Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Name of Program: B.TECH (Textile Engineering)

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	T	P	CREDITS
BTTX501	DCS	YARN MANUFACTURING III	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 disseminate the theory and practice of yarn manufacturing with reference to the constructional features, working of a ring spinning machine, ring-doubler and T.F.O.
2. To outline the overall processes involved in Silk Spinning, Wool Spinning, Semi-Worsted, Worsted, Jute and Flax Spinning.
3. To deal with the theoretical and quality aspects of doubling, the influence of machine parameters on the quality of ring yarn

Course Outcomes (COs)

Student will be able

1. Comprehend the working principle for any type of ring spinning machine and manipulate the process parameters for the production of any type of ring yarn with desired quality.
2. Justify the importance of doubling for different types of yarn and will also be able to evaluate the quality aspects of doubled yarn.
3. Interpret the different processes involved in Silk Spinning, Wool Spinning, Semi-Worsted Spinning, Worsted Spinning, Jute and Flax Spinning; and also demonstrate their skills for manufacturing of good quality yarn on these spinning systems.

Course Contents:

Unit I

Objectives of Ring frame, constructional details of ring frame, theory related to drafting, twisting, winding, spinning balloon, yarn tension and selection of Ring and traveler, recent development in Ring spinning, compact spinning, calculations related to draft, speed, production.

Unit II

Common defects in yarn, causes and remedies, general idea about setting parameters, environmental condition and its effects, maintenance schedule and supervisory check points, production of blended yarn/synthetic short and long staple fibre, spinning of natural, synthetic fibre, its blend in ring spinning.

Unit III

Objectives, types of doubling, dry and wet doubling, merits and demerits, feed material

preparation, constructional details and theory of ring doubling and TFO, developments in TFO and various type of doubling, calculation of production, twist for each case, selection of traveler and ring, general idea of material and package faults and their remedies, environmental condition and supervisory checkpoints.

Unit IV

Reeling and bundling-objectives of reeling and bundling, brief idea about machines, working, merits and demerits of different types of reeling, production calculation and supervisory checkpoints

Unit V

Introduction to woolen, semi worsted and worsted systems of spinning, jute and flax spinning. Manufacturing of different types of fancy yarns.

List of Practical (Expand it if needed):

1. An elaborate study of Ring frame, Ring doubling and TFO, constructional details, setting and gauging, controls and change places, calculation of speeds, drafts and production
2. To study the general feature of a ring frame, (creel, drafting, twisting and winding zone.)
3. To study the drafting arrangement of a ring frame and to calculate drafts and draft constants.
4. To study twisting arrangement of ring frame and to calculate twist constant and spindle speed.
5. To study the package building mechanism in a ring frame.
6. To study passage of a ring doubling machine (creel, delivery, twisting and winding zone)
7. To study gearing arrangement of a ring doubling machine and to calculate delivery roller speed
8. To study twisting arrangement of a ring doubling machine and to calculate twist constant and spindle speed
9. To study the package building mechanism in a ring doubling machine
10. To study the safety devices in ring frame and ring doubling machine.

References:

1. Manual of Cotton Spinning, - The Textile Institute Vol- IV, V.
2. Manual of Textile Tech. – Short Staple Spinning series – The Textile Institute Vol.4
3. A Practical guide to Ring Spinning - Klein W.
4. Two-For-One – Technology & Technique for spun yarn - Kulkarni HS and Murthy HVS.
5. Advances in Tech. Of Yarn Production – NCUE Publication (Chhatopadhyaya R.)
6. Fancy Yarns- Their Mfg. And Application - Gong RH and R.M.Wright.
7. Cotton Ring Spinning - Gilbert Merrill.
8. Cotton Spinning – Taggart.
9. Textile Yarns Technology, Structure & Applications - Goswami BC et al.
10. Ring Spinning, Doubling & Twisting - NCUTE , Salhotra KR et.al;
11. Fundamentals of spun yarn tech - Lawrence Carl A

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SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	T	P	CREDITS
BTEI508	ODS	INSTRUMENTATION AND MEASUREMEN CONTROL	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 provide knowledge on the fundamentals of measuring instruments with common types of errors.
2. To provide a knowledge on the basics of control system theory
3. To introduce different types of sensors, transducers and strain gauges ,thermocouples, thermometers and flow meters used for measurements
4. To introduce measuring equipments used for linear and angular measurements.
5. To familiarize students with surface roughness measurements on machine components

Course Outcomes (COs):
Students will be able to
1. Understand measurement techniques and use of measuring instruments
2. knowledge for dealing with problems involving control system fundamentals
3. work in Quality control and quality assurances divisions in industries
4. Design a sensors and transducers used for analysis.
5. Design measuring equipments for the various Parameters.
6. Check and measure quality in engineering products.

Course Contents:

Unit I
Basic concepts of measurements: Introduction, idea of a generalized measurement system, basic characteristics of measuring devices - accuracy, precision, error, hysteresis, resolution, threshold, repeatability, reliability, span , dynamic accuracy; calibration. Sequential and random tests; Presenting data: Rectangular coordinate format, semi-log, full-log formats.
Measurement System Behavior: General model for a dynamic measurement system and its special cases: zero order, first order, and second order system.

Unit II

Transducer: Introduction, classification, basic requirements. Displacement measurement: Idea of servo potentiometers, differential inductors and transformers, capacitive, shaft encoders, hall effect devices proximity devices and digital transducers. Strain gauge: basic principal, gauge factor, types of strain gauge, materials and their properties. LVDT .Measurement accessories: Brief concept of instrumentation amplifiers, signal generation and processing, data acquisition and conversion, input-output devices. General test equipments: review of general-purpose electronic test equipments - CRO, digital millimeters, counters, signal generators, regulated power supplies.

Unit III

Temperature Measurement: Temperature standards, Temperature scales; Thermometry based on thermal expansion: Liquid in glass thermometers, Bimetallic Thermometers; Electrical resistance thermometry: Resistance Temperature Detectors, Thermistors, Thermoelectric
Temperature measurement with thermocouples, standards. Pressure and Velocity Measurement: Relative pressure scales, pressure reference instruments, barometer, manometer, deadweight tester, pressure gauges and transducers, total and static pressure measurement in moving fluids Flow measurement: Pressure differential meters: Orifice meter, Venturimeter; rota meter.

Unit IV

Digital instruments: Advantages of digital instruments, Over analog instruments, DA/AD conversion, Digital voltmeter, Ramp type DVM, Integrating DVM, successive approximation DVM, Displays (LED, LCD and seven segment etc.), (Instruments used in computer controlled instrumentation, RS232C and IEEE 488, GPIB electrical interface, Interfacing transducers to electronic control).

Unit V

Introduction to control systems: Examples of control systems. Open loop and closed loop control. Transfer function, impulse response function, block diagram of closed loop system, and block diagram reduction, modeling of mechanical systems, modeling of electrical systems, signal flow graphs. Transient and steady state response analyses: First order systems, unit step and unit impulse response of first order systems, second order systems, unit step and unit impulse response of second order systems,

List of Practical (Expand it if needed):

1. Detailed study of LVDT & Measurement of distance using LVDT.
2. Learning techniques of measurement of strain using strain gauge.
3. Observe and Analysis the characteristics of NTC thermistor.
4. To observe the water level measurement
5. To analysis the Resistance Temperature Detector.
6. Learning the techniques of measurement of temperature of thermocouple.
7. Learning the techniques of measurement of pressure and characteristics of pressure transducer.
8. To observe the dead weight pressure gauge
9. To measure the distance using ultrasonic transducer
10. Demonstration and performance of CRO.

Text Books:

1. Metrology and Instrumentation - Swahney

2. Instrumentation Measurement and Analysis; TMH, - Nakra B C and Chaudhary K K

3. Instrumentation for Engineers and scientist;Oxford higher Ed - Turner J D and Hill M

Reference Books:

1. Instrumentation & Control - Rangan, Mani & Sharma,

2. Transducers & Instrumentation - Murty.

3. Control Systems Engineering - Nagrath and Gopal

4. Modern Control Engineering; 4e Pearson Education, New Delhi - Katsuhiko Ogata

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Name of Program: B.TECH (Textile Engineering)

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	T	P	CREDITS
BTTX502	DCS	FABRIC STRUCTURE - II	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 provide knowledge on the design of compound fabric structures (like Double cloth, backed cloth, velvet structures, terry pile structures and leno structures) and jacquard desi gns as per specifications.
2. To identify and differentiate simple and compound fabric structures accurately.

Course Outcomes (COs)
Student will be able
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 mak ing designs.

Course Contents:

Unit I
Figuring with extra warp and extra weft, backed fabrics- warp and weft backed fabrics and reversible backed fabrics

Unit II
Double cloth and its varieties. Different designs etc

Unit III
Velveteen and corduroy fabrics, real velvet terry and warp pile fabric structure.

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Unit IV

Introduction to gauge and leno structures, methods of producing leno fabric, design, draft & peg-plan of leno structure

Unit V

Point paper designing of jacquard fabrics, complex design

List of Practical (Expand it if needed):

1. To analyze the warp wedded structure and design.
2. To analyze the weft wedded structure and design.
3. To analyze the double cloth structure design.
4. To analyze the tubular cloth structure design.
5. To analyze the pique cloth structure design.
6. To analyze the brocket cloth structure design.
7. To analyze the cross boarder cloth structure design.
8. To analyze the extra warp design.
9. To analyze the extra weft design.
10. To analyze the pile structure of given cloth.

References:

1. Advanced textile design - Grosicki Watsons
2. Grammer of textile design – Nisbet.

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SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	T	P	CREDITS
BTTX503	DCS	TEXTILE TESTING I	60	20	20	30	20	3	1	2	5

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – 2Practical; **C** - Credit;
***Teacher Assessment** shall be based following components: Quiz0/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):
1. To provide knowledge on the fundamentals of textile testing and its Principle and to test the fiber and yarn properties accurately according to their application & requirement.
2. To assess the textile material accurately as per the requirement and the experiment standards followed in textile industry and their application.

Course Outcomes (COs)
Student will be able
1. Recall and Measure the testing conditions for textile material
2. Measure and analyse the properties of various textile fibers and yarns
3. Understand and recall the statistical tools used for measurement
4. Able to produce the desired end products by analyzing the raw material properties according to their end use and application

Course Contents:

Unit I
Introduction to textile testing, aim and scope, sampling techniques, general requirements, squaring, cut squaring and zoning methods for sampling, sampling techniques for fibre, yarns and fabrics, presentation and interpretation of test data, quality control charts, introduction to standard deviation and coefficient of variance (CV).

Unit II
Humidity and moisture in textile, terms and definitions, measurement of atmospheric condition, regain–humidity relation in textile, measurement of regain and principle of operation of equipments, concept of correct invoice weight and official regain, factors affecting the regain of textile material, Hydrophilic properties–terms and definitions related to swelling, man-made fibre testing like linear density, spin finish, strength, elongation, crimp.

Unit III
Measurements of fibre length, fibre fineness and fibre strength, maturity of cotton and its measurement, measurement of trash content.

Unit IV

Latest methods of fibre testing e.g. HVI, LVI, fibro-graph, auto-span and AFIS, Nep testing of cotton, fibre quality index.

Unit V

Measurement of yarn count by different methods, measurement of twist of single and plied yarns based on various principles, Yarn hairiness, classimate faults, principle of textured and continuous filament yarn testing.

List of Practical (Expand it if needed):

1. Trash analysis of the cotton fibre
2. Fibre fineness testing
3. Fibre maturity testing
4. Fibre length testing by Bear sorter method
5. Measurement of the span length by fibrograph method
6. Strength of the fibre by Stelometer
7. Roving, silver Hank Count by Cut and Weight Method
8. Yarn Count measurement
9. Yarn diameter and packing factor
10. Twist of the single and double yarn measurement

References:

1. Principle of Textile Testing - Booth J E
2. Handbook of Textile Testing & Quality Control - Grover E B and Hamby D S
3. Progress in Textiles Science and Tech-Vol.1, Testing & Quality Mgt. - Kothari V K
4. Identification & Analysis of Textile fibre - BTRA
5. Textile Testing - Angappan P and Gopalakrishnan R

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Name of Program: B.TECH (Textile Engineering)
MTTX504 (ELECTIVE - I)

SUBJECT CODE	CATEGORY	SUBJECT NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	T	P	CREDITS
			THEORY			**PRACTICAL**					
BTTX514	DCS	KNITTING TECHNOLOGY	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 knowledge on the fundamentals of warp and weft knitting technology.
2. To understand different pattern, design & techniques of weft and warp knitting and to apply knowledge in knitting industries

Course Outcomes (COs)

Student will be able
1. Apply their knowledge on the various functions of the Knitting technologies.
2. Understand the different the knitted fabric
3. Solve the different problem & understand the quality aspects for the knitting.
4. Use their conceptual knowledge for knitting industries

Course Contents:

Unit I

Introduction to knitting and its comparison with weaving. Weft Knitting classification, specification of various knitting machines, elements of machine knitting, needle gaiting, principle of operation of different single jersey and double jersey machines, knitting cycle, positive yarn feeder, production calculation.

Unit II

Basic single jersey and double jersey structures and their derivatives, horizontal stripping and plating, Designing by different, mechanisms e.g. pattern wheel, pattern drum and jacquard.

Unit III

Warp knitting - Introduction to warp knitting, application of warp knitted fabric. Comparison between warp knitting and weft knitting. Structure properties of warp knitted fabric. Classification of warp knitting and their scope and uses, element of warp knitting machine, various advantages of warp knitting machine and their area of application.

Unit IV

Introduction to Tricot and Raschel knitting machine, knitting elements of Tricot and Raschel knitting machine, working principle and pattern mechanism in Tricot and Raschel knitting machine.

Unit V

Application of electronics and automation in knitting machines. Modern Developments in Weft Knitting Machine. Control of yarn feeding in warp knitting machines; requirement of yarn quality for knitting; dimensional stability of knitted structures.

References:

1. Knitting Technology Prof. D. B. Ajgaonkar
2. Knitting Technology - Spencer
3. Knitting Technology - Pitman
4. Knitted Clothing Technology Terry Brackenbury
5. Machine Knitted Fabrics Felting Techniques Janet Natney

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Name of Program: B.TECH (Textile Engineering)
MTTX504 (ELECTIVE – I)

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	T	P	CREDITS
BTTX524	DCS	NONWOVEN TECHNOLOGY	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 knowledge on the fundamentals of manufacturing process of nonwoven fabrics.
2. To provide knowledge on the technical requirements and the physical and mechanical properties of nonwoven fabrics

Course Outcomes (COs)
Student will be able
1. Explain the importance of the nonwoven fabrics.
2. Solve the problems occurred during manufacturing of nonwovens.
3. Develop the different structure of nonwovens.
4. Analyze the physical and mechanical behavior of nonwovens.
5. Explain the principle & manufacturing process of hydro entangled nonwoven fabrics.

Course Contents:

Unit I
Historical background of nonwovens, definition, stages in Nonwoven manufacturing, Web Forming Techniques: carding parallel laid web and cross laid web. Classification of nonwoven – on the basis of use, manufacturing process, web formation and bonding.

Unit II
Dry laid webs – fibre selection, fibre preparation, web formation and layering. Wet laid nonwoven – Raw materials, production process, special features of the wet laid process and its product. Spun laced webs

Unit III

Mechanically bonded webs – needle punched nonwovens, Application of needle punching, stitch bonded nonwovens, applications. Thermally bonded nonwovens – binder, binding fibres, binding powder, binding webs, methods of thermal bonding – Hot calendaring, belt Calendaring, oven bonding, ultrasonic bonding, radiant heat bonding.

Unit IV

Nonwoven fabric bonding technique – mechanical bonding, adhesive bonding (Chemical bonding) and Thermal bonding. Elementary idea of production of laminated   and composite nonwoven material

Unit V

Hydro entangled nonwovens advantages and disadvantages– Bonding process, water system, web drying, properties of spun laced webs, applications.

References:

1. Nonwoven Process Performance & Testing – Turbak
2. Nonwoven Fabric Construction Synthetic Fibres – Jan-Mar 2007.
3. Proceedings of the Seminar - Nonwoven Technology Market & Product Potential, IIT, New Delhi December 2006.

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Name of Program: B.TECH (Textile Engineering)
MTTX504 (ELECTIVE - I)

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	T	P	CREDITS
BTTX534	DCS	TEXTURISING	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 knowledge about the manufacturing process of textured yarns.
2. To understand the principle of air textured yarn and to find the applications of textured yarn.

Course Outcomes (COs)
Student will be able to
1. Explain the core concept of texturing process.
2. Solve the problems occurred during manufacturing of textured yarns.
3. Develop the different structure of textured yarns.
4. Analyze the physical and mechanical behavior of Textured yarns.
5. Explain the principle & manufacturing process of air jet textured yarn.

Course Contents:

Unit I

Texturising: Drawbacks of flat filament yarns, requirement of raw material for texturising, drawing process. Definition and concept of Texturising, Classification and characteristics of textured process and texturised yarn.

Unit II

False Twist Texturising: Scientific principles in False twist Texturising, Methods of production of stretched (single heater) and modified stretched (double heater) yarns by conventional methods. Properties of such yarn.

Unit III

Draw Texturising concept: sequential and simultaneous draw texturising, Study of simultaneous draw texturising process. Draw texturising Machine Details: - Machine profiles, Twisting devices, Heaters, Cooling devices, Coning oil application, Process variables, Defects and remedies in draw textured yarns. Quality of draw textured yarns. Technological developments in draw texturising technology.

Unit IV

Air Jet Texturising: Principle of loops formation, Air-jet Texturising machine, air- jets, wetting systems, stabilizing devices, process variables in air texturising, Quality of air textured yarns, blending of filaments in air texturising. Properties of air jet textured yarn

Unit V

Other methods of Texturising**:** BCF draw texturising processes and Yarns: - BCF draw texturising machines, process variables. Edge crimping, Stuffer box crimping, Knit-de-knit, Gear Crimping, Chemical texturising of natural fibres.

References:

1. Yarn Texturing Technology by J.W.S. Hearle, L. Hollick, D.K. Wilson Woodhead Publishing Ltd, England.
2. Textile Yarn, Technology, Structure and Application" – Goswami B.C., Martindale, J.G., Scardino F.L., Wiley Interscience publication, 1977, U.S.A.
3. Wilson D.K. and Kollu T., "Production of Textured Yarns by the False Twist Technique", Textile Progress, Vol. 21, No.3, Textile Institute, Manchester, U.K.,1991.
4. Wilson D.K. and Kollu T., "Production of Textured Yarns by Methods Other than False Twist Technique", Text. Prog., Vol. 16, No.3.Textile Institute, 1981.
5. Gupta V.B. (Edr.), "Winter School on Man-made Fibers – Production, Processing, Structure, Properties and Applications", Vol. 1, 1988.
6. Hes L. Ursiny P., "Yarn Texturing Technology", Eurotex, U.K., 1994.
7. M. Acar and G.R. Wray., "An analysis of the air jet yarn texturing process Part-I: A Brief history of developments in the process", Journal of Text. Institute, Vol.77,No.1, p19-27, (1986).
8. K R Salhotra , "Spinning of man made fibres and blends on cotton systems", The textile Association, India 2004.
9. Hamburger, W. J., "The Industrial Application of the Stress-Strain Relationship", J. Textile Inst. 40, 700 (July 1949).

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SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	T	P	CREDITS
BTTX505	DCS	GARMENT CONSTRUCTION	0	0	0	30	20	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 practical knowledge about the different feed mechanisms used in sewing machine, various cutting accessories use for garment cutting.
2. To provide practical knowledge about the interpretation of the time consumption and standard operating time for making different garments

Course Outcomes (COs)
Student will be able
1. Demonstrate various fusing processes used in garment construction
2. Plan the cutting order
3. Show and tell the suitable drop feed system for particular garment type
4. Simulate the SAM value for the garment
5. Plan the line balancing and scheduling based on time and motion sudy
6. Minimize the delay time in assembly line

List of Practical (Expand it if needed):

1. To study the flow chart of Garment Process Line
2. To study spreading and layering techniques of fabric
3. To study sewing machine and its parts
4. To study types of stitches
5. To study types of seams
6. To study tension variation ant SPI regulation and its effect on different fabrics(Plain, Twill, Sateen, etc)
7. To study workaids used in sewing machine
8. To study the breakdown of shirt -flow process
9. To study the breakdown of trouser -flow process
10. To study the breakdown of jacket- flow process

References:

1. Pattern making for fashion design – H.G.Armstrong
2. Metric pattern cutting - Winifred Aldrich
3. Pattern making made easy - Gollian Holman
4. Technology of clothing manufacture - Carr & Latham
5. Apparel manufacturers handbook - Jacob solinger

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Name of Program: B.TECH (Textile Engineering)

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			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	T	P	CREDITS
BTTX506	DCS	INDUSTRIAL MILLVISIT	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 practical exposure to the actual working of the industry and to understand the various features of the modern machines

Course Outcomes (COs)
Student will be able to
1. Demonstrate their knowledge in a better way in the actual working condition of the industry
2. Apply their knowledge to solve a problem
3. Show their ability to work as a team

Course Contents:

The student will be taken to the various industry in and around regularly along with faculty and lab staff. They will be explained the actual working of the machine, materials, process and its problems, solutions. They will be acquainted with modern development of the machines.

References:

1. Institutional training module for industrial visit.