

**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**

**CURRICULAR STRUCTURE FOR PART-II (2ND YEAR) OF THE FULL TIME
DIPLOMA COURSE IN FOOTWEAR TECHNOLOGY**

WEST BENGAL STATE COUNCIL OF TECHNICAL EDUCATION

TEACHING & EXAMINATION SCHEME FOR DIPLOMA IN ENGINEERING COURSES

BRANCH: DIPLOMA IN FOOTWEAR TECHNOLOGY

SEMESTER: THIRD

SR. NO.	SUBJECT	CREDIT S	PERIODS			EVALUATION SCHEME						MARKS TOTAL
			L	T U	PR	INTERNAL SCHEME			ESE	PR	TW	
						T A	C T	TOT AL				
1	PRINCIPLES OF FOOTWEAR MANUFACTURE	3	3			10	20	30	70			100
2	METHOD OF FOOTWEAR MANUFACTURE – PART- I	8	3		8	10	20	30	70	150		250
3	PRINCIPLES OF SHOE DESIGNING & PATTERN CUTTING-I	8	3		8	10	20	30	70	150		250
4	MATERIAL CLICKING	2			3					50		50
5	SELECTION OF MATERIAL LEATHER AND ACCESSORIES	3	3			10	20	30	70			100
6	PROFESSIONAL PRACTISE -I	2		2							50	50
	Total	26	12	2	19	40	80	120	280	350	50	800

STUDENT CONTACT HOURS PER WEEK: 33Hrs.

Theory and Practical Period of 60 Minutes each.

L – Lecturer, TU –TERM WORK, PR – Practical, TA – Teachers’ Assessment, CT – Class Test, ESE – End Semester Exam., TW – Term Work.

PRINCIPLES OF FOOTWEAR MANUFACTURE

Subject Code
FWT / 3 / T3 / PFM

Course offered in
2nd Year 1st Semester

Course Duration
17 weeks

3 lecture periods
per week

Full Marks
100

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,

SR.	SUBJECT	CREDIT S	PERIODS			EVALUATION SCHEME						
			L	T U	PR	INTERNAL SCHEME			ESE	PR	TW	MARKS TOTAL
						T A	C T	TOT AL				
1	PRINCIPLES OF FOOTWEAR MANUFACTURE	3	3	-		10	20	30	70			100

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:

1. Somenath Ganguly , 'Comprehensive Footwear Technology' ILTA, Kolkata Publication.

METHODS OF FOOTWEAR MANUFACTURE PART- I

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

Distribution of marks: Practical Book – 20; on the spot job – 40; Assignment – 40.

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.**

SR.	SUBJECT	CREDIT S	PERIODS			EVALUATION SCHEME						
			L	T U	PR	INTERNAL SCHEME			ESE	PR	TW	MARKS TOTAL
						T A	C T	TOT AL				
2	METHOD OF FOOTWEAR MANUFACTURE – PART- I	8	3		8	10	20	30	70	150		250

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:

1. Somenath Ganguly , 'Comprehensive Footwear Technology' ILTA, Kolkata Publication.

PRINCIPLES OF SHOE DESIGNING & PATTERN CUTTING-I

Subject Code	Course offered in	Course Duration	3 lecture + 8 practical contact	Full Marks
FWT / 3 / T5 / PSDP1	2 nd Year 1 st Semester	17 weeks	periods per week	100+150

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.

SR.	NO	SUBJECT	CREDIT S	PERIODS			EVALUATION SCHEME						
				L	T U	PR	INTERNAL SCHEME			ESE	PR	TW	MARKS TOTAL
							T A	C T	TOT AL				
3		PRINCIPLES OF SHOE DESIGNING & PATTERN CUTTING-I	8	3		8	10	20	30	70	150		250

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:

1. Somenath Ganguly , 'Comprehensive Footwear Technology' ILTA, Kolkata Publication.

MATERIAL CLICKING TECHNIQUES

Subject Code
FWT / 3 / T3 / MCT

Course offered in
2nd Year 1st Semester

Course Duration
17 weeks

3 practical contact periods
per week

Full Marks
50

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.

CREDITS	PERIODS			EVALUATION SCHEME						
	L	TU	PR	INTERNAL SCHEME			ESE	PR	TW	MARKS TOTAL
				TA	CT	TOTAL				
2			3					50	-	50

DETAIL COURSE CONTENT

Introduction: Pattern Engineering, Material Clicking (4)

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. (8)

PATTERN ALTERATIONS: Importance of altering patterns, principles of pattern alterations, pattern alterations in various garments, alteration of patterns for irregular figures. (8)

PATTERN GRADING: Principles of pattern grading, types – draft grading: two dimensional and three dimensional, track grading and advantages. Method of grading for various garments. (8)

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. (10)

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. (8)

TEXT BOOKS:

- Helen Joseph, Armstrong, "Pattern Making for Fashion designing", fourth edition, Prentice Hall, New York, 2004.
- Patrick Taylor.T, Marti Shoben.M. , "Grading for the Fashion Industry", Stanley Thomas (Publishers) Ltd., 1990.

REFERENCES:

- Debbie Ann Gioello and Beverly Berke, "Fashion Production Terms", Fairchild Publications, New York, 2002.
- Patty Brown, Janett Rice, "Ready To Wear Apparel Analysis", Prentice Hall, 1998.

SELECTION OF MATERIAL LEATHER AND ACCESSORIES

Subject Code	Course offered in	Duration	3 lecture contact periods	Full Marks
FWT / 3 / T3 / SFMA	2 nd Year 1 st Semester	17 weeks	per week	100

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,

CREDITS	PERIODS			EVALUATION SCHEME						
	L	TU	PR	INTERNAL SCHEME			ESE	PR	TW	MARKS TOTAL
				TA	CT	TOTAL				
3	3			10	20	30	70			100

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:

1. Somenath Ganguly , 'Comprehensive Footwear Technology' ILTA, Kolkata Publication.

PROFESSIONAL PRACTICE -I

Subject Code	Course offered in	Duration	2 lecture contact periods	Full Marks
FWT / 3 / T1 / PR1	2 nd Year 1 st 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

CREDITS	PERIODS			EVALUATION SCHEME						
	L	TU	PR	INTERNAL SCHEME			ESE	PR	TW	MARKS TOTAL
				TA	CT	TOTAL				
2		2							50	50

DETAIL COURSE CONTENT

Module-1

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.