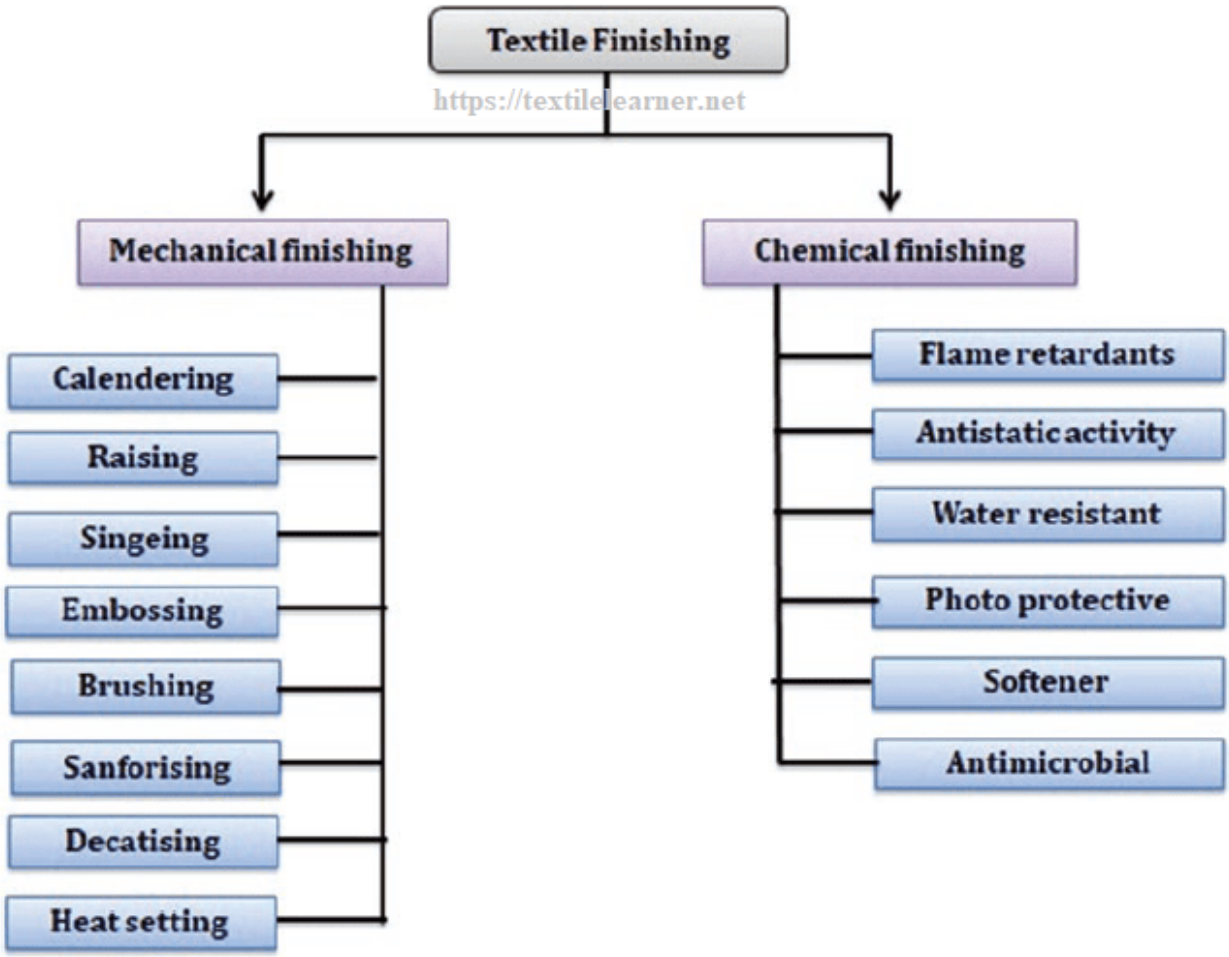
Fabric Finishing and Laundry (Major Core)

B.A. V Semester (NEP 2020)

Unit I

Fabric Finishes

The process by which the appearance and quality of the fabrics is improved is called fabric finishing. It also increases fabrics resistance to laundering and wear. The operations involved in fabric finishing vary depending on the texture and the purpose of the fabrics. In some cases, particular operations may be eliminated (for example, calendering, decating, and softening).



Singeing

Singeing is a preparation method of textiles; it is applied more commonly to woven textiles and cotton yarns. Singeing in textiles is a mechanical treatment or finish to obtain a neat surface of the fabric or less hairy yarn. In a singeing machine, the yarns or fabrics are exposed to direct flames to burn the protruding fibers of the textile materials. Hence, also called "gassing"

Sanding

Mechanical abrading is used whereby the fabric is passed, dry, over a series of rollers covered with emery paper which rub and break the fibres to produce a soft weathered effect. Also known as emerised, sueded (for heavier fabric types) or peau de peche (suede-like fabrics are not achieved in this way). The process removes shine and softens the handle and color.

Washing

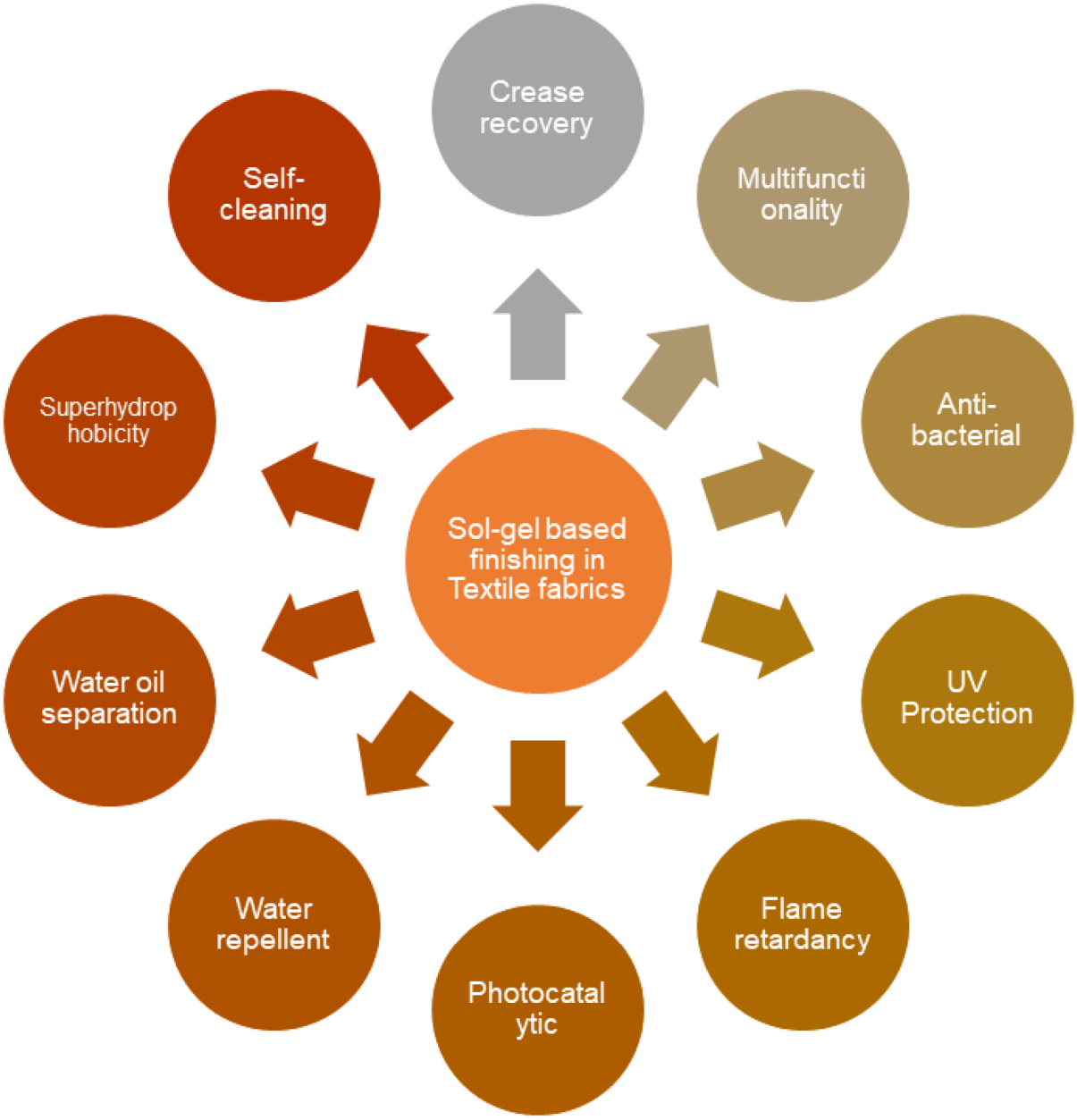
Sand-washing, like stone-washing uses the abrasive power of mineral particles in the wash. Being finer, it is generally applied to silk and viscose fabrics and has a similar effect to using sandpaper.

Mercerizing

Mercerizing is a shrinkage process which involves passing fabric through a cold solution of 15-20% sodium carbonate, causing the flat ribbon-like cotton fibres to swell in cross-section and contract in length, making it much more lustrous. The process increases strength by as much as 20% and makes the fibres more receptive to dyes.

Coating

The earliest ‘performance’ fabrics were wovens coated with natural oils or wax to keep out water. Increasingly, though, with the benefits of petrochemical technology, the base fabric is used only to act as a stable ground for a layer of plastic. Many of what are called coated fabrics are little more than the coated layer itself. These fabrics are often finished by ‘embossing’ to give animal skin effects, created much like pile embossing. Polyurethane and polyvinyl chloride (PVC) are the most common materials. Companies are reluctant to divulge details of the different chemical treatments that create high gloss, matt or metallic finishes.



Glazing

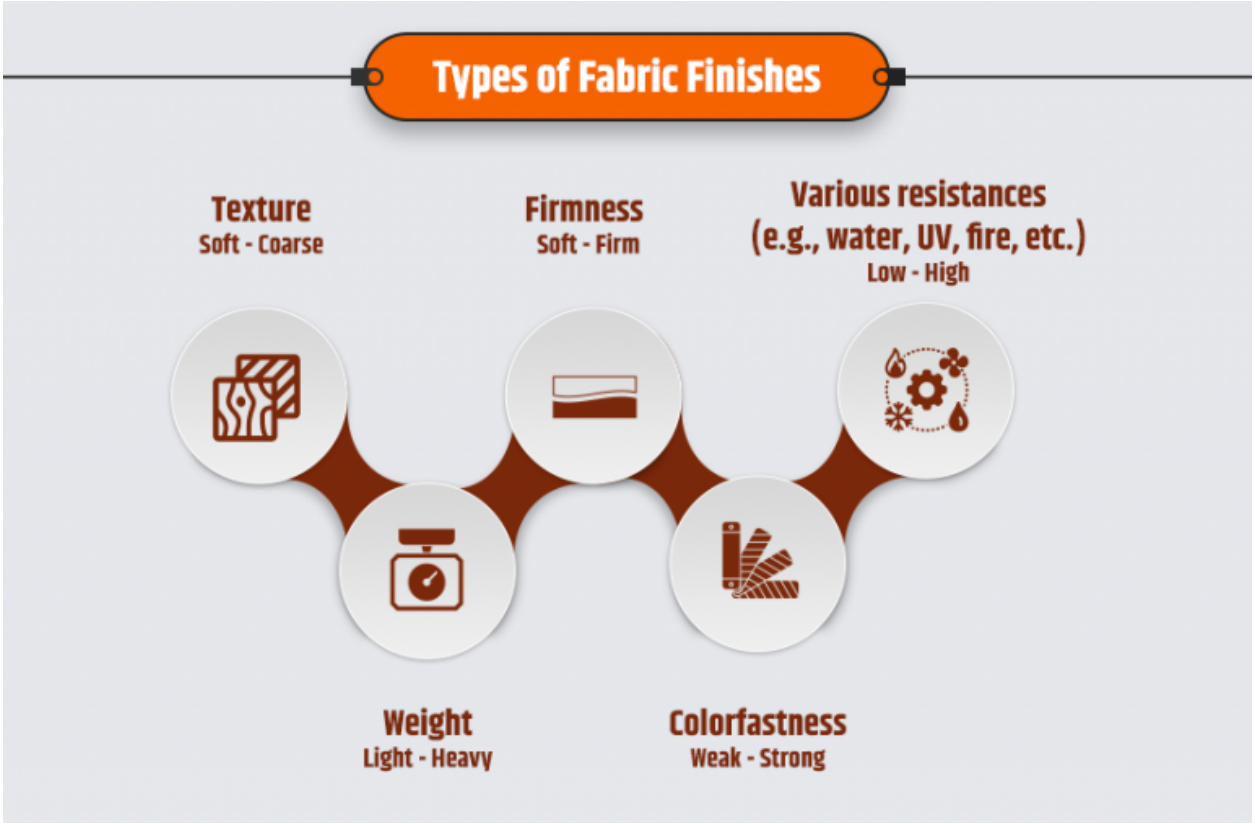
Starch, shellac or glue can be applied to the surface of a fabric to give a glazed or polished appearance. The surface is then ironed under pressure. The finish allows resistance to dirt penetration and is often applied to cotton fabrics making them stiff and shiny.

Burn-out

The fabric is made from two fibres, for example polyester and cotton. A pattern effect is achieved by using a screen to force through chemicals which burn away one of the fibres, leaving sheer and opaque areas.

Anti-bacterial

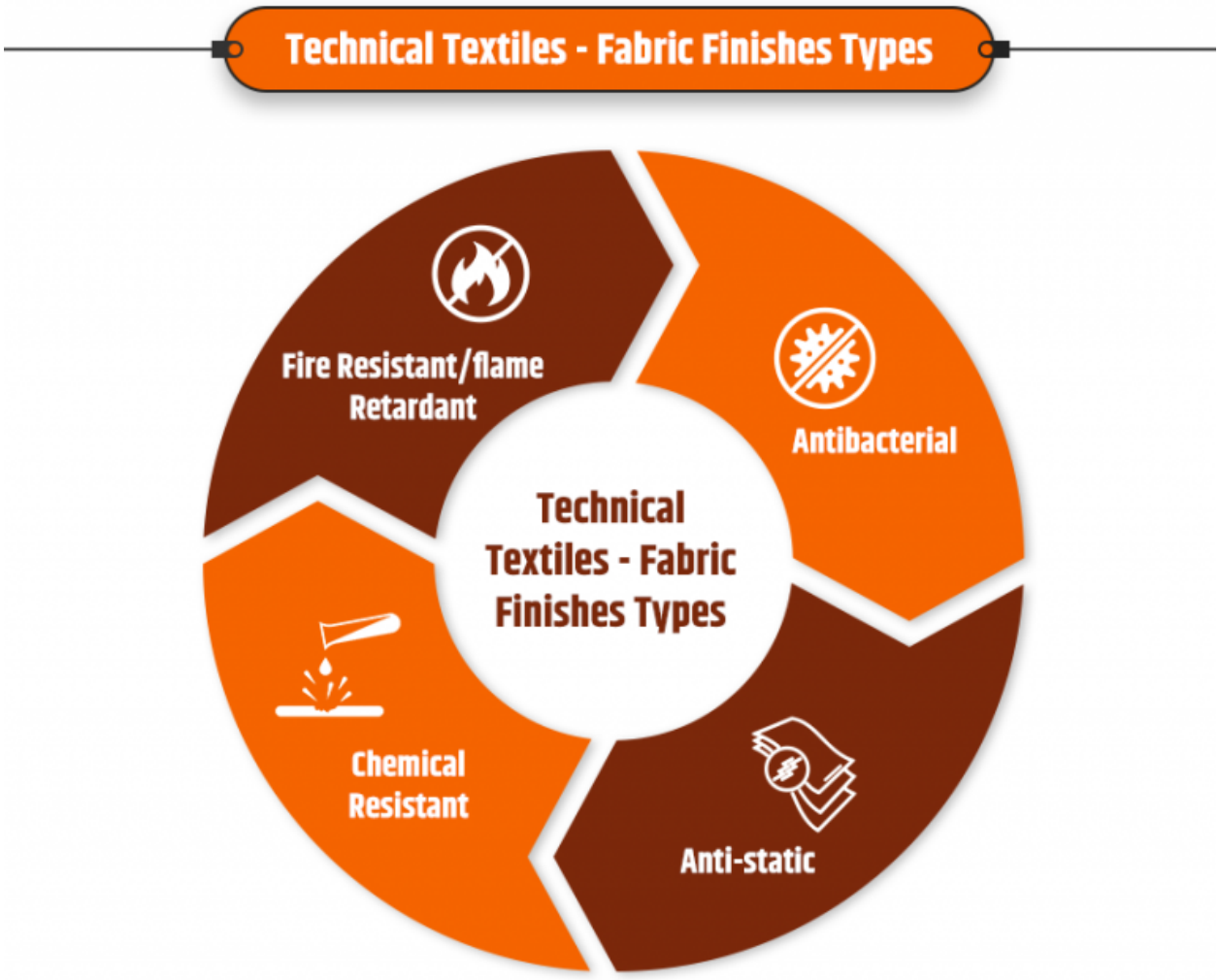
Fabrics can acquire a self-sterilizing quality by applying an antiseptic finish. The fabric remains unaffected by perspiration and can be washed or dry cleaned.



Technical Textile Finishing and Treatment Considerations

Technical textiles are designed and manufactured for specific non-decorative purposes. During the finishing and treatment stages for any technical textile, it is important to keep the intended function in mind to ensure the finished fabric performs as expected.

Some of the most common **types of fabric finishes for technical textiles** include:



Dyeing

Cotton is an absorbent fibre which responds readily to colouration processes. Dyeing is commonly carried out with an anionic direct dye by completely immersing the fabric (or yarn) in an aqueous dyebath according to a prescribed procedure. For improved fastness to washing, rubbing, and light, other dyes such as vats and reactives are commonly used. These require more complex chemistry during processing and are thus more expensive to apply.

Printing

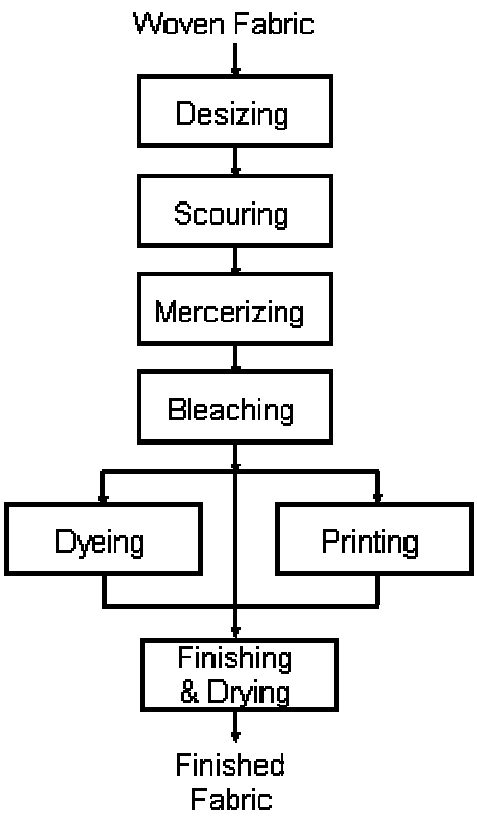
Printing is the application of colour in the form of a paste or ink to the surface of a fabric, in a predetermined pattern. It may be considered as localised dyeing. Printing designs on to already dyed fabric is also possible. The common processes are block printing, roller printing and screen printing.

Calendering

Calendering is the third important mechanical process, in which the fabric is passed between heated rollers to generate smooth, polished or embossed effects depending on roller surface properties and relative speeds.

Bleaching

Bleaching improves whiteness by removing natural coloration and remaining trace impurities from the cotton; the degree of bleaching necessary is determined by the required whiteness and absorbency. Cotton being a vegetable fibre will be bleached using an oxidizing agent, such as dilute sodium hypochlorite or dilute hydrogen peroxide. If the fabric is to be dyed a deep shade, then lower levels of bleaching are acceptable, for example. However, for white bed sheetings and medical applications, the highest levels of whiteness and absorbency are essential.


Woven Fabric
Desizing
Scouring
Mercerizing
Bleaching
Dyeing
Printing
Finishing
& Drying
Finished
Fabric