ANNA UNIVERSITY
CHENNAI - 600 025

UNIVERSITY DEPARTMENTS

REGULATIONS 2012
CURRICULA AND SYLLABI FOR I TO VIII SEMESTER

B.TECH. APPAREL TECHNOLOGY
(FULL TIME)
# I SEMESTER

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OBJECTIVES

• To enable all students of engineering and technology develop their basic communication skills in English.

• To give special emphasis to the development of speaking skills amongst the students of engineering and technology students.

• To ensure that students use the electronic media such as internet and supplement the learning materials used in the classroom.

• To inculcate the habit of reading for pleasure.

UNIT I 9+3
Listening - Introducing learners to GIE - Types of listening - Listening to audio (verbal & sounds); Speaking - Speaking about one's place, important festivals etc. – Introducing oneself, one's family / friend; Reading - Skimming a reading passage – Scanning for specific information - Note-making; Writing - Free writing on any given topic (My favourite place / Hobbies / School life, etc.) - Sentence completion - Autobiographical writing (writing about one's leisure time activities, hometown, etc.); Grammar - Prepositions - Reference words - Wh-questions - Tenses (Simple); Vocabulary - Word formation - Word expansion (root words / etymology); E-materials - Interactive exercises for Grammar & Vocabulary - Reading comprehension exercises - Listening to audio files and answering questions.

UNIT II 9+3
Listening - Listening and responding to video lectures / talks; Speaking - Describing a simple process (filling a form, etc.) - Asking & answering questions - Telephone skills – Telephone etiquette; Reading – Critical reading - Finding key information in a given text - Sifting facts from opinions; Writing - Biographical writing (place, people) - Lab descriptions (general/specific description of laboratory experiments) - Definitions - Recommendations; Grammar - Use of imperatives - Subject-verb agreement; Vocabulary - Compound words - Word Association; E-materials - Interactive exercises for Grammar and Vocabulary - Listening exercises with sample telephone conversations / lectures – Picture-based activities.

UNIT III 9+3
Listening - Listening to specific task - focused audio tracks; Speaking - Role-play – Simulation - Group interaction - Speaking in formal situations (teachers, officials, foreigners); Reading - Reading and interpreting visual material; Writing - Jumbled sentences - Coherence and cohesion in writing - Channel conversion (flowchart into process) - Types of paragraph (cause
& effect / compare & contrast / narrative / analytical) - Informal writing (letter/e-mail/blogs) - Paraphrasing; Grammar - Tenses (Past) - Use of sequence words - Adjectives; Vocabulary - Different forms and uses of words, Cause and effect words; E-materials - Interactive exercises for Grammar and Vocabulary - Excerpts from films related to the theme and follow up exercises - Pictures of flow charts and tables for interpretations.

UNIT IV 9+3
Listening - Watching videos / documentaries and responding to questions based on them; Speaking - Responding to questions - Different forms of interviews - Speaking at different types of interviews; Reading - Making inference from the reading passage - Predicting the content of a reading passage; Writing - Interpreting visual materials (line graphs, pie charts etc.) - Essay writing – Different types of essays; Grammar - Adverbs – Tenses – future time reference; Vocabulary - Single word substitutes - Use of abbreviations & acronyms; E-materials - Interactive exercises for Grammar and Vocabulary - Sample interviews - film scenes - dialogue writing.

UNIT V 9+3
Listening - Listening to different accents, Listening to Speeches / Presentations, Listening to broadcast & telecast from Radio & TV; Speaking - Giving impromptu talks, Making presentations on given topics; Reading - Email communication - Reading the attachment files having a poem/joke/proverb - Sending their responses through email Writing - Creative writing, Poster making; Grammar - Direct and indirect speech; Vocabulary - Lexical items (fixed / semi fixed expressions); E-materials - Interactive exercises for Grammar & Vocabulary - Sending emails with attachment – Audio / video excerpts of different accents, - Interpreting posters

TOTAL : 60 PERIODS

TEXT BOOKS

REFERENCE BOOKS

EXTENSIVE READERS
• Gates, Bill and Collins Hemingway. Business @ the Speed of Thought:

WEBSITE RESOURCES
1. www.uefap.com
2. www.eslcafe.com
3. www.listen-to-english.com
4. www/owl.english.purdue.edu
5. www.chompchomp.com

mA8151
MATHEMATICS – I
(Common to all branches of B.E. / B.Tech. Programmes)

OBJECTIVES
• To develop the use of matrix algebra techniques this is needed by engineers for practical applications.
• To make the student knowledgeable in the area of infinite series and their convergence so that he/ she will be familiar with limitations of using infinite series approximations for solutions arising in mathematical modeling.
• To familiarize the student with functions of several variables. This is needed in many branches of engineering.
• To introduce the concepts of improper integrals, Gamma, Beta and Error functions which are needed in engineering applications.
• To acquaint the student with mathematical tools needed in evaluating multiple integrals and their usage.
UNIT I  MATRICES


UNIT II  INFINITE SERIES


UNIT III  FUNCTIONS OF SEVERAL VARIABLES


UNIT IV  IMPROPER INTEGRALS


UNIT V  MULTIPLE INTEGRALS


TOTAL : 60 PERIODS

TEXT BOOKS

REFERENCES

PH8151 ENGINEERING PHYSICS L T P C
(Common to all Branches of B.E./B.Tech. Programmes) 3 0 0 3

OBJECTIVE
• To introduce the basic physics concepts relevant to different branches of Engineering and Technology.

UNIT I PROPERTIES OF MATTER

UNIT II ACOUSTICS AND ULTRASONICS
Classification of sound - loudness and intensity - Weber-Fechner Law - standard intensity and intensity level - decibel - reverberation - reverberation time - rate of growth and decay of sound intensity - derivation of Sabine’s formula - absorption coefficient and its determination - factors affecting acoustics of buildings : focussing, interference, echo, Echelon effect, resonance - noise and their remedies. Ultrasonics - production - magnetostriction and piezoelectric
methods - detection of ultrasound - acoustic grating - industrial applications - NDT - Ultrasonic method: scan modes and practice.

UNIT III  THERmAL PHYSICS


UNIT IV  APPLIED OPTICS


UNIT V  SOLID STATE PHYSICS

Nature of bonding - growth of single crystals (qualitative) - crystal systems - crystal planes and directions - expressions for interplanar distance - coordination number and packing factor for simple structures: SC, BCC, FCC and HCP - structure and significance of NaCl, ZnS, diamond and graphite - crystal imperfections: point defects, dislocations and stacking faults - unit cell, Bravais space lattices - miller indices.

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCE BOOKS
UNIT I  CHEMICAL THERMODYNAMICS

Second law: Entropy - entropy change for an ideal gas, reversible and irreversible processes; entropy of phase transitions; Clausius inequality. Free energy and work function: Helmholtz and Gibbs free energy functions; Criteria of spontaneity; Gibbs-Helmholtz equation; Clausius-Clapeyron equation; Maxwell relations – Van’t Hoff isotherm and isochore. Chemical potential; Gibbs-Duhem equation – variation of chemical potential with temperature and pressure.

UNIT II  POLYMER CHEMISTRY

Introduction: Classification of polymers – Natural and Synthetic; Thermoplastic and Thermosetting. Functionality – Degree of polymerisation. Types and mechanism of polymerisation: Addition (Free Radical, cationic, anionic and living); condensation and copolymerisation. Properties of polymers: Tg, Tacticity, Molecular weight – weight average, number average and polydispersity index. Techniques of polymerisation: Bulk, emulsion, solution and suspension.

UNIT III  KINETICS AND CATALYSIS


UNIT IV  PHOTOCHEMISTRY AND SPECTROSCOPY


UNIT V  NANOCHEMISTRY

Basics - distinction between molecules, nanoparticles and bulk materials; size-dependent properties. Nanoparticles: Nanocluster, nanorod, nanotube and nanowire. Synthesis:
Precipitation, thermolysis, hydrothermal, solvothermal, electrodeposition, chemical vapour deposition, laser ablation; Properties and Applications. Risk discussion and Future perspectives.

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCE BOOKS

GE8151 COMPUTING TECHNIQUES L T P C 3 0 0 3

UNIT I INTRODUCTION


UNIT II C PROGRAMMING BASICS

UNIT III  ARRAYS AND STRINGS


UNIT IV  FUNCTIONS AND POINTERS


UNIT V  STRUCTURES AND UNIONS

Introduction – need for structure data type – structure definition – Structure declaration – Structure within a structure - Union - Programs using structures and Unions – Storage classes, Pre-processor directives.

TOTAL : 45 PERIODS

TEXT BOOKS


REFERENCES


GE8152  ENGINEERING GRAPHICS  L T P C

OBJECTIVES

To develop in students, graphic skills for communication of concepts, ideas and design of engineering products and expose them to existing national standards related to technical drawings.
Importance of graphics in engineering applications – Use of drafting instruments – BIS conventions and specifications – Size, layout and folding of drawing sheets – Lettering and dimensioning.

UNIT I  PLANE CURVES AND FREE HAND SKETCHING

Basic Geometrical constructions, Curves used in engineering practices


Visualization concepts and Free Hand sketching:

Visualization principles – Representation of Three Dimensional objects – Layout of views- Free hand sketching of multiple views from pictorial views of objects

UNIT II  PROJECTION OF POINTS, LINES AND PLANE SURFACES

Orthographic projection- principles-Principal planes-First angle projection-Projection of points. Projection of straight lines (only First angle projections) inclined to both the principal planes - Determination of true lengths and true inclinations by rotating line method and trapezoidal method and traces

Projection of planes (polygonal and circular surfaces) inclined to both the principal planes by rotating object method.

UNIT III  PROJECTION OF SOLIDS

Projection of simple solids like prisms, pyramids, cylinder, cone and truncated solids when the axis is inclined to one of the principal planes by rotating object method and auxiliary plane method.

UNIT IV  PROJECTION OF SECTIONED SOLIDS AND DEVELOPMENT OF SURFACES

Sectioning of above solids in simple vertical position when the cutting plane is inclined to the one of the principal planes and perpendicular to the other – obtaining true shape of section. Development of lateral surfaces of simple and sectioned solids – Prisms, pyramids, cylinders and cones. Development of lateral surfaces of solids with cut-outs and holes.
UNIT VISOmETRIC AND PERSPECTIVE PROJECTIONS

Principles of isometric projection – isometric scale – Isometric projections of simple solids and truncated solids - Prisms, pyramids, cylinders, cones - combination of two solid objects in simple vertical positions and miscellaneous problems. Perspective projection of simple solids - Prisms, pyramids and cylinders by visual ray method and vanishing point method.

COMPUTER AIDED DRAFTING (DEmONSTRATION ONLY)

Introduction to drafting packages and demonstration of their use.

REFERENCES


PUBLICATION OF BUREAU OF INDIAN STANDARDS

SPECIAL POINTS APPLICABLE TO UNIVERSITY EXaminATIONS ON ENGINEERING GRAPHICS:

- There will be five questions, each of either or type covering all units of the syllabus.
- All questions will carry equal marks of 20 each making a total of 100.
- The answer paper shall consist of drawing sheets of A3 size only. The students will be permitted to use appropriate scale to fit solution within A3 size.
- The examination will be conducted in appropriate sessions on the same day.

**PH8161 PHYSICS LABORATORY**  
(common to all branches of B.E./B.Tech. Programmes)  
**L T P C**  
0 0 2 1

1. **Torsional pendulum** – Determination of rigidity modulus of wire and moment of inertia of disc
2. **Non – uniform bending** – Determination of young’s modulus
3. **Lee’s disc** – Determination of thermal conductivity of a bad conductor
4. **Potentiometer** – Determination of thermo e.m.f. of thermocouple
5. **Air wedge** – Determination of thickness of a thin sheet of paper
6. **i. Optical fibre** – Determination of Numerical Aperture and acceptance angle
   **ii. Compact disc** – Determination of width of the groove using laser
7. **Acoustic grating** – Determination of velocity of ultrasonic waves in liquids
8. **Post office box** – Determination of Band gap of a semiconductor
9. **Spectrometer** – Determination of wavelength using grating
10. **Viscosity of liquids** – Determination of co-efficient of viscosity of a liquid by Poiseuille’s flow

**TOTAL : 30 PERIODS**
1. Estimation of HCl using Na₂CO₃ as primary standard and Determination of alkalinity in water sample.
2. Determination of total, temporary & permanent hardness of water by EDTA method.
3. Determination of DO content of water sample by Winkler’s method.
4. Determination of chloride content of water sample by argentometric method.
5. Estimation of copper content of the given solution by Iodometry.
6. Determination of strength of given hydrochloric acid using pH meter.
7. Determination of strength of acids in a mixture of acids using conductivity meter.
8. Estimation of iron content of the given solution using potentiometer.
9. Estimation of iron content of the water sample using spectrophotometer (1,10-phenanthroline / thiocyanate method).
10. Estimation of sodium and potassium present in water using flame photometer.
14. Determination of CMC.
15. Phase change in a solid.

TOTAL: 30 PERIODS

REFERENCE BOOKS

LIST OF EXPERIMENTS
1. Search, generate, manipulate data using MS office/ Open Office
2. Presentation and Visualization – graphs, charts, 2D, 3D
3. Problem formulation, Problem Solving and Flowcharts
4. C Programming using Simple statements and expressions
5. Scientific problem solving using decision making and looping.
6. Simple programming for one dimensional and two dimensional arrays.
7. Solving problems using String functions
8. Programs with user defined functions
9. Program using Recursive Function and conversion from given program to flow chart.
10. Program using structures and unions.

TOTAL : 45 PERIODS

GE8162 ENGINEERING PRACTICES LABORATORY

OBJECTIVE
To provide exposure to the students with hands-on experience on various basic engineering practices in Civil, Mechanical, Electrical and Electronics Engineering.

GROUP – A (CIVIL & ELECTRICAL)

1. CIVIL ENGINEERING PRACTICE

PLUmbING
- Basic pipe connections involving the fittings like valves, taps, coupling, unions, reducers, elbows and other components used in household fittings. Preparation of plumbing line sketches.
- Laying pipe connection to the suction side of a pump – inlet.
- Laying pipe connection to the delivery side of a pump – outlet.
- Practice in mixed pipe connections: Metal, plastic and flexible pipes used in household appliances.

WOOD WORK
- Sawing, planning and making common joints: T-Joint, Mortise and Tennon joint, Dovetail joint.
- Study
• Study of joints in door panels, wooden furniture
• Study of common industrial trusses using models.

2. **ELECTRICAL ENGINEERING PRACTICE**

• Basic household wiring using switches, fuse, indicator – lamp etc.,
• Preparation of wiring diagrams
• Stair case light wiring
• Tube – light wiring
• Study of iron-box, fan with regulator, emergency lamp

**GROUP – B (mECHANICAL AND ELECTRONICS)**

3. **mECHANICAL ENGINEERING PRACTICE**

**WELDING**

• Arc welding of butt joints, lap joints, tee joints
• Gas welding Practice.
• Basic Machining
• Simple turning, drilling and tapping operations.
• Machine assembly Practice.
• Study and assembling the following:
• Centrifugal pump, mixies and air conditioners.
• Demonstration on
• Smithy operations like the production of hexagonal bolt.
• Foundry operation like mould preparation for grooved pulley.

4. **ELECTRONIC ENGINEERING PRACTICE**

• Soldering simple electronic circuits and checking continuity.
• Assembling electronic components on a small PCB and testing.
• Study of Telephone, FM radio, low-voltage power supplies.

**TOTAL : 45 PERIODS**
OBJECTIVES

• To make the students acquire listening and speaking skills meant for both formal and informal contexts
• To help them develop their reading skills by exposing them to different types of reading strategies
• To equip them with writing skills needed for academic as well as workplace situations
• To make them acquire language skills at their own pace by using e-materials and language lab component

UNIT I
Listening - Listening to informal conversations and participating; Speaking - Opening a conversation (greetings, comments on something, weather) - Turn taking - Closing a conversation (excuses, general wish, positive comment, thanks); Reading - Developing analytical skills, Deductive and inductive reasoning - Extensive reading; Writing - Effective use of SMS for sending short notes and messages - Using ‘emoticons’ as symbols in email messages; Grammar - Regular & irregular verbs - Active and passive voice; Vocabulary - Homonyms (e.g. ‘can’) - Homophones (e.g. ‘some’, ‘sum’); E-materials - Interactive exercise on Grammar and vocabulary – blogging; Language Lab - Listening to different types of conversation and answering questions.

UNIT II
Listening - Listening to situation based dialogues; Speaking - Conversation practice in real life situations, asking for directions (using polite expressions), giving directions (using imperative sentences), Purchasing goods from a shop, Discussing various aspects of a film (they have already seen) or a book (they have already read); Reading - Reading a short story or an article from newspaper, Critical reading, Comprehension skills; Writing - Writing a review / summary of a story / article, Personal letter (Inviting your friend to a function, congratulating someone for his success, thanking one’s friend / relatives); Grammar - modal verbs, Purpose expressions; Vocabulary - Phrasal verbs and their meanings, Using phrasal verbs in sentences; E-materials - Interactive exercise on Grammar and vocabulary, Extensive reading activity (reading stories / novels from links), Posting reviews in blogs - Language Lab - Dialogues (Fill up exercises), Recording students’ dialogues.

UNIT III
Listening - Listening to the conversation - Understanding the structure of conversations; Speaking - Conversation skills with a sense of stress, intonation, pronunciation and meaning
- Seeking information – expressing feelings (affection, anger, regret etc.); **Reading** - Speed reading – reading passages with the time limit - Skimming; **Writing** - Minutes of meeting – format and practice in the preparation of minutes - Writing summary after reading the articles from the journals - Format for the journal articles – elements of technical articles (abstract, introduction, methodology, results, discussion, conclusion, appendices, references) - Writing strategies; **Grammar** - Conditional clauses - Cause and effect expressions; **Vocabulary** - Words used as nouns and verbs without any change in the spelling (e.g. ‘rock’, ‘train’, ‘ring’); **E-materials** - Interactive exercise on Grammar & vocabulary - Speed Reading practice exercises; **Language Lab** - Intonation practice using EFLU materials – Attending a meeting and writing minutes.

**UNIT IV**

**Listening** - Listening to a telephone conversation, Viewing a model interview (face-to-face, telephonic and video conferencing) and observing the practices; **Speaking** - Role play practice in telephone skills - listening and responding, - asking questions, - note taking – passing on messages, Role play and mock interview for grasping the interview skills; **Reading** - Reading the job advertisements and the profile of the company concerned – scanning; **Writing** - Applying for a job – cover letter - résumé preparation – vision, mission and goals of the candidate; **Grammar** - Numerical expressions - Connectives (discourse markers); **Vocabulary** - Idioms and their meanings – using idioms in sentences; **E-materials** - Interactive exercises on Grammar & Vocabulary - Different forms of résumé- Filling up a résumé / cover letter; **Language Lab** - Telephonic interview – recording the responses - e-résumé writing.

**UNIT V**

**Listening** - Viewing a model group discussion and reviewing the performance of each participant - Identifying the characteristics of a good listener; **Speaking** - Group discussion skills – initiating the discussion – exchanging suggestions and proposals – expressing dissent/agreement – assertiveness in expressing opinions – mind mapping technique; **Reading** - Note making skills – making notes from books, or any form of written materials - Intensive reading **Writing** - Types of reports – Feasibility / Project report – report format – recommendations / suggestions – interpretation of data (using charts for effective presentation); **Grammar** - Use of clauses; **Vocabulary** – Collocation; **E-materials** - Interactive grammar and vocabulary exercises - Sample GD - Pictures for discussion, Interactive grammar and vocabulary exercises - Pictures for discussion; **Language Lab** - Different models of group discussion

**TOTAL : 60 PERIODS**

**TEXT BOOKS**


REFERENCE BOOKS

EXTENSIVE READERS

WEB RESOURCES
1. www.esl-lab.com
2. www.englishgrammar.org
3. www.englishclub.com
4. www.mindtools.com
5. www.esl.about.com

mA8251  MATHEMATICS II  L T P C
(Common to all branches of B.E. / B.Tech. Programmes in II Semester )  3 1 0 4

OBJECTIVES
- To make the student acquire sound knowledge of techniques in solving ordinary differential equations that model engineering problems.
- To acquaint the student with the concepts of vector calculus, needed for problems in all engineering disciplines.
• To develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow of electric current.

• To make the student appreciate the purpose of using transforms to create a new domain in which it is easier to handle the problem that is being investigated.

UNIT I DIFFERENTIAL EQUATIONS 9+3
Method of variation of parameters – Method of undetermined coefficients – Homogenous equation of Euler’s and Legendre’s type – System of simultaneous linear differential equations with constant coefficients.

UNIT II VECTOR CALCULUS 9+3
Gradient and directional derivative – Divergence and Curl – Irrotational and Solenoidal vector fields – Line integral over a plane curve – Surface integral and volume integral - Green’s, Gauss divergence and Stoke’s theorems – Verification and application in evaluating line, surface and volume integrals.

UNIT III ANALYTIC FUNCTION 9+3
Analytic functions – Necessary and sufficient conditions for analyticity - Properties – Harmonic conjugates – Construction of analytic function - Conformal mapping – Mapping by functions \( w = z + c, \ a z, \ \frac{1}{z}, \ z^2 \) - Bilinear transformation.

UNIT IV COMPLEX INTEGRATION 9+3

UNIT V LAPLACE TRANSFORMS 9+3

TOTAL: 60 PERIODS
TEXT BOOKS

REFERENCES

PH8254 PHYSICS FOR TECHNOLOGISTS L T P C 3 0 0 3

UNIT I ATOMIC STRUCTURE AND ELECTROMAGNETIC RADIATION 13
Study of Atomic Structure – Proton Neutron, and Electron; Radiation - photons and their wavelength energy relationship; The Dual nature of Particles and Radiation; The interaction of matter and radiation; The Crystal Lattice structure of matter; Tools to investigate structure - Electron generation – methods - their energy levels; X-ray generation – Composition – energy levels; Infra red radiation-molecular vibrations – mode and amplitude; Electromagnetic lenses – Magnification and focal length calculations.

UNIT II THERMODYNAMICS 9
Properties of Gasses - Boyle’s Law, Charles Law. The combined Gas Law; The Laws of Thermodynamics; Properties of Water; Water in the Atmosphere – Humidity and Relative Humidity, Water Ballance between the atmosphere and hydrophilic materials

UNIT III MECHANICAL PROPERTIES 6
Tensile Load and Deformation - stress and strain definitions - pressure. work and modulus of elasticity –; Bending Load and Deformation– bending rigidity - force couple study; Shear and Torsion – sheer and torsional rigidity; studies-measurements of the above methods of loading.
UNIT IV  OPTICAL AND FRICTIONAL STUDIES  9


UNIT V  ELECTRICAL PROPERTIES  9

Theory of electrical conductance and resistance – measurement of – units of – study of different materials; static charges – formation – measurement techniques – study of different materials; Dielectrics – formation – measurements – control measures.

TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCES

UNIT I  WATER  9

UNIT II  CHEmISTRY OF INTERFACES  

UNIT III  OILS, FATS, SOAPS & LUBRICANTS  
Chemical constitution, Chemical analysis of oils and fats – acid, saponification and iodine values, Definitions, determinations and significance.Definition, mechanism of lubrication, preparation of petrolubes, desirable characteristics – viscosity, viscosity index, carbon residue, oxidation stability, flash and fire points, cloud and pour points, aniline point. Semisolid lubricant – greases, preparation of sodium, lithium, calcium and axle greases and uses, consistency test and drop point test. Solid lubricants – graphite and molybdenum disulphide

UNIT IV  CHEmICALS AND AUXILIARIES  

UNIT V  COLORANTS  
Theory of color and constitution: chromophore and auxochrome,classification of dyes based on application. Chemistry and synthesis of , azo dye.

TOTAL : 45 PERIODS

REFERENCES

GE8251 ENGINEERING MECHANICS

OBJECTIVE
To develop capacity to predict the effect of force and motion in the course of carrying out the design functions of engineering

UNIT I BASICS AND STATICS OF PARTICLES 9 + 3


UNIT II EQUILIBRIUM OF RIGID BODIES 9 + 3

Free body diagram – Types of supports –Action and reaction forces –stable equilibrium – Moments and Couples – Moment of a force about a point and about an axis – Vectorial representation of moments and couples – Scalar components of a moment – Varignon’s theorem – Single equivalent force -Equilibrium of Rigid bodies in two dimensions – Equilibrium of Rigid bodies in three dimensions

UNIT III PROPERTIES OF SURFACES AND SOLIDS 9 + 3

Centroids and centre of mass– Centroids of lines and areas - Rectangular, circular, triangular areas by integration – T section, I section, - Angle section, Hollow section by using standard formula –Theorems of Pappus - Area moments of inertia of plane areas – Rectangular, circular, triangular areas by integration – T section, I section, Angle section, Hollow section by using standard formula – Parallel axis theorem and perpendicular axis theorem –Principal moments of inertia of plane areas – Principal axes of inertia-Mass moment of inertia –mass moment
of inertia for prismatic, cylindrical and spherical solids from first principle – Relation to area moments of inertia.

UNIT IV   DYNAMICS OF PARTICLES


UNIT V   FRICTION AND ELEMENTS OF RIGID BODY DYNAMICS

Friction force – Laws of sliding friction – equilibrium analysis of simple systems with sliding friction –wedge friction-. Rolling resistance -Translation and Rotation of Rigid Bodies – Velocity and acceleration – General Plane motion of simple rigid bodies such as cylinder, disc/wheel and sphere.

TOTAL : 60 PERIODS

TEXT BOOKS

REFERENCES
UNIT I    ELECTRICAL CIRCUITS  
Basic principles involved in power generation, transmission and use – Ohms Law Kirchoff’s Law – steady state solution of DC circuits – Theorem: Thevinin’s, Norton’s and Superposition Theorems.

UNIT II   AC CIRCUITS  
Introduction to AC circuits – waveforms and RMS value – power and power factor, single phase and three-phase balanced circuits, housing wiring, industrial wiring, materials of wiring.

UNIT III  ELECTRICAL MACHINES 

UNIT IV  ELECTRONIC DEVICES & CIRCUITS  

UNIT V  MEASUREMENTS & INSTRUMENTATION  
Introduction to transducers: pressure, temperature, position, electrical measurements - Classification of instruments – moving coil and moving iron ,Ammeter and Voltmeter – multimeters – dynamometer type Wattmeter – three-phase power measurements – energy meter – megger – instrument transformer (CT and PT)

TOTAL : 45 PERIODS

REFERENCES

PH8261   APPLIED PHYSICS LABORATORY    L T P C
0 0 2 1

LIST OF EXPERiMENTS
1. X-ray powder method
2. Study of crystal lattices
3. Torsion test
4. Density measurements of fibres
5. Electrical resistance measurement
6. Optical absorption – Spectrometer
7. FTIR study
8. pH measurement
9. Thermal conductivity
10. Di-electric constant
11. Viscosity of liquid
12. Strain gauge meter – Young’s modulus
13. Instrumentation amplifier
14. Electrical conductivity
15. Creep characterization
16. Melt flow index of polymers

TOTAL : 30 PERIODS
LIST OF EXPERIMENTS

1. Preparation of solutions with various normality and molarity.
2. Determination of Redwood / Saybolt numbers, kinematic viscosity and viscosity index of lubricating oils
3. Determination of flash point, fire point, cloud and pour point of oils
4. Determination of acid value, saponification number and iodine value of oils
5. Determination of total, temporary, permanent, calcium and magnesium hardness of water samples
6. Determination of chloride, sulphate and COD of water samples
7. Determination of purity of washing soda and strength of a commercial acid
8. Estimation of available chlorine in hypochlorite solution
9. Estimation of strength of hydrogen peroxide
10. Synthesis of a dye, preparation of soap and a defoamer

TOTAL: 30 PERIODS

LIST OF EXPERIMENTS

EE8261 ELECTRICAL AND ELECTRONICS LABORATORY

1. Study of DC & AC Starters
2. Wheatstone Bridge and Schering Bridge
3. Speed Control of DC Shunt Motor
4. Load Test on DC Shunt Motor
5. OCC & Load Characteristics of DC Shunt Generator
6. Load Test on Single-Phase Transformer
7. Load Test on Three-Phase Induction Motor
8. Load Test on Single-Phase Induction Motor
9. Study of Transducers
10. ADC and DAC Converters

TOTAL: 45 PERIODS
OBJECTIVES

- To make the students acquire a sound knowledge in statistical techniques that model engineering problems.
- The Students will have a fundamental knowledge of the concepts of probability.

UNIT I RANDOM VARIABLES 9+3

Discrete and Continuous random variables – Moments – Moment generating functions – Binomial, Poisson, Geometric, Uniform, Exponential, Gamma, Weibull and Normal distributions - Functions of a random variable.

UNIT II TWO-DIMENSIONAL RANDOM VARIABLES 9+3

Joint distributions – Marginal and Conditional distributions – Covariance – Correlation and Linear regression – Transformation of random variables – Central limit theorem (for independent and identically distributed random variables).

UNIT III TESTS OF SIGNIFICANCE 9+3


UNIT IV DESIGN OF EXPERIMENTS 9+3

Completely randomized design – Randomized block design – Latin square design - 2^2 - factorial design - Taguchi’s robust parameter design.

UNIT V STATISTICAL QUALITY CONTROL 9+3

Control charts for measurements (X and R charts) – Control charts for attributes (p, c and np charts) – Tolerance limits - Acceptance sampling.

TOTAL: 60 PERIODS
TEXT BOOKS

REFERENCES

GE8351 ENVIRONMENTAL SCIENCE AND ENGINEERING  L T P C  3 0 0 3
UNIT I ENVIRONmENT, ECOSYSTEmS AND BIODIVERSITY 14
Definition, scope and importance of environment – need for public awareness - concept of an ecosystem – structure and function of an ecosystem – producers, consumers and decomposers – energy flow in the ecosystem – ecological succession – food chains, food webs and ecological pyramids – Introduction, types, characteristic features, structure and function of the (a) forest ecosystem (b) grassland ecosystem (c) desert ecosystem (d) aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) – Introduction to biodiversity definition: genetic, species and ecosystem diversity – biogeographical classification of India – value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values – Biodiversity at global, national and local levels – India as a mega-diversity nation – hot-spots of biodiversity – threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts – endangered and endemic species of India – conservation of biodiversity: In-situ and ex-situ conservation of biodiversity.

Field study of common plants, insects, birds

Field study of simple ecosystems – pond, river, hill slopes, etc.
UNIT II ENVIRONmENTAL POLLUTION

Definition – causes, effects and control measures of: (a) Air pollution (b) Water pollution (c) Soil pollution (d) Marine pollution (e) Noise pollution (f) Thermal pollution (g) Nuclear hazards – soil waste management: causes, effects and control measures of municipal solid wastes – role of an individual in prevention of pollution – pollution case studies – disaster management: floods, earthquake, cyclone and landslides.

Field study of local polluted site – Urban / Rural / Industrial / Agricultural.

UNIT III NATURAL RESOURCES

Forest resources: Use and over-exploitation, deforestation, case studies- timber extraction, mining, dams and their effects on forests and tribal people – Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems – Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies – Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies – Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. case studies – Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification – role of an individual in conservation of natural resources – Equitable use of resources for sustainable lifestyles.

Field study of local area to document environmental assets – river / forest / grassland / hill / mountain.

UNIT IV SOCIAL ISSUES AND THE ENVIRONmENT


TOTAL : 45 PERIODS

TEXT BOOKS

REFERENCE BOOKS

AT8301 TECHNOLOGY OF FABRIC FORMATION

UNIT I PREPARATION OF YARN FOR WEAVING 12
Principles of winding and winding machines; yarn clearing and process control.

UNIT II PREPARATION OF BEAm FOR WEAVING 12
Types of warping and machines, sizing recipe and sizing application, drawing and denting

UNIT III SHEDDING 12
Shedding mechanisms for shuttle and shuttles weaving machines;
UNIT IV PICKING AND BEAT-UP

Principles of weft insertion by shuttle, projectile, jet and rapier; multi-phase weaving systems

UNIT V SECONDARY AND AUXILIARY MOTIONS

Beat-up mechanisms, Take-up and let-off motions; warp protectors; warp and weft stop motions; automations. Woven fabric defects.

REFERENCES


TOTAL: 60 PERIODS
UNIT I    GINNING AND BLOW ROOM MACHINES


UNIT II    CARDING AND DRAWING MACHINE

Carding – objectives, principles of carding, draft and production calculation. Drawing machine – objectives, drafting system – types and applications, draft and production calculation, principles of auto levelers

UNIT III   COMBER AND ROVING MACHINE


UNIT IV   RING SPINNING MACHINE AND YARN TWO-FOLDING


UNIT V    NEW SPINNING SYSTEMS

Principles of yarn formation – rotor, friction and air-jet spinning machines; self twist, wrap, twist less spinning system.

TOTAL : 60 PERIODS

REFERENCES

7. Lord P. R., “Yarn Production: Science, Technology and Economics“, The Textile Institute, Manchester, 1999

TT8351 CHARACTERISTICS OF TEXTILE FIBRES I

UNIT I STRUCTURE OF FIBRES

Study of structures of natural and man-made fibers – physical, chemical and morphological structures. Molecular conformations – planar zig-zag, helical, lamellar, and sphrulite conformations.

UNIT II STRUCTURE INVESTIGATION TECHNIQUES

Transmission and Scanning electron microscopes-principle construction and working; X-ray diffraction techniques – X-ray analysis-estimation of crystallinity; Infrared radiation and dichroism techniques – chemical element and group identification by transmittance and
optical density methods. Molecular orientation estimation, Typical molecular structures of commercially important fibers.

UNIT III  MOISTURE ABSORPTION CHARACTERISTICS OF FIBRES  9


UNIT IV  TENSILE CHARACTERISTICS OF FIBRES  9

Tensile characteristics – Study of strength, elongation, work of rupture, initial modulus, work factor and yield point – determination of yield point. Stress-strain relations of natural and man-made fibres - influence of humidity and temperature on tensile characteristics . Time effects- Study of creep phenomena.

UNIT V  ELASTIC RECOVERY BEHAVIOUR OF FIBRES  9

Elastic recovery and its relation to stress and strain of fibres; mechanical conditioning of fibres and its influence on elastic recovery. Load cycling and extension cycling - their effect on elastic recovery.

TOTAL : 45 PERIODS

REFERENCES


**AT8311 SEWING PRACTICE LABORATORY**

**LIST OF EXPERIments**
Basics of sewing operation

- Needle attaching and threading
  - Single needle, double needle, over-lock and feed-of-the-arm machine
- Pedal and knee lifter operations practice.
- Winding the bobbin thread – adjusting the bobbin thread tension.
- Adjusting the stitch length, needle thread tension nut, pressure of presser foot, feed-dog, thread take-up spring and needle thread take-up lever.

a) Sewing exercise on paper
   - Exercise 1-Parallel line
   - Exercise 2 -Corners
   - Exercise 3 -Concentric squares
   - Exercise 4 -Curves
   - Exercise 5 –Concentric curves

b) Stitching exercise on fabric panels
   - Exercise 1-Parallel line
   - Exercise 2 -Corners
   - Exercise 3 -Concentric squares
   - Exercise 4 -Curves
   - Exercise 5 –Concentric curves

**TOTAL : 45 PERIODS**
LIST OF EXPERIMENTS

1. Material passage and production calculation in ginning machine
2. Material passage and production calculation in scutcher
3. Material passage and production calculation in carding
4. Material passage and production calculation in comber
5. Material passage and production calculation in draw frame
6. Material passage and production calculation in speed frame
7. Material passage, draft, twist and production calculation in ring frame
8. Material passage and production calculation in rotor spinning machine
9. Material passage and production calculation in winding machine
10. Timing diagram of weaving machine
11. Shedding mechanism and calculation of loom speed
12. Picking mechanism and calculation of shuttle speed
13. Beat-up mechanism and loom timing of primary motion
14. Let-off and take-up mechanism
15. Auxiliary mechanisms

TOTAL: 45 PERIODS

CH8351 SOLID MECHANICS FOR TECHNOLOGISTS

AIM
To given them knowledge on structural, Mechanical properties of Beams, columns.

OBJECTIVES
- The students will be able to design the support column, beams, pipelines, storage tanks and reaction columns and tanks after undergoing this course. This is precursor for the study on process equipment design and drawing.

OUTCOMES:
- Solve the problems related to the structural components under various loading conditions
UNIT I  STRESS, STRAIN AND DEFORMATION OF SOLIDS  9

UNIT II TRANSVERSE LOADING ON BEAMS  9

UNIT III DEFLECTIONS OF BEAMS  9
Double integration method – Macaulay’s method – Area – moment theorems for computation of slopes and deflections in beams.

UNIT IV STRESSES IN BEAMS  9

UNIT V TORSION AND COLUMNS  9

TOTAL : 45 PERIODS

TEXT BOOKS
REFERENCE
UNIT I  LAYING AND CUTTING  

UNIT II  SEAMS AND STITCHES  
The properties of seams, seam types and classes, Stitch types and classes, machine elements in sewing, sewing threads and their basic requirements in sewing, problems in sewing, quality of sewing and standards.

UNIT III  GARMENT COMPONENTS AND FUNCTIONAL PURPOSES  
Ladies and men’s tops - basic blocks, collars, sleeves, cuffs, pleats, gatherings and darts, skirts.


UNIT IV  STYLES AND OPERATION BREAK DOWN  
Operations break down for shirts, trousers, blouses, jackets, dresses. Material flow, cut component progresses, tracking and machinery allocation, labour allocation and skill levels.

UNIT V  PRODUCTION PROCESSES  
Line set up, production line balancing, different production system, manual system, make through system, batch production system, progressive bundle system, straight line system, progressive bundle system, conveyor belt system, unit production system, modular production system, quick response system and Just in time system.

TOTAL : 45 PERIODS
REFERENCES

AT8402 PATTERN ENGINEERING I L T P C 4 0 0 4

UNIT I BASICS OF ANTHROPOmETRICS AND SIZING SYSTEmS 18
Anthropometry measurements, Human Anatomy, Landmark terms, Perception of body appearance, its relation to clothing, clothing sizing systems, Illusions created by clothing, Body ideals-Eight head theory: body proportions, height and weight distribution.

UNIT II STUDY OF BODY mEASUREmENTS 6
Important body measurements across all age groups, Methods of measuring body dimensions, Standard measurement chart-designation and control dimensions.

UNIT III RUDImENTS TO PATTERN mAKING 12
Functions of pattern making tools, Preparing and Measuring the Form, Trueing, blending, pattern grain line, balance line terms, notches, seam allowance, jog seam, dart points, pleats, flares, gather and true bias.

UNIT IV BASIC PATTERN SET 12
Pattern making - Drafting and draping methods. Basic men’s and women’s block.
UNIT V  PATTERN MAKING - PRINCIPLES


TOTAL : 45 PERIODS

REFERENCES


UNIT I  FABRIC INSPECTION AND SPREADING MACHINES  9


UNIT II  CUTTING MACHINES  9

Mechanism of straight knife cutting machines, rotary cutting machines, band knife cutting machines, die cutting, laser cutting, plasma cutting, water jet cutting and ultra sonic cutting; Notches, drills and thread markers; Computer interfaced cutting machines.

UNIT III  SEWING MACHINES  9

Sewing machines – primary and secondary components; Working principle, stitch formation and timing diagram - lock stitch and chain stitch; single needle and double needle lock stitch mechanism: needle bar, hook – rotary and feed mechanism; Needles – geometry, types and selection
UNIT IV  SPECIAL SEWING MACHINES

Over lock, Flatlock, Feed off arm, button fixing and button holing; Embroidery machines – mechanism and stitch formation; Sewing machines feed mechanisms; sewing machine attachments

UNIT V  FINISHING MACHINES

Molding machineries; Shrinking machineries – London shrinking, hot-water shrinking, steam sharking and compaction shrinkage; Pressing machineries – buck pressing, iron pressing, block or die pressing, form pressing, steamers and advanced pressing machineries; Pleating – principles and mechanics machineries.

TOTAL : 45 PERIODS

REFERENCES

TT8451  CHARACTERISTICS OF TEXTILE FIBRES II  LTPC
3 0 0 3

UNIT I  TORSIONAL CHARACTERISTICS


UNIT II  FLEXURAL CHARACTERISTICS

Flexural rigidity of fibres – measurement techniques - Flexural rigidity and its relation to other fibre properties - comparison of various fibres.
UNIT III  OPTICAL CHARACTERISTICS

Reflexion and Lustre-objective and subjective methods of measurement - refractive index and its measurement - birefringence, factors influencing birefringence - Absorption and dichroism

UNIT IV  FRICTIONAL CHARACTERISTICS

Friction - static, limiting and kinetic friction, its measurement, comparison of fibres, directional friction in wool - frictional and surface characteristics of natural and synthetic fibres - friction and lubrication.

UNIT V  ELECTRICAL AND THERmAL CHARACTERISTICS

Electrical resistance of fibres - measurement, factors influencing electrical resistance; di-electric behaviour - factors influencing di-electric properties; static electricity - measurement, problems and elimination techniques; thermal conductivity, thermal expansion and contraction, melting.

TOTAL : 45 PERIODS

REFERENCES

UNIT I

Elementary weaves – plain and its derivatives, twill and its derivatives, satin, sateen and their derivatives – loom requirements

UNIT II

Ordinary and Brighten Honey Comb; Huck-a-Back and its modifications; Mock Leno; crepe weaves; colour theory – light and pigment theory; modification of colour; application of colours; colour and weave effects – loom requirements

UNIT III

Bedford cords - plain and twill faced, wadded; welts and piques, wadded piques; backed fabrics - warp and weft, reversible and non-reversible fabrics; extra warp and extra weft figuring - single and double colour – loom requirements

UNIT IV

Pile fabrics; warp pile - wire pile, terry pile, loose backed; weft pile – plain back and twill back velveteen, lashed pile, corduroy, weft plush – loom requirements

UNIT V

Double cloth, types of stitches; Damasks; Gauze and Leno principles – loom requirements, 3D fabrics

TOTAL: 45 PERIODS

REFERENCES


LIST OF EXPERImENTS

- Specification of the different types of sewing machine
  - Sewing speed
  - Stitch length
  - Feed dog
  - Height of the feed dog
- Study on the various mechanism of the sewing machine
  - Needle Bar working
  - Hook Mechanism
  - Feed and presser
  - Threading and Tensioning
- Analyzing the various operation of the sewing machine
  - operating on the pedal
  - Back tacking
  - Bobbin winding and setting the bobbin case
  - Fixing the needle
  - Threading the machine
- Study on the various adjustment of the sewing machine
  - Stitch length
  - Tension ( needle and bobbin thread)
  - Pressure on the pressure foot
  - Thread take up spring
  - Feed dog height
- Feed timing
- Needle and hook timing
- Needle bar height

TOTAL : 45 PERIODS

**TT8461 CLOTH ANALYSIS LAB**

(Community with B.Tech. Textile Technology Programme) 0 0 3 2

Analysis of construction details of the following fabric structure

1. Plain and its derivatives
2. Twill and its derivatives
3. Satin (Regular and irregular)
4. Sateen (Regular and irregular)
5. Honeycomb (ordinary and Brighton)
6. Huck-a-back
7. Extra warp and extra weft figuring
8. Pile fabrics (warp and weft)
9. Backed fabrics
10. Gauze and Leno
11. Double cloth
12. Crepe
13. Tapestry
14. Mock-leno
15. Bedford cord.
16. Single jersey
17. Double jersey structures
18. Analysis of blend composition in the yarn of the fabric
19. Analysis of finish on the fabric

TOTAL : 45 PERIODS
UNIT I
Control parameters and basic data of styles and generalised garment types, new program analysis, style wise design wise analysis on production parameters, product development and duplication. Concepts of concurrent engineering, reverse engineering, production planning and time and action calendar, steps between prototypes to approved sample-production sample, product data management and understanding specification sheets and effective communication.

UNIT II
Operation break down and production sequence, identification of bottle necks and critical area, operation wise machinery allocation, usage of special attachments and tools for operation simplifications, production grid and flow chart.

UNIT III
Cutting techniques, cutting room controls, lay lot planning, bundle distributions, modern methods in cut piece distribution and tracking different manufacturing systems, mass customisation and made to order manufacturing systems advantages disadvantages and control measures in sewing.

UNIT IV
Production planning -Production floor balancing, line balancing, allocation of man power, production set up planning for a shirt factory, production set up planning for a bottoms and jacket factory, production set up planning for a fully integrated apparel manufacturing plant, conveyer system and control parameters.

UNIT V
Quality control in product development, quality control in printing, embroidery, washing and other accessories, quality planning, preproduction meetings and quality procedures, production meetings, in line inspection, final inspection, rescreening conditions and final inspections. Packing - Ratio packing, solid packing, short shipment, excess shipment, calculation of volumetric weight, carton dimension other requirements.

TOTAL : 45 PERIODS
REFERENCES

AT8502 PATTERN ENGINEERING II

UNIT I PATTERNS FOR COLLARS AND SLEEVES
Collar classification and terms, basic shirt collar, Peter Pan collar, sailor collar, mandarin collar, built-up neck lines, Cowls, Sleeve cap, sleeve cuffs, puff, petal, lantern and leg-of-mutton sleeves.

UNIT II PATTERNS FOR POCKET, PLACKET AND FACINGS
Pocket classification, outside pockets, inserted pocket and side-seam pocket. Pointed, Slit opening and Wing collar plackets. Facing patterns for cutout necklines and armholes.

UNIT III FOUNDATIONS FOR TOPS AND BOTTOM WEAR
UNIT IV  PATTERN FOR KNITS, ACTION WEAR AND SWIMWEAR


UNIT V  PATTERN ALTERATIONS AND GRADING

Pattern alteration for fit, Factors affecting the pattern making process. Grading process, grade rules, and types of grading system.

REFERENCES

TOTAL : 45 PERIODS

AT8503  TEXTILE CHEmICAL PROCESSING I  L T P C

UNIT I  3 0 0 3

Operation sequence in chemical processing of cotton, silk, wool, rayon, polyester, polyamide, polyester and cellulosic blend materials with emphasis on the objectives of each operation.

UNIT II

Scouring; bleaching and mercerization of cotton; preparatory process for wool and silk.

UNIT III

Stages involved in dyeing process, principle of application of direct, reactive, vat, acid, disperse and natural dyes. Principles of working of loose fibre, yarn and fabric processing machines.
UNIT IV

Printing methods and styles of printing; general constitution of printing paste, printing with pigments, principles of transfer and ink-jet printing, dyeing and printing faults, assessment of fastness properties of dyed and printed goods

UNIT V

Fundamentals of colour science, assessment of colour of dyed and printed goods; basics of colour matching technique; assessment of whiteness and yellowness indices and colour difference; pass/fail decision making.

TOTAL : 45 PERIODS

REFERENCES
UNIT I

Garment components and trimmings – labels and motifs, linings, interlining wadding, lace, braid and elastic, seam binding and tape, shoulder pads, eyelets and laces, zip fasteners, buttons – tack buttons, snap fastener and rivets; buckles, frag closures, belts, ribbons, fringe, emblems and sequins, decorative and functional trimmings; performance properties of components and trims.

UNIT II

Hook and loop fastening (Velcro), Zippers – anatomy of zipper, types, function of zipper, position of slider, standards on zipper, selection of zipper, application of zipper, shortening of zipper; evaluation of quality of accessories

UNIT III

Embroideries - basic embroidery stitches – chain stitch, button hole stitch, herringbone stitch, feather stitch, lazy daisy, double knot stitch, interlacing stitch, stem stitch, French knot stitch, types of embroidery machines, limitations of hand embroidery; kaustic embroidery; kasida, kathiwar; Sind; chickankari; zardosai; tribal embroideries.

UNIT IV

Fashion accessories – footwear, handbags, gloves, hats, scarves, hosiery, jewelry, watches; testing of zippers, elastic waist band testing, fusible interlinings; safety issues for different accessories in children garment.

UNIT V

Printing – introduction; different methods – block printing, roller, screen, discharge, resist and pigment; styles of printing - batik, tie and dye, patch work, appliqué work, bead work

TOTAL : 45 PERIODS

REFERENCES

UNIT I

Sewing thread – requirements and characteristics - sewability of the thread, seam efficiency index, tensile properties, abrasion resistance, friction, heat resistance, shrinkage, snarling tendency, fastness, mass evenness.

UNIT II

Types of sewing thread – spun threads, core spun threads, filament threads; sewing thread production method; characteristics and application of high performance sewing threads - aramid threads, ceramic threads, polypropylene threads, polyethylene threads, polytetrafluoroethylene threads, fiberglass threads, other sewing threads – tencel, acrylic, linen, elastic, soluble; embroidery threads.

UNIT III

Ticket number in sewing threads; testing of sewing threads – physical and chemical properties; sewing performance – control of missing stitches and seam puckering, factors affecting seam strength.

UNIT IV

Selection of sewing thread for different end uses

TOTAL : 45 PERIODS

REFERENCES

HS8561 EmPLOYABILITY SKILLS (Lab / Practical Course) L T P C 0 0 2 1
(Common to all branches of Fifth or Sixth Semester B.E / B.Tech programmes)

OBJECTIVES

• To enhance the employability skills of students with a special focus on Presentation skills, Group discussion skills and Interview skills
• To help them improve their soft skills, including report writing, necessary for the workplace situations
  2. Creating effective PPTs – presenting the visuals effectively
  3. Using body language with awareness – gestures, facial expressions, etc.
  4. Preparing job applications - writing covering letter and résumé
  5. Applying for jobs online - email etiquette
  6. Participating in group discussions – understanding group dynamics - brainstorming the topic
  7. Training in soft skills - persuasive skills – sociability skills - questioning and clarifying skills – mock GD
  8. Writing reports – collecting, analyzing and interpreting data – drafting the report
  9. Attending job interviews – answering questions confidently
  10. Interview etiquette – dress code – body language – mock interview

TOTAL : 30 PERIODS

REQUIREmENTS FOR A CLASS OF 30 STUDENTS

• A PC or a lap top with one or two speakers
• A Collar mike and a speaker
• An LCD projector and a screen
• CD’s and DVD’s on relevant topics
• Individual chairs for conducting group discussions

REFERENCE BOOKS


EXTENSIVE READERS

WEB RESOURCES
1. www.humanresources.about.com
2. www.careerride.com

AT8511 FASHION DESIGN LABORATORY

DEVELOPMENT AND DESIGNING MEN’S DRESSES FOR VARIOUS SEASONS AND ILLUSTRATIONS WITH FABRIC PATTERNS
1. Experimenting with solids,
2. Experimenting with stripes
3. Experimenting with checks and plaids
4. Designing office dresses & Work wear
5. Designing casual wear
6. Designing party wear

DEVELOPMENT AND DESIGNING WOMEN’S DRESSES FOR VARIOUS SEASONS AND ILLUSTRATION WITH FABRIC PATTERNS
1. Experimenting with drape,
2. Experimenting with dress length
3. Experimenting with different fit’s
4. Experimenting with colors and motifs
5. Designing office dressing & work wear
6. Designing casual wear
7. Designing party wear
8. Designing bridal wear
9. Designing functional and maternity dresses

CHILDREN DRESSING
1. Experimenting garment designs with comfort, fit and functionality
2. Experimenting with colors and motifs
3. Designing casual wear
4. Designing uniforms

INTImATE APPARELS
1. Designing Loungers
2. Designing Inner wear for men and children

TOTAL: 45 PERIODS

AT8512 PATTERN mAKING LABORATORY L T P C 0 0 3 2

LIST OF EXPERImENTS
1. Measuring the Form – Male, female and child.
2. Formulating standard measurement chart.
3. Drafting the basic pattern set using the above measurement chart.
4. Single dart series slash spread technique
5. Single dart series pivotal transfer technique
6. Double dart series slash spread technique
7. Double dart series pivotal transfer technique.

TOTAL: 45 PERIODS
UNIT I

Finishing - Calendering, shrink proofing, antistatic finish, softening, water and flame proofing, UV protection, antimicrobial finish, resin finishing – crease recovery, wash and wear and durable press finishes

UNIT II

Standard methods of assessment of all the above finishes

UNIT III

Selection of garment accessories for garment dyeing; preparation of garments for dyeing; garment dyeing machines; physical finishes for garments.

UNIT IV

Selection of dyes and auxiliaries for garment dyeing; printing machines for garments and unconventional printing techniques; washing of denim and other garments, laundering and stain removal.

UNIT V

Eco friendly chemical processes, banned dyes and chemicals, evaluation techniques for assessment of these agents, permissible limits for objectionable agents.

REFERENCES


TOTAL : 45 PERIODS
UNIT I
Definition and Scope of retailing, current global and Indian retail scenario in garment and fashion, key drivers of Indian apparel retail business, growth of organised apparel retail in India, Understanding the Indian retail economics, Foreign direct investment in Indian apparel retail.

UNIT II
Retail business an over view, operational excellence, customer service strategies, pricing strategies, inventory levels and merchandise availability as a strategy, case studies on Indian and International retail stores, retail business models, retail management information system.

UNIT III
Objectives of Store planning, location, design, retail image mix, and layout, the circulation plan for retail formats and a generic apparel and fashion store, buying, mark-up and mark-down in merchandise management, private apparel brands and labels. Study on apparel franchising, franchising in India. Key factors of successes and failure in franchising.

UNIT IV
Brands and brand building, brand plan, brand strategies, brand equity, web based brand building, brand based investment, building global brands, co-branding and alliances, brand audit, managing brand crises brand wars, case studies on apparel international brands and Indian brands, un-branded apparel.

UNIT V
Visual merchandising as a communication tool, presentations in visual merchandising, visual merchandising and enhanced customer buying decision, interiors with respect to brand.
sensory elements, signs and graphics, focal point for season and type of sale. Case studies on visual merchandising

**TOTAL : 45 PERIODS**

**REFERENCES**


<table>
<thead>
<tr>
<th>AT8651</th>
<th>INDUSTRIAL ENGINEERING IN APPAREL INDUSTRY</th>
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**UNIT I**

Industrial Engineering - evolution, functions, role of industrial engineer

**UNIT II**

Methods study – introduction, techniques of recording; method analysis techniques; principles of motion economy; method study in garment manufacture; ergonomics- importance, workplace design, fatigue

**UNIT III**

Work measurement – introduction; time study – equipment and procedure; standard data; predetermined time standards; work sampling techniques; incentive wage system; work measurement applied to garment industry

**UNIT IV**

Site selection for textile industry; plant layout - types of layouts suitable for textile industry, methods to construct layout; line balancing
UNIT V

Statistical Process Control – data collection; concept of AQL, control charts in quality control; process capability

REFERENCES


UNIT I

FIBRES, YARNS AND FABRICS FOR PROTECTIVE GARMENTS

Characteristic requirements of fiber, yarn and fabric for flame proof, heat resistant, ballistic resistance, electrical conduction, bacterial protection, radiation protection and radiation contamination protection
UNIT II    CHEmICAL FINISHES FOR PROTECTIVE FABRICS
Mechanism, Chemistry, Materials and methods - Flame retardant, Liquid repellent, Antistatic, Antibacterial, UV protection and mite protection finishes

UNIT III    PROTECTIVE FABRICS IN DIFFERENT APPLICATIONS
Protective fabrics used in the medical field and in hygiene; military combat clothing; protective fabrics against biological and chemical warfare; textiles for high visibility

UNIT IV    PROTECTIVE GARmENT CONSTRUCTION
Garment construction - method of construction of garments according to various protective end uses; use of accessories for protective garment

UNIT V    EVALUATION OF PROTECTIVE GARmENTS
Standards and test method for protective fabric performance - Flame retardant finishes, Liquid repellent finishes, Antistatic, Liquid repellent, antibacterial, UV protection, mite protection; Materials and methods. Manikins – Thermal manikins, segmented thermal manikins, evaporative resistance measurement- moisture permeability index, skin model, Concept of dynamic manikins; Permeation resistance test – index of penetration and index of repellency; Liquid tight integrity and gas tight integrity; Ergonomics of protective clothing

TOTAL : 45 PERIODS

REFERENCES


TT8651 FABRIC QUALITY EVALUATION L T P C 3 0 0 3

UNIT I CONSTRUCTION CHARACTERISTICS

Basic fabric particulars – Measurement of ends and picks per inch, count of warp and weft, determination of the type of weave, measurement of length, width, thickness and Area density (GSM); warp and weft crimp measurements for spun and filament yarn fabrics, the cover factor calculations; Fabric sampling techniques.

UNIT II STRENGTH CHARACTERISTICS


UNIT III COMFORT AND SURFACE CHARACTERISTICS

Fabric stiffness – principle of measurement of flexural rigidity; Drapeability – measurement of drape coefficient; Crease recovery measurement techniques. Wrinkle recovery assessment using standard grades; Principle and functioning of air permeability testers, water repellency, contact angle and fabric shrinkage testing; Fabric abrasion resistance – measuring technique; Fabric pilling resistance – methods of determination.

UNIT IV SPECIAL CHARACTERISTICS

Fabric bending hysteresis testing; Shear hysteresis measurements; Fabric compression and decompression behaviour; Fabric surface roughness and friction measurements; Fabric tensile hysteresis measurements; Fabric flame resistance testing methods; Moisture and thermal characteristics.
UNIT V  FABRIC INSPECTION AND GARmENT QUALITY


TOTAL : 45 PERIODS

REFERENCES

TT8652  FINANCIAL mANAGEmENT FOR TEXTILE AND APPAREL INDUSTRIES  3 0 0 3

UNIT I
18
Costing - concepts; classification of costs; preparation of cost sheet; costing of yarn, fabric and garment; cost profit volume analysis, breakeven analysis

UNIT II
9
Depreciation – method of computing depreciation; techniques of investment analysis - payback period method, accounting rate of return, Discounted Cash Flow methods - IRR, NPV, PI
UNIT III

Capital structure; Sources and cost of capital; working capital management

UNIT IV

Tools for financial analysis and control- profit and loss account, balance sheet; financial ratio analysis - illustrations from textile unit

REFERENCES

2. Bhave P.V. and Srinivasan V., “Costing Accounting to Textile Mills”, ATIRA, Ahmadabad, 1976

TOTAL : 45 PERIODS
LIST OF EXPERIments
1. Stitch classification and stitch properties.
2. Formation of Stitch classes.
3. Seam classification and common uses.
5. Button hole and button stitch machine.
6. Study of Feed-of-the-arm machine.
7. Assembling of various garment components using appropriate seams.

TOTAL : 45 PERIODS

LIST OF EXPERIments
Determination of
1. Fabric tensile strength
2. Fabric bursting strength
3. Fabric tear strength
4. Fabric flexural rigidity and bending modulus
5. Drapability of fabrics
6. Fabric crease recovery
7. Fabric wrinkle recovery
8. Fabric abrasion resistance
9. Fabric pilling resistance
10. Fabric air permeability
11. Fabric compression and decompression characteristics
12. Fabric surface roughness and friction coefficient
13. Seam strength and seam slippage

TOTAL : 45 PERIODS
UNIT I  INTRODUCTION  3

Reasons for the growth of the knitting industry. Comparison of fabric properties - wovens, knits and bonded fabrics; classification of knitting processes – weft knit & warp knit; yarn quality requirements for knitting.

UNIT II  FUNDAmENTALS OF KNITTING  6

General definitions and principles of knitting; Types of knitting needles – Bearded, Latch & Compound Needle. Elements of knitted loop structure.

UNIT III  WEFT KNITTING  15

Basic weft knitted structures and their production - plain, rib, interlock and purl; Fundamentals of formation of knit, tuck and float stitches; factors affecting the formation of loop; effect of loop length and shape on fabric properties; Analysis of various types of weft knitted structure. Production of various weft knitted structures using flat knitting machines.

UNIT IV  WARP KNITTING  6

Basic principles; elements of warp knitted loop – open loop, closed loop. Tricot and Rachel warp knitting machines. Warp knitted fabrics – Structures and End uses.

REFERENCES

UNIT I  INTRODUCTION TO APPEL BUSINESS  

International apparel business pattern, basic business concepts in Indian apparel export house, business operations in China and other south Asian countries. Business patterns for Indian apparel retail and home textiles. Understanding from concept board to finished product and its sequence.

UNIT II  MARKETING FOR APPEL AND TEXTILE PRODUCTS  

Defining marketing, marketing mix the objectives of marketing department, market research, different types of markets, marketing strategies with respect to a product/brand, Indian apparel houses international marketing strategies and domestic marketing strategies, marketing models, B to B marketing, B to C marketing, direct marketing, digital marketing.

UNIT III  MERCHANDISING  

Concepts of merchandising, concepts and apparel product lines, dimensions of product change, determination and development of product line and product range. Creative and technical design in garments and accessories, new product development and seasons of sale, costing, coordination and communication with the production house and export house.

UNIT IV  SOURCING  

Understanding the basics of sourcing, sourcing strategy and best sourcing practice in apparel and textile businesses, supply chain and demand chain understanding, sourcing negotiations, global co-ordination in sourcing, materials management and quality in sourcing, quick response and supplier partnership in sourcing, JIT technology.

UNIT V  EXPORT DOCUMENTATION AND POLICIES  


TOTAL : 45 PERIODS
REFERENCES


UNIT I
Comfort – types and definition; human clothing system, comfort perception and preferences

UNIT II
Thermo physiological comfort – thermoregulatory Mechanisms of the Human Body, role of clothing on thermal regulations

UNIT III
Heat and moisture transfer – moisture exchange, wearer’s temperature regulations, effect of physical properties of fibres, behavior of different types of fabrics

UNIT IV
Psychological comfort; neuro physiological comfort - basis of Sensory Perceptions, measurement techniques - Mechanical Stimuli and thermal stimuli.

UNIT V
Fabric tactile and mechanical properties - fabric prickliness, itchiness, stiffness, softness, smoothness, roughness, and scratchiness. Predictability of clothing comfort performance

TOTAL: 45 PERIODS
REFERENCES

TT8752 OPERATIONS RESEARCH FOR TEXTILE INDUSTRY

UNIT I
Scope of operation research, applications, limitations; linear programming problems – construction, solutions by graphical method, simplex method, Big M method; sensitivity analysis; application of LP technique for mixing optimization in spinning mill

UNIT II
Transportation problem – construction, initial basic feasible solution – North West Corner rule, lowest cost entry method, Vogel’s Approximation Method; optimality test - MODI method, stepping stone method; replacement analysis

UNIT III
Assignment problem – construction, solution by Hungarian method, application in textile industry; sequencing problems; integer programming – construction, solving by cutting plane method

UNIT IV
Game theory- two person zero sum games, solving by matrix method, graphical method; Decisions theory - decisions under assumed certainty, decision under risk, decision under uncertainty, illustrations from textile industry; inventory control - EOQ models-deterministic models –probabilistic models

UNIT V
Project planning and control models: CPM, PERT – network representation, determining critical path, project duration; crashing of project duration; resource leveling

TOTAL: 45 PERIODS
REFERENCES


TT8753 TOTAL QUALITY MANAGEMENT FOR TEXTILE INDUSTRY  L T P C  3 0 0 3

UNIT I INTRODUCTION  9


UNIT II TQM PRINCIPLES  9


UNIT III TQM TOOLS & TECHNIQUES I  9

The seven traditional tools of quality – New management tools – Six-sigma: Concepts, methodology, applications to spinning, weaving, chemical processing and garment industries – Bench marking – Reason to bench mark, Bench marking process – FMEA – Stages, Types
UNIT IV  TQm TOOLS & TECHNIQUES II


UNIT V  QUALITY SYSTEmS


REFERENCE BOOKS

TOTAL : 45 PERIODS

AT8711  COmPUTER AIDED GARmENT DESIGN LAB

LIST OF EXPERImENTS
1. Development of the basic Blocks for Men’s and Women (top and bottom)
2. Pattern for Men’s Formal shirt
3. Pattern for Men’s formal trouser (pleats and Flange)
4. Pattern for Women’s Tops ( application of Dart manipulation principle)
5. Pattern for Women’s Bottoms (skirts, pants – Added fullness techniques Gatherings and pleats)
6. Patterns for children’s dresses (principles of contouring applied)
7. Patterns for Dungaree and work wear
8. Patterns for Close fitting body shapes
9. Reverse pattern Engineering
10. Grading rules
11. Marker planning and optimisation

TOTAL : 45 PERIODS

AT8712 GARmENT CONSTRUCTION LAB – II

LIST OF EXPERImENTS
1. Sewing and finishing formal men’s top wear.
2. Sewing and finishing formal men’s bottom wear.
3. Sewing and finishing basic women’s top wear.
4. Sewing and finishing basic women’s bottom wear.
5. Sewing and finishing kid’s wear.

TOTAL : 45 PERIODS

AT8001 APPAREL COSTING

UNIT I
Cost accounting, elements of cost, classification of cost elements – examples from apparel industry, methods of costing

UNIT II
Cost profit volume analysis, breakeven analysis; standard costing, analysis of variance

UNIT III
Costing of fabrics; costing of apparel – accounting of prime costs and overhead costs, allocation of overheads; cost sheet preparation

UNIT III

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UNIT IV

Foreign exchange mechanisms, exchange rates; foreign exchange exposure management – risks, strategies to reduce risk

UNIT IV

Budget, types of budgets, budgeting and control in apparel industry

REFERENCES


AT8002 BRAND mANAGEmENT L T P C 3 0 0 3

UNIT I

Product – definition, types; product line, product mix; new product development; estimating market and sales potential, sales forecasting

UNIT II

Brand – definition, evolution, importance; product vs brand; terminologies used in branding; branding – meaning, creation, challenges; brand design – understanding consumer,
competition, components, brand identity - brand naming, logos, characters, slogans, tools to maintain identity, illustrations from apparel industry

UNIT III

9

Brand Building: brand insistence model; advertising – definition, objectives, modes, economic and ethics; nontraditional marketing approach

UNIT IV

9

Branding strategies; brand extension, brand revitalization, brand repositioning, brand recall, brand elimination, brand imitation

UNIT V

5

Brand equity measurement systems; legal issues in brand management; global branding

REFERENCES


AT8003

HOMETEXTILES

L T P C

3 0 0 3

UNIT I

9

FURNISHINGS


UNIT II

9

FLOOR COVERINGS

Recent Developments in manufacturing of floor coverings -Hard Floor Coverings, Resilient Floor Coverings, Soft Floor Coverings, Rugs, Cushion and Pads – Care of floor coverings.
UNIT III  CURTAINS AND DRAPERIES


UNIT IV  HOME FURNISHING

Advances in period style in, Different styles, and use of Colours, design & texture in home furnishing. Developments in living room furnishing including upholstery, Wall Hangings, Cushion, Cushion Covers, Bolster and Bolster Cover.

UNIT V  BED LINENS


TOTAL : 45 PERIODS

REFERENCES


AT8004  INTImATE APPARELS  L T P C  3 0 0 3

UNIT I

Intimate apparels – Definition, classification, materials-fiber, fabric and accessories; physical and physiological requirements of intimate apparels

UNIT II

Design analysis, measurements, pattern drafting of men’s intimate apparel – Long johns, tank top, tanga, boy shorts, knickers, bikini underwear, thong, boxer briefs, boxer shorts and jock strap.
UNIT III

Design analysis, measurements, pattern drafting of women’s intimate apparel – waist petticoats, panties, camisoles, tube top, shape wear, bikini and bra.

UNIT IV

Intimate apparel accessories - Bra wire, hook and eye tape, ring and slider, buckle, plastic bone, elastics and sewing threads

UNIT V

Sewing of intimate apparels - seams, stitches, machines; lamination; moulding and welding technique.

TOTAL : 45 PERIODS

REFERENCES


AT8005 LEATHER GARMENT DESIGN AND MANUFACTURE

UNIT I OVERVIEW AND FABRICATION OF LEATHER GARMENTS – PRODUCTION AND PLANNING

Classification of leather garments; Grading and assorting of leathers for leather garments; Property requirements for leather and lining materials; Accessories for leather garments; Various types of fasteners, fittings and other accessories. Alternative materials and their adaptability for garments.

Nomenclature used for component identification in various leather garments – Wallet, hand bags, Executive bags etc. operational sequences in leather garments production.
UNIT II  FABRICATION OF LEATHER GARMENTS – CUTTING, CLICKING AND ASSEMBLING

Hand and machine cutting, knives and tools – Preparation and handling. Pattern interlocking / nesting for material optimization. Factors influencing cutting value. Various types of assembly techniques for leather garments. Pre-assembly and assembly techniques – skiving, splitting, folding, sewing etc.

UNIT III  PROCESS SCHEDULING AND LINE BALANCING

Quality control measures in leather garment manufacture.

UNIT IV  DESIGN AND DEVELOPMENT

Basic design development – measurement /sizing for various types of leather garments – pattern grading for leather garments. CAD application for leather garments design and production; Analysis of fashion and material trends.

UNIT V  ORGANIZATION AND MANAGEMENT

Project feasibility reports for leather; Plant lay out, Costing and pricing for leather garments and garments. Analysis of international market trends for garments – Europe, USA and other markets.

Social auditing of leather garments, occupational Health and Safety, ISO 9000 and 14000.

TOTAL : 45 PERIODS

REFERENCES
2. Fashion Drawing Methods, ESMOD, Paris 1992
5. Training in Tanning Techniques and Leather Garments Manufacture – Course material, CLRI, Chennai, 1990
UNIT I INTRODUCTION

Definition of quality- importance of quality assessment- selection of samples for quality assessment – random and biased samples – squaring technique and zoning technique for fibre selection; yarn sampling - use of random numbers - sampling for various types of yarn tests.

UNIT II FIBRE LENGTH AND STRENGTH ANALYSIS

Fibre testing, the fibre quality index and spinnability; Fibre length and length uniformity- measuring techniques. Strength Tensile Testing modes – CRT, CRE, CRL and ARL; Fibre strength, importance, relation to yarn strength; Measurement techniques.

UNIT III FIBRE FINENESS, MATURITY AND TRASH ANALYSIS


UNIT IV YARN COUNT, TWIST AND STRENGTH

Yarn numbering systems-Indirect and direct systems-count conversions; Count measuring systems. Twist in single and ply yarns – twist direction – twist factor – twist and yarn strength; twist measurement and breaking twist angle measurement. Single yarn strength; Lea count-strength product (CSP) and Corrected Count Strength Product (CCSP).

UNIT V YARN MASS EVENNESS AND SURFACE QUALITY


TOTAL : 45 PERIODS
REFERENCES


AT8071 SmART GARmENTS

UNIT I
An overview on smart textiles, electrically active polymers materials- application of non ionic polymer gel and elastomers for artificial muscles. Heat storage and thermo regulated textiles and clothing, Thermally sensitive materials, Cross – linked polymers of fiber substrates as multifunctional and multi use intelligent material. Mechanical properties of fiber bragg gratings, optical responses of FBG (Fiber Bragg grating) sensors under deformation. Smart textile composites integrated with optic sensors.

UNIT II
Adaptive and responsive textile structures, bioprocessing for smart textiles and clothing, Tailor made intelligent polymers for biomedical application

UNIT III
Smart fabrics – passive, active, very smart – classification of smart materials, concept of wearable computing, basic structure of fabric used for integrating different electronic sensors
UNIT IV

Smart Interactive garments for combat training, for hospital and patient care, smart garments in sports and fitness activities, smart garments for children, smart home textiles.

TOTAL: 45 PERIODS

REFERENCES

1. Edited by Sanjay Gupta, “Smart Textiles their Production and Marketing Strategies”, NIFT, New Delhi, 2000

GE8751 ENGINEERING ETHICS AND HUMAN VALUES

UNIT I HUMAN VALUES


UNIT II ENGINEERING ETHICS


UNIT III ENGINEERING AS SOCIAL EXPERIMENTATION

Engineering as Experimentation – Engineers as responsible Experimenters – Codes of Ethics – A Balanced Outlook on Law – The Challenger Case Study
UNIT IV  SAFETY, RESPONSIBILITIES AND RIGHTS


UNIT V  GLOBAL ISSUES


TOTAL : 45 PERIODS

TEXTBOOK

REFERENCES

WEB SOURCES
1. www.onlineethics.org
2. www.nspe.org
3. www.globalethics.org
4. www.ethics.org
UNIT I  LIGHT-mATTER INTERACTION

The electromagnetic spectrum – the optical region, interaction of light with matter a) Transparent case – Beer’s Law and Lambert’s Law b) Opaque case – reflection absorption and scattering, the concept of “Radiative Transfer Theory” and its simplification into the Kubelka – Munk model.

UNIT II  HUmAN COLOUR VISION

Colour Sensation – physiological and psychological mechanism of color vision, color vision theories, defects in color vision, color vision tests, additive and subtractive color mixing, confusion in color perception.

UNIT III  COLOUR ORDER SYSTEmS

Description of color, various color order systems, CIE numerical system for colour definition and its components – illuminants, the versions of the standard observer, the colour scales, chromaticity diagram.

UNIT IV  NUmERICAL COLOUR mATCHING

Reflectance and K/S value, relationship between dye concentrations and a) reflectance values and b) K/S values, reflectance and K/S curves of dyed samples, the CIE model for computer color matching and the calculation of colour recipes, non CIE models for colour matching, limitations of computer color matching

UNIT V  mETAmERISm AND COLOUR DIFFERENCE ASSESSmENT

Metamerism – types and its assessment, metamerism in textile materials; colour differences – visual assessment, standard conditions, methods and problems, assessment of colour difference, the non linearity of subjective perception of colour, the need for specific colour difference systems, setting up of objective pass/fail standards.

TOTAL : 45 PERIODS

REFERENCES


TT8072 ENTERPRISE RESOURCE PLANNING L T P C 3 0 0 3

UNIT I
Enterprise Resource Planning - principle, framework, application and suitability in garment production

UNIT II
Client/Server architecture; technology choices; SCM, CRM – concepts, Business Process Reengineering, Data ware Housing, Data mining

UNIT III
ERP system packages - SAP, Oracle People soft, BAAN; integration of different ERP applications; integrated Ecommerce, ERP and internet applications.

UNIT IV
ERP implementation strategies – organizational and social issues, data safety & security, ERP implementation in a garment production facility
UNIT V

ERP procurement issues – market trends – outsourcing ERP – economics – hidden cost issues, ROI

TOTAL : 45 PERIODS

REFERENCES


UNIT I

Human resource development systems - The Indian society in transition, understanding the concepts of HRD past, present and future , strategies adopted, structure, objectives and working of the HRD system in India and abroad , role of HR managers in textile and apparel industries.

UNIT II

Human resource planning – objectives of planning on the macro level, demand forecasting of HR planning, MIS in HR planning ,future skill mapping, human resource outsourcing, recruitment and processes involved in textile and apparel industries, induction ; training objectives, methods, carrier planning, performance and potential appraisal.
UNIT III

Job - analysis, description, evaluation, enrichment; Performance measurement- objectives, methods, multi-skill development, motivation. Organised labour, understanding groups, development, cohesion, alienation, group work behaviour & managing international work force.

UNIT IV

Compensation, wage policy, industrial pay-structure, types, components, laws and methods of payment; methods of wage fixation in a textile mill and apparel units; laws governing employee benefits and welfare, incentives, overtime, bonus, cost to the company.

UNIT V

Different Acts governing labour welfare and employment; employee discipline- disciplinary actions, procedures, suspension, dismissal and retrenchment, roll of trade unions, collective bargaining, industrial democracy and workers participation in management, related case studies.

REFERENCES


TOTAL : 45 PERIODS

UNIT I

Factors of production; environmental and social concerns of operations; design of production system; forecasting in production and operation management – various qualitative and quantitative techniques
UNIT II
Capacity planning; facility planning – objectives; different types of layouts, developing process layout, product layout; job design techniques

UNIT III
Aggregate production planning – procedure, importance; scheduling in operation management – mass production system, batch and job shop

UNIT IV
Material management – material planning, purchase, stores, material handling and disposal; inventory models; MRP-objectives, elements of MRP, MRP computation, implementation

UNIT V
Concepts - Total Productive Maintenance, Just In Time, Total Quality Management; Automated Technology, CIM, CAD, FMS, GT, CAM, CAPP

REFERENCES
5. Narasimhan S.L., Mcleavy, D.W. and Billington P.J., “Production Planning and Inventory Control”, Prentice Hall of India, New Delhi, 1997

TOTAL : 45 PERIODS

92
UNIT I

Basic principles of supply chain management and logistics, supply chain models, supply chain for volatile market; supply chain drivers and metrics in apparel industries; roll of supply chain in the textile and apparel industries’ financial stability.

UNIT II

Planning supply and demand in apparel production house, managing economies of scale, supply cycle and inventory levels; managing uncertainty in supply chain, safety pricing and inventory; make Vs buy decision, make Vs hire decision; geographical identification of suppliers, supplier evaluation, supplier selection, contract negotiations and finalisation.

UNIT III

Distribution network and design for global textile and apparel products, models of distribution – facility location and allocation of capacity, uncertainty on design and network optimisation; the role of transportation in supply chain, modes of transportation, characteristics of transportation, transport design options for global textile and apparel network, trade-off in transport design, risk management in transportation, transport decision in practice for textile and apparel industries.

UNIT IV

Coordination in supply chain- the bullwhip effect, forecasting, obstacles to coordination in supply chain; supply chain management for apparel retail stores, high fashion fad; supply chain in e-business and b2b practices

UNIT V

Import - Export management, documentation, insurance, packing and foreign exchange; methods of payments – domestic, international, commercial terms; dispute handling modes and channels; supply chain and Information system; Customer relationship management

TOTAL : 45 PERIODS
REFERENCES

UNIT I
International markets for yarns, woven fabrics; international market for cotton, silk, jute, wool and other fibres; export and import of textiles by India – current status, promotional activities

UNIT II
International markets for carpets and home textiles – product types, market potential and statistics, India - current status and promotional activities, role of export promotional councils

UNIT III
International markets for woven piece goods, knitted garments, leather garments; statistics of international apparel market and trade; export incentives, role of AEPC, CII, FIEO, Textile Committee

UNIT IV
Marketing – strategies, global brand building; logistics & SCM; role of export finances & EXIM banking, ECGC, Indian council of arbitration, FERA; impact of foreign trade on Indian economy

UNIT V
Exim policy - customs act, acts relating to export/import of textile and apparel; Indian customs formalities - export documentation for excisable goods, import documentation, clearance
of import goods; concepts - 100% export oriented units, export processing zones, special economic zones; duty drawback procedure; import/export incentives; licenses; case study

TOTAL : 45 PERIODS

REFERENCES

TT8653 TECHNOLOGY OF BONDED FABRICS L T P C 3 0 0 3

UNIT I FUNDAmENTALS OF BONDED FABRICS 5
Definitions and classification of bonded fabrics; fibres, fibre preparations and their characteristics for the production of bonded fabrics, uses; methods of bonded fabric production

UNIT II WEB FORmATION WITH STAPLE FIBRES 9
Production of staple-fibre web by dry and wet methods; influence of web laying methods on fabric properties; quality control of web

UNIT III mECHANICAL, CHEmICAL AND THERmAL BONDING 13
Bonded fabric production by mechanical bonding - needling, stitching, water jet consolidation; Thermal Bonding technologies; Chemical bonding – Binder polymers and bonding technologies
UNIT IV  POLYmER – LAID WEB AND FABRIC FORmATION

Manufacture of Spun bonded fabrics, fibre orientation in spun bonded fabrics and characterization of filament arrangement; Manufacture of Melt blown fabrics – fibre formation and its attenuation; Effect of processing parameters on fabric characteristics

UNIT V  FINISHING AND APPLICATION OF BONDED FABRICS

Dry and Wet finishing; Characterisation, structure - property relationship in bonded fabrics; End uses of bonded fabrics

TOTAL : 45 PERIODS

REFERENCES


GE8072 DISASTER MANAGEMENT

OBJECTIVES:

- To provide students an exposure to disasters, their significance and types.
- To ensure that students begin to understand the relationship between vulnerability, disasters, disaster prevention and risk reduction
- To gain a preliminary understanding of approaches of Disaster Risk Reduction (DRR)
- To enhance awareness of institutional processes in the country and
- To develop rudimentary ability to respond to their surroundings with potential
disaster response in areas where they live, with due sensitivity

UNIT I  INTRODUCTION TO DISASTERS  9
Definition: Disaster, Hazard, Vulnerability, Resilience, Risks – Disasters: Types of disasters – Earthquake, Landslide, Flood, Drought, Fire etc - Classification, Causes, Impacts including social, economic, political, environmental, health, psychosocial, etc.- Differential impacts- in terms of caste, class, gender, age, location, disability - Global trends in disasters: urban disasters, pandemics, complex emergencies, Climate change- Dos and Don’ts during various types of Disasters.

UNIT II  APPROACHES TO DISASTER RISK REDUCTION (DRR)  9
Disaster cycle - Phases, Culture of safety, prevention, mitigation and preparedness community based DRR, Structural- nonstructural measures, Roles and responsibilities of- community, Panchayati Raj Institutions/Urban Local Bodies (PRIs/ULBs), States, Centre, and other stakeholders- Institutional Processess and Framework at State and Central Level- State Disaster Management Authority(SDMA) – Early Warning System – Advisories from Appropriate Agencies.

UNIT III  INTER-RELATIONSHIP BETWEEN DISASTERS AND DEVELOPMENT  9
Factors affecting Vulnerabilities, differential impacts, impact of Development projects such as dams, embankments, changes in Land-use etc.- Climate Change Adaptation- IPCC Scenario and Scenarios in the context of India - Relevance of indigenous knowledge, appropriate technology and local resources.

UNIT IV  DISASTER RISK MANAGEMENT IN INDIA  9
Hazard and Vulnerability profile of India, Components of Disaster Relief: Water, Food, Sanitation, Shelter, Health, Waste Management, Institutional arrangements (Mitigation, Response and Preparedness, Disaster Management Act and Policy - Other related policies, plans, programmes and legislation – Role of GIS and Information Technology Components in Preparedness, Risk Assessment, Response and Recovery Phases of Disaster – Disaster Damage Assessment.

UNIT V  DISASTER MANAGEMENT: APPLICATIONS AND CASE STUDIES AND FIELD WORKS  9
Landslide Hazard Zonation: Case Studies, Earthquake Vulnerability Assessment of Buildings and Infrastructure: Case Studies, Drought Assessment: Case Studies, Coastal Flooding: Storm Surge Assessment, Floods: Fluvial and Pluvial Flooding: Case Studies; Forest Fire: Case Studies, Man Made disasters: Case Studies, Space Based Inputs for Disaster Mitigation and Management and field works related to disaster management.

TOTAL: 45 PERIODS

OUTCOMES:
The students will be able to
- Differentiate the types of disasters, causes and their impact on environment and society
Assess vulnerability and various methods of risk reduction measures as well as mitigation.
Draw the hazard and vulnerability profile of India, Scenarios in the Indian context,
Disaster damage assessment and management.

TEXTBOOKS:

REFERENCES
1. Govt. of India: Disaster Management Act, Government of India, New Delhi, 2005

GE8073 HUMAN RIGHTS L T P C 3 0 0 3

OBJECTIVES:
- To sensitize the Engineering students to various aspects of Human Rights.

UNIT I

UNIT II

UNIT III
Theories and perspectives of UN Laws – UN Agencies to monitor and compliance.

UNIT IV
Human Rights in India – Constitutional Provisions / Guarantees.

UNIT V
OUTCOME:
- Engineering students will acquire the basic knowledge of human rights.

REFERENCES: