LEATHER TECHNOLOGY
(DIPLOMA STANDARD)
SUBJECT CODE:366

UNIT – I: Basic Science for Leather Technologists

Basic concept of atomic structure – Covalent bond, Ionic and Co-Ordinate, hydrogen bonding, Valence bond theory – Modern classification of elements – Concept of Acid and bases – Electro chemical series and its application – Hardness of water

UNIT – II: Skin structure and Preservation of hides and skins

Hides and Skins - Types - Functions and properties - Histological characteristics - Structure - Chemical constituents - Various fibrous and non-fibrous proteins - Defects - Grading - Standard flaying techniques - Curing and preservation methods

UNIT – III: Pre-tanning in leather processing

Soaking, unhairing, liming, deliming, bating, pickling, depickling and degreasing - Their objectives and principles involved - Chemicals and auxiliaries used in pre-tanning processes - Mechanical operations in pretanning - General pretanning processes for manufacture of different types of heavy and light leathers - Process control in pretanning

UNIT – IV: Tanning processes in leather processing

Tanning materials - Vegetable, mineral and organic - Their classification - Manufacture and analysis of various tanning materials. Practical aspects of various types of tanning systems - vegetable, chrome, Aluminium, Zirconium, Aldehyde, Oil and other organic tanning – Tanning processes for manufacture of different types of heavy and light leathers

UNIT - V: Post tanning processes in leather processing

Rechroming, neutralization, retanning, dyeing, fatliquoring and fixing - Their objectives and principles - Chemicals used for the above unit processes - Syntans, fatliquors, dyes, dye-auxiliaries - Machinery operations in post tanning

UNIT – VI: Finishing operations in leather processing

Principles in leather finishing - Types of finishing - Pigments, binders, wax emulsion, fillers, topcoats, lacquers and lacquer emulsions, feel modifiers, their nature and properties - Upgradation methods - Machinery operations in finishing - Novel finishing techniques

UNIT – VII: Leather products manufacture

Characteristics of various types of leathers - upper, sole, garment, leather goods, sports and specially leathers - Design and manufacture of footwear, leather goods & garments. Machinery in leather products manufacture - Mechanics and operation

UNIT – VIII: Leather Economics and Industrial Management

Hides and skins - Major markets and sources of supply from India and world - Structure and Distribution of Leather and allied Product industries in India and World - Leather Economics and Industrial Management - Cost volume profit relationship - break even analysis - Project feasibility reports - organization & management of leather sector - marketing and export of leather and products - Professional Ethics and human values.

UNIT – IX: Cleaner options in leather processing

Eco-friendly pretanning operations - Less chrome and chrome-free tanning systems - Formaldehyde, Phenol, AOX free post tanning systems - Aqueous finishing concepts and formulation; Other novel finishing techniques to reduce VOC- Latest concepts and trends in leather processing - Tannery Effluent treatment –Effluent treatment plant - Solid waste management

UNIT – X: Testing and Quality control

Water analysis - Analysis of leather chemicals – Analysis of process liquors - Physical and chemical testing of leathers - Standards and quality control measures in pretanning, tanning, post tanning and finishing - Chemical and physical properties required for various finished leathers.