DIPLOMA IN
FOOTWEAR TECHNOLOGY

CURRICULAR STRUCTURE
AND
SYLLABUS OF PART - II

WEST BENGAL STATE COUNCIL OF TECHNICAL EDUCATION
"KOLKATA KARIGORI BHAVAN" 110 S N BANERJEE ROAD (2ND FLOOR),
KOLKATA – 700 013
<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>SUBJECT</th>
<th>CREDIT</th>
<th>PERIODS</th>
<th>INTERNAL SCHEME</th>
<th>EVALUATION SCHEME</th>
<th>MARKS TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>T</td>
<td>L</td>
<td>U</td>
<td>PR</td>
</tr>
<tr>
<td>1</td>
<td>PRINCIPLES OF FOOTWEAR MANUFACTURE</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>METHOD OF FOOTWEAR MANUFACTURE – PART - I</td>
<td>8</td>
<td>3</td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>PRINCIPLES OF SHOE DESIGNING &amp; PATTERN CUTTING-I</td>
<td>8</td>
<td>3</td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>MATERIAL CLICKING</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>SELECTION OF MATERIAL LEATHER AND ACCESSORIES</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>PROFESSIONAL PRACTICE - I</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>26</td>
<td>12</td>
<td>2</td>
<td>19</td>
<td>40</td>
</tr>
</tbody>
</table>

STUDENT CONTACT HOURS PER WEEK: 33 Hrs.

Theory and Practical Period of 60 Minutes each.
OBJECTIVE
To understand the relationship between the foot, the last and the shoe during shoe making. The foot anatomy and the shoe sizing systems.

EXAMINATION SCHEME
Internal assessment marks 30 and END SEMESTER EXAMINATION MARKS 70
Distribution of Internal assessment marks : Teacher’s Assessment 10, Class Test 20,

<table>
<thead>
<tr>
<th>NO.</th>
<th>SUBJECT</th>
<th>CREDIT</th>
<th>PERIODS</th>
<th>INTERNAL SCHEME</th>
<th>EVALUATION SCHEME</th>
<th>MARKS TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>T</td>
<td>C</td>
<td>TOT</td>
</tr>
<tr>
<td>1</td>
<td>PRINCIPLES OF FOOTWEAR MANUFACTURE</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

DETAIL COURSE CONTENT

1. The Bony Structure of the Leg and Foot:
   a) The functions of the foot
   b) General outline of the skeleton
   c) The bones of the leg – Tibia and Fibula
   d) The ankle bones
   e) The bones of the foot
   f) The joints, ankles, metatarsal, phalanges

2. The movements of the foot in relation to walking:
   a) Movement at ankle joint
   b) Movement at Metatarsal/Phalanges joints

3. The Arches of the foot:
   a) Inner longitudinal arch
   b) Outer longitudinal arch
   c) The functions of long arches
   d) The transversal/tarsal arch
   e) The metatarsal arch

4. The development and growth of bone:
   a) Ossification
   b) Distortion of bone

5. The difference between foot and last:
   a) What is last
   b) Different parts of last
   c) Last and shoes
   d) Foot and Lasts
      i) Comb
      ii) Girth measurements
      iii) Toe spring and heel pitch
      iv) The heel height
      v) The forepart length
   e) Different types of lasts and their uses.
   f) Construction of mould for making P.V.C last.

6. Systems of measurements:
   a) Foot Measurement Technique
   b) English shoe size system
   c) American shoe size system
   d) Continental shoe size system
e) Etc.

7. Girth measurements – joint and instep:
   a) English system
   b) American system – multiple fittings
   c) Width
   d) Girth scales – different charts available

8. Foot measuring devices:
   a) Size stick
   b) Heel to ball (brannock)
   c) Shoe size tapes
   d) The fitting gauges

9. Basic foot fitting – length:
   a) The factors involved in correct length
   b) For open type shoes
   c) For close type shoes

10. Features of a last
    a) Lasts as per construction, Making Technique
    b) How to check the last
    c) Last standardisation

11. Foot comfort and biomechanical view on it.

12. Principle for Making Some specific category Footwear:
    a) Footwear, Diabetic Footwear,
    b) Safety Footwear and Orthopaedic Footwear.

TEXT BOOKS:

METHODS OF FOOTWEAR MANUFACTURE PART- I

Subject Code Course offered in Course Duration 3 lecture & 8 practical contact Full Marks
FWT / 3 / T4 / MFM1 2nd Year 1st Semester 17 weeks periods per week 100+150

OBJECTIVE
a) To provide knowledge of the requirement of a clicking department. To understand the importance of material economy. to obtain practical experience of cutting a wide range of upper, lining, etc.

b) To make students familiar with all aspects of practical upper making procedure and the importance of correct preparation of components and techniques of stitching.

EXAMINATION SCHEME
Internal assessment marks 30 and END SEMESTER EXAMINATION MARKS 70 Practical Marks 150
Distribution of Internal assessment marks: Teacher’s Assessment 10, Class Test 20
Practical Marks:
Internal assessment of 100 marks shall be held throughout the Semester on the entire syllabus.

External assessment of 50 marks shall be held at the end of the Semester on the entire syllabus. One job per student from any one of the jobs done is to be performed. Job is to be set by lottery system. Distribution of marks: On the spot job – 40; Viva-voce – 10.

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>SUBJECT</th>
<th>CREDIT</th>
<th>PERIODS</th>
<th>EVALUATION SCHEME</th>
<th>MARKS TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>T</td>
<td>U</td>
<td>PR</td>
<td>T</td>
</tr>
<tr>
<td>1</td>
<td>METHOD OF FOOTWEAR MANUFACTURE – PART- I</td>
<td>8</td>
<td>3</td>
<td>8</td>
<td>10</td>
</tr>
</tbody>
</table>
DETAIL COURSE CONTENT

A. Introduction to Footwear Technology
   Definition and function of Footwear
   History & Evolution of Footwear
   Classification of Footwear
   Different components of Footwear
   Board room of Footwear Making

B. Clicking Technology:
   1. Principle of Clicking/Cutting (Importance of clicking, Quality of clicking man)
   2. Cutting / Clicking – The operation, Method of cutting;Economic aspect of different methods;
      Hand cutting , Machine cutting , Cutting by CAD system,
      Principle of cutting upper components: (Cutting direction, Quality region, Individual component wise
      discussion, match making, Manipulation of defects, pattern System, Cutting economy by designer &
      supervisors);
      Cutting Lining;Cutting Socks;Cutting of reinforcement materials,
      Cutting Fabrics
      Environmental Factor in Clicking and it's effect on wastage
      Principle of cutting Bottom components and their prefabrications. Such as moulding, splitting,
      scouring, buffing, etc.

C. Pre-fitting/ Preparation Methods:
   1. Introduction
   2. Pre-fitting – Checking, Identification Markings, Stitch Marking, Perforation, Embossing, skiving, splitting,
      Matrix Skiving.
   3. Edge Treatments- Raw Edge, Burnished Edge, Edging, Folded Edge, Gimped Edge, Punched Edge, U-
      Binding, French Binding, Shallow Bagging, Collars, Ghillie Top-line, Slip Beading

Practical:
   Practicing Clicking upper components and bottom components and prefabrication of them
   Practising all operations for upper closing such as – skiving, marking uppers for closing, edge colouring, folding,
   stitching on different machines, eyeleting, trimming of extra lining material etc.
   Drafting of shoe uppers by hand.
   Lasting uppers by hand.
   Practice of machine lasting
   Preparing lasted bottom and sole.
   Application of adhesive on both sole and lasted bottom and attachment of them on a sole pressing machine.
   Cleaning and finishing operations for upper and bottom by hand and machine.

TEXT BOOKS:

PRINCIPLES OF SHOE DESIGNING & PATTERN CUTTING-I

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Course offered in</th>
<th>Course Duration</th>
<th>3 lecture + 8 practical contact periods per week</th>
<th>Full Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FWT / 3 / T5 / PSDP1</td>
<td>2nd Year 1st Semester</td>
<td>17 weeks</td>
<td></td>
<td>100+150</td>
</tr>
</tbody>
</table>

OBJECTIVE
a) To provide the participants with a general awareness of fashion and the ability to express this in a
   graphical format.
b) To impart the necessary craft ability required for the production of model patterns.
c) To develop the ability to control line and production.

EXAMINATION SCHEME
Internal assessment marks 30 and END SEMESTER EXAMINATION MARKS 70 Practical Marks 150
Distribution of Internal assessment marks: Teacher’s Assessment 10, Class Test 20
Practical Marks:

Internal assessment of 100 marks shall be held throughout the Semester on the entire syllabus.
Distribution of marks: Practical Book –(open type 10+ close type 10); on the spot job – (open type 20+ close type 20);
Assignment – (open type 20+ close type 20).
**External assessment of 50 marks** shall be held at the end of the Semester on the entire syllabus. One job per student from any one of the jobs done is to be performed. Job is to be set by lottery system. Distribution of marks: On the spot job – 40; Viva-voce – 10.

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>SUBJECT</th>
<th>CREDIT</th>
<th>PERIODS</th>
<th>EVALUATION SCHEME</th>
<th>MARKS TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>S</td>
<td>L</td>
<td>T</td>
<td>U</td>
</tr>
<tr>
<td>3</td>
<td>PRINCIPLES OF SHOE DESIGNING &amp; PATTERN CUTTING-I</td>
<td>8</td>
<td>3</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

**Detail Course Content**

1. Introduction to:
   a) Basic designs
   b) Materials
   c) Components
   d) Constructions

2. Introduction to pattern cutting techniques:
   a) Various methods of forme making - such as paper tapes, vacuum forme, slotted, etc.
   b) Knowledge about various upper allowances like folding, underlay, trimming, lasting, etc.
   c) Designing by 2-dimensional method.
   d) Designing by 3-dimensional method.

3. Trims, accessories design:- Use of buckles, bows, straps, elastics, velcro, saddle, collars, eyelets, laces, padding, ski-hooks, sliders and fittings for decorative purposes.

**Practical A (Close Type):**

1. Construction of Mean Forme by different methods such as:
   a) Slotted paper method
   b) Masking tape method

2. Construction of base model and section patterns of upper and lining for:
   a) Derby shoe with toe cap
   b) Derby shoe with mud guard
   c) Oxford shoe with toe cap
   d) Bottom patterns preparation for above designs

3. Pattern tracing for one pair material consumption.

**Practical B (Open Type):**

1. Construction of mean forme by:
   a) Slotted paper method
   b) Masking tape method

2. Construction of base model and section pattern for upper, lining and bottoms for:
   a) Men's chappals– different styles

3. Pattern tracing for one pair consumption.

**TEXT BOOKS:**

**MATERIAL CLICKING TECHNIQUES**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Course offered in</th>
<th>Course Duration</th>
<th>3 practical contact periods</th>
<th>Full Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FWT / T3 / T3 / MCT</td>
<td>2nd Year 1st Semester</td>
<td>17 weeks per week</td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>

**OBJECTIVE**
a) To provide the participants with a general awareness of pattern making technique.

**EXAMINATION SCHEME**

**Practical Marks:**

**Internal assessment of 25 marks** shall be held throughout the Semester on the entire syllabus. Distribution of marks: Practical Book –5; on the spot job –10; Assignment – 10.

**External assessment of 25 marks** shall be held at the end of the Semester on the entire syllabus. One job per student from any one of the jobs done is to be performed. Job is to be set by lottery system. Distribution of marks: On the spot job – 15; Viva-voce – 10.

---

**DETAIL COURSE CONTENT**

**Introduction:** Pattern Engineering, Material Clicking  

**FLAT PATTERN TECHNIQUES:** Dart manipulation methods – pivot method, slash and spread method – moving, dividing, combining darts and converting darts into seam lines and measurement method – dividing darts in same seam line.  

**PATTERN ALTERATIONS:** Importance of altering patterns, principles of pattern alterations, pattern alterations in various garments, alteration of patterns for irregular figures.  

**PATTERN GRADING:** Principles of pattern grading, types – draft grading: two dimensional and three dimensional, track grading and advantages. Method of grading for various garments.  

**MARKER PLANNING:** Pattern layout: Types – open, lengthwise, crosswise, double layout, combination layout; Principles, Laying various patterns on different types of fabrics. Marker planning: Planning, drawing and reproduction of the marker – the requirements, efficiency, methods of marker planning.  

**SPREADING AND CUTTING:** Spreading: Factors to be considered in knitted and woven fabrics, lay formation, requirements, methods, type of fabric packages; Cutting: objectives, fabric preparation, methods.  

---

**TEXT BOOKS:**


**REFERENCES:**


---

**SELECTION OF MATERIAL LEATHER AND ACCESSORIES**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Course offered in</th>
<th>Duration</th>
<th>3 lecture contact periods per week</th>
<th>Full Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FWT / T3 / SFMA</td>
<td>2nd Year 1st Semester</td>
<td>17 weeks</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**OBJECTIVE**

To provide a basic knowledge of the structure, characteristics and properties of a wide range of materials used in footwear manufacture and to examine their uses and limitations in relation to footwear design and production.

**EXAMINATION SCHEME**

Internal assessment marks 30 and END SEMESTER EXAMINATION MARKS 70

Distribution of Internal assessment marks : Teacher’s Assessment 10, Class Test 20,
DETAIL COURSE CONTENT

Introduction: Footwear Material Classifications

Leather:-
-- Introduction
-- Suitability as Footwear Materials (Different Attributes)
-- Hides & Skin Structure (Anatomical outline)
-- Defects of Hides & Skins (Ante-mortem & Post-mortem)
-- Processing outlines of Hides & Skins
  Pre Tanning
  Chrome Tanning, Vegetable Tanning, Combination Tanning.
  Post Tanning
-- Finishing of Leather
-- Leather Testing [ selection leather; Sample location; Tensile strength, % of Elongation at Break, Tearing Strength, Tongue Tear Strength, Lastometer test, rub Fastness, Flexing endurance, water absorption, Dynamic water Proof-ness; Thumb Tests]
Leather Grading.

Threads:
Introduction;
Different types of fibers as materials for thread [natural, organic, inorganic];
Thread Manufacturing Process [Basic Outline]
[Different Twist- s, z]
Thread Identification;
Thread Numbering Systems [Length, Weight basis];
Thread properties;

Adhesives:
Introduction
Classes of adhesives used in Footwear industry – Their descriptions;
Principles of Adhesions [Specific Adhesion, Mechanical adhesion];
Basic for selection of adhesives;
Use of adhesives in Different operations/stages in footwear making
  Fitting, Combining, French binding, Folding, lasting, [solution Lasting adhesives, Hot melt Adhesives], stock attaching, Heel Covering, Sole Attaching [qualities to consider]
Selection of hardener, solvent in adhesives.
Advantage & Disadvantage of different adhesives.

TEXT BOOKS:


PROFESSIONAL PRACTICE - I

Subject Code Course offered in Duration 2 lecture contact periods Full Marks
FWT / 3 / T1 / PR1 2nd Year 1st Semester 17 weeks per week 50

OBJECTIVE

- Acquire information from different sources.
- Prepare notes for given topic.
- Present given topic in a seminar.
- Interact with peers to share thoughts.
- Prepare a report on industrial visit, expert lecture.
**EXAMINATION SCHEME**

Internal assessment marks : 50

Distribution of Internal assessment marks : Visit Report-10, Seminar Presentation 15, Internal Assignment-25

<table>
<thead>
<tr>
<th>CREDITS</th>
<th>PERIODS</th>
<th>EVALUATION SCHEME</th>
<th>MARKS TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>TU</td>
<td>PR</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DETAILED COURSE CONTENT**

**Module-I**

Insole construction of last:

a) From foot impression

b) Foot measurement

Identification of different types of Open and Close Type Last.

Industry Visit

**Module-2**

Identification of Hide and Skin of Cow, Buffalo, Goat, Sheep.

Identification of defects.

Gradation of Leather according to defect.

Identification of different types of finished leather.

Visit a tannery

Identification of different types of footwear adhesives.

Identification of different types of threads.