

Leather Technology

DIPLOMA STANDARD

UNIT I :-

Hides and skins classification - defects in hides and skins - antemortem and postmortem defects - objects of - various methods of curing - basic principles involved in pretanning process - soaking - lining - delining - pickling - depickling - degreasing - principles of tanning - objects of tanning - vegetable tanning - chrome tanning - alum and aldehyde tanning - oil tanning - methods of various process - post tanning processes and mechanical operations carried out in tannery - neutralization - dyeing - fat liquoring - finishing.

UNIT II :-

E.I tanning of Hides and skins - manufacturing of wet blue from hides and skins - assortment of hides and skins - manufacture of sole leathers - water proofing of sole leathers - defects in sole leathers - manufacture of harness leathers - saddlery leathers upholstery leathers - khettai leathers - properties and manufacturing methods of belting leathers - picking sand leathers - industrial, wicket keeper and batting gloves - production of parchments and their uses - hydraulic and mechanical leathers - oil seed leather - sports goods leathers - cricket ball - hockey ball and football leathers - principles of different tanning and post tanning techniques adopted in light leather production - manufacture of lining - Uppers - glazed hid - aniline and semi aniline leathers - production of Suede garment and nappa garment leathers - glove leathers- chamois leather - fur skins fancy leathers - Nuback leathers - transfer foil technique - two tone techniques - oil pull up leathers - Burnish leathers - patent leathers - upgradation of split leathers.

UNIT III :-

Histology and Anatomical structure of Hides and skins - cow, buff, goat and sheep - chemical constituents of Hides and skins - brief study of various fibrous and non fibrous proteins, reactions of protein with acids and bases - Zwitter ion concept - Iso electric point - thermal shrinking - chemistry and principles of different pretanning processes - vegetable tanning - occurrence and classification - chemistry of hydrolysable tannings - condensed tannings study of various vegetable tanning materials - factors involved in vegetable tanning - theory and mechanism of vegetable tanning - systems - their classification - properties and application of syntans - oil tanning - theory and mechanism of oil tanning - combination Tannages - chemistry and mechanism of combination tannages - semichrome and semi alum - chrome retanning - formaldehyde - and combination tannages - object and necessity of each unit operation in manufacture of semichrome leathers - shipping - bleaching - souring - degreasing.

UNIT IV :-

Chemistry of chromium complexes - preparation of chrome liquors - Werner's coordination theory of chromium complexes - basicity - olation - oxalation - factors affecting chrome tanning - mechanism of chrome tanning - alum tanning - chemistry of aluminium salts - theory and mechanism of alum tanning - chemistry and mechanism of formaldehyde tanning - Neutralization process for various types of leathers - Dyes - Definition - Classification - Application and properties of different types of dyes - theory and practice of colour matching - practical aspects of leather dyeing - theory and mechanism of dyeing - chemistry and application of auxiliaries such as levelling agent, wetting agents, dispersing agents and dye fixatives - principles of fat liquoring process - properties, study and application of various fat liquors like anionic, cationic, multi charge fatliquors- study of salphoated, sulphited, and bilsulfited fat liquors - mechanism of fat liquoring-drying of leathers-principles - drying methods - their merits and demerits - principles of leather finishing- classification of finishes-leather finishing materials - pigments - binders - plasticizers -wax emulsion and their applications - top coat formulation - lacqure -emulsions - application of finishing auxillaires such as fillers, matting agents etc.,

UNIT V :-

Anatomy of human foot - arches of the foot and their functions - common foot abnormalities - foot parameters - sizing systems - Tools and material requirements for shoe construction - Leathers , lase,

thread and adhesives - Basic concepts of design and pattern cutting - grading -cutting methods different types of upper materials and their selection - pre closing operations - clicking, splitting, skiving Edge Treatment etc. various methods of upper closing - Methods of lasting - Attachment of bottom components - quality control - Inspection - Boxing and labelling - classification of leather goods - Types of materials used to manufacture different types of Leather goods - Lining - Reinforcement - Threads - adhesives - Accessories - study related to the manufacture of coin purse - gents wallet - Ladies Handbag - suitcases - study of important sports goods viz. Foot ball, Volley ball, cricket ball and Hockey ball - cost calculation for various types of leather goods - Inspection and quality control aspects in various stages of Leather goods manufacture.

UNIT VI :-

Principles of material testing - Types of water complete Analysis of water - Analysis of curing materials - Lime _sodium sulphide - Delining Acids and salts - Analysis of Bate - Analysis of pickle liquor - Analysis of vegetable tanning materials and extracts - Analysis of chrome liquor - Analysis of oils and fats. Different types of microscopes - Part of compound microscope - setting up of a microscope - slide preparation Anatomical study of Hides and skins - Grain pattern of Hides and skins - microscopic assessment of leather - fundamentals of Bacteriology - preparation of various culture media - Moulds and their difference from Bacteria. Physical Testing - sampling and conditioning - physical tests to be conducted on various types of Leather viz Tensile, stich bear, tongue bear strength - strechiness - grain crack and bursting strength - compressability and resilience test - Hydro thermal stability - Abrasion resistance - water proofness - Flextural Endurance Test - Light fastness - Rub fasters - Real and apparent density - Air and water vapour permiability etc.,

UNIT VII :-

Location of Tannery - selection of site - Infra structural facilities required - lay out of different sections of Tannery construction of pit, provision for sewage, channels and effluent, treatment plant - Tannery Machines - General construction and working of various Drums - Paddles - working of various processing machines used in Tanneries, such as unhairing, fleshing setting, splitting, shaving, staking, Buffing, Glezine machines and embossing press. Principles of scientific management - Functions of Management Principles of time study - Elements of production control - forecasting - Planning - Routing - Scheduling - Despatching - capital costs and Description - Estimation of capital cost - Manufacturing costs and working capital - preparation of profit loss account - Forms of Business organisation - sole proprietor - partnerships - joint stock companies - marketing - sales management - function of sales management - product research - market research - sales provision - sales planning - sales animal by products - Types of Tannery by products - Their nature and composition - present methods of collection and utilization of animal by products - Types of Tannery Effluent - characteristics of effluents from Beem house process, Tanyard process and finishing yard process - suspended solid- Dissolved solid - B.O.D. and C.O.D. etc. and specification for discharge of treated effluent - methods of Treatment - General methods of primary and secondary treatments.