

# **RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA BHOPAL**

## **Credit Based Grading System**

### **Textile Technology, VIII-Semester**

#### **TX- 8001 – Textile Mill planning & Management**

**Unit I** Selection of site for textile mills. Textile mill building structures. Principles and requirements of good foundation for machineries. Protection against noise and vibration. Erection of textile machinery. Importance of leveling methods and instruments used for leveling. Idea and comparison of preventive and breakdown maintenance.

**Unit II** Spin plans for various counts and yarns. Production rates, waste, efficiency level of spinning machines. Estimation of number of machines for the given production of yarn. Production rates, efficiency etc. of preparatory and weaving shed. Estimation of number of machines in preparatory and weaving.

**Unit III** Plant lay-out and machine lay-out. Labor allocation in different departments of a textile mill. Work study, method study and work measurement. Application of time study in a textile mill. Importance and use of snap study. Concept and application of logistics in a textile mill.

**Unit IV** Air conditioning, humidification and ventilation for a textile mill – different systems of humidification and their efficiency. Temperature, relative humidity and ventilation requirement for different sections of a textile mill. Dust extraction in textile mills – methods and equipments used in dust extraction. Lighting - requirements and fittings, spacing of light fittings, illumination standards and measurements.

#### **References:**

1. Air Conditioning in Textile Industry – ATIRA
2. Industrial Engineering & Management – Banga Sharma
3. Textile Manufacturing – M. G. Kulkarni
4. Management of Textile Industry – V.D.Dudeja
5. Modern Preparation and Weaving Machinery – A. Ormerod
6. Humidification and ventilation management in textile industry, Purushottama B, Woodhead
7. Strategic approach for managing a textile, Karshanis A. V., 2009
8. Textile Mills in Changing Environment – M. L. Gulrajani.
9. Modern Technology Management in Textile – Prof. D. B. Ajgaonkar
10. Norms for the Textile Industry – ATIRA, BTRA, SITRA, NITRA
11. Time Study Manual – (For the Textile Industry) – Norbert Lloyd Enrick
12. Textile industry effluent – WIRA

#### **List of Experiments (Please expand it):**

Mill Planning Practical

Assignments have to be done on production calculations and balancing of machines considering different machine and process parameters in spinning and weaving departments of a textile mill. Preparation of plant lay out.

# **RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA BHOPAL**

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### **Textile Technology, VIII-Semester**

#### **TX- 8002 – Garment Mfg. Technology**

**Unit I** Marker Planning, marker utilization, Manual Marker Planning, Planning a layout of pattern pieces. Carbon duplicating, Spirit duplicating, or hectograph, carbon duplicating, Diazo photoelectric method, Computerized Marker Planning; Introducing to grading; Definition, sizes of surveys, Basic size chart, Factors affecting grading, standard checklist before grading, Grading methodology – Naste grading, Track grading. Sleeve variation: Cap sleeve, regular shirt sleeve, Bishop-sleeve, Lego's mutton sleeve, Puff sleeve; Cuffs and Sleeve opening; Sleeves for loose fit garments with special reference to gents shirts. Collars – Set in collar and collar variation. Band collar, Peter pan collar, Sailor collar, Gent's shirt collar – one piece and two piece collar, Convertible collar Drafting of men's shirt block

**Unit II** Spreading, requirements of spreading process, shade sorting of cloth pieces, correct ply direction and adequate lay stability, Alignment of piles, ply tension, fabric faults elimination, Elimination of static electricity, Methods of spreading – Manual, Machine spreading.

**Unit III** Objectives of Cutting, Methods of cutting, Manual cutting, straight knife, round knife, band knife, notches, drills, computer controlled cutting knives, Die cutting, Laser cutter, Plasma cutting, water jet cutting, ultrasonic cutting; Sewing seams, seam types, superimposed seam, Lapped seam, Bound seam, Flat and fell seam, French seam, Bias seam, Hong Kong, Overcoat/serging, decorative stitching, edge neatening; Stitch types, Lockstitches, Chain stitches, hand stitches, Multithread chain stitches, over edge chain stitches, covering chain stitches. Sewing Machinery different types, Basic sewing machine, Simple automatics Feed mechanism, Drop feed system, Differential feed system, Adjustable top feed, Needle feed, Puller feed. Sewing machine, needles; sewing threads, quality characteristic of threads, finishes, thread packages, seam strengths, elasticity, sewing problems. Problems of stitch formation, Seam pucker, Fabric damages, Mechanical damages, Needle heating, Sewability and Tailorability.

**Unit IV** Button hole machines, button sew machines, Bar tack machines, Label sewers. Components for the construction of garments, label, motifs, lining, interlinings, laces braids, elastic hook and loop fastening, Seam binding, Shoulder pads, Eyelets, zip fasteners, Button, Tack buttons, snap fasteners, Rivets.

**Unit V** Fusing requirements, fusion process, types of fusible resins, Polyethylene, Polypropylene, Polyamides, Polyesters, Polyvinyl chloride; Means of fusing, Temperature, Pressure, Time; Fusing equipment, specialized fusing process, Flat bed fusing process, continuous fusing systems, High frequency fusing, Hand iron, steam press; Methods of fusing, reverse fusing, sandwich fusing, double fusing, shirt collar fusing, fusing of tailored jackets fronts, welding, adhesives, molding.

**Unit VI** Garment finishing process - Pressing, categories of pressing, Means of pressing, Pressing equipments and methods, Iron, Steam Press, Tunnel, Pleating, Permanent Press. Packing – Methods of folding garments, Mechanical method, Flannel method Procedure for folding different garment in different sizes and packing materials used for packing garments, plastics, pins, card sheets, plastic butterfly clips, brass pins, collar stands tags; Packaging instructions for tags, labels and packets.

**Unit VII** Knitted garments, Fitting cut, stitch cut shaped, fully fashioned, integral part garment, production sequence & fabric quality.

**References:**

1. Garment Technology for fashion Design – Gerry Cooklin
2. Introduction to clothing manufacture –Gerry Cooklin.
3. Technology of Clothing manufacture-Carr.
4. Technical Textiles, Shaleco E, Bradlock and Marce O’Hall cony
5. Introduction to clothing production management – Chuter A.J.
6. Clothing Technology – R.L. Friend
7. Pattern Making – Martin Shoben
8. Dress Fitting – Natalie Bray
9. Pattern Making – Armstrong, Helen Joseph

**List of Experiments (Please expand it):****Garment Manufacturing Technology**

To discuss the garment process line

To study pattern making, marker planning with grading

To study sewing machine with machine specification

To study lock stitch with fabric cutter machine

To study interlock machine

To study overlock machine

To study button sewing machine and button holing machine.

To study feed off arm machine

To study barteck machine

To discuss quality characteristics of garment (men’s shirt, trouser etc.)

To practice different stitched and seams with industrial norms

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### **Textile Technology, VIII-Semester**

#### **Elective-V TX- 8003 (1) – Process Control in Spg & Wvg**

**Unit I** Importance and consideration for evolving a system for process control; Control of mixing quality and cost , control of waste and cleaning in blow room, card and comber; yarn realization; Control of yarn count; strength; evenness, imperfections and yarn faults; Control of end breaks in ring spinning.

**Unit II** Concept of machinery audit and energy audit. House keeping and material handling, statistical interpretation of data on waste and quality. Snap study.

**Unit III** Control for quality, machine stoppage and productivity in winding, warping, sizing, pirn winding and weaving. Standard norms for setting, speeds and production rates. Fabric defects and their control.

**Unit IV** Control of norms and hard waste in various processes . Importance and types of maintenance, Maintenance schedule in winding, warping, sizing and loom shed. Machinery audit and energy audit; Calculations pertaining to production efficiency and machine allocation in windings; warping, pirn sizing and looms.

#### **References:**

1. Process Control in Spg.- ATIRA
2. Process Control in Wvg.- ATIRA
3. Textile Manufacturing – M. G. Kulkarni
4. Norms of Textile –ATIRA, BTRA, SITRA, NITRA
5. Quality Control in Spg.- SITRA
6. Yarn Waste Control in Textile Mills – (Revised) BTRA Pub.
7. Weaving Productivity Standards and Method of Evaluation – BTRA (Revised Edition 1982) Joseph K. V. et.al.
8. Modern Textile Management – J.B. Rattan
9. Guidelines for process management in textile, Purushottama B, CVG books, 2006

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**Credit Based Grading System**

**Textile Technology, VIII-Semester**

**Elective-V TX- 8003 (2) – Pollution control and process house mgt.**

**Unit I** Hazards in man made fiber production and wet processing. Toxicity of dyes, intermediates, auxiliaries, finishing chemicals

**Unit II** Textile effluent and their characterization, measurement of effluent strength, methods of treatment, disposal and recycling of effluents. Environment legislation in India and other countries with respect to dyes and other chemicals

**Unit III** Balancing of machinery, spacing, material handling. Handling of chemicals, processed goods, storing of goods for subsequent operations or for final product. Management Information system (MIS). Ventilation and lighting systems

**Unit IV** Causes of fire, fire fighting and fire prevention. Causes of accidents in process houses, safety devices, methods for minimizing accidents. Workload studies, Duties and responsibilities of process house staff. Administration in process house, wages system

**Unit V** Costing as an aid to management, elements of costing , control of materials, stores and labor cost. Classification and distribution of overheads, depreciation and different system of providing depreciation. Variances and budgetary contro. Determination of cost per meter of processed goods,Process control in process houses

**References:**

1. Ecotextile way forward for sustainable development in textile, MirAftab M & Harrocks A R, Woodhead 2007
2. Environmental aspects of textile dyeing, Christie R. M. Woodhead 2007

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**Textile Technology, VIII-Semester**

**Elective-VI TX- 8004 (1) – Merchandising and export management**

**Unit I** Definition of Marketing Management, its function and objectives, Marketing cost and distribution channel, Classification of products. Types of buyers, difference between importer buyer and retail buyer, different types of retail buyer, consumer behaviour and different aspects of buying decision, market segmentation & fragmentation, marketing strategy and marketing mix, product life cycle, sales promotion.

**Unit II** Merchandising, Main merchandising functions, factors affecting merchandising, fashion merchandising – its difference from merchandising, rolls and responsibilities of a merchandiser, seasonality of fashion marketing

**Unit III** International sourcing and marketing of apparel, Quality issues in garment export, competitive forces in garment industry, Value addition processes in garment marketing, performance of Indian garment exports, textile and apparel trade policies.

**Unit IV** Competitive position of Indian garment exports vis a vis competing countries. Concept of international marketing timings, storing & pricing of product.

**Unit V** List of experiments: According to the availability of instruments.

**References:**

1. Principles of marketing – Philip Kotler
2. Textiled and apparel in the international economy – K.G. Dickerson
3. Garment Exports – DO Koshy
4. Consumer behavior – Schiffman & Kanuk
5. Fashion Marketing, Mike Easey
6. Fashion Merchandising, Alaine Stone, Jean and samples
7. Principles of marketing – Philip Kotler
8. Textiled and apparel in the international economy – K.G. Dickerson
9. Garment Exports – DO Koshy
10. Consumer behavior – Schiffman & Kanuk
11. Fashion Marketing, Mike Easey
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**Textile Technology, VIII-Semester**

**Elective-VI TX- 8004 (2) – Financial management**

**Unit I** Management: Definition and objectives of the art of management, contribution by Henri Fayol and F.W. Taylor, Managerial skills- Technical, Human, Conceptual skills, leadership- Types approaches and qualities of leadership, roles and function of industrial Engg; Applications of industrial Engg.

**Unit II** Capital Investment Decisions : Definition and concepts, significance, techniques of capital investment decisions, significance, importance, advantages, limitations of pay back period, net present value method, rate of return method, break even analysis.

**Unit III** Industrial psychology: Definition, aims, methods, inspection- definition, types, functions, methods, industrial disputes- definition, causes and effects, accidents, causes and preventive measures industrial safety.

**Unit IV** Total quality Management: Definition of quality, total quality management, purpose of TQM, elements of TQM, Place of Total quality controls in modern time, factors affecting quality, ten bench marks of total quality control, quality circles.

**Unit V** Financial Management: Introduction, Definition, Concept, Functions and objectives of financial management, roles of finance manager, financial statement sources of finance funds requirement, capitalization- Over capitalisation and under capitalization, advantages and disadvantages, types of capital-fixed and working capital.

**References:**

1. Chhabra TN - “ Principles of Management and Managerial Economics”, 7th/2002, Dhanpat Rai & Company P. Ltd.
2. M. Mahajan- “ Industrial Engg. & Production Management” 2001, Dhanpat Rai & Company P. Ltd.
3. Khanna O.P. “ Industrial Engg. Management” 2001, Dhanpat Rai & Company P. Ltd.
4. Mehta P.L. “Managerial Economics”
5. Agrawal R.D. “ Organisation and Management” 2001, TATA Mc Graw Hill Pub. L. Co.
6. Risk accounting and risk management for accountants, Chorafas Dimitris N, Elsevier 2009

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**TX- 8006 – Advance CAD in Textiles**

**List of Experiments (Please expand it):**

Principles of design, elements of design, marker planning, grading system, size chart, silhouettes, shape and sizes, relationship to fashion, different dart system, block measurement, basic information regarding software, study latest software system.

Practice block making on garment software, variant file, adjustment of different view of garment components, making of different patterns with seam allowances, different techniques of pattern making, notches, curve, etc. marker creation.

Mood board, story board making, simulation, use of yarn library, knit and weave structure, weave library.

Vector, use of different drawing tools, bitmap pictures, different studios, color palette.

**References:**

1. Mens wear pattern making, Alam Parwez Khan, Punkaj Pub. Delhi, 2007
2. Ten steps to fashion freedom, Mayfield