Textile Processing

6th Semester

6.1. GENERIC SKILLS AND ENTREPRENEURSHIP DEVELOPMENT

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RATIONALE

Generic Skills and Entrepreneurship Development is one of the courses from "Human Science" subject area. Generic skills have emerged as an important component of employability skills, which enable an individual to become and remain employable over lifetime and to lead happy and prosperous life. Entrepreneurship development aim at developing conceptual understanding for setting-up one's own business venture/enterprise. This aspect of Human Resource Development has become equally important in the era, when wage employment prospects have become meager.

Both the subject areas are supplementary to each other and soft skills are required to be developed in diploma passouts for enhancing their employability and self confidence.

DETAILED CONTENTS

1. Introduction to Generic Skills (4 hrs)

    1.1 Importance of Generic Skill Development (GSD)
    1.2 Global and Local Scenario of GSD
    1.3 Life Long Learning (LLL) and associated importance of GSD.

2. Managing Self (8 hrs)

    2.1 Knowing Self for Self Development
        – Self-concept, personality, traits, multiple intelligence such as language intelligence, numerical intelligence, psychological intelligence etc.

    2.2 Managing Self - Physical
        – Personal grooming, Health, Hygiene, Time Management

    2.3 Managing Self – Intellectual development

        - Information Search: Sources of information
        - Reading: Purpose of reading, different styles of reading, techniques of systematic reading.
        - Note Taking: Importance of note taking, techniques of note taking
        - Writing: Writing a rough draft, review and final draft.

    2.4 Managing Self – Psychological

        - Stress, Emotions, Anxiety-concepts and significance
        - Techniques to manage the above

3. Managing in Team (6 hrs)

3.1 Team - definition, hierarchy, team dynamics
3.2 Team related skills- sympathy, empathy, co-operation, concern, lead and negotiate, work well with people from culturally diverse background
3.3 Communication in group - conversation and listening skills

4 Task Management (3 hrs)

4.1 Task Initiation, Task Planning, Task execution, Task close out
4.2 Exercises/case studies on task planning towards development of skills for task management

5. Problem Solving (5 hrs)

5.1 Prerequisites of problem solving- meaningful learning, ability to apply knowledge in problem solving
5.2 Different approaches for problem solving.
5.3 Steps followed in problem solving.
5.4 Exercises/case studies on problem solving.

6. Entrepreneurship

6.1 Introduction (22 hrs)

- Concept/Meaning and its need
- Competencies/qualities of an entrepreneur
- Entrepreneurial Support System e.g., District Industry Centres (DICs), Commercial Banks, State Financial Corporations, Small Industries Service Institute (SISIs), Small Industries Development Bank of India (SIDBI), National Bank of Agriculture and Rural Development (NABARD), National Small Industries Corporation (NSIC) and other relevant institutions/organizations at State/National level.

6.2 Market Survey and Opportunity Identification (Business Planning)

- How to start a small scale industry
- Procedures for registration of small-scale industry
- List of items reserved for exclusive manufacture in small-scale industry
- Assessment of demand and supply in potential areas of growth.
- Understanding business opportunity
- Considerations in product selection
- Data collection for setting up small ventures.

6.3 Project Report Preparation

- Preliminary Project Report
- Techno-Economic Feasibility Report

- Exercises regarding "Project Report Writing" for small projects

INSTRUCTIONAL STRATEGY

This subject will require a blend of different teaching and learning methods beginning with lecture method. Some of the topics may be taught using question answer, assignment, case studies or seminar. In addition, expert lectures may be arranged from within the institution or from management organizations. Conceptual understanding of Entrepreneurship, inputs by teachers and outside experts will expose the students so as to facilitate in starting ones own business venture/enterprise. The teacher will discuss success stories and case studies with students, which in turn, will develop managerial qualities in the students. There may be guest lectures by successful diploma holding entrepreneurs and field visits also. The students may also be provided relevant text material and handouts.

RECOMMENDED BOOKS

1. Generic skill Development Manual, MSBTE, Mumbai.
2. Lifelong learning, Policy Brief (www.oecd.orf)
3. Lifelong learning in Global Knowledge Economy, Challenge for Developing Countries – World Bank Publication
4. Towards Knowledge Society, UNESCO Paris Publication
5. Your Personal Pinnacle of Success by DD Sharma, Sultan Chand and Sons, New Delhi
6. Human Learning, Ormrod
7. A Handbook of Entrepreneurship, Edited by BS Rathore and Dr JS Saini; Aapga Publications, Panchkula (Haryana)
8. Entrepreneurship Development by CB Gupta and P Srinivasan, Sultan Chand and Sons, New Delhi
9. Handbook of Small Scale Industry by PM Bhandari

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1.	4	5
2.	8	15
3.	6	10
4.	3	10
5.	5	10
6.	22	50
Total	**48**	**100**

6.2. FINISHING TECHNOLOGY - II

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RATIONALE

A diploma holder in Textile Processing must have necessary knowledge and skills regarding principles and procedures used for finishing technology. He must be acquainted with different types of machines and their mechanism used for finishing. In addition, relevant skills also need to be developed in him about operations of these machines. Hence this subject.

DETAILED CONTENTS

1.	Antistatic Finish- Agent and their Application	(04 hrs)
2.	Pilling - Causes and method of prevention	(06 hrs)
3.	Finishing routines- Sequence of operation for popline, voils, Twills, worsted, woolen, terycot, tery-wool	(08 hrs)
4.	Calculation of machines for processing of fabrics	(06 hrs)
5.	Crease Resistance – Agents & their Application Wash-n-wear, Durable Press Finish	(04 hrs)
6.	Water proofing – Agents and their application	(04 hrs)
7.	Flame Proofing Agents and their application to cotton	(06 hrs)
8.	Finishing of Garments	(06 hrs)
9.	Latest Developments in Finishing	(04 hrs)

LIST OF PRACTICALS

1. Industrial Visits to study sequence of operations concerning finishing
2. To draw the diagrams of different finishing machines

INSTRUCTIONAL STRATEGY

Use of audiovisual aids should be made to show specialized operations. Expose the students to real life problems. Stress should be given to acquaint the students with relevant industrial practices.

RECOMMENDED BOOKS

1. Textile Finishing by V.A. Shenai; Sewak Publisher
2. Textile Finishing by J.T. Marsh ; B.I Publications, New Delhi
3. Technology of Bleaching by V.A. Shenai
4. Textile Fibres and their use – Katharine Paddock HESS Oxford & IBH Publishing Co.Pvt. Ltd. New Delhi
5. Textile Fibre to Fabric by Bernard P. Corbman; Mc Graw Hill International editions.
6. Textile Finishing by Murphy: Abhishek Publishers, Chandigrh
7. Practical Cotton Finishing by Edge; Abhishek Publishers, Chandigarh

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	04	08
2	06	12
3	08	18
4	06	14
5	04	08
6	04	08
7	06	12
8	06	12
9	04	08
Total	**48**	**100**

6.3. PRODUCTION PLANNING AND MANAGEMENT

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RATIONALE

Diploma holders in Textile Processing/Textile Technology(Knitting) are responsible for production planning and management. They are also required to ensure maintenance of equipment for better utilization of resources. For this purpose, knowledge and skill about these topics needs to be imparted to them. This subject aims at development of competencies to prepare material, equipment and manpower schedules.

DETAILED CONTENTS

1. Introduction (04 hrs)
   Types of production – Mass production, Job production and Batch Production. Material planning and allocation, Process Planning and flow chart, production control, control and record keeping regarding Manpower material and machines.

2. Inventory Control (08 hrs)

   Need for Inventory control, levels in Inventory control.
   Material Handling and its importance in Textile industry, Handling of dyes, chemicals - methods and precautions, housekeeping.

   Maintenance: Objective and importance of maintenance, different types of Maintenance (preventive and breakdown). Procedure for preventive and breakdown maintenance. Advantages of preventive maintenance.

3. Cost Estimation: (04 hrs)

   Introduction and functions of Cost estimation, estimation procedure, Elements of cost

4. Plant Layout (12 hrs)

   Concept of Plant layout, Importance of Site selection, Type of layout (process, product and combination type)

   Factors affecting plant layout

   Introduction to Balacing theory; Balance control, balancing exercise for processing/knitting/garment industries.

5. Standards and Codes :- (Brief study) (10 hrs)

National and International Code,
ISO 9000-Concept and its implications
Principle of Total Quality Management
5S application in Apparel Industry
Application of seven quality control tools in Apparel Industry
Fabric 4 point inspection process

6 Accidental and safety measures (06 hrs)
Types of accidents – fire. mechanical and chemical accidents
Common source of different types of accidents and their prevention

7. Need and Scope of suitable ventilation, light system in process house/knitting industry (04 hrs)

INSTRUCTIONAL STRATEGY

The teacher is expected to tell the students the applications of this subject area in various fields. Emphasis should be laid on practical examples.

RECOMMENDED BOOKS

1. Health Hazards in Textile Mills by NITRA
2. Dye House Management, Colour Publications, Mumbai
3. Modern Textile Management by J.B. Rattan, Abhishek Puiblication, Chandigarh
4. Occupational Health and Safety in Textile Mills by V.A. Shenai, Sewak Publication, Mumbai.
5. ISO 9000 Quality Management System, D.K. Shah Trust.
6. Managing the quality in Apparal Industry, Pradeep V. Mehta, New Age International (P) New Delhi
7. Introduction to production management,, Blackwell Science Ltd.
8. Testing and Quality Management, V.K. Kothari, IAFL Publication, New Delhi

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	04	08
2	08	18
3	04	08
4	12	26
5	10	20
6	06	12
7	04	08
Total	**48**	**100**

6.4 GARMENT PROCESSING

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RATIONALE

As garment industry is developing fast and expanding leaps and bounds. Therefore, a diploma holder in Textile Processing must know about the various fabric materials, preparatory finishing and after-care processes/chemicals related to garments. Hence this subject.

DETAILED CONTENTS

1. General Introduction (1 hrs)
   Aim and scope of garment field with special reference to a Textile Processor.
2. Brief introduction to various departments in a garment export house (1 hrs)
3. General overview of various fabric materials used in garment making (2 hrs)
4. Preparation and dyeing of garments materials used (with special reference to denim dyeing & cotton hosiery (knit dye) (10 hrs)

   4.1. Denim dyeing:
   - Brief chemistry of Indigo dyes and dyeing
   - Pre-requisite for Indigo dyeing and preparation for continuous Indigo dyeing range for denim
   - Type of dyeing machine
     - Rope form dyeing
     - Sheet form dyeing
     - Loop form dyeing

   - Dyeing with mixture of Indigo and some other dyes.

   4.2.Dyeing of Hosiery/Knitted material: General classes for dyeing of cotton & woolen hosiery and machines used (Pedal Dyeing, Winch dyeing, soft-overflow dyeing machines). Dyeing of silk garments.

5. Printing of Garments (2 hrs)

   Brief description of various techniques used in printing of garments-Block, Screen, Stencils and Transfer Printing.

6. Finishing of garments and after treatment (12 hrs)
   6.1. Finishing in Pre-Garment i.e. fabric stage
   - Purpose of following textural, Semi-Permanent & Permanent finishes.
- Denim Finishing
- Preshrinking of Denim
- Integrated finishing and shrinking range

- Sanforest process
- Skewing
- Special shade effects in Denim by washing treatment
  - Stone washing
  - Acid washing
  - Bleaching washing
  - Enzyme washing
  - Over dyed denims
  - Quick wash denims and their advantages
- Durable press finishing of Garments
  - Pre-cure process
  - Post cure process

6.2. Finishing in Garment Stage - Concept of garment finishing (Ironing & processing): Introduction, general precautions to be taken during finishing (Ironing/Processing) of cotton, linen, Woven, Woolen, blankets, Shawls, Silk, Rayons, Lace & knitted material garments.

7. Laundering (06 hrs)
   Objective, Laundering procedures for various fibre fabrics i.e. cotton & Linen, Woolen, Silks & Synthetics, various laundry equipments used in commerical launderies

8. Stain Removal (06 hrs)
   Object (with reference to garment processing), General procedure of stain removal. Classification of stains. Principles of stain removing. Classification of stain removers. Application techniques for stain removers; i) Local Application ii) Bulk applications.

9. Dry Cleaning (04 hrs)
   General introduction, objective and principle of the dry cleaning process, Dry cleaning chemicals, Detailed description of dry cleaning operations (sequential steps)

10. After care and Care Labelling of Garments (04 hrs)
    Objective of Care Labelling, Washing, bleaching, drying, Ironing, dry cleaning instructions and symbols used. Placement of labels on garments. After care of garments & storing (General steps taken to preserve the good appearance and protection against damage during storing

PRACTICALS

1. To dye cotton/woolen /woven/knitted sample with suitable classes of dyes
2. To print cotton garment with screen printing method
3. To print cotton garment with Block Printing method
4. To print cotton garment with stencil printing method
5. To identify various types of stains & to remove them
6. To dry-clean a garment
7. Demonstration of a commercial laundry if available
8. A visit to an Export House to acquaint the students with various operations.

Note:- Garment samples to be arranged by students of their own

INSTRUCTIONAL STRATEGY

Use of audiovisual aids should be made to show specialized operations. Expose the students to real life problems. Stress should be given to acquaint the students with relevant industrial practices.

REFERENCE BOOKS

1. Denim for All by S.S. Satsangi & Dr. Parmar, NITRA

2. Garment Finishing & Care Labelling by S.S. Satsangi Usha publishers 53-B/AC-IV, Shalimar Bagh Delhi

3. Stain Removing Techniques by S.S. Satsangi; Usha Publishers 53-B/AC-IV Shalimar Bagh, Delhi

4. Fabric Care by Noemia D'SOUZA ,New age International Publisher, Dryagang, New Delhi

5. Changing Trends in Apparal Industry by N.S. Kaplan; Abhishek Publication, Chandigarh

6. Dry Cleaning, Souring, Dyeing of Garments, Furs and Rugs by Brannt; Abhishek Publication, Chandigarh

7. House Hold Textile and Laundry work by Durga; Indian Publication

8. Stains and their removal by O.P. Singh; Indian Publication

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	01	02
2	01	02
3	02	04
4	10	22
5	02	04
6	12	26
7	06	12
8	06	12
9	04	08
10	04	08
Total	**48**	**100**

6.5 PROJECT WORK

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RATIONALE

The practical training cum project work is intended to place students for project oriented practical training in actual work situations for the stipulated period with a view to :

i) Develop understanding regarding the size and scale of operations and nature of field work in which students are going to play their role after completing the courses of study.

ii) Develop understanding of subject based knowledge given in the class room in the context of its application at work places.

iii) Develop first hand experience and confidence amongst the students to enable them to use and apply polytechnic/institute based knowledge and skills to solve practical problems in the world of work.

iv) Develop special skills and abilities like interpersonal skills, communication skills, attitudes and values.

This practical training cum project work should not be considered as merely conventional industrial training in which students are sent at work places with minimal supervision. This experience is required to be planned and supervised on regular basis by the polytechnic faculty. For the fulfilment of above objectives, polytechnic may establish close linkage with 8-10 relevant organization for providing such an experience. It is necessary that each organisation is visited well in advance and activities to be performed by students are well defined. The chosen activities should be such which are of curricular interest to students and of professional value to industrial/field organisations. Each teacher is expected to supervise and guide 5-6 students.
Effort should be made to identify actual field problems as project work for the students. Project selected should not be too complex which is beyond the level of the students. The placement of the students for such a practical cum project work should match with the competency profile of students and the project work assigned to them. Students may be assessed both by industry and polytechnic faculty. The suggested performance criteria is given below :

1) Punctuality and regularity 2) Initiative in learning/working at site
3) Level/proficiency of practical skills acquired
4) Ability of solve live practical problems
5) Sense of responsibility
6) Self expression/communication skills
7) Interpersonal skills/Human Relation
8) Report Writing Skills
9) Viva Voce