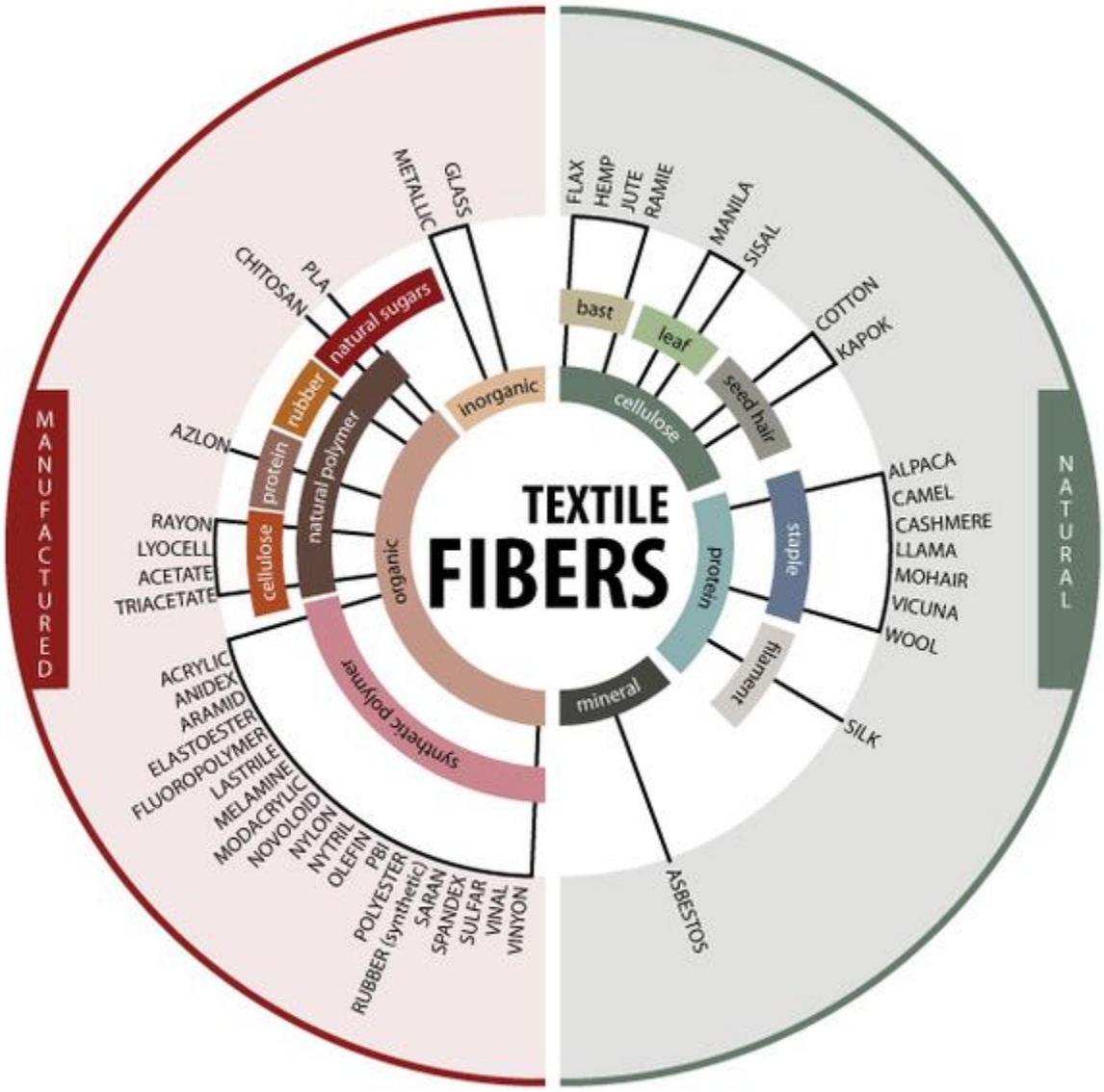
2.2 Man made Fibers

Man made fibers, such as nylon, polyester, and rayon, are produced by chemical reactions controlled by people, rather than occurring naturally. The term synthetic fibers is often used to designate man made fibers; however, to many people, this term has a negative connotation, meaning inauthentic, artificial, or fake. TFPIA classifies man made or manufactured fibers by generic names. Currently, TFPIAN recognizes 26 generic groups of manmade fibers.

(1) Polymers synthesized from chemical compounds, e.g., polyethylene fiber, polyurethane fiber, and polyvinyl fibers;
(2) Modified or transformed natural polymers, e.g., alginic and cellulose-based fibers such as rayons fiber; and
(3) Minerals, e.g., glasses. The term manufactured usually refers to all chemically produced fibers to distinguish them from the truly natural fibers such as cotton, wool, silk, flax, etc.e.g: **glass fiber**

Classification of fibres





* Generic classification based on chemical composition as defined by the Textile Fiber Products Identification Act. (Manufactured Catagory)

Man-made Fibers

NATURAL FIBRE

Natural Fibres include wool from sheep and fibre from alpaca, angora rabbits, cashmere and angora (mohair) goats, silk from insects (silkworms), and plant fibres such as cotton, flax and linen, nettle and hemp.

1. Animal fibres
2. Silk & silkworms
3. Plant fibres

Natural fibers are those that occur in fiber form in nature. Traditionally, natural fiber sources are broken down into animal, plant, or mineral. Fibers from plant or vegetable sources are

more properly referred to as cellulose-based and can be further classified by plant source. They may be separated from the plant stalk, stem, leaf, or seed. Fibers from animal sources are more properly known as protein-based fibers. They are harvested from an animal or removed from a cocoon or web. Mineral fibers are those that are mined from the earth. Except for silk, all natural cellulose- and protein-based fibers are obtained in short lengths and are called staple fibers. Silk is a continuous filament fiber.

2.1.1 Cellulose-Based Fibers

Cellulose-based fibers consist of bast, leaf, and seed-hair fibers. Bast fibers come from the stem of the plant and include flax, hemp, jute, and ramie. Leaf fibers are stripped from the leaves of the plant and include manila and sisal. Seed-hair fibers are collected from seeds or seed cases and include cotton and kapok.

- **Cotton**, obtained from the cotton seed, is the best-known and most-used natural cellulosic fiber. Cotton fiber is discussed in detail of this document.

- **Flax** is the bast fiber of the flax plant, used to make linen fabric. The plants are cultivated and grown in such a way as to produce long, thin stems. The plant is pulled from the ground for processing. The non-fibrous material in the stem is rotted away in a process called "**retting**." Once retting is complete, the fibrous mass is rinsed and dried. The fiber is separated from the woody portion of the decomposed material by breaking and "scutching" (scraping). "Hackling" refers to combing the scutched fibers to separate the long and short fibers. The fiber is then spun, and S-twist is inserted, to produce linen thread.

- **Hemp** is a coarse, durable bast fiber from the plant Cannabis sativa. It is processed into a usable fiber in the same way as flax. It is used primarily for industrial and commercial textiles, especially cords, twine, and rope.

- **Jute** is a bast fiber from the stem of plants in the genus Corchorus, processed in the same way as flax. It widely used for industrial end uses such as sacking, burlap, twine, and backing for tufted carpets.

- **Kapok** is from the seed pods of the Java kapok tree (Ceiba pentandra). The seed pod is similar to the cotton boll; however, the dried fibers are easily shaken off the seed. A buoyant fiber, kapok is used primarily in life jackets, as special stuffing for pillows, and in some mattresses. **It is not spun into yarn.**

- **Manila** is from the leaf stalks of the abacá plant (Musa textilis). The fibers are separated from the fleshy part of the leaf stalk. Manila is generally used in rope and cordage.

- **Ramie** is a bast fiber from the stalk of the ramie plant (Boehmeria nivea), also known as "China grass." The plant is a perennial shrub that can be cut several times a year once

mature. The cut plant's stalks are peeled or retted to remove the outer woody covering, revealing the fine fibers underneath. Degumming removes pectins and waxes, followed by bleaching, neutralizing, washing, and drying. The fiber is similar to flax, but more brittle. Ramie can be spun alone or with other fibers, especially cotton.

- **Sisal** is from the leaves of plant Agave sisalana. The leaves are cut when the plant is about four years old, and the fibers are separated from the fleshy part of the leaf. Sisal has industrial uses, most commonly as a rug or carpet backing.

2.1.2 Protein-Based Fibers

Protein-based fibers are from animal sources, most commonly the hair of the animal. Animal-hair fibers are long-staple fibers, ranging in length from 2.5 to 10 inches or more. Silk is a natural protein fiber extruded by the silk worm. With a length of over 500 yards, it is classified as a filament fiber.

- **Wool** is a fine hair fiber from sheep. In labeling, the term "wool" also may be used to identify fibers from other fleece animals, **such as the Angora goat, Cashmere goat, camel, alpaca, llama, and vicuña.**

Sheep-wool fiber can be sheared from the living animal or pulled from the hide after slaughtering. Sheared or clipped wool is superior to pulled wool. Sheep normally are sheared only once a year. Lamb's wool is wool from sheep under 8 months of age. "Virgin wool" (or "new wool") comes from the first shearing of the animal and is most highly prized. (The term "virgin wool" is also used to mean wool that has never previously been processed.)

1. **Alpaca** is the long, fine hair fiber from the alpaca, which is a relative of the camel native to South America. It is shorn from the animal once every two years. The soft, fine undercoat is used in textiles.

2. **Angora** is the long, fine hair fiber from the Angora rabbit. It is not to be confused with the hair fiber of the Angora goat, the source of mohair. Angora rabbits are raised domestically. The fur is combed and clipped from the rabbit every three months. Camel hair comes from the Bactrian camel. The fiber is shed, and about 5 pounds (2.7 kilograms) is produced per camel. The underhairs are used in textiles, and the coarse outer guard hairs are used in paint brushes and other non-apparel uses.

3. **Cashmere** is the soft hair fiber from the cashmere (kashmir) goat. The fiber is harvested by combing the animal. A single goat produces only about 4 ounces (114 grams) of fiber a year. Cashmere is considered a luxury fiber.
Llama hair fibers are shorn from the animal once a year. They are similar to alpaca fibers, but weaker.

4. **Mohair** is the long, straight, fine hair fiber from the Angora goat. The fiber is usually sheared from the animal twice a year.

5. **Vicuña** is the hair fiber from a small non-domesticated llama-like animal about the size of a dog. The animal lives at elevations above 16,000 feet in South America and has been listed as endangered since 1969. Vicuña is the softest of the fleece fibers.

3. protein based

Silk is a natural protein secreted by the larvae of several moth species. The larvae use the filaments to construct a cocoon, from which the silk is extracted. Twin filaments of the

protein fibroin are secreted and bound together in a single strand with the protein gum sericin. During processing, the sericin is removed, leaving the fibroin protein. Cultivated or cultured silk is produced in very controlled conditions of environment and diet. Tussah or wild silk is harvested from natural sources.

COTTON FIBRE

Contents -

Cotton is a natural fiber (vegetable fiber) obtained from the seed of the cotton plant. Chemically, cotton is a polysaccharide or polymeric sugar that is represented by the chemical formula (C6H10O5)n. For most apparel and home end uses, cotton fiber is particularly well suited because of its combination of strength, durability, and comfort properties. Cotton also has good temperature resistance, which is important in textile-mill dyeing and finishing processes and consumer care.

Cotton is a soft, fluffy staple fiber that grows in a boll, or protective capsule, around the seeds of cotton plants of the genus *Gossypium* in the family of *Malvaceae*. The fiber is almost pure cellulose. Under natural conditions, the cotton bolls will tend to increase the dispersion of the seeds.[*how?*]

The plant is a shrub native to tropical and subtropical regions around the world, including the Americas, Africa, and India. The greatest diversity of wild cotton species is found in Mexico, followed by Australia and Africa.[1] Cotton was independently domesticated in the Old and New Worlds. The English name derives from the Arabic *(al) quṭn* قُطْن, which began to be used circa 1400 AD.[2]

The fiber is most often spun into yarn or thread and used to make a soft, breathable textile. The use of cotton for fabric is known to date to prehistoric times; fragments of cotton fabric dated from 5000 BC have been excavated in Mexico and the Indus Valley Civilization (modern-day Pakistan and some parts of India). Although cultivated since antiquity, it was the invention of the cotton gin that so lowered the cost of production that led to its widespread use, and it is the most widely used natural fiber cloth in clothing today.

Current estimates for world production are about 25 million tonnes or 110 million bales annually, accounting for 2.5% of the world's arable land. China is the world's largest producer of cotton, but most of this is used domestically. The United States has been the largest exporter for many years.[3] In the United States, cotton is usually measured in bales, which measure approximately 0.48 cubic metres (17 cubic feet) and weigh 226.8 kilograms (500 pounds).[4]

: Types of cotton There are four commercially grown species of cotton, all domesticated in antiquity:

- *Gossypium hirsutum* – upland cotton, native to Central America, Mexico, the Caribbean and southern Florida, (90% of world production)
- *Gossypium barbadense* – known as extra-long staple cotton, native to tropical South America (8% of world production)
- *Gossypium arboreum* – tree cotton, native to India and Pakistan (less than 2%)
- *Gossypium herbaceum* – Levant cotton, native to southern Africa and the Arabian Peninsula (less than 2%)

The two New World cotton species account for the vast majority of modern cotton production, but the two Old World species were widely used before the 1900s. While cotton fibers occur naturally in colors of white, brown, pink and green, fears of contaminating the genetics of white cotton have led many cotton-growing locations to ban the growing of colored cotton varieties, which remain a specialty product.

Cotton ppt final.. from **Aftab Mulla**

Cotton fiber manufacturing, physical and chemical properties from **Lily Bhagat**

Unit : 2

Pest Control

Pest Control

Pest Control is not a one time job. Pest Control is very important for maintaining a safe environment. It is one of the major duties of the housekeeping department. Some of the common pets are flies, ants, mosquitoes, bed bugs, lizards, rats, mice, cockroaches etc.,

Pest control is the regulation or management of a species defined as a pest, a member of the animal kingdom that impact adversely on human activities. This can be achieved by monitoring the crop, only applying insecticides when necessary and by growing varieties and crops which are resistant to pests.

Pest Control in Hotels

Pest Control is a Science. You have spent years developing the perfect formula for your guest's comport, but a pest infestation can undermine all your hard work overnight. Studies have shown that hotel guests have zero tolerance for pets, yet pests thrive on the food, water and shelter that the typical hotel offers.

Pest causes the enormous amount of damage and cause a huge loss to the food business. Often cause serious food poisoning. As a housekeeping staff one must be very much vigilant in controlling of pest by applying of medicines. Pest control is a compulsory activity for hotels, restaurants and any sector of hospitality industry. Here in this article we will discuss about various kind of pets and insects and few common methods of controlling pests in hotels.

Pest List

1. Ant
2. Termite
3. Rate
4. Silver fish

5. Spider
6. Lizard
7. Bed bug
8. Cockroaches

What does Pest Control mean?

Pest Control is the regulation or Management of a species defined as a pest a member of the animal kingdom that impacts adversely on human activities. This can be achieved by monitoring the crop only applying insecticides when necessary and by growing varieties and crop which are resistant to pests.

Why is pest Control necessary?

Pests in your home or business are an annoying and dangerous problem. Pets can ruin your foods, spread disease and even destroy your property from the inside out. They are the carriers of diseases and they can potentially spread these to humans and to animals.

Whether your problem is ants, mosquitoes, bed bugs, termites or some other pests, pest control professionals can eliminate the problem and get your life back to normal. To further appreciate the needs to hire professional, here are some known facts.

According to the Illinois Department of public health, rodents can contaminate about 20% of the earth's food resources. They are the carriers of diseases and they can potentially spread these to humans and to animals. Further, these pests also cause fire as they can chew on wires and flammable materials.

Those seem to be invisible bed bugs still grow in numbers and they survive in great length around the world. No one knows the reasons why they continue to grow in numbers but experts speculate that it may be caused by wrong treatment practices.

Without any pest control, the pests can damage about 50% of the total food supplies worldwide.

Cockroaches can contaminate food and other supplies and so it is necessary for them to be eliminated especially in the homes and health care facilities. They carry yeast, salmonella, molds and others harmful micro organisms that can cause illness.

What are the chemicals used for pest's control?

Most common active ingredient chemicals used in pest control.

1. Abamectin
2. Cyfluthrin
3. Fipronil
4. Petmethrin
5. Bifenthrin
6. Hydramethylnon
7. Pyrethrum
8. Boric Acid
9. Deltamethrin
10. IGR (Insect Growth Regulator)

Eradication of Pests

1. Basically a cleaned well ventilated environment cut down the possibilities of pest.
2. Since most hotels are air-conditioned it is not necessary to open the windows that cut down the entry of insects.
3. Mosquitoes, ants can be killed by spraying insecticides. This can be done when guest is not in the room and well before the service of bar and restaurant.
4. For Mosquitoes and insects which are dangerous and spread malaria. The small electric machine that heat up when some liquid or tablet are put on it. It gives of the vapor that kills the pest.
5. Silver fishes are wingless insects of silver color they usually appear in cupboard storage areas. Proper and regular cleaning eradicates pest.

ROLE OF HOUSEKEEPING IN PEST CONTROL

1. The important factor affecting the development of pest is the availability of suitable finding undisturbed condition.
2. Other factors like temperature humidity also involved. Thus to maintain environment is vital.
3. The main aim is to remove the spillage, food residue on which they feed or breed.
4. As some insects complete the life cycle very quickly it is important that the pest control should be done frequently.
5. Regular attention should be given to the drains as they are the major source of entrance of rat.
6. Professional pest control agencies should be hired if the infestation is serious.

Housekeeping pets control checklist

8 Places to check out before pests check-in – Housekeeping checklist

Round the clock room service, fresh linens, beautiful landscaping and outdoor amenities all make hotels and motels hospitable to paying guests. But these some conditions can also facilitate pest infestations. Fortunately regular inspections and maintenance of a few common 'hot sports' in and around your property will help keep out flies, mice, cockroaches, bedbugs and other un welcome guests. Here's brief guide to eight places where you're likely to find pests and tips to help prevent pest problems in these areas before they start.

(i) Lobby and other entrances

Common Pests: Flies, Mosquitoes, ants, Cockroaches

Where you'll find them: In the Lobby or near entryway plants, under doors, near crack and gaps

How to prevent: Work with an HVAC Professional to make sure air flows out of open doors and blows out pets.

Keep doors shut when possible and install door sweeps and weather stripping to create a secure seal.

Cut back foliage and low – hanging braches at least two feet from the façade. Install gravel perimeter two feet deep around the immediate exterior of the building.

Review landscaping choices with pest management professional to select varieties that discourage pests.

Use artificial plants and trees in the interior where possible.

Reduce outside water sources around door areas.

(ii) Guest Rooms

Common Pests: Ants, bed bugs, cockroaches

Where you'll find them: Bath Rooms, ceiling fixtures, mattresses, headboards, under carpet.

How to prevent: Ask housekeeping staff to keep an eye out for potential hiding places (buckling wallpaper or carpet) or other conditions that may attract pests and report them to maintenance immediately.

Remove head boards and inspect behind them for bed bugs every six to twelve months.

Eliminate food debris and excess moisture wherever possible during thorough room cleanings.

Tran housekeeping staff to inspect for tiny, rust – colored stains indicative of bed bugs on mattress tags and seams and under seat cushions during regular room cleanings.

Quarantine bed bugs infested room(s) and any adjoin rooms immediately for treatment.

(iii) Kitchen

Common Pests: Cockroaches, flies, stored – product pests, rodents

Where you'll find them: Inside incoming shipments in drains storage and waste disposal areas underneath or inside kitchen equipment in ceilings.

How to prevent: Seal all food containers tightly store dry foods off the floor and away from walls and rotate products from the storage area on a first in, first out (FIFO) basis.

Inspect all incoming boxes and shipments for signs of pets.

Seal areas behind appliances line all trash cans and regularly remove waste.

Clean up spills immediately. Use an organic cleaner to clean floors, drains and grease traps regularly.

(iv) Vending Areas

Common Pests: Cockroaches, ants

Where you'll find them: Under vending machines and leaky ice machines, near trash cans.

How to prevent: Clean up food wrappers and drink spills quickly.

Repair leaks from ice and beverage machines immediately.

Regularly mop floors to remove food residue.

Line all trash cans and keep them tightly covered.

(v) Swimming Pool

Common Pests: Cockroaches, wasps, bees, mosquitoes.

Where you'll find them: In and around pool deck, especially near bushes and other foliage, locker room areas.

How to prevent: Eliminate standing water, particularly from rain showers on or near pool deck.

Only allow food and drink in designated areas.

Clean up nearby food and drink spills and keep covered trash cans nearby.

(vi) Laundry

Common Pests: Rodents, cockroaches.

Where you'll find them: Underneath and behind laundry machines in towel linen storage.

How to prevent: Thoroughly clean behind and underneath washers, dryers and cabinets on a regular schedule.

Repair water leaks promptly.

Keep the laundry area free of lint and other debris to prevent micro fungal growth that attracts (attacks) pests.

Remove floor drain covers and clean drains thoroughly each month with detergent and a brush.

(vii) Loading Dock

Common Pests: Rodents, flies, birds.

Where you'll find them: In and around the loading dock.

How to prevent: Regularly pressure washes the loading dock and surrounding pavement.

Install bird repellants on ledges and block off nesting areas on the roof.

Remove empty boxes and other debris to minimize potential rodent nesting sites.

Keep doors closed when not in use to prevent pests from entering. Consider installing a double – door system for extra protection.

Seal all unnecessary openings with weather – resistant sealant and mesh wire.

(viii) Waste Disposal Area

Common Pests: Rodents, cockroaches, flies, ants.

Where you'll find them: In and around dumpsters.

How to prevent: Sanitize garbage dumpsters and trash cans frequently.

Move dumpsters as far away from the side of the building as possible.

Rotate dumpsters regularly.

Keep the area surrounding dumpsters free of trash and discarded food.

How do I Control a Rodent Infestation?

The best way to prevent a rodent infestation and contact with rodents is to remove the food sources, water and items that provide shelter for rodents.

1. Seal Up! Seal up to holes inside and outside the home to prevent entry by rodents.
2. Trap Up! Trap rodents around the home to help reduce the rodent population.
3. Clean Up! Avoid illness; Take precautions before and while cleaning rodent infested areas.

Prevent Rodent Infestations:

The best way to prevent a rodent infestation and contact with rodents is to remove the food sources, water and Items that provide shelter for rodents.

Signs of Rodent Activity:

- Damaged partially eaten fruits and nuts such as walnuts, Osages and avocados.
- Broken snail shells under bushes, on fences or near nesting sites.
- Signs of gnawing on plastic wood or rubber materials.

- Greasy rub marks caused by the rat's oily fur coming in repeated contact with painted surfaces or wooden beams.
- Rodent dropping are usually signs of significant rodent activity. The droppings are randomly scattered and will normally be found close to a rat runway feeding location or near shelter. Droppings can be found in forced air heaters, swimming pool heater covers and water heater closets.
- Sounds (gnawing, etc.,) from attic subfloor areas and wall spaces.
- Visual sightings on utility cables, tops of fences or in trees.
- Burrows in the ground and adjacent to sewer lines are signs of Norway rat activity.

Common Rodent Entry Location:

- ✦ Broken or missing foundation vent screens erratic vent screens.
- ✦ Overlapping roof.
- ✦ Open wooden meter boxed (in older homes).
- ✦ Space between roof jack and vent pipe.
- ✦ Under or on sides of garage door.
- ✦ Brick chimney which has settled away from housed.
- ✦ Crawl hole with poorly fitted lid.
- ✦ Tile roof.
- ✦ Broken or open building sewers which connect to the main sanitary sewer (Norway rats).
- ✦ Toilets (Norway rats).

STEPS TO RODENT CONTROL

Roof rat survival depends upon the existence of 3 basic environmental factors. (i) Food, (ii) Water, (iii) Harborage.

STEP 1: Eliminate Food and Water:

- ❖ Remove all potential sources of food from the premises, such as bird seed left out the birds. Routinely harvest ripe fruit and pick up al fruit that has fallen to the ground.

- ❖ Store pet food in metal containers with tight sealing lids and do not leave uneaten pet food outdoors.
- ❖ Avoid storing food in garages and storage sheds unless it is in rat proof converted metal containers.
- ❖ Control snails and clean up pet feces because they are favored food items.
- ❖ Keep trash cans closed at all-time with tightly filled lids.
- ❖ Repair leaking eliminate any other faucets, sprinklers or there piping , keep drain covers tightly fastened and unnecessary standing water.

STEP 2: Destroy Rats:

- ❖ Rats should be snapping trapped if they are inside a residence or building. Place traps near nesting areas or where rats are likely to hide. Do not place traps where children or pets will disturb or be harmed by them. Remember, snap traps are very dangerous!.
- ❖ Poisoning with baits indoors is not recommended. Because a rat may die inside the structure and crate an odor and fly problem. Poison baits may be used when following recommended guidelines.
- ❖ Remove dead rats by placing animals in tightly sealed containers for proper disposal. Clean and disin fect the affected areas.

STEP 3: Eliminate Shelter & Hrborage

- ❖ Close all openings larger than ¼ inches to exclude rats and mice.
- ❖ Repair or replace damaged vent screens.
- ❖ Remove all trash and debris.
- ❖ Stack wood piles, lumber and house hold items at least 18 inches above the ground and 12 inches away from fences & walls.
- ❖ Trim trees, bushes and vines at least 4 feet away from the roof.
- ❖ Remove heavy vegetation away from buildings and fences.
- ❖ Thin vegetation to allow day light in and remove rat hiding places.

STEP 4: Maintain a Rat Free Property

- ❖ After rats have been reduced, prevent re infestation by keeping harborage and food sources to a minimum.

Controlling rat and cockroaches:

Control a rot infestation:

- ➢ Clean up food and water sources in and near your house / places.
- ➢ Keep kitchen garbage in containers with tight – fitting lids.
- ➢ Turn compost piles to cover newly added food scraps.
- ➢ Stop feeding outdoor birds while you are controlling on infestation or feed only husk less items that leaves less residue that can be food for rodents.

Unit : 3

Interior Design.

INTRODUCTION

Interior design is important due to the aesthetic valve it passes in a given space.

IMPORTANT OF INTERIOR DESIGN

Interior design provides a soul to a building or space and makes a space more functional pleasant and livable. Interior design plays role in the everyday life. Interior design is an important technique that is given a high attention all over the world now a day.

ROLE OF INTERIOR DESIGN:

Interior spaces functional, safe and beautiful by determining space requirements and selective decorative items such as color lighting & materials.

FACTORS AFFECTIGN IINTERIOR DESIGN

1. Fussy clients Increased competition
2. Online reviews
3. Getting educated

4. Confusion on what Interior design
5. Allergies and stress
6. Lack of maturity
7. Design is becoming more superficial
8. Design has become a group consensus problem

FUSSY CLIENTS

Fussy clients have always been an issue. Many consumers are knowledgeable about the industry do not only know they want but also very demanding.

INCREAED COMPETITION

Interior design Popularity has grown leading to more competition. This has resulted infra station for new starters &drop of prices for service offered by experienced designer.

ONLINE SERVICE

Most Interior design London are shying away from engaging with potential customers online for fear of bad mouthing thus demanding their reputation.

GETTING EDUCATED

There are many school affeing interior desing making it difficult to choose. Interior design are finding it difficult to up their skill at the same time ruming a business.

ALLERGIES & STREES

Most Interior design spend them indoors with exposure to the chemical in finishes thus exposing them to allergies asthma, Sick building syndrome.

LACK OF MATURITY

Design lacks maturity there handling learning flow through the generations. Resyn is continuously being reinvented with an in expertise group of young professionals.

DESING IS BECOMING MORE SUPERFICAL

Interior design has expanded is now more conceptual Increased dependence on computers means most designees have little grasp on real craftsman ship.

BASIC ELEMENTS OF ART

Elements of Interior Design:

1. Space is one of the most important dements of ID.
2. Line, forms, light, color, texture, pattorn, shape, value, space teal,

Line:

Line give birth to forms and shapes are responsible for establishing a sense of harmony, entrust and unity in a living space lines are broadly classified horizontal, vertical, bynamic.

Horizontal:

Horizontal lines a dorn structure line table, chair, beds, vertical lines can be found on windows, doorways and almirahs, (horizontal lines add a safe and secure feeling)

Vertical:

Emote free and explosive nature.

Dynamic:

Dynamic lines are can seen on structure like stairs ID must know how to utilize there lines to define the forms.

Forms:

Forms means shapes in general forms can be created by combining to or more shapes other elements like texture pattern colors.

Light:

Light is one of the most obvious elements of Interior Design. Light sets in the mood and ambience into a living space and highlights the every other elements including space, line and forms.

Three types of lightings

1. Task lighting : Table and bed lamps
2. Mood lighting: set the mood of the lighting space.
3. Aceant lighting: High lighting a particular place, artwork, structure, sculpture.

Colour:

Colours establish an aesthetic connection between objects and set the mood.

Forex:

Red is an excellent choice for dining room. Encourage appetite of colours are classified primary and secondary colours.

Texture:

Texture adds depth and interest into a living space feel / appearance.

Two types:

Visual, Actual texture wall paint, wall papers