Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Tech (Common for all Engineering branches)

(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*				
MTRM301	AECC	Research Methodology in Engineering	60	20	20	0	0	3	1	0	4

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. The course has been developed with orientation towards research related activities and recognizing the ensuing knowledge as property.
2. To analyze and evaluate research works and to formulate a research problem to pursue research.
3. To develop skills related to professional communication and technical report writing.

Course Outcomes:

At the end of the course, students will demonstrate their ability to:

1. Understanding and formulation of research problem.
2. Apply quantitative and qualitative methods used in engineering research.
3. Analyze interpret and evaluate data that relate to engineering problems.
4. Develop skills related to professional communication, technical report writing and publishing papers.
5. Act professionally, autonomously, ethically and in teams to produce a professional product.

Syllabus

Unit-I

Introduction to Research Methodology: - An overview of Research process, Types of research; Approaches to research, Importance of criticism in Literature review, identifying research gaps; Formulation of research problem; Research design,

Data: Primary and secondary data-sources, advantages/disadvantages; Sampling and primary data collection, sampling size, random and structured sampling

Chairperson	Chairperson	Controller of Examination	Joint Registrar
Board of Studies	Faculty of Studies		
Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Tech (Common for all Engineering branches)

(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*				
MTRM301	AECC	Research Methodology in Engineering	60	20	20	0	0	3	1	0	4

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.

Unit-II

Measurement and Scaling Techniques: - Types of scales, Criteria for good measurement, Attitude measurement - Likert's scale, Semantic differential scale, Thurstone-equal appearing interval scale.

Statistical Tools for Data Analysis: - Measure of central tendency, Measures of dispersion, Correlation and Regression, Formulation of hypothesis, Type I & Type II error, Parametric test, non-parametric test.

Unit-III

Research Methods I - Use of computer software in research and understanding the limitations. Multi-attribute decision making methods, Data envelopment analysis, Grey relational analysis etc., Multidisciplinary research problems, Synthesis of disciplinary research findings; Reliability and sensitivity analysis.

Unit-IV

Research Methods II - Modeling and simulation of engineering problem; Mathematical modeling-formulation, calibration, validation, application; measurement design – validity, reliability, scaling and sources of error. Mathematical programming methods, Numerical analysis, Optimization techniques, Design of laboratory experiments and field tests.

Unit-V

Academic Writing Skills and Presentation - Layout of a Research paper, research report, Thesis structure, Impact factor of Journals, Ethical issues related to publishing, Plagiarism and Self-Plagiarism. Reference Management Software like Mendeley, Software for paper formatting like LaTeX/MS Office, Software for detection of Plagiarism. Guidelines on how to write research papers. Content of Poster presentation, Power point presentation, Oral presentation

Chairperson Board of Studies Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	**Chairperson** Faculty of Studies Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	**Controller of Examination** Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	**Joint Registrar** Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Choice Based Credit System (CBCS) in Light of NEP-2020

M. Tech (Common for all Engineering branches)

(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*				
MTRM301	AECC	Research Methodology in Engineering	60	20	20	0	0	3	1	0	4

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.

Text Books -

1. C.R. Kothari, 2012. Research Methodology Methods and Techniques, 3/e, Vishwa Prakashan,
2. Montgomary, Douglas C., 2007. Design and Analysis of Experiments (Wiley India).
3. Chawla, D. and Sodhi, N., 2011. Research methodology: Concepts and cases. Vikas Publishing House.

Reference:

1. Donald H.McBurney, "Research Methods", 5th Edition, Thomson Learning, ISBN: 81-315-0047.
2. Donald R. Cooper, Pamela S. Schindler, "Business Research Methods", 8/e, Tata McGraw-Hill Co. Ltd.,
3. Timothy J. Ross, "Fuzzy Logic with Engg Applications", , Wiley Publications, 2nd Ed[d]
4. Thiel D.V. "Research Methods for Engineering", Published by Cambridge University Press, UK
5. P.J. van Laarhoven & E.H. Aarts, "Simulated Annealing: Theory and Applications" (Mathematics and Its Applications).

Chairperson Board of Studies Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	**Chairperson** Faculty of Studies Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	**Controller of Examination** Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	**Joint Registrar** Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri VaishnavVidyapeethVishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Tech. in Textile Engineering
(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*				
MTTX201	DCC	NONWOVEN SCIENCE AND ENGINEERING	60	20	20	0	0	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 Objective (CEOs):

The students will be able to get the basicknowledge about principle of manufacturing and applications of nonwoven materials to the extent of their technical use.

Course Outcomes (Cos):

Students will be able to:

1. Understand the manufacturing process of nonwovens.
2. Illustrate basic knowledge about the various bonding process of nonwoven fabrics.
3. Illustrate basic knowledge about the various finishing process of nonwoven fabrics.

Syllabus

UNIT I INTRODUCTION TO NONWOVENS **10 HOURS**

Introduction to nonwovens, Materials used in nonwovens, fiber description considerations, properties of nonwoven fabric produced using different fibrous matter.

UNIT II BONDING AGENTS USED IN NONWOVENS **8 HOURS**

Bonding agent used in nonwovens; properties desired in bonding agent. Classification and areas of application of nonwoven fabrics,General production steps for nonwoven fabric manufacturing.Dry bonded fabric production steps, spun bonded fabric production steps, wet bonded fabric production steps.

UNIT III PRINCIPLES OF NONWOVEN PROCESSES **9 HOURS**

Principles of nonwoven processes: web formation processes. Types of webs and their forming techniques, staple fibre web – dry-laid web and wet laid web, continuous fibre web – spunlaid web and melt blown web.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri VaishnavVidyapeethVishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Tech. in Textile Engineering
(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*				
MTTX201	DCC	NONWOVEN SCIENCE AND ENGINEERING	60	20	20	0	0	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

UNIT IV BONDING OF NONWOVENS **12 HOURS**

Mechanical and Thermal bonding processes, needle punch, spun bond and spunless processes, hydro entanglement and chemical bonding processes etc

UNIT V FINISHING OF NONWOVENS **7 HOURS**

Finishing of nonwoven fabrics – calendaring and pressing, water repellent finish, antistatic finish, antimicrobial finish, flame retardant finish and soil release finish.

References:

1. Spencer D J, "Knitting Technology", 2nd Ed., Pergamon Press, 1989.
2. Lunenschloss J and Albrecht W, "Non-Woven Bonded Fabric", Ellis and Horwood Ltd., UK,1985.
3. Albrecht W, Fuchs H & Kittelmann, "Nonwoven Fabrics", Wiley-VCH Weinheim, 2003.
4. Mrstina V & Fejgal F, "Needle punching textile technology", Elsevier, 1990.
5. Krcma Radco, "Manual of nonwovens", Textile Trade Press, UK,1971
6. Gulrajani M L, "Book of Papers of International Conference on Nonwovens", The TextileInstitute, UK, 1992

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri VaishnavVidyapeethVishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Tech. in Textile Engineering
(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*				
MTTX202	DCC	ENGINEERING OF TEXTILE STRUCTURE	60	20	20	0	0	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 Objective (CEOs):

Student will get knowledge on the theoretical aspect of the geometrical configuration of yarn and fabric and designing of new yarn and fabric structures to the extent of R&D purpose.

Course Outcomes (Cos):

Students will be able to:

1. Indentify and analyze the complex behaviour of yarn structure.
2. Apply knowledge to explain the tensile behaviour of the yarn .
3. Understand the fundamentals of fibre migration.
4. Illustrate basic knowledge about the physical properties of yarn and fabric.

Syllabus

UNIT I Yarn Geometry

Yarn diameter and count, density, specific volume, Yarn count and twist Factor, Twist Angle and helix angle, twist contraction and retraction packing of fibers and packing fraction, close packing and open packing of fibres, optimum level of twist. Problem solving of various

UNIT II YARN TWIST AND ITS EFFECTS

Effect of twist on yarn strength, Stress-stain curve, Young's modulus, tenacity, RKM etc. Ideal yarn geometry assumptions various relationship and related calculation, mechanics of yarn structure, tensile behavior of staple yarn, and tensile behavior of continuous filament yarn, low strain and large stain model.

UNIT III MIGRATION PROPERTIES

Migration of fibre**,** Migration factors controlling and effect of migration in yarn structure, Morton's view of fiber migration in yarn. Various models examples and solutions.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri VaishnavVidyapeethVishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Tech. in Textile Engineering
(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*				
MTTX202	DCC	ENGINEERING OF TEXTILE STRUCTURE	60	20	20	0	0	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

UNIT IV CLOTH SETTING THEORIES

Woven cloth setting theories, elements of woven fabric geometry- ends and picks count cover factor, crimps and weight. Cover factors and its relations with fabric weight.

UNIT V FABRIC GEOMETRY

Pierce's simple geometry of plain weave, derivation of basic equations, practical application of cloth geometry, crimps interchange, fabric assistance. Drape of fabric and drape coefficient.

References:

1. Pierce paper on fabric geometry
2. Textile yarn- Grosberg
3. Textile yarn- Technology, Structure and Application – B.C. Goswami, Martindale, Scardino
4. Structural Mechanics of Fibers , Yarns & Fabrics - Hearl , Grosberg & Backer
5. Textile Manufacturing – M.G. Kulkarni

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri VaishnavVidyapeethVishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Tech. in Textile Engineering
(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*				
MTTX203	DCC	ADVANCES IN MANUFACTURED FIBRES	60	20	20	0	0	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 Objective (CEOs):

Student will achieve the knowledge of all man made fibres with the working principle, construction, applications of high performance fibres to the extent of their practical applications.

Course Outcomes (Cos):

Students will be able to:

1. Understand the various spinning process of fibres.
2. Apply knowledge to solve problems occurred at the time of manufacturing of fibres.
3. Understand the fundamentals of hollow and bicomponent fibres .
4. Apply their knowledge in development of new fibre product.

Syllabus

UNIT I DIFFERENT FIBRE SPINNING SYSTEMS 8 HOURS

General definition of manmade or manufactured fibres, melt spinning, dry spinning, wet spinning, solution spinning and gel spinning. Extruder design, spin head, spinneret, quench chamber. Spin finish application, wind up mechanism.

UNIT II PRODUTION TECHNIQES AND PROPERTIES OF NEW FIBRES 10HOURS

Production techniques and properties of aromatic polyamides & polyesters, Rigid rod and ladder polymers such as Kevlar, Nomex, BBL, PBZT, PBO, PBI, Manufacturing of carbon fibres from PAN precursors, viscose and pitch fibres, Liquid crystal fibres, High performance polyethylene fibres, Ceramic fibres,

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri VaishnavVidyapeethVishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Tech. in Textile Engineering
(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*				
MTTX203	DCC	ADVANCES IN MANUFACTURED FIBRES	60	20	20	0	0	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

UNIT III SPECIALITY FIBRE **10HOURS**

Introduction to new developments. Other fibres including PU, PVA, PE, PVC and polyvinylidene chloride. Primary and secondary variables and their effect on melt spinning. High speed spinning, spinning of microfibre,

UNIT IV PROFILE FIBRE **7 HOURS**

Profile fibres, hollow & porous fibres, spandex fibres; Biodegradable fibres, polylactic acid fibres, chitosan fibres, their preparation properties and applications;

UNIT V BICOMPONENT FIBRE **10HOURS**

Bicomponent fibres, blended fibres; Fibres in medicine and biotechnology; Aesthetic fibres, bio-mimicking fibres; Membranes; Smart fibres; Comfort fibres; Fibres for Ballistic protection; Photochromatic fibres.

References:

1. Vaidya A A, "Production of Synthetic Fibres", 1st Ed., Prentice Hall of India, New Delhi,1988.
2. Gupta V B and Kothari V K, "Manufactured Fibre Technology", 1st Ed., Chapman and Hall, London, 1997
3. Mark H F, Atlas S M and Cernia E, "Man Made Fibre Science and Technology", Vol. 1, 2, 3, 1st Ed., Willey Inter Science Publishers, New York, 1967.
4. Macintyre J E, "Synthetic Fibres", Woodhead Fibre Science Series, UK, 2003.
5. Fourne F, "Synthetic Fibres: Machines and Equipment, Manufacture, Properties", Hanser Publisher, Munich, 1999.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
Choice Based Credit System (CBCS) in the Light of NEP-2020
M.Tech.
(2021-2023)

COURSE CODE	CAT-EGO-RY	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*				
MTEE101		Matlab	0	0	0	30	20	0	0	4	2

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. Understand basic foundations of computer programming
2. Have a basic understanding of how engineers use computers to numerically solve programs.
3. Have a basic understanding of how to test and debug computer programs
4. Have the ability and an appreciation for good documentation of computer programs
5. Have a reasonably good knowledge of the MATLAB programming environment

Course Outcomes (COs):

1. Be reasonably proficient at writing computer programs using MATLAB
2. Be able to formulate computer algorithms and implement those algorithms in MATLAB
3. To solve engineering problems.
4. Be able to decipher MATLAB code written by others.
5. Be able to graphically present the output of computer programs in a well thoughtful manner

Syllabus

UNIT I **5 Hrs.**

Introduction: MATLAB basics, The MATLAB environment, Basic computer programming Variables and constants, operators and simple calculations Formulas and functions, MATLAB toolboxes.

UNIT II **5 Hrs.**

Matrices and vectors, Matrix and linear algebra review, Vectors and matrices in MATLAB, Matrix operations and functions in MATLAB.

UNIT III **6 Hrs.**

Computer programming Algorithms and structures, MATLAB scripts and functions (.m files), Simple sequential algorithms Control structures (if...then, loops).

Chairperson	Chairperson	Controller of Examination	Joint Registrar
Board of Studies	Faculty of Studies	Shri Vaishnav Vidyapeeth	Shri Vaishnav Vidyapeeth
Shri Vaishnav Vidyapeeth	Shri Vaishnav Vidyapeeth	Vishwavidyalaya, Indore	Vishwavidyalaya, Indore
Vishwavidyalaya, Indore	Vishwavidyalaya, Indore		

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
Choice Based Credit System (CBCS) in the Light of NEP-2020
M.Tech.
(2021-2023)

COURSE CODE	CAT-EGO-RY	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*				
MTEE101		Matlab	0	0	0	30	20	0	0	4	2

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.

UNIT IV **5 Hrs.**

MATLAB programming, Reading, and writing data, file handling, Personalized functions, Toolbox structure MATLAB graphic functions.

UNIT V **5 Hrs.**

Numerical simulations, Numerical methods and simulations, Random number generation, Monte Carlo methods

References:

Rudra Pratap, "Getting Started with MATLAB", Oxford Publication, 2010.

List of Experiments.

1. Practicing Matlab environment with simple exercises to familiarize command window, history, workspace, current directory, figure window, edit window, shortcuts, help files.
2. Data types, constants and variables, character constants, operators, assignment statements.
3. Control structures: for loops, while, if control structures, switch, break, continue statements.
4. Control Structures: For loops, While, if control structures, Switch, Break, Continue statements.
5. Input-Output functions, Reading and Storing Data.
6. Vectors and Matrices, commands to operate on vectors and matrices, matrix Manipulations.
7. Arithmetic operations on Matrices, Relational operations on Matrices, Logical operations on Matrices.
8. Polynomial Evaluation, Roots of Polynomial, Arithmetic operations on Polynomials.
9. Graphics: 2D plots, Printing labels, Grid & Axes box, Text in plot, Bar and Pie chart.
10. Study of Curve fitting and optimization techniques.

Chairperson	Chairperson	Controller of Examination	Joint Registrar
Board of Studies	Faculty of Studies	Shri Vaishnav Vidyapeeth	Shri Vaishnav Vidyapeeth
Shri Vaishnav Vidyapeeth	Shri Vaishnav Vidyapeeth	Vishwavidyalaya, Indore	Vishwavidyalaya, Indore
Vishwavidyalaya, Indore	Vishwavidyalaya, Indore		

Shri VaishnavVidyapeethVishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Tech. in Textile Engineering
(2021-2023)
MTTX 204 (Elective 2)

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*				
MTTX214	DSE	ADVANCED FABRIC STRUCTURE AND DESIGN	60	20	20	0	0	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 Objective (CEOs):

The student will be able to
understand and design compound fabric structures (like Double cloth, backed cloth, velve t structures, terry pile structures and leno structures) and jacquard designs as per specifica tions. They should be able to identify and differentiate simple and compound fabric structure accurately

Course Outcomes (Cos):

Students will be able to:

1. Make and develop new woven fabric design
2. Make Double cloth, backed cloth and velvet structures.
3. Solve technical problems related to compound fabric structures on the loom.
4. Provide suitable draft and pegplan for a given weave & utilise available resources for making designs.

Syllabus

UNIT I Absorbent Fabrics

Absorbent Fabrics: Method of preparation, features and uses of Diamond and Diaper Weaves, Honey comb weaves, Huck-a-back and Mockleno weaves.

UNIT II Types of yarn

Different types of yarn such as spun, filament, textured and fancy yarns and their impact on textile design. Concept of fabric designing through fabric structure

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri VaishnavVidyapeethVishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Tech. in Textile Engineering
(2021-2023)
MTTX 204 (Elective 2)

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*				
MTTX214	DSE	ADVANCED FABRIC STRUCTURE AND DESIGN	60	20	20	0	0	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.

UNIT III Jacquard design

Jacquard designing, Figured pile fabric, design ,draft and peg plan. Double Cloth : Definition, features, classification and uses. Method of preparation of self stitched and centre stitched double cloths, their salient feature and uses. Wadded double cloth.

UNT IV Stripe and Check Effects

Stripe and Check Weaves : Features, criteria for selection of weaves for combination, rules governing the joining of different weaves. Method of preparation and uses.

Colour and Weave Effect : Weave and colour combinations, features, method of preparation of Continuous line effect, Hounds tooth, Birds eye, Crows foot, Hair lines and Step pattern.

UNT V Weaving calculations

Calculations : Raw material calculations to produce different weaves. Technical specification of important fabrics.

References:

1 Nisbeth H, “Grammer of Textile Design”, 3rdedition, D B Tarapore Wala sons and Co., 1994.

2 Gokarneshan N, “Fabric Structure and Design”, New Age Inernational, New Delh

3 Grosicki Watsons ;Advance textile design.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri VaishnavVidyapeethVishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Tech. in Textile Engineering
(2021-2023)
MTTX 204 (Elective 2)

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*				
MTTX224	DSE	ADVANCED TEXTILE TESTING	60	20	20	0	0	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 Objective (CEOs):

Student will be able to understand the various advanced techniques available for textile yarns, fabrics and specialty yarn and fabrics testing and also asses the fabric and garment functional, aesthetic properties. They can know properties and application area of special fabrics like geo-textiles, protective textiles and medical textiles.

Course Outcomes (Cos):

Students will be able to:

1. Apply the advanced technology for fabric assessment and quality improvement
2. Evaluate and check the fabric for required garment products and quality
3. Find the cause and Suggest remedies for stitching defects
4. Make the fabric and garments for technical applications in goetextile, medical, defence, fire etc
5. Carry the test for special and non woven fabrics

Syllabus

UNIT I INNOVATION IN YARN TESTING INSTRUMENTS **12 HOURS**

Innovations in yarn testing instruments such as: dynamic and continuous testing of yarn quality during production process. High speed yarn strength measuring instrument like: Tenso-jet, Tenso-rapid Yarn testing.

UNIT II ADVANCED TESTING METHOD **10 HOURS**

Theory related to standard test methods. Analysis of data and test reports. HVI, AFIS, Uster Classimate yarn faults analysis, KES and FAST data.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri VaishnavVidyapeethVishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Tech. in Textile Engineering
(2021-2023)
MTTX 204 (Elective 2)

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*				
MTTX224	DSE	ADVANCED TEXTILE TESTING	60	20	20	0	0	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.

UNIT III GARMENT TESTING **8 HOURS**

Tests related to garment appearance and performance such as measurement of seam pucker, seams slippage, seam strength and drape of fabric. Testing of accessories zippers, fasteners and other accessories used in garment.

UNIT IV TESTING OF TECHNICAL TEXTILES **10 HOURS**

Testing of filtration characteristics related to apparent opening size(AOS), Geotextile fabric wide width tensile testing, Puncture resistance test(CBR), Test for protective clothing fire resistance and flammability test, moisture transmission through fabrics.

UNIT V SPECIAL TEST METHODS **8 HOURS**

Special tests like strength, abrasion resilience, for carpets and nonwoven fabrics.

References:

1. Physical Testing of Textiles, B P Saville, Woodhead Publishing Ltd, Cambridge, 2002.
2. Principles of Textile Testing, J E Booth, CBS Publishers and Distributors, New Delhi, 1999.
3. Textile Testing, P Angappan & R Gopalakrishnan, SSM Institute of Textile Technology, Komarapalayam, 2002.
4. Textile Testing, A. Basu, SITRA Coimbatore, 2002.
5. Testing and Quality Management, V. K. Kothari (Editor), IAFL Publications, New Delhi, 1999.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri VaishnavVidyapeethVishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Tech. in Textile Engineering
(2021-2023)
MTTX 204 (Elective 2)

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*				
MTTX234	DSE	WASTE MANAGEMENT AND POLLUTION CONTROL IN TEXTILE INDUSTRY	60	20	20	0	0	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 Objective (CEOs):

Students will be able to gain knowledge of different waste of textile industry and recognize the types of waste and its disposal process with exposure to recycling of waste material economically.

Course Outcomes (Cos):

Students will be able to:

1. Reproduce textile product by using textile spinning, weaving and processing waste.
2. Plan the processes involve reusing of textile waste and its application.
3. Project complete layout of textile waste and its eco friendly disposal process.
4. Show and tell that reuse of waste and this project is viable or not.

Syllabus

UNIT I SPINNING WASTE **11 HOURS**

Its generation, classification, its re-use and management. Soft waste, hard waste. Different types of pollution in spinning industry.

UNIT II Weaving waste **11 HOURS**

Its generation, different types, its re-use and management. Different types of pollution in weaving industry. Its impact on human being.

UNIT III Textile waste water characteristics **8 HOURS**

Chemical nature of discharged bath after each process, contribution of chemicals to the waste water load. Concept of biological and chemical oxygen demand. Textile waste water problem: Effect of waste-water on sewage and land.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri VaishnavVidyapeethVishwavidyalaya, Indore
Shri Vaishnav Institute of Textile Technology
Choice Based Credit System (CBCS) in Light of NEP-2020
M. Tech. in Textile Engineering
(2021-2023)
MTTX 204 (Elective 2)

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*				
MTTX234	DSE	WASTE MANAGEMENT AND POLLUTION CONTROL IN TEXTILE INDUSTRY	60	20	20	0	0	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.

UNIT IV Chemical used in textile industry **10 HOURS**

Toxicity of various chemicals, viz alkalis, oxidizing and reducing agents, acids, carriers, resins and bleaching agents etc. Role of each chemical on waste water load.

UNIT V Treatment of textile effluents **6 HOURS**

Primary, secondary and tertiary treatments in ETP. Colour remooval, various chemicals used in ETP.

Effluent Testing: Testing of BOD, COD, TOC and interforetalion of results.

References:

1. Asolekar S, "Environmental problems in chemical processing of textiles"1st Ed. NCUTE,Department of Textile Technology, IIT-Delhi, 2000.
2. Padma Vankar, "Textile Effluents" 1st Ed. NCUTE, Department of Textile Technology,IIT-Delhi,2002.
3. Edmund B, "The Treatment of Industrial Wastes" 2nd Ed. McGraw-Hill kogaskusha, New Delhi,1976
4. Peavy, Rowe and Tchobanoglous, "Environmental Engineering"2nd Ed. McGraw-Hill,Singapore, 1985.
5. Vaidya A A," Production of Synthetic fibres", Prentice-Hall India Ltd, New Delhi, 1988.

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore