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			THEORY			PRACTICAL					
SUBJECT CODE	CATEGORY	SUBJECT NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS
BTGF201	DCS	TEXTILE AND GARMENT RAW MATERIAL	60	20	20	0	0	3	1	0	4

Name of Program: B.TECH (Garment and Fashion Technology)

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

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

Course Educational Objectives (CEOs):

- 1. The course will provide with comprehensive understanding of Textile and garment raw material, its properties and uses.
- 2. The course will also develop the knowledge of different textile processes and garment accessories.

Course Outcomes (COs):

Student will be able to:

- 1. To demonstrate the fundamentals of textile fiber classifications.
- 2. To have better understanding of textile and garment making processes.
- 3. To have better knowledge about garment accessories.

Course Contents:

Unit – I

Textile Natural Fibre:

Broad classification of fibre, natural fibers like cotton, jute flax hemp ramie silk wool etc. their physical and chemical properties, applications and their uses.

Textile Man Made Fibre:

Broad classification, synthetic fibre like viscose, nylon, polyester, acrylic, polypropylene etc. their physical and chemical properties, applications and their uses.

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Unit – II

Textile Yarns:

Manufacturing process of spun yarn, blended yarn, brief introduction of double yarn, folded yarn and plied yarn. Brief idea on sewing thread and fancy yarns.

Unit – III

Textile Fabric:

Concept on woven fabric, knitted fabric and nonwoven fabrics. Brief outlines of manufacturing of woven fabric, knitted fabric and nonwoven fabrics. Brief idea on weaving machines and garment making processes.

Unit – IV

Chemical Processing of Fabric:

General outline of textile chemical processing. General idea about pretreatment like singeing, desizing, scouring and bleaching. Concept of dyeing, printing and finishing. Concept of garment finishing.

Unit – V

Speciality material:

Leather, Canvas, jwellaries and assessories, zippers and fastners.

References:

- 1. Talukdar M K; Winding & Warping.
- 2. Shennai V A; Fibre Science.
- 3. Vaidya; Synthetic Fibre
- 4. Murthy H V S; Introduction to Textile Fibre.
- 5. Gohl and Vilensky L D; Textile Science
- 6. Klein; Technology of Short Staple Spinning.
- 7. Mishra S P; A text book of Fibre Science & Technology

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					TEACHI	NG &	EVALUA	ATION	SCH	EMI	E		
				Т	THEORY			PRACTICAL					
	SUBJECT CODE	CATEGORY	SUBJECT NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS	
	BTCH101	ODS	APPLIED CHEMISTRY	60	20	20	30	20	3	1	2	5	

Name of Program: B.TECH (Garment and Fashion Technology)

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 give basic knowledge of polymer science.
- 2. To understand and apply the knowledge of electrochemistry and its laws.
- 3. To give basic knowledge of corrosion and control over it.
- 4. To understand the various sophisticated instrumental techniques.
- 5. 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 and able:

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

Course Contents:

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,



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Teflon, Bakelite and Epoxy resins - compounding of plastics - moulding methods - injection, extrusion, compression

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.

List of Practical (Expand it if needed):

- 1. To estimate the strength of the given unknown solution of Mohr's salt (Ferrous ammonium sulphate (FeSO4(NH4)2SO4.6H2O) using KMnO4 solution as an intermediate.
- 2. Estimation of hardness by EDTA method.
- 3. Conductometric titration determination of strength of an acid
- 4. Estimation of iron by potentiometry.
- 5. Determination of molecular weight of polymer by viscosity average method
- 6. Determination of Na / K in water sample by Flame photometry (Demonstration)
- 7. Determination of total alkalinity and acidity of a water sample
- 8. Estimation of calcium ions present in tap water. (TDS)
- 9. To determine the viscosity of a given liquid (30% sugar solution) at room temperature using Ostwald's viscometer.
- 10. Testing of Flash point of lubricating oil by Pen sky Martins apparatus.
- 11. To determine the viscosity index by Red wood Viscometer 1 & 2.

References:

- 1. Engineering 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

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				TEA	CHING	& EVAL	LUATIO	N SCH	IEM	E	
]	THEORY			PRACTICAL				
SUBJECT CODE	CATEGORY	SUBJECT NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS
BTME101	ODS	ENGINEERING DRAWING	60	20	20	30	20	3	0	4	5

Name of Program: B.TECH (Garment and Fashion Technology)

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

*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 familiarize with concepts of scale, conic sections and engineering curves projections of points and line in all quadrants.
- 2. To do construction of geometrical figures& solids, with its orientation on horizontal and vertical planes, and its projection; section of solid, 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.

Course Contents:

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;



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Normal and Tangent

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

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 of Planes: 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 ofSurfaces Section ofSolids: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.

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.

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- 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.

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.

Chairperson

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SUBJECT CODE	CATEGORY	SUBJECT NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS		
BTEC102	ODS	FUNDAMENTAL OF ELECTRONICS ENGINEERING	60	20	20	30	20	3	1	2	5		

Name of Program: B.TECH (Garment and Fashion Technology)

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:

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.

- 1. The capability to use abstractions to analyze and design simple electronic circuits.
- 2. The ability to formulate and solve the different logic circuits and Boolean equations.
- 3. An understanding of how devices such as semiconductor diodes, rectifiers, and bipolar 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. 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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Course Contents:

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.

List of Practical (Expand it if needed):

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

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- 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

References:

- 1. Bell, D. A., Electronic Devices and Circuits, Oxford University Press
- 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. Anand Kumar, Signals and Systems, PHI.
- Vijay Baru, RajendraKaduskar, Sunil T. Gaikwad, Basics of Electronics Engineering, Wiley India Pvt. Ltd

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SUBJECT CODE	CATEGORY	SUBJECT NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS
BTCE101	ODS	FUNDAMENTAL OF CIVIL ENGINEERING	60	20	20	30	20	3	1	2	5

Name of Program: B.TECH (Garment and Fashion Technology)

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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SUBJECT CODE	CATEGORY	SUBJECT NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS	
BTGF202	DCS	APPAREL DESIGN	0	0	0	0	50	0	0	2	1	

Name of Program: B.TECH (Garment and Fashion Technology)

 $\label{eq:logends: L-Lecture; T-Tutorial/Teacher Guided Student Activity; P-Practical; C-Credit;$

***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 develop understanding of elements and principles of design and their relationships
- 2. To develop drawing a rendering skills.

Course Outcomes (COs):

Students will able to:

- 1. Recognize various pattern of design.
- 2. Generate the ideas for making various designs.
- 3. Create best material from waste.
- 4. Use drawing for observation, recording and analysis, as a means of thinking and for communication and expression

Course Contents:

Colour and Texture

- 1. Prepare one sheet for each element of design for fabric surface ornamentation
- 2. Colour schemes related colour schemes (monochromatic, analogous), contrasting colour schemes (single complimentary, Double complimentary, analogous complimentary, split complimentary, triad Complimentary), Neutral harmonies, neutral contrasts, other colour variations
- 3. Creating physical and visual textures on paper
- 4. Creating texture combinations on paper
- 5. Prepare swatch files for fabric samples and combinations on the basis

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Motif Study

- 1. Prepare motifs and patterns using various lines, shapes, etc.
- 2. Create stylized motifs and patterns using sources of inspiration (e.g. mango, fish, leaves, etc.)
- 3. Create compositions of motifs and patterns according to theory
- 4. Draw, colour and create patterns based on method of rendering (print, embroidery, textures etc.) and type of garment

Dyeing

1. Prepare dyed samples using different types of dyes (direct, vat, acid, cold dyes, etc.) in various colours

Printing and Painting

- 1. Prepare different patterns of block printing and one article
- 2. Prepare screen for one design print on sample and article
- 3. Prepare samples of one, two and three colour motifs using stencils
- 4. Prepare samples using various strokes(at least 05) of fabric painting and article

Yarn Craft

1. Prepare samples of yarn craft - drawn thread and beading, macramé, crocheting, U-pin, cross-stitch, nail and thread, etc.

References:

- 1. Textile Arts of India Vastra, Satheesan
- 2. Design for applied decoration in crafts by john Farleigh, G. Bell and sons ltd., U.K.
- 3. Design in Embroidery, Violet M. Endacott, Great Britain
- 4. Tie dyed Textiles of India, Veronica Murphy and Rosemary Crill, Rizzoli International Publication, 1991
- 5. Hand Painted Textiles for Home, Kazz Ball and Valerie Janitch, David and Charles, 1991
- 6. Batik with Noel Dyrenforth, John Houston, Orbis Publishing House, London, 1975
- 7. Fabric Dying and Printing, Stuart and Patricia Robinson, Butterworth and Co. U.K.
- 8. Tie Dying and Batik, Fay Anderson, Octopus Books Ltd., London, 1977
- 9. Shibori, Elfriede Moller, Search Press
- 10. Textiles-A Handbook for Designers, Marypaul Yates, W.W. Norton and Company, N.Y. London
- 11. Pustak Mahal series dying, printing and painting techniques

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Name of Flogram. D. FECH (Garment and Fashion Technology)											
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SUBJECT CODE	CATEGORY	SUBJECT NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	Т	Р	CREDITS
BTME103	ODS	WORKSHOP PRACTICES	0	0	0	30	20	0	0	2	1

Name of Program: B.TECH (Garment and Fashion Technology)

 $\label{eq:Legends: L-Lecture; T-Tutorial/Teacher Guided Student Activity; P-Practical; C-Credit;$

***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. To understand the need of workshop, technology related to it, and industrial safety and precautions.
- 2. To use carpentry tools, analyze various wood joints and their properties.
- 3. To use fitting tools to make various shapes and design.
- 4. To recognize various welding techniques and their needs.
- 5. To design various shapes by using sheet metals and tools related to it.

Course Contents:

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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Unit – II

Carpentry 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 Practical (Expand it if needed):

- 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).



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- 7. To study sheet metal properties and safety precautions.
- 8. To make various shapes using sheet metal tools and terminologies.

References:

- 1. Manufacturing Technology b P. N. Rao
- 2. Workshop Technology B.S. Raghuvansi
- 3. Production Technology R.K. Jain
- 4. Principles of Manufacturing Material & Process Campbeu

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