

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN TEXTILE PROCESSING TECHNOLOGY

SEMESTER: V

Subject Name: **Chemistry of Textile Auxiliaries**

Sr. No.	Course content
1.	General Introduction: 1.1 Definition of Textile Auxiliaries. 1.2 History of development of Textile Auxiliaries. 1.3 Selection of Textile Auxiliaries. 1.4 Classification of Textile Auxiliaries. 1.5 Advantages of Textile Auxiliaries.
2.	Chemistry and Synthesis of Surface Active Agents: 2.1 Definition of surface active agents. 2.2 Classification of surface active agents. 2.3 Principles of surface activity. 2.4 Theory of surface activity. 2.5 Angle of contact. 2.6 Essential requirements of a surfactant. 2.7 Anionic surfactant . (a) Different types of Anionic surfactants. (b) Applications of Anionic surfactants. 2.8 Cationic Surface active agents. (a) Different types of Cationic surface active agents. (b) Applications of Cationic surface active agents. 2.9 Non-ionic surfactants. (a) Different types of Non-ionic surfactants. (b) Cloud points of Non-ionic surfactants. (c) Applications of Non-ionic surfactants. 2.10 Biodegradability of surfactants.
3.	Desizing, Scouring, Bleaching and Mercerising Auxiliaries: 3.1 Functions, Properties and Applications of wetting agents, Desizing agents, mild oxidizing agents, sequestering agents, rapid wetting agents, Mercersing wetting agents, stain removers etc.
4.	Dyeing Auxiliaries: 4.1 Functions, Properties and Applications of wetting and penetrating agents, dispersing agents, leveling agents, sequestering agents, anti-foaming agents carriers or accelerators, migration inhibitors, dye fixing agents, after-washing agents, stripping agents etc.

5.	Printing Auxiliaries: 5.1 Functions, Properties and Applications of thickeners, wetting agents, solution aids, Solvents, Hygroscopic agents, Antifoaming agents, Oxidizing and Reducing agents, Carriers and swelling agents, Binders & fixers, Detergents, Dye fixing agents, Sequestering agents etc.
6.	Finishing Auxiliaries: 6.1 Functions, Properties and Applications of Stiffening agents, Cross linking agents, Optical Brightening Agents (OBA), Softeners, Wax Emulsions, Silicone Emulsions, Water repellants, Water proofing agents, Flame retarding agents, Antistatic agents, Soil release agents, Anti-pilling agents, Mothproofing and Rot- proofing agents, Anti-microbial agents.
7.	Methods of Evaluation of Textile Auxiliaries: 7.1 Evaluation of wetting agents. 7.2 Evaluation of leveling agents. 7.3 Evaluation of carriers. 7.4 Evaluation of optical brightening agents (OBA). 7.5 Evaluation of printing gums. 7.6 Evaluation of dye fixing agents. 7.7 Evaluation of softeners. 7.8 Evaluation of cross linking agents. 7.9 Evaluation of water repellants. 7.10 Evaluation of flame retarding agents. 7.11 Evaluation of soil release agents. 7.12 Evaluation of anti-pilling agents. 7.13 Evaluation of anti-static agents.
8.	Recent Development: 8.1 Brief study of various eco-friendly textile auxiliaries. 8.2 Brief study of various Speciality Chemicals.
9.	Practicals: (1) To evaluate efficiency of a given sample of wetting agent and detergent. (2) To evaluate efficiency of a levelling agents. (3) To evaluate efficiency of carriers for dyeing of polyester with disperse dye. (4) To evaluate efficiency of exhausting agent for dyeing of direct and reactive dyes. (5) To find out moisture content of a detergent. (6) To find out cloud point of a non-ionic detergent. (7) To find out solid content of a given finishing auxiliaries. (8) To find out ionic nature of a given softeners. (9) To evaluate water repellents for their water repellency. (10) To evaluate efficiency of a given softeners. (11) Evaluation of printing gums for : (i) Colour aspects, (ii) Moisture content, (iii) pH (iv) Free alkali, (v) Ash content, (vi) Viscosity (12) To find out ionic nature of a surfactant

Reference Books:

Sr. No.	Name of Books	Authors
1.	Chemistry of Textile Auxiliaries (Vol. V)	Prof. V. A. Shenai
2.	Textile Auxiliaries and Finishing Chemicals	A. A. Vaidya & S. S. Trivedi (ATIRA)
3.	Evaluation of textile Chemicals (Vol. VIII)	Prof. V. A. Shenai & R. H. Mehra
4.	Surfactants in Textile Processing	A. Datyner