



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
Generic Elective for PG Courses
(2021-2023)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MTTX505	GE	TECHNICAL TEXTILES	60	20	20	-	-	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C – Credit.

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. To provide the knowledge about the technical textiles along with technical fibers, technical yarns, and technical fabrics.
2. To provide the knowledge about the application of technical textiles in the filtration, geo textiles, medical textiles, protective textiles, etc.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills, and attitudes. The students will be able

1. To explain the requirements of technical textiles products.
2. To explain the different types of technical textile product and their applications in different domains.

Syllabus:

Unit-I Technical Textiles Overview

10 HRS

Technical Textiles Overview: Definition, Market overview, Classification, Application, Future scope to textile industry. High Performance Fiber in Technical Textiles: Requirement and application of high performance fibers such as carbon, Aramid, Basalt, HDPE, Glass, PTFE, Ceramics etc.

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Unit-II Yarns for Technical textiles

9 HRS

Requirements and applications of technical yarns, Types of technical yarns, Modification of textile yarn structures for functional applications, Different formation methods, Hybrid yarns, technical sewing threads.

Unit-III Fabric for Technical Textiles

10 HRS

Technical Fabric Structure: Triaxial Weaves, Warp Knitting, Nonwoven Manufacturing: Overview of nonwovens, Definitions of nonwovens, Basic nonwoven processes and their sequences., Web formation techniques, types of web bonding, application of non-woven fabric in different applications.

Unit-IV Composites

7 HRS

Composites: Composite materials, Textile reinforcement, Basic mechanics of composite reinforcement, Application of textile reinforced composites.

Unit-V Application of Technical Textiles

9 HRS

Filtration: Dry filtration, wet filtration, characterization method of filter media, Application of different filter media, Geo-textiles: Application of geo textiles for drainage application, separation application, soil reinforcement and filtration and erosion control. Medical Textiles: Surgical Textiles, Dialysis Textiles, Hospital Textiles, Protection Textiles: Fire protection, thermal and electrical insulation, Waterproof breathable materials, Industrial Textiles: Conveyor belts, power transmission belts, hose, etc.

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Textbooks:

1. Handbook of Technical Textiles, Edited by A. R. Horrocks and S. C. Anand, CRC Press, 2000.
2. Technical Textile Yarns, Edited by R. Alagirusamy and A. Das, Woodhead Publishing Limited, 2010.
3. Handbook of Nonwovens, Edited by S. J. Russell, Woodhead Publishing Limited, 2007.

References:

1. Technical Textiles, P. A. Khatwani and S. S. Yardi, NCUTE Programme Report, 2002.
2. High Performance Fibers, Edited by JWS Hearle, Woodhead Publishing Limited, 2001.
3. Handbook of Medical Textiles, Edited by V. T. Bartels, Woodhead Publishing Limited, 2011.
4. Progress in Textiles: Science & Technology (Vol: 3), Edited by V. K. Kothari, IAFL Publications, 2009.

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