Shri Vaishnav Vidyapeeth Vishvavidhyalaya, 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*	Th	T	P	CREDITS
BTMA201	ODS	APPLIED MATHEMATICS - II	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):

To introduce the students with the Fundamentals of the Calculus of Matrices, Differential Equations and Numerical Analysis

Course Outcomes (COs):

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

The students will be able to

1. Understand and apply the basics of the calculus of matrices.
2. Solve the fundamental problems of the ordinary differential equations.
3. Apply the advanced techniques to find the solution of the ordinary differential equations.
4. Know the techniques of the numerical analysis.
5. Find the numerical solution of the ODE and PDE.

UNIT – I

Calculus of Matrices

Systems of linear equations and their solutions. Matrices, determinants, rank and inverse. Linear transformations. Range space and rank, null space and nullity. Eigenvalues and eigenvectors. Similarity transformations. Diagonalization of Hermitian matrices. Bilinear and quadratic forms.

UNIT – II

Differential Equation

Ordinary Differential Equations: First order linear and nonlinear ordinary differential equations, exactness and integrating factors. Ordinary linear differential equations of n-th order, solutions of homogeneous and non-homogeneous equations. Operator method. Method of undetermined coefficients and variation of parameters.

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UNIT – III

Differential Equation

Power series methods for solutions of ordinary differential equations. Legendre equation and Legendre polynomials, Bessel equation and Bessel functions of first and second kind.

UNIT – IV

Numerical Analysis

Interpolation and Curve Fitting: Introduction to Interpolation; Calculus of Finite Differences; Finite Difference and Divided Difference Tables; Newton-Gregory Polynomial Form; Lagrange Polynomial Interpolation; Theoretical Errors in Interpolation; Spline Interpolation; Approximation by Least Square Method. **Numerical Differentiation and Integration:** Discrete Approximation of Derivatives: Forward, Backward and Central Finite Difference Forms, Numerical Integration, Simple Newton-Cotes Rules: Trapezoidal and Simpson's (1/3) Rules; Weddle's Rule, Gaussian Quadrature Rules: Gauss-Legendre, Gauss-Laguerre, Gauss-Hermite, Gauss-Chebychev.

UNIT – V

Numerical Solution of ODE & PDE: Euler's Method for Numerical Solution of ODE; Modified Euler's Method; Runge-Kutta Method (RK2, RK4), Error estimate; Multistep Methods: Predictor-Corrector method, Adams-Moulton Method; Boundary Value Problems and Shooting Method; finite difference methods, numerical solutions of elliptic, parabolic, and hyperbolic partial differential equations.

Texts:

1. G. Strang, Linear Algebra And Its Applications, 4th Edition, Brooks/Cole, 2006
2. S. L. Ross, Differential Equations, 3rd Edition, Wiley, 1984.
3. E. A. Coddington, An Introduction to Ordinary Differential Equations, Prentice Hall, 1995.
4. W.E. Boyce and R.C. DiPrima, Elementary Differential Equations and Boundary Value Problems, 7th Edition, Wiley, 2001.
5. K. E. Atkinson, Numerical Analysis, John Wiley, Low Price Edition (2004).
6. S. D. Conte and C. de Boor, Elementary Numerical Analysis - An Algorithmic Approach, McGraw-Hill,2005.
7. B. S. Grewal, Higher Engineering Mathematics, Khanna Publishers, Delhi

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References:

1. E. Kreyszig, Advanced Engineering Mathematics, 9th Edition, Wiley, 2005.
2. R. G. Bartle and D. R. Sherbert, Introduction to Real Analysis, 5th Ed, Wiley, 1999.
3. J. Stewart, Calculus: Early Transcendentals, 5th Ed, Thomas Learning (Brooks/ Cole), Indian Reprint, 2003.
4. J. Stoer and R. Bulirsch, Introduction to Numerical Analysis, 2nd Edition, Texts in Applied Mathematics, Vol. 12, Springer Verlag, 2002.
5. J. D. Hoffman, Numerical Methods for Engineers and Scientists, McGraw-Hill, 2001.
6. M.K Jain, S.R.K Iyengar and R.K Jain, Numerical methods for scientific and engineering computation (Fourth Edition), New Age International (P) Limited, New Delhi, 2004.
7. S. C. Chapra, Applied Numerical Methods with MATLAB for Engineers and Scientists, McGraw-Hill 2008.

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Name of Program B.TECH (Textile Engineering)

Subject code	Category	Subject name	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCH101	ODS	APPLIED CHEMISTRY	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):

To give basic knowledge of polymer science.
To understand and apply the knowledge of electrochemistry and its laws.
To give basic knowledge of corrosion and control over it.
To understand the various sophisticated instrumental techniques.
To give basic knowledge of water, lubricants and different properties of water.

Course Outcomes (COs):

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

The students will be able to

1. Theoretical understanding of various high polymers and their properties.
2. Became aware of the importance of electrochemistry and its laws in the field of technology and dealing with its numerical approach.
3. Understanding metal corrosion and control over it.
4. Implementing instrumental techniques as powerful tool for qualitative and quantitative analysis of compounds.
5. Analyzing boiler feed water for industrial use and drinking water for domestic use.

Syllabus

Unit-I

POLYMERS AND REINFORCED PLASTICS

Classification of polymers - types of polymerization reactions - mechanism of addition polymerization: free radical, ionic and Ziegler - Natta - effect of structure on the properties of polymers - strength, plastic deformation, elasticity and crystallinity - Preparation and properties of important resins: Polyethylene, PVC, PMMA, Polyester, Teflon, Bakelite and Epoxy resins - compounding of plastics - moulding methods - injection, extrusion, compression

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Unit-II

(A) Electrochemistry:

Arrhenius theory of electrolytic dissociation, Transport number, Kohlrausch's law, Solubility product, Redox reaction, Electrochemical and concentration cells.

(B) CORROSION AND ITS CONTROL

Corrosion: Basic concepts - mechanism of chemical, electrochemical corrosion - Pilling Bedworth rule – Types of Electrochemical corrosion - galvanic corrosion - differential aeration corrosion - pitting corrosion - stress corrosion – Measurement of corrosion (wt. loss method only) - factors influencing corrosion. Corrosion control: Cathodic protection - sacrificial anodic method – corrosion inhibitors. Protective coatings: surface preparation for metallic coatings - electro plating (copper plating) and electroless plating (Nickel plating) - chemical conversion coatings - anodizing, phosphating & chromate coating.

Unit-III

A. Basic Instrumental Techniques

Basic principles, instrumentation and applications of potentiometry, UV - visible spectroscopy, infrared spectroscopy, atomic absorption spectroscopy and flame photometry.

B. Engineering Materials

Cement, Refractories etc.

Unit-IV

(A)WATER TREATMENT

Water quality parameters: Physical, Chemical & Biological significance - Hardness of water - estimation of hardness (EDTA method) - Dissolved oxygen – determination (Winkler's method), Alkalinity - determination - disadvantages of using hard water in boilers: Scale, sludge formation - disadvantages - prevention - treatment: Internal conditioning - phosphate, carbon and carbonate conditioning methods - External: Zeolite, ion exchange,Lime Soda methods & Numericals- desalination - reverse osmosis and electrodialysis - domestic water treatment.

(B) Surface Tension:

Introduction; Origin of Surface Tension; Surface energy; Laplace & Young-Laplace Equation, Capillarity; Contact Angle; Measurement of Surface Tension by Capillary rise method; Variation of Surface Tension of a liquid with Temperature and Concentration.

(C) Lubricants:

Mechanism of lubrication, Classification of lubricants, Properties & testing of lubricating oil. Definition of viscosity of a liquid; Determination of Viscosity; Shear Viscosity; Intrinsic Viscosity; Molecular weight from Viscosity measurement & Numerical problems based on viscosity index.

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Unit-V

Metal in Industry

Structure of coordination compounds corresponding to coordination number up to 6, Types of ligands, Isomerism [geometrical, optical, ionization, linkage and coordination], Theories of bonding in coordination compounds- crystal field theory, Valence bond theory, Chelation.

References

1. Engg. Chemistry- Rath cengage learning.
2. Applied Chemistry – Theory and Practice, O.P. Viramani, A.K. Narula, New Age Pub.
3. Chemistry for Environmental Engineering – Sawyer, McCarty and Parkin – McGraw Hill, International.
4. Basic Lubrication theory – Alistair Cameron
5. Engineering chemistry- Dr. Jyoti Mitna
6. Engineering chemistry- Dr. Sunita Ratan
7. Applied Chemistry – S.M. Khopkar
8. Polymer Science- V.R. Gowawriker
9. Introduction of polymer science- G.S. Mishra

List of experiments.

Exp. 01. To estimate the strength of the given unknown solution of Mohr's salt (Ferrous ammonium sulphate ($FeSO_4(NH_4)_2SO_4.6H_2O$) using $KMnO_4$ solution as an intermediate.
Exp.02 Estimation of hardness by EDTA method.
Exp.03. Conductometric titration - determination of strength of an acid
Exp.04. Estimation of iron by potentiometry.
Exp.05. Determination of molecular weight of polymer by viscosity average method
Exp.06. Determination of Na / K in water sample by Flame photometry (Demonstration)
Exp.07. Determination of total alkalinity and acidity of a water sample
Exp.08 Estimation of calcium ions present in tap water. (TDS)
Exp.09 To determine the viscosity of a given liquid (30% sugar solution) at room temperature using Ostwald's viscometer.
Exp.10 Testing of Flash point of lubricating oil by Pensky Martins apparatus.
Exp.11 To determine the viscosity index by Red wood Viscometer 1 & 2.

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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*	Th	T	P	CREDITS
BTME101	ODS	ENGINEERING DRAWING	60	20	20	30	20	3	0	4	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):

To familiarize with concepts of(A) scale, conic sections and engineering curves (B) projections of points and line in all quadrants; (C)construction of geometrical figures& solids, with its orientation on horizontal and vertical planes, and its projection; section of solid, (D)development of solid and isometric projection view.

Course Outcomes (COs):

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

1. Student would be able to draw scale, conic sections and engineering curves.
2. Student would be able to draw projection of point and line; identify the use of these concepts in practical life.
3. Students would be able to understand plain &3D model at various orientations and draw their projection.
4. Student would be able to draw the projections of with and without sectioning of solid models and surface development.
5. Students would be able to understand the difference between orthographic view and isometric projections.

Syllabus

Unit - I

Scales, Conic Section & Engineering Curves Scales: Representative Factor, types of scales, principle and construction of different scales

Conic Section: Construction of ellipse, parabola and hyperbola by different methods; Normal and Tangent

Engineering Curves: Cycloid, Epicycloids, Hyper cycloid, Involutes, Archimedean and Logarithmic spirals.

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Unit - II

Projection of Points & Line Projection: Introduction to projection, Types of projection, terminology, first angle and third angle

Projection of Points: Introduction of point, conventional representation

Projection of Lines: Introduction of straight line, orientation of straight line, true inclination and true length, concepts of end projectors, plan and traces and auxiliary planes

Unit - III

Projections ofPlanes: Introduction of planes, types of planes, orientation of planes, projection of planes in different positions, traces of planes

Projection of Solids: Introduction of solids, classification of solids, recommended naming of corners of solids, orientation of solids

Unit - IV

Section of Solids & Development of Surfaces Section of Solids: Introduction of section of solids, terminology, types of section planes, section of prisms, section of pyramid and section of composite solids

Development of Surfaces: Introduction of development of surfaces, classification of surfaces, methods of development, development of prisms, pyramids, cylinder and cone, anti-development

Unit - V

Isometric Projections: Introduction of isometric projection, terminology, isometric projections and isometric views, isometric views of planes, right solids, truncated solids and composite solids.

References

1. Engineering Graphics by Varghese
2. Engineering Drawing by Leonel Zurbito
3. Engineering Drawing by Nor Azlan Ramli
4. Engineering Drawing by Ninad Watve
5. Engineering Drawing by N.D. Bhatt.
6. Engineering Drawing by C. Agarwal & Basant Agarwal.
7. Engineering Drawing by P.S. Gill.

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List of Experiments

1. Drawing various types of scales using representative fraction.
2. Drawing various conics section.
3. Projection of points in all quadrants.
4. Projection of straight lines in all quadrants in various orientations.
5. Projection of geometrical planes with various orientations.
6. Projection of solid models with various orientations.
7. Projection of section of solids by using various types of cutting planes.
8. Drawing development of surface using various methods of prisms, pyramids, cone, cylinder, etc.
9. Drawing anti- development of surfaces.
10. Drawing isometric projections using various methods and isometric views.

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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*	Th	T	P	CREDITS
BTEC 102	ODS	FUNDAMENTAL OF ELECTRONICS ENGINEERING	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):

The subject aims to provide the student with:

1. An understanding of basic Electronics Engg. abstractions on which analysis and design of electronic circuits and systems are based, basic devices(analog and digital) and instrumentation abstractions.
2. The capability to use abstractions to analyze and design simple electronic circuits.
3. The ability to formulate and solve the different logic circuits and Boolean equations.
4. An understanding of how devices such as semiconductor diodes, rectifiers, and bi-polar junction transistors are working and how they are used in the design of useful circuits.

Course Outcomes (COs):

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

The students will be able to

1. Students will: Learn how to develop and employ circuit models for elementary electronic components, e.g., resistors, sources, inductors, capacitors, diodes and transistors;
2. Become adept at using various methods of circuit analysis, including simplified methods such as series-parallel reductions, voltage and current dividers, etc.
3. Develop the capability to analyze and design simple circuits containing non-linear elements such as transistors using the concepts of load lines, operating points and incremental analysis;
4. Learn how the primitives of Boolean algebra are used to describe the processing of binary circuits and to use electronic components as building blocks in electronically implementing binary functions;

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Syllabus

UNIT-I

Evolution and Impact of Electronics in industries and in society, Familiarization of Resistors, Capacitors, Inductors, Transformers and Electro mechanical components, PN Junction diode: Structure, Principle of operation, Photo diode, LED, Solar cell.

UNIT-II

Rectifiers and power supplies: Half wave and full wave rectifier, capacitor filter, Zener voltage regulator, Bipolar Junction Transistors: Structure, Principle of operation, characteristics Amplifiers.

UNIT-III

Basic Instruments, electrical measurement – measurement of voltage , current , power & energy, voltmeters & ammeter , wattmeter , energy meter , , electronics instrument – multimeter, CRO(analog & digital),An overview of voltage regulator.

UNIT-IV

Number System: Introduction to binary, octal, decimal & hexadecimal systems, representation of negative numbers, 1's, 2's, 9's, 10's complement and their arithmetic. Introduction, Definitions, Principle of Duality, Basic Theorems, Applications of Boolean Algebra, Boolean Functions, Complement of Boolean Function. Logic Gates (Symbol, Truth Table, Logic Diagram): And, OR, NOT, NAND, NOR, XOR, XNOR. Universal Gates: NAND Gate and NOR Gate implementation.

UNIT-V

SIGNALS: Introduction, Representation of Discrete-time Signals: Graphical Representation, Functional Representation, Tabular Representation, Sequence Representation. Elementary Signals: Unit Step Function, Unit Ramp Function, Unit Parabolic Function, Unit Impulse Function, Sinusoidal Signal, Real Exponential Signal, Complex Exponential Signal, Rectangular Pulse Function, Triangular Pulse Function.

References

1. Bell, D. A., Electronic Devices and Circuits, Oxford University Press
2. Boylested, R. L. and Nashelsky, L., Electronic Devices and Circuit Theory, Pearson Education
3. Digital Design M. Morris Mano and Michael D. Ciletti, Pearson Education
4. AAnand Kumar, Signals and Systems, PHI.
5. Vijay Baru, RajendraKaduskar, Sunil T. Gaikwad, Basics of Electronics Engineering, Wiley India Pvt. Ltd

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List of experiments:

1. Familiarization with Laboratory Instruments (Oscilloscope, Function Generator, Digital Multimeter, DC Power Supply)
2. Characterization of Passive Circuit Elements (R, L, C)
3. Time & Frequency Response of RC and RL Circuits
4. V-I curve for P-N Junction Diodes.
5. V-I curve for Zener Diode.
6. Zener as a voltage regulator
7. Half-Wave and Full-Wave(Center tapped and Bridge) Rectifiers
8. Bipolar Junction Transistor (BJT) Circuits (Inverter, Common Emitter Amplifier)
9. Conversion of number system
10. Basic Combinatorial Circuits

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Name of Program B.TECH (Textile Engineering)

Subject code	Category	Subject name	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTCE101	ODS	FUNDAMENTAL OF CIVIL ENGINEERING	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):

The Students (A) Will Be Able to identify various civil engineering aspects (B) with emphasis on civil engineering materials, various surveys and major structures in civil engineering (C) efficiently & effectively (D)

Course Outcomes (COs):

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

The students will be able to

1. Understand and identify various building materials
2. Perform various surveys required to carry civil engineering work
3. Identify various aspects of remote sensing.
4. Get knowledge about various aspects of roads and dams.

Unit I

Building Materials

Stones, bricks, concrete, cement, lime, mortar ,timber-types, properties & uses. Nominal proportion of Concrete , preparation of concrete, compaction, curing.

Unit II

Construction Elements

Elements of Building Construction- Types and their suitability Foundations & footings, brick masonry walls, floors, roofs, Doors, windows, lintels, staircases.

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Unit III

Surveying
Introduction to surveying Instruments – levels, Theodolite, plane tables and related devices.. Measurement of distances –by EDM, measurement of directions by different methods, measurement of elevations by different methods. Reciprocal leveling.

Unit IV

Mapping & Sensing:
Mapping details and contouring, measurement of areas, volumes, application of measurements in quantity computations, Introduction of remote sensing and its applications.

Unit V

Roads: Types of Roads, Nagpur Road Plan, Components of Road and their function; Bridges: types and Important parts of bridges.

Reference Books:

1. S. Ramamrutam & R.Narayanan; Basic Civil Engineering, Dhanpat Rai Pub.
3. Punmia, B.C., Surveying, Standard book depot.
6. Surveying by Duggal – Tata McGraw Hill New Delhi.
7. Building Construction by S.C. Rangwala- Charotar publications House, Anand.
8. Building Construction by Grucharan Singh- Standard Book House, New Delhi
9. Global Positioning System Principles and application- Gopi, TMH

List of suggestive core Experiments:

Students are expected to perform experiments from the list suggested
Below by preferably selecting experiments from each unit of syllabus.

S. No. Title

1. To perform traverse surveying with prismatic compass, check for local attraction and determine corrected bearings and to balance the traverse by Bowditch's rule.
2. To perform leveling exercise by height of instrument of Rise and fall method.
3. To determine (a) normal consistency (b) Initial and Final Setting time of a cement Sample.
4. To determine the workability of fresh concrete of given proportions by slump test or compaction factor test.
5. To determine the Compressive Strength of brick.
6. To determine particle size distribution and fineness modulus of course and fine Aggregate.

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Name of Program B.TECH (Textile Engineering)

Subject code	Category	Subject name	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		TH	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX101	DCS	INTRODUCTION TO TEXTILE ENGINEERING	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):

Student will be able to:

1. Develop comprehensive understanding of Textile industry its products and its impact in a global scenario.
2. Develop comprehensive understanding in the area of textile technology, which includes fiber, yarn and fabric through independent study.
3. Develop the knowledge of different textile processes of the industries.

Course Outcomes (COs):

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

The students will be able to

1. Understand the influence of textile industry on indian and global economy
2. Demonstrate the fundamentals of textile fiber classifications.
3. Have better understanding of textile spinning processes of the industries.
4. Have better understanding of textile Weaving processes of the industries.
5. Have better understanding of textile chemical processes of the industries.
6. Have better understanding of Garment Processes of the industries.

Syllabus

Unit I

Textile Fibres: Over all View Of Textile industries in India, Textile terminology, Classification of fibres, Identification of fibers, General properties of fibres (length, strength, flexibility, spin-ability, uniformity, density, luster, moisture and moisture regain, elasticity, elastic recovery, elongation, water repellant fibres, resiliency and Compressibility)

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Unit II

Yarn Manufacturing/ Spinning: Definition - Staple fibre , Staple length, lint, linters etc types of yarns - spun yarn and filament yarn , Yarn count and yarn twist, yarn numbering system and Novelty yarns, introduction to the process of conversion of fibre to yarn,

Unit III

Fabric Manufacturing: Introduction to process of Conversion of yarn into fabric, Basic weaves and design, Knitted fabrics, Non-woven fabrics, Grey fabric inspection, introduction to terry towels and sheeting.

Unit IV

Textile Chemical Processing: Introduction to pretreatment process, Introduction to dyeing and printing, classification of dyes. Introduction to textile finishes, their object and functions.

Unit V

Garment Technology: Introduction to Garment Technology, overview of garment industry, process flow chat of garment manufacturing, Brief description of garment sampling, grading, marking, spreading, cutting, sewing, finishing and packing.

References

1. Talukdar MK; Winding & Warping.
2. Shennai VA; Fibre Science.
3. Klein; Technology of Short Staple Spinning.

List of experiments.

1. To study contamination in cotton
2. To study of spinning lab
3. To study of Weaving lab
4. To study of chemistry lab
5. To study of testing lab
6. To study of garment lab
7. To calculation of yarn count & Study yarn faults
8. Material passage through yarn manufacturing process
9. Material passage through weaving preparatory process
10. Material passage through weaving machine
11. Process flow of pretreatment and Dyeing process.
12. Process flow of garment manufacturing.

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Name of Program B.TECH (Textile Engineering)

Subject code	Category	Subject name	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTME103	ODS	WORKSHOP PRACTICES	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 paraphrases with workshop technology, industrial safety, and understand material properties.
2. To paraphrases with carpentry shop, fitting shop, welding and sheet metal shops.

Course Outcomes (COs):

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

The students will be able to

1. Student would be able to understand the need of workshop, technology related to it, and industrial safety and precautions.
2. Student would be able to use carpentry tools, analyse various wood joints and their properties.
3. Students would be able to use fitting tools to make various shapes and design.
4. Student would be able to recognize various welding techniques and their needs.

Students would be able to design various shapes by using sheet metals and tools related to it.

SYLLABUS-

UNIT I

INTRODUCTION TO WORKSHOP TECHNOLOGY & INDUSTRIAL SAFETY

WORKSHOP TECHNOLOGY- Introduction, need of workshop and types of workshop

INDUSTRIAL SAFETY- Introduction, objective of industrial safety, causes of accidents, common sources of accidents, preventive measures, and common safety methods.

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UNITII

CARPENTARY SHOP

CARPENTRY- Introduction, types of timbers, defects in timbers, timber prevention, characteristics of good timber, common tools used in carpentry shop (marking and measuring tools; cutting tools and striking tools), and common wood joints (cross-lap, corner-lap, dovetail and bridle joints).

UNIT III

FITTING SHOP

FITTING- Introduction, tools used in fitting shop (measuring tools, holding tools, cutting tools, striking tools and supporting tools) and operation performed in fitting work.

UNIT IV

WELDING SHOP

WELDING- Introduction, terminological elements of welding process, welding joints (lap joints and butt weld joint), welding positions, advantages and disadvantages of welding, classification of welding, gas welding processes and safety recommendation for gas welding.

UNIT V

SHEET METAL SHOP

SHEET METAL- Introduction, metal used in metal work, sheet metal tools (hand shears or snips**,** hammers, stakes, cutting tools and measuring tools), folding terminology of metal sheet joint, folded sheet metal joints and sheet metal operations.

LIST OF EXPERIMENTS-

1. To study various industrial safety precautions & preventive measures.
2. To study the various timber properties, its defects and its prevention.
3. To make various joints (L-joint, T-joint, Cross joint, etc.) using carpentry tools.
4. To perform various fitting shop operations using fitting tools.
5. To study various welding methods and its safety precaution.
6. To make various welding joints (Butt joints, Lap, joints, corner joints, etc).
7. To study sheet metal properties and safety precautions.
8. To make various shapes using sheet metal tools and terminologies.

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List of Textbooks-

1. Manufacturing Technology by P. N. Rao
2. Workshop Technology by B.S. Raghuvansi

List of Reference Books-

1. Production Technology by R.K. Jain
2. Principles of Manufacturing Material & Process - Campbeu

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