



## Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

### ML307 ENVIRONMENTAL MANAGEMENT AND SUSTAINABILITY

SUBJECT CODE	CATEGORY	SUBJECT 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*				
ML-307	Compulsory	Environmental Management and Sustainability	60	20	20	0	0	4	0	0	4

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

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

#### Course Objective

1. To create awareness towards various environmental problems.
2. To create awareness among students towards issues of sustainable development.
3. To expose students towards environment friendly practices of organizations.
4. To sensitize students to act responsibly towards environment.

#### Examination Scheme

The internal assessment of the students' performance will be done out of 40 Marks. The semester Examination will be worth 60 Marks. The question paper and semester exam will consist of two sections A and B. Section A will carry 36 Marks and consist of five questions, out of which student will be required to attempt any three questions. Section B will comprise of one or more cases / problems worth 24 marks.

#### Course Outcomes

1. The course will give students an overview of various environmental concerns and practical challenges in environmental management and sustainability.
2. Emphasis is given to make students practice environment friendly behavior in day-to-day activities.

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### COURSE CONTENT

#### Unit I: Introduction to Environment Pollution and Control

1. Pollution and its types (Air, Water, and Soil): Causes, Effects and Control measures
2. Municipal Solid Waste: Definition, Composition, Effects
3. Electronic Waste: Definition, Composition, Effects
4. Plastic Pollution: Causes, Effects and Control Measures

#### Unit II: Climate Change and Environmental Challenges

1. Global Warming and Green House Effect
2. Depletion of the Ozone Layer
3. Acid Rain
4. Nuclear Hazards

#### Unit III: Environmental Management and Sustainable Development

1. Environmental Management and Sustainable Development: An overview
2. Sustainable Development Goals (17 SDGs)
3. Significance of Sustainable Development
4. Environment Friendly Practices At Workplace and Home (Three Rs' of Waste Management, Water Conservation, Energy Conservation)

#### Unit IV: Environmental Acts

1. The Water (Prevention and Control of Pollution) Act, 1974: Objectives, Definition of Pollution under this act, Powers and Functions of Boards
2. The Air (Prevention and Control of Pollution) Act, 1981: Objectives, Definition of Pollution under this act, Powers and Functions of Boards
3. The Environment (Protection) Act, 1986: Objectives, Definition of important terms used in this Act, Details about the act.
4. Environmental Impact Assessment: Concept and Benefits

#### Unit V: Role of Individuals, Corporate and Society

1. Environmental Values
2. Positive and Adverse Impact of Technological Developments on Society and Environment
3. Role of an individual/ Corporate/ Society in environmental conservation
4. Case Studies: The Bhopal Gas Tragedy, New Delhi's Air Pollution, Arsenic Pollution in Ground Water (West Bengal), Narmada Valley Project, Cauvery Water Dispute, Fukushima Daiichi Disaster (Japan), Ozone Hole over Antarctica, Ganga Pollution, Deterioration of Taj Mahal, Uttarakhand flash floods

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### Suggested Readings:

1. Rogers, P.P., Jalal, K.F. , Boyd, J.A.(Latest Edition) . **An Introduction to Sustainable Development.** Earthscan
2. Kalam, A.P.J. (Latest Edition) .*Target 3 Billion: Innovative Solutions Towards Sustainable Development.* Penguin Books
3. Kaushik , A. and Kaushik (Latest Edition).*Perspectives in Environmental Studies.* New Delhi: New Age International Publishers.
4. Dhameja, S.K. (Latest Edition). *Environmental Studies.* S.K. Kataria and Sons.New Delhi
5. Bharucha,E. (Latest Edition). *Environmental Studies for Undergraduate Courses.* New Delhi: University Grants Commission.
6. Wright, R. T. (Latest Edition). *Environmental Science: towards a sustainable future* .New Delhi: PHL Learning Private Ltd.
7. Rajagopalan, R. (Latest Edition). *Environmental Studies.* New York: Oxford University Press.

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## Name of Program: B.TECH (Textile Engineering)

SUBJECT CODE	CATEGORY	SUBJECT 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*				
BTTX301	DCS	FIBRE SCIENCE - I	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. To provide the knowledge of principle and manufacturing process of natural and manmade fibre.
2. To impart the knowledge of various properties of different natural and manmade fibre.
3. To expose the knowledge of structural properties of fibre.

### Course Outcomes (COs)

Student will be able:

1. To explain the correct manufacturing process of various natural and manmade fibre.
2. To identify and evaluate the properties of different natural and manmade fibre accurately.
3. To demonstrate their knowledge on various fibres and their properties.

### Course Contents:

#### Unit I

General classification of fibres. Structure, properties and uses of cotton. Structure, properties and uses of bast fibers, Structure, properties, uses and brief description of wool and silk fibres.

#### Unit II

Basic concept of polymer, their classification, methods of polymerization, molecular weight and its measurement, distribution and importance.

#### Unit III

Manufacturing process of all important man-made fibres e.g. rayon, nylon, polyester, acrylic, poly-olephins etc. with special reference to melt, dry and wet extrusion principle. Idea about the physical and chemical properties (influence of chemical constituents and different groups present) of above mentioned fibres and their uses.

  
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## Unit IV

Problems associated with man-made fibres and their methods of rectification. Structure of fibres- basic requirements for fiber formation, concept of order and morphology, molecular packing in crystalline and amorphous regions,

## Unit V

Physical structure of principal natural and man-made fibers. Study of fiber structures & methods of investigating fiber structures e.g. X-ray diffraction, optical and electron microscopy, I R absorption, thermal methods NMR.

## References:

1. **Fibre Science** - Shennai VA
2. **Synthetic Fibre** – Vaidya A A
3. **Manufactured Fibre Technology** - Gupta & V. K. Kothari
4. **Physical Properties of Textile Fibre** - Morton & JWS Hearle
5. **Introduction to Textile Fibre** - Murthy H V S
6. **Fibre Science and Technology** – Ghosh TMH
7. **Man made Fibres** - Moncrieff
8. **Textile Science** - Gohl and Vilensky LD
9. **Polymer Science and Technology** - Fried JR
10. **Advances in Fibre Science** - Mukhopadhyay SK
11. **A text book of Fibre Science & Technology** - Mishra S P
12. **Fibre Science & Technology** - Jayaprakasam et.al
13. **Fibre to Fabric** - Corbman
14. Fibre2fashion(web)

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			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX302	DCS	YARN MANUFACTURING - I	60	20	20	30	20	3	1	2	5

**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 identify and evaluate the processing of various fibres on B/R & Cards.
2. To demonstrate their conceptual knowledge to solve the problem in B/R and Card.
3. To investigate the reasons of various problems and their solution in B/R and Card.

### Course Outcomes (COs)

Student will be able

1. To apply their knowledge on the production, processing of various fibers and analyse the problem of various faults occurring in B/R and carding m/c.
2. To apply their knowledge for setting of m/c on the various fibers
3. To solve the reason of various problems and their solution in B/R m/c.
4. To solve the reason of various problems and their solution in carding m/c.

### Course Contents:

#### Unit I

Ginning of cotton fibers, Different types of ginning, roller ginning, saw ginning and importance of the ginning to eliminate the contamination in the yarn, the scenario of Indian ginning industries.

#### Unit II

Blow Room, Objects of blow room. Principles of opening , cleaning and blending . Preparation of uniform lap, principal of blow room machines and blow room lines , recent developments in blow room machinery including automatic bale openers , blenders and chute feed systems, optical color material detectors, dust removal etc. Assessment of blow room performance, environmental condition, man-made fibre processing.

  
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## Unit III

Calculation of blow room production, Process parameters of different machines for different materials, Different settings and speeds, General idea of defects and remedies in blow room, Maintenance schedule and important supervisory check points at blow room.

## Unit IV

Carding – Object of carding, principles of working, construction and working of different parts of the card, type of card clothing, Developments of card wires. Development of modern cards-concept of chute feed, factors influencing the design of carding machines, elements and effect of their speed on carding performance. General idea of speed, setting and their impact on both natural and man – made fibre processing. Assessment of card performance – cleaning efficiency, waste %, production, draft etc. and quality aspects of carded material. Environmental condition, Concept of coiling, General idea of defects and remedies in card.

## Unit V

Characteristics of manmade fibres, blending and objectives, types of blending, processing of manmade fibres in blow room and carding and calculation related to material selection, Idea of fibre distribution in yarns, factors affecting the blend irregularity, Processing of dyed fibres, difficulties in blow room and carding.

## List of Practical (Expand it if needed):

1. An elaborate study of blow room and carding machine.
2. Constructional details, setting & gauging blow room and carding machine.
3. Controls & change position in blow room and carding machine.
4. Calculations of speeds, drafts, production of blow room and carding machine.

## References:

1. Manual of cotton Spinning Vol. I, II. - Text Inst.
2. Element of Raw Cotton and Blow room - Khare A R
3. Elements of Carding and Drawing - Khare A R
4. Processing of Manmade and blends on Cotton System. - Salhotra K R
5. Cotton opening and picking - Gilbert Merrill
6. Cotton carding - Gilbert Merrill
7. Technology of Short Staple Spinning - Klein
8. Practical guide to opening and carding - Klein
9. Spun Yarn Technology, Vol. I Blow room - Venkatasubramani
10. Spun Yarn Technology, Vol. II Carding - Venkatasubramani
11. Essentials of Practical Cotton Spinning - Pattabhiram
12. High Speed Carding & Continuous Card Feeding - Szaloki Z S
13. Technology of Carding - Chattopadhyay R
14. Spinning Processing Methods of Man Made Fibers - Pattabhiram T K

  
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			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX303	DCS	FABRIC MANUFACTURING - I	60	20	20	30	20	3	1	2	5

**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 describe the working principles of different winding, warping and drawing in process
2. To correctly describe the working principles of sizing m/c.
3. To identify and prepare size paste recipes for natural and synthetic yarns.

### Course Outcomes (COs):

Student will be able:

1. To describe the working principles of different winding m/c and prepare cone or cheese as per the required quality and specifications.
2. To describe the working principles of different warping m/c and prepare warp beam as per the required quality and specifications.
3. To describe the drawing in process.
4. To identify and will prepare size paste recipes for natural and synthetic yarns correctly.

### Course Contents:

#### Unit I

Object of Winding, classification of winding machines. Different types of Winding machines their uses and limitations, tensioning devices, yarn clearers Types and features classification of yarn faults, yarn traversing devices, yarn stop Motion, ribbon formation causes and method of its elimination. Passage of yarn on slow speed and high speed automatic winding machines. Different features of Automatic high speed winding machines, splicing- mechanism and advantages, Related calculations.

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## Unit II

Weft Winding - different types, yarn guides and traverse , yarn tension control and Yarn stop motion , auto doffing, bunching, package length and diameter, package Build, winding and binding coil ratio.

## Unit III

Object of warping, classification of warping machines beam warping and sectional Warping measuring motion, stop motions, yarn tensioning, creel types and features, Leasing and beaming, Features of modern high speed warping machines.

## Unit IV

Objects of sizing, method of size preparation, details of slasher sizing and multicylinder sizing machines size ingredients detailed study of various drying systems, measuring and marking motion, drive, and modification of size box, size level control, size viscosity and take-up, moisture, stretch and tension control.

## Unit V

Drawing-in: Manual, automation, knotting and gaiting, Calculations, production, efficiency and waste related to winding and warping processes, Maintenance of the machines studied.

### List of Practical (Expand it if needed):

1. Study of cheese & cone winding m/c,
2. Winding tensions and yarn clearer gauge Levels,
3. Details study of non automatic weft winding machines.
4. Detail study of Warping, adjusting points and Drawing-in operations
5. Detail study of sizing machines.

### References:

1. Winding & Warping - Talukdar M K
2. Modern Preparation and Weaving Machinery - Ormerod A
3. Warping & Sizing - BTRA Silver Jubilee Monograph Series
4. Winding - BTRA Silver Jubilee Monograph Series
5. Weaving Calculation - Sengupta
6. Weaving Technology and Operations - Ormerod & Walter S. Sondhelm

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Name of Program: B.TECH (Textile Engineering)

SUBJECT CODE	CATEGORY	SUBJECT 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*				
BTTX304	DCS	TECHNICALTEXTILES – I	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. To provide the knowledge about the required properties and manufacturing process of Filter fabrics.
2. To trace the physical and mechanical properties of tire cords.

## Course Outcomes (COs):

Student will be able:

1. To explain the essential requirements of sewing threads.
2. To solve the problems occurred during manufacturing of high performance fibres.
3. To develop the different structure of tire cord & Filter fabrics.
4. To analyze the physical and mechanical behavior of tire cords.
5. To explain the principle & manufacturing process of filter fabrics.

## COURSE CONTENT

### Unit I

**Technical Textiles Overview:** Definition, Market overview, Classification, Application, Future scope to textile industry.

### Unit II

Applications of High Performance Fiber in Technical Textiles: Conventional fibers, high performance fibers, properties, requirement, application of carbon, Aramid, Basalt, HDPE, Glass, PTFE, Ceramics etc.

### Unit III

**Technical Yarns:** 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.

  
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## Unit IV

**Non woven:** Overview of nonwovens, Definitions of nonwovens, Basic nonwoven processes and their sequences. Web formation techniques, types of web bonding, application of non woven fabric .

## Unit V

**Filtration:** Types of filtration, dry filtration, wet filtration, characterization method of filter media, application of different filter media.

## Reference books:

1. **Technical Textiles** - NCUTE Programme Report 2002 - Prof. P.A.Khatwani, S.S.Yardi
2. **Advances in Fibre Science** - S. K. Mukhopadhyay Composite Technologies - Stuart M. Lee
3. **Hand book of nonwovens**, S. J. Russell, Woodhead 2007
4. **Handbook of Technical Textiles**, Anand
5. **Progress in Textile- Volume 3: Technical Textiles** Edited by V.K Kothari
6. **Technical Textile Yarns, 1st edition** , edited by Prof Alagirusamy Apurba Das

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			THEORY			PRACTICAL		L	T	P	CREDITS
			University Exam	Two Term Exam	Teachers Assessment*	University Exam	Teachers Assessment*				
BTTX305	DCS	CAD IN TEXTILE	0	0	0	0	50	0	0	2	1

**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 preliminary functions of CAD in Textile
2. To impart conceptual knowledge for the Industry as a Fabric Designer.
3. To understand fabric structure, figure designing for mass production.

## Course Outcomes (COs)

Student will be able:

1. To apply their knowledge on the various functions of the CAD in textile
2. To make different Fabric designing
3. To identify the fabric making process, print designing for fabric.
4. To use their knowledge for different tools of CAD in Textile

## List of practicals (Expand it if needed):

1. To Study woven structure
2. To study colour and weave effect
3. To Study Installation of CAD software
4. To Study Various menu commands
5. To prepare design on doobby CAD software with proper parameters and color effects. Take a printout.
6. To manage doobby design library with twill and honey comb.
7. To manage doobby design library with huck a back design.
8. To draw figured pattern on graph paper and apply to Jacquard CAD software with proper parameters and color effects. Take a printout.
9. To manage jacquard design library with same figure to different weave.
10. To draw figured pattern on graph paper and apply to printex CAD software with proper parameters and color effects. Take a printout.
11. To manage printex design library with different yarn and color specification.
12. Introduction of electronic jacquard punching system

## References:

1. Fabric Structure & Design - Gokarneshnan, N
2. CAD Manuals
3. CAD-Cam Principles and applications - Rao; TMH

  
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			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCS207	ODS	COMPUTER PROGRAMMING – II	0	0	0	30	20	0	0	2	1

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

## Course Objectives:

1. To understand Object oriented concepts.
2. To understand programming using object oriented techniques.
3. To understand the use of various system libraries.
4. To have the knowledge of important topics and principles of software development.
5. To write a computer program & to solve specified problems.
6. To use the Java SDK environment to create, debug and run simple Java programs.
7. To study event driven Graphical User Interface (GUI) programming

## Course Outcomes:

1. Students should be able to explain the object oriented concepts.
2. Students should be able to write programs using object-based programming techniques including classes, objects and inheritance.
3. Able to use of various system libraries.
4. Be aware of the important topics and principles of software development.
5. Have the ability to write a computer program to solves pecified problems.
6. Be able to use the Java SDK environment to create, debug and run simple Java programs.
7. Introduce event driven Graphical User Interface (GUI) programming

## UNIT-I

Java Fundamentals: Features of Java, OOPs concepts, Java virtual machine, Byte code interpretation Data types, variable, arrays, expressions, operators, and control structures, Objects, Introduction to Class: Instance members and member functions, constructors, constructor overloading, Static Method, Static classes, Inner classes

  
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## UNIT-II

Introduction to Java classes and objects: Java features: Java syntax, data types, data type conversions, control statements, operators and their precedence. Introduction to Class: Instance members and member functions. Inner Classes, String Handling, Wrapper classes

## UNIT-III

Inheritance, Polymorphism and Collection: Class relationships: Inheritance and its types, Merits and Demerits. Association, Association inheritance, Polymorphism: Dynamic method dispatch, Runtime polymorphism, Abstract classes, Interfaces and packages, Collections.

## UNIT-IV

Exception Handling and Multithreading: Exceptions: Need for exceptions, Exception hierarchy: Checked Unchecked exceptions, Try, catch, finally, Throw, throws, creating exceptions.

Multithreading: Thread Life cycle, Multi threading advantages and issues, Simple thread program, Priorities and scheduling, Thread Synchronization.

## UNIT-V

Java I/O, Applets, Event Handling, and Database Connectivity: Basic concept of streams I/O stream & reader-writer classes. File handling. Applet and its Life Cycle, Basic GUI elements, Event Delegation Model and event handling Swing components: Applet, JButton, JFrame, etc. Sample swing programs JDBC architecture, establishing connectivity and working with connection interface working with statements, Creating and executing SQL statements, working with Result Set

## References:

1. Java- Head First 2nd edition Kathy Sierra , Bert Bates.
2. Programming with Java A Primer, E. Balaguruswamy Tata McGraw Hill Companies.
3. Java Programming John P. Flynt Thomson 2nd.
4. Java Programming Language Ken Arnold Pearson.
5. The complete reference JAVA2, Hervert schildt. TMH.
6. Big Java, Cay Horstmann 2nd edition, Wiley India Edition.
7. Java – Balaguruswamy.

  
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## Practical's List:

1. Installation of J2SDK
2. Write a program to show Scope of Variables
3. Write a program to show Concept of CLASS in JAVA
4. Write a program to show Type Casting in JAVA
2. Write a program to show How Exception Handling is in JAVA
3. Write a Program to show Inheritance
4. Write a program to show Polymorphism
5. Write a program to show Access Specifiers (Public, Private, Protected) in JAVA
6. Write a program to show use and Advantages of CONSTRUCTOR
7. Write a program to show Interfacing between two classes
8. Write a program to Add a Class to a Package
9. Write a program to show Life Cycle of a Thread
10. Write a program to demonstrate AWT.
11. Write a program to Hide a Class
12. Write a Program to show Data Base Connectivity Using JAVA
13. Write a Program to show "HELLO JAVA" in Explorer using Applet
14. Write a Program to show Connectivity using JDBC
15. Write a program to demonstrate multithreading using Java.
16. Write a program to demonstrate applet life cycle.
17. Write a program to demonstrate concept of servlet.

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