

### 3.1 FOOTWEAR TECHNOLOGY - II

L T P  
4 - 6

#### RATIONALE

Diploma holders in Footwear Manufacture are initially required to attain the basic knowledge of Clicking - its importance, methods, quality concept, economy concept and calculation of area consumption per unit. They should also have understanding of selection and sorting, grading and making of leather prior to clicking as well as use and maintenance of tools, equipments and machinery with safety precautions.

#### DETAILED CONTENTS THEORY

1. Clicking Technology (58 hrs)
  - i) Definition of clicking (cutting).
  - ii) Components of Upper and Bottom.
  - iii) Materials for Upper, Lining and Bottom. a
  - iv) Principles and methods of hand clicking and related tools and equipments.
  - v) Principles and methods of machine clicking and related equipments and dies.
  - vi) The quality concept and its importance in clicking.
  - vii) The economy concepts in consumption of raw material.
  - viii) Sorting, grading and marking of various types of leather.
  - ix) The required qualities of a clicker.
  - x) Safety precautions.
  
2. Basic Clicking Costing. (6 hrs)
  - i) Methods of calculation of area consumption.

#### PRACTICALS

1. Infrastructure and Layout of clicking room.
2. Practical demonstrations of storage and maintenance of tools, equipments and dies.
3. Practice of economical layouts of patterns on the pattern sheet.
4. Practice of economical layouts of finished leather (plain/printed).
5. Practice of economical layouts of patterns Fabric Materials.
6. Methods of calculations of per unit material consumption.
7. Selection and Examination of finished leathers.
8. The practice of Hand clicking with knife on pattern paper and leather.
9. Use of swing arm hydraulic cutting press with clicking dies.
10. Practice of various methods of clicking.
11. Pairing and marking of cut components.

12. Safety measures in clicking department.
13. Practice to manufacture the following hand made footwears :
  - a) Thumb Chapple.
  - b) Slipper.
  - c) Newcut/Pumpshoe.
15. Visit to clicking department of corporate sectors.
16. Visit to clicking machines and dies making units.

### **INSTRUCTIONAL STRATEGY**

The students should be taken to leather footwear and leather goods manufacturing units and export houses to demonstrate various operations. Maximum emphasis should be laid in developing practical skills among the students. Experts from industries may be invited from time to time to deliver expert lectures.

### **SUGGESTED DISTRIBUTION OF MARKS**

| <b>Topic No.</b> | <b>Time Allotted (Hrs)</b> | <b>Marks Allotted (%)</b> |
|------------------|----------------------------|---------------------------|
| 1                | 58                         | 90                        |
| 2                | 06                         | 10                        |
| <b>Total</b>     | <b>64</b>                  | <b>100</b>                |

### 3.2 DESIGNING AND PATTERN CUTTING OF FOOTWEAR-I

**L T P**  
**2 - 6**

#### RATIONALE

Diploma holders in Footwear and Leather Goods Technology are supposed to acquire a basic concept of fashion designing and pattern making. Students should be able to make choice of colours and materials according to prevailing trends, importance of foot care and foot comfort, study of anatomical structure of human foot and its abnormalities. They should be able to appreciate the importance of accurate size and fittings. They should acquire competencies in methods of taking foot measurements, development of basic designs of footwear.

#### DETAILED CONTENTS THEORY

1. Footwear Designing and Pattern Cutting (16 hrs)
  - i) Introduction and importance of designing and pattern cutting in footwear trade.
  - ii) Fashion Consideration.
  - iii) Introduction to Pattern Cutting techniques.
  - iv) Use of tools, equipments and machinery in designing and pattern cutting department.
  - v) Production of Forme cutting (outer, inner and mean form) and Standard Patterns.
  - vi) Production of Upper, Lining and Bottom components of Chapple, Slipper and Newcut.
  
2. Foot and Last (16 hrs)
  - i) Bonny structure of leg and feet, function of feet.
  - ii) The movements of the feet in relation to walking.
  - iii) The arches of the feet.
  - iv) The diseases and abnormalities of feet.
  - v) The relationship between foot and last.
  - vi) Systems of foot measurements.
    - a) Girth measurements.
    - b) Joint measurements.
    - c) Foot measuring devices.
    - d) Basic shoe fittings.
    - e) Types of last in relation to quality, importance and foot comfort.

#### PRACTICALS

1. Practice of making sketches of various types of footwear with exposure to design catalogues.

2. Identification of various types of shoe lasts.
3. Introduction with Pattern cutting tools, equipments and machinery. Their maintenance and use.
4. Preparation of forme cutting and standard patterns.
5. Preparation of upper, lining and bottom components of Chapple, Slipper and Newcuts.
6. Practice of drawing sketches of followings:
  - a) Bones of the human foot.
  - b) Arches of the human foot.
  - c) Abnormalities of human foot.
7. Visit to fashion shows and fares of footwear industry
8. Visit to Footwear Designs and Development Institute, Noida in order to give exposure of CAD/CAM system of Designing and Pattern cutting.
9. Visit to the Footwear/Leather Goods designing section of National Institute of Fashion Technology, New Delhi.

### **INSTRUCTIONAL STRATEGY**

The students should be taken to leather footwear and leather goods manufacturing units and export houses to demonstrate various operations. Maximum emphasis should be laid in developing practical skills among the students. Experts from industries may be invited from time to time to deliver expert lectures.

### **SUGGESTED DISTRIBUTION OF MARKS**

| <b>Topic No.</b> | <b>Time Allotted (Hrs)</b> | <b>Marks Allotted (%)</b> |
|------------------|----------------------------|---------------------------|
| 1                | 20                         | 60                        |
| 2                | 16                         | 40                        |
| <b>Total</b>     | <b>32</b>                  | <b>100</b>                |

### 3.3 LEATHER GOODS MANUFACTURE

**L T P**  
**3 - 6**

#### RATIONALE

Diploma holders in Footwear and Leather Goods Technology are suppose to supervise/perform the duties like selection of materials/inputs, leather, lining, accessories, production planning, pricing factor, scheduling, delivery commitment, inventory control, packaging & forwarding and quality assurance operations. For this purpose, it is essential that students will be given elementary knowledge and skills related to material inputs, various process, latest marketing techniques involved in leather goods manufacturing industry.

#### DETAILED CONTENTS THEORY

1. Brief history of Leather goods industry, its impact and importance in modern life. (6 hrs)
2. Classification of leather goods such as shopping bags, hand bags, patch bags, pouches and wallets, Suitcases, brief cases, men's business satchels, executive accessories and petty articles, belts (8 hrs)
3. Characteristic of materials and their selection. (6 hrs)
4. Modern methods of fabrication and machinery used. (6 hrs)
5. Standardisation of materials, fittings, hand tools, quality assurance and inventory control. (8 hrs)
6. Styling and pattern cutting of components, their assembly and finishing. (8 hrs)
7. Layout, costing and marketing (elementary) (6 hrs)

#### PRACTICALS

1. Preliminary practice of different operations such as clicking, skiving, edge treatment stitching.
2. Sketching, Designing & Pattern Cutting of various leather Goods Articles.
3. Manufacture of various articles of leather goods such as shopping bags, hand bags, patch bags, pouches and wallets, suitcases, briefcases, men's business satchels
4. Executive accessories and other petty articles.
5. Visiting different leather goods manufacture units.

## INSTRUCTIONAL STRATEGY

The students should be taken to leather footwear and leather goods manufacturing units and export houses to demonstrate various operations. Maximum emphasis should be laid in developing practical skills among the students. Experts from industries may be invited from time to time to deliver expert lectures.

## SUGGESTED DISTRIBUTION OF MARKS

| <b>Topic No.</b> | <b>Time Allotted (Hrs)</b> | <b>Marks Allotted (%)</b> |
|------------------|----------------------------|---------------------------|
| 1                | 06                         | 12                        |
| 2                | 08                         | 16                        |
| 3                | 06                         | 12                        |
| 4                | 06                         | 12                        |
| 5                | 08                         | 18                        |
| 6                | 08                         | 18                        |
| 7                | 06                         | 12                        |
| <b>Total</b>     | <b>48</b>                  | <b>100</b>                |

### 3.4 CAD IN FOOTWEAR TECHNOLOGY - I

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#### RATIONALE

The term CAD has found its way into all major disciplines that have got anything to do with designing or drafting techniques. The objective of the subject is to expose students to the requirements of the footwear industry by complementing their knowledge, skills, ability, and creativity in the field of CAD and its applications in the industry. A lot of flexibility is available by the use of different software's in footwear and leather goods industry.

#### DETAILED CONTENTS

#### PRACTICAL EXERCISES

**(Software: Use of Corel Draw and Adobe Photoshop)**

1. Study in detail the different tools of Corel Draw and Photoshop
2. Design a logo
3. Pick up footwear worn by a fashion model. Scan the picture and redesign the texture and color combination of the footwear.
4. Make a power point presentation of at least 10 slides selecting your own topic.

- Note:
- a) Reference from Indian and Foreign Libraries are required
  - b) Visits to designer workshops and fashion studios in footwear industries at different regions of the country/ abroad.
  - c) Visits to fashion shows and exhibitions, fairs etc
  - d) Attend seminars regarding export promotion, industry strategies etc
  - e) Latest information through media and internet
  - f) Personal interaction with the working in footwear, apparel and leather fashion accessories.
  - g) Students should be demonstrated the use of specific software's such as shoe master used for footwear design made by DELCAM.

#### INSTRUCTIONAL STRATEGY

The students should be taken to leather footwear and leather goods manufacturing units and export houses to demonstrate various operations. Maximum emphasis should be laid in developing practical skills among the students. Experts from industries may be invited from time to time to deliver expert lectures.

### 3.5 LEATHER PRODUCTS WASTE MANAGEMENT

**L T P**  
**3 - -**

#### RATIONALE

The control of environmental pollution is very essential to establish healthy working atmosphere in and around Footwear & Leather goods factories. The student should have knowledge of leather and grindery wastes their treatment and safe disposal to check atmospheric pollution. Footwear wastes can also be utilised for manufacturing of certain products and students should be provided sufficient knowledge about the same.

#### DETAILED CONTENTS

##### THEORY

1. Introduction to environment with specific reference to pollution caused by leather and footwear industry. (4 hrs)
2. Sources, composition, types and characteristics of wastes in Footwear & Leather goods making units. (4 hrs)
3. Hazards created by untreated wastes of Footwear and Leather goods industry and its control. (6 hrs)
4. Legislation for disposal of wastes in leather & footwear industry. (4 hrs)
5. Environmental problems caused by various pollutants such as chemicals, solutions, scraps, packing material and dust particles of leather buffing and snuffing etc. and their methods of disposal. (6 hrs)
6. Making use of wastes to manufacture By product viz. Leather washer's, bottom filling, shanks Heel building, stiffener and toe puff making , button covering, book binding, leather board, etc. (6 hrs)
7. Preventive methods such as use of exhaust type dust collecting bags on the Buffing, Snuffing, cutting, splitting, skiving, polishing and spraying machines. (6 hrs)
8. Air, water and noise pollution and their control. (Brief introduction) (6 hrs)
9. Develop work cultural, making use of waste collecting containers in order to have pollution free atmosphere in Footwear and Leather Goods manufacturing units. (6 hrs)



### LIST OF PRACTICALS

1. Practising to minimise the wastes by employing preventive methods.
2. Special guest lectures of experts may be arranged at suitable times.
3. Students should be taken to common treatment plant in Leather Complexes.
4. Students should be taken to Leather board making plants.
5. Students should be taken to such units having independent pollution control devices.
6. Visits of units manufacturing leather, rubber and P.V.C. based products.

### INSTRUCTIONAL STRATEGY

The students should be taken to leather footwear and leather goods manufacturing units and export houses to demonstrate various operations. Maximum emphasis should be laid on demonstrating waste management in leather units. Experts from industries may be invited from time to time to deliver expert lectures on related topics

### SUGGESTED DISTRIBUTION OF MARKS

| Topic No.    | Time Allotted (Hrs) | Marks Allotted (%) |
|--------------|---------------------|--------------------|
| 1            | 04                  | 08                 |
| 2            | 04                  | 10                 |
| 3            | 06                  | 12                 |
| 4            | 04                  | 10                 |
| 5            | 06                  | 12                 |
| 6            | 06                  | 12                 |
| 7            | 06                  | 12                 |
| 8            | 06                  | 12                 |
| 9            | 06                  | 12                 |
| <b>Total</b> | <b>48</b>           | <b>100</b>         |

## **ECOLOGY AND ENVIRONMENTAL AWARENESS CAMP**

A diploma holder must have knowledge of different types of pollution caused due to industries and constructional activities so that he may help in balancing the eco system and controlling pollution by pollution control measures. He should also be aware of environmental laws related to the control of pollution.

This is to be organized at a stretch for 3 to 4 days. Lectures will be delivered on following broad topics. There will be no examination for this subject.

1. Basics of ecology, eco system and sustainable development
2. Conservation of land reforms, preservation of species, prevention of advancement of deserts and lowering of water table
3. Sources of pollution - natural and man made, their effects on living and non-living organisms
4. Pollution of water - causes, effects of domestic wastes and industrial effluent on living and non-living organisms
5. Pollution of air-causes and effects of man, animal, vegetation and non-living organisms
6. Sources of noise pollution and its effects
7. Solid waste management; classification of refuse material, types, sources and properties of solid wastes, abatement methods
8. Mining, blasting, deforestation and their effects
9. Legislation to control environment
10. Environmental Impact Assessment (EIA), Elements for preparing EIA statements
11. Current issues in environmental pollution and its control
12. Role of non-conventional sources of energy in environmental protection

## ENVIRONMENTAL STUDIES

### RATIONALE

A diploma holder must have knowledge of different types of pollution caused due to industries and constructional activities so that he may help in balancing the eco system and controlling pollution by pollution control measures. He should also be aware of environmental laws related to the control of pollution.

Lectures will be delivered on following broad topics.

| <b>DETAILED CONTENTS</b> |   |  |
|--------------------------|---|--|
| 1                        | Basics of ecology, eco system and sustainable development.  |  |
| 2                        | Conservation of land reforms, preservation of species, prevention of advancement of deserts and lowering of water table   |  |
| 3                        | Sources of pollution - natural and man made, their effects on living and non-living organisms   |  |
| 4                        | Pollution of water - causes, effects of domestic wastes and industrial effluent on living and non-living organisms  |  |
| 5                        | Pollution of air-causes and effects of man, animal, vegetation and non-living organisms   |  |
| 6                        | Sources of noise pollution and its effects  |  |
| 7                        | Solid waste management; classification of refuse material, types, sources and properties of solid wastes, abatement methods   |  |
| 8                        | Mining, blasting, deforestation and their effects   |  |
| 9                        | Legislation to control environment  |  |
| 10                       | Environmental Impact Assessment (EIA), Elements for preparing EIA statements  |  |
| 11                       | Current issues in environmental pollution and its control, Global warming, Green house gases, non-conventional sources of energy, introduction to clean technology. |  |
| 12                       | Introduction to Green buildings, site selection, material efficiency, energy efficiency, water efficiency, building form.   |  |
| 13                       | Role of non-conventional sources of energy in environmental protection  |  |

**SUGGESTED DISTRIBUTION OF MARKS**

| <b>Topic No.</b> | <b>Marks Allotted (%)</b> |
|------------------|---------------------------|
| 1                | 5                         |
| 2                | 7                         |
| 3                | 7                         |
| 4                | 10                        |
| 5                | 10                        |
| 6                | 6                         |
| 7                | 10                        |
| 8                | 6                         |
| 9                | 6                         |
| 10               | 8                         |
| 11               | 10                        |
| 12               | 5                         |
| 13               | 10                        |
| <b>Total</b>     | <b>100</b>                |