

Faculty of Engineering & Technology

P.K. University

Shivpuri (MP)



Department Of Textile Technology

**Evaluation Scheme & Syllabus
for**

**Diploma - Textile Technology
6TH Semester**

(Effective from session 2025-26)

DIPLOMA – TEXTILE TECHNOLOGY

Study And Evaluation Scheme For Diploma in Textile Technology .-6 SEM

SEMESTER-6

SUBJECTCODE	SUBJECTSNAME	STUDY SCHEME Periods/ Week			Credits	Marks In Evaluation Scheme						Total Marks of Internal & External
						INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT			
		L	T	P		Th	Pr	Tot	Th	Pr	Tot	
DENVITT601	Environmental Education & Disaster Management	4	-	-	4	30	-	30	70	-	70	100
DADVATT602	Advance Fabric Structure	4	1	-	5	30	-	30	70	-	70	100
DPROCTT603	Process Control in Spinning and Advance Spinning	4	-	-	4	30	-	30	70	-	70	100
DPROCTT604	Process Control in Weaving and Advance Weaving	4	-	-	4	30	-	30	70	-	70	100
DPROJTT605	PROJECT	-	-	12	6	-	25	25	-	25	25	50
Total		16	1	12	23	120	25	145	280	25	305	450

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III Year VI Semester

L	T	P
4	0	0

DENVITT601: ENVIRONMENTAL EDUCATION & DISASTER MANAGEMENT

1. INTRODUCTION:

- Basics of ecology, Ecosystem, Biodiversity Human activities and its effect on ecology and eco system, different development i.e. irrigation, urbanization, road development and other engineering activities and their effects on ecology and eco system, Mining and deforestation and their effects. - Lowering of water level , Urbanization.
- Biodegradation and Bio-degradability, composting, bio remediation, Microbes
- Use of bio pesticides and bio fungicides.
- Global warning concerns, Ozone layer depletion, Green house effect, Acid rain ,etc.

2. POLLUTION: Sources of pollution, natural and man made, their effects on living environments and related legislation.

2.1 WATER POLLUTION: Flow Measurement: Hot Wire Anemometry, Laser Doppler Velocity meter, Rota meter Temperature Measurement: Thermometers, bimetallic thermocouples, thermostats and pyrometers. Measurements of Force, Torque: Different types of load cells, elastic transducers, pneumatic & hydraulic systems. Seismic instruments Measurements of Acceleration, and Vibration: Accelerometers vibration pickups and decibel meters, vibro-meters.

- Factors contributing water pollution and their effect.
- Domestic waste water and industrial waste water. Heavy metals, microbes and leaching metal. - Physical, Chemical and Biological Characteristics of waste water.
- Indian Standards for quality of drinking water.
- Indian Standards for quality of treated waste water.
- Treatment methods of effluent (domestic waste water and industrial/ mining waste water), its reuse/safe disposal.

2.2 AIR POLLUTION: Definition of Air pollution, types of air pollutants i.e. SPM, NOX, SOX, GO, CO₂, NH₃, F, CL, causes and its effects on the environment.

- Monitoring and control of air pollutants, Control measures techniques. Introductory Idea of control equipment in industries i.e.

A. Settling chambers

B. Cyclones

C. Scrubbers (Dry and Wet)

D. Multi Clones

E. Electro Static Precipitations

F. Bog Fillers. - Ambient air quality measurement and their standards.

- Process and domestic emission control

- Vehicular Pollution and Its control with special emphasis of Euro-I, Euro-II, Euro-III and Euro IV.

2.3 NOISE POLLUTION: Sources of noise pollution, its effect and control.

2.4 RADISACTIVE POLLUTION: Sources and its effect on human, animal, plant and material, means to control and preventive measures.

2.5 SOLID WASTE MANAGEMENT: Municipal solid waste, biomedical waste, Industrial and Hazardous waste, Plastic waste and its management.

3. LEGISLATION:

Preliminary knowledge of the following Acts and rules made there under-

- The Water (Prevention and Control of Pollution) Act
- 1974. - The Air (Prevention and Control of Pollution) Act - 1981.
- The Environmental Protection (Prevention and Control of Pollution) Act -1986. Rules notified under EP Act - 1986 Viz.
 - # The Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 2000
 - # The Hazardous Wastes (Management and Handling) Amendment Rules, 2003.
 - # Bio-Medical Waste (Management and Handling) (Amendment) Rules, 2003.
 - # The Noise Pollution (Regulation and Control) (Amendment) Rules, 2002.
 - # Municipal Solid Wastes (Management and Handling) Rules, 2000.
 - # The Recycled Plastics Manufacture and Usage (Amendment) rules, 2003.

4. ENVIRONMENTAL IMPACT ASSESSMENT (EIA):

- Basic concepts, objective and methodology of EIA.
- Objectives and requirement of Environmental Management System (ISO-14000) (An Introduction).

5. DISASTER MANAGEMENT: Definition of disaster - Natural and Manmade, Type of disaster management, How disaster forms, Destructive power, Causes and Hazards, Case study of Tsunami Disaster, National policy

- Its objective and main features, National Environment Policy, Need for central intervention, State Disaster Authority
- Duties and powers, Case studies of various Disaster in the country, Meaning and benefit of vulnerability reduction, Factor promoting vulnerability reduction and mitigation, Emergency support function plan. Main feature and function of National Disaster Management Frame Work, Disaster mitigation and prevention, Legal Policy Frame Work, Early warning system, Human Resource Development and Function, Information dissemination and communication.

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4	1	0

DADVATT602: ADVANCE FABRIC STRUCTURE

- 1. WELTS AND PIQUES:** Varieties and characteristics of piques and welts, methods of embellishing pique fabrics, their structure, plain pique, backed pique, fast backed welts and waved pique.
- 2. BED FORD CORDS:** Plain faced bedford, wadded bedford cord, bedford cord arranged with alternate picks and cords containing odd number of ends. twill-faced bedford cord.
- 3. BACKED FABRICS (WARP AND WEFT):** Backed fabrics, wadded warp and weft backed fabrics, their beaming and drafting procedure.
- 4. EXTRA WARP AND WEFT:** Principles of figuring with extra warp and weft one and one i.e. pick and pick wefting, two and two wefting. Methods of disposing of extra threads on the back of the fabric. Spot figures with extra warp and extra weft arranged in a particular order.
- 5. DOUBLE CLOTH:** Construction of double and multiple cloths on design paper, their beaming, drafting and pegging. Types of double structures viz.
 - (i) Tubular Fabrics.
 - (ii) Double-faced Fabrics.
 - (iii) Fabrics opening to double the width.
 - (iv) Double equal plain fabrics.
 - (v) Centre stitched double cloth.
- 6. GAUZE AND LENO FABRICS:** Structure of gauze and leno fabrics, bottom and top douping. Different types of sheds formed in gauge and leno fabrics, comparison of gauge and leno. Combination of gauge and other weaves, striped patterns.
- 7. TURKISH TOWELLING:** Principles of formation of pile, construction of three, four, five and six pick terry fabrics their methods of drafting and denting. Terry ornamentation.
- 8. SPECIAL LENO STRUCTURES:** Cellular tennis shirting, Russian cords, Net Lenos, combination of gauge and leno with extra warp and extra weft. Two doup pattern, Distorted weft and styles.
- 9. PILE FABRICS:** Designing of plain warp pile fabrics in detail. Reversible warp pile structure and double plush weaving. Weft pile fabrics, twill back velveteens, Corduroy fabrics, weft plushes. Varieties of suiting fabrics. Distinctive features and modification of toilet fabrics.
- 10. LAPPET AND SWIVEL WEAVING:** Introduction Only
- 11. Analysis of Fabrics.**
- 12. CAD in Textiles :** Introduction only

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L	T	P
4	0	0

DPROCTT603: PROCESS CONTROL IN SPINNING AND ADVANCE SPINNING

(1) PROCESS CONTROL IN SPINNING:

1. Control of mixing quality and cost, waste and cleaning in blow room and carding, comber waste yarn realisation.
2. Measurements and analysis of productivity.
3. Control of yarn count, strength, evenness and imperfections, statistical interpretation of data.
4. Breakage and efficiency studies and their analysis.
5. Case studies.

1. ADVANCE SPINNING:

- (i) Open end spinning, Different styles of open end spinnings such as Rotor spinning, Airjet spinning, Friction spinning, Bob text spinning, Electrostatic spinning, Properties of open end spinning yarns defects of Open end spinning yarns.
- (ii) Tow To Top conversion processes- Stretch breacking and cutting methods. Tow characteristics, Different methods of tow to yarn conversion. Principle of texturing, its importance and application, Method of texturing, Heat setting and texturing, False twisting, Development of false twisting machines, Stuffer box crimping. Principle of draw texturising machines involved e.g. Draw twister for texturised yarn, Draw winder, Cone winder, Up twister. Edge crimping, Principle of air bulking and properties of air textured yarns.
- (iii) Brief study of different processes involved in wollen and worsted spinning Properties wollen and worsted yarns.
- (iv) Waste Spinning- Meaning, Technique and scope of waste spinning.
- (v) Principle & Working of compact spinning.

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L	T	P
4	0	0

DPROCTT604: PROCESS CONTROL IN WEAVING AND ADVANCE WEAVING

(1) PROCESS CONTROL IN WEAVING:

1. Measurement and control of quality and productivity and waste in winding, warping, sizing, drawing-in and weaving.
2. Common faults in weaving and their analysis and remedies.
3. Breakage and efficiency studies and their analysis and their improvement.
4. Case studies

(2) ADVANCE WEAVING:

- (i) Principle of operation for shuttle less looms comparative study of new systems of weft insertions, Weft storage unit.
- (ii) Unwinding tensions - Package build and colour selection mechanisms.
- (iii) Types of Solvedge and their formation.
- (iv) The critical aspects of air jet, water jet, projectile rapier system of weft insertion.
- (v) Principle of multi-phase weaving.
- (vi) Industrial fabrics/Technical fabrics – Their construction and details and uses - such as parachute fabrics, conveyor belts, coating fabrics, aramid fabrics, soil fabrics (cloths), belting cloths, filter fabrics, geo textiles and non-woven.

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L	T	P
0	0	12

DPROJTT605: PROJECT

12 periods per week are allotted for project work in the final year of the course. In classroom students -:

- (i) be encouraged and helped for developing new designs in yarn/weave
- (ii) be given clear idea of establishing a spinning/weaving unit of given size beginning from selection of site, deciding type of building construction/shed, units of machinery required, their layout. Fundamental requirements of spinning and weaving mill organization. Deciding number of workers and their type. Process control in spinning and weaving departments, elements of costing and costing procedures in various sections, Factors affecting productivity and efficiency of men and machines, sources of finance and development of resources.