



**CONDENSED COURSE IN “FOOTWEAR
DESIGN AND PRODUCTION”**



curriculum

**Ministry of Micro, Small and Medium
Enterprises, New Delhi
(MSME-Technology Centre)**

Course wise Details contents

PROGRAMME NAME:		CONDENSED COURSE IN FOOTWEAR DESIGN & PRODUCTION						
COURSE TITLE		DESIGNING & PATTERN CUTTING						
COURSE CODE		CCFDP-101						
TEACHING & EXAMINATION SCHEME								
TEACHING SCHEME			EXAMINATION SCHEME					
TH	TU	PR	PAPER Hrs.	TH	PR	OR	TW	TOTAL
10	--	120	4	20	80	-	-	100
Rationale:								
<p>In shoe manufacturing process, the designing and pattern cutting play a vital role. The main skill requirement for this job is perfection and accuracy in the design and pattern as per the customer demand. Due to lack of trained man power in designing, many times the process takes more time and repeated works and poor results. Considering this, it is important to have trained work force who can develop design and pattern in minimum time with perfection. Due to tremendous growth in designing in recent years , one need to be familiar with designing and pattern cutting is inevitable.</p>								
COURSE OUTCOMES:								
<ul style="list-style-type: none"> • Forecast the design and marketing trends. • Apply the principles of fashion in footwear design • Implement basic styles like derby, oxford, pump shoe etc. • Organize and edit work for creating simulations • Apply patterning techniques and Use accessories, bottom stock to develop standard styles of varying age group • Handle the knife and cutting the sharp corners and curves and Cut the articles of the upper and lining components with standard measurements. • Production of a working standard and sectional patterns for outside and linings • Using the knowledge, techniques and practical shoemaking skills acquired in other areas of the programme to produce design prototypes • Apply specification procedures for use in production, detailing of style etc 								
Unit	Unit outcomes	Contents					Hours	Marks
I	Describe with example the effect of line, shape, colour, pattern and texture on design;	I. <u>Fashion Consideration:</u> a. Line: its effect on footwear design, upper and bottom proportion and balance b. Shape: The creation of difference last unit silhouettes to emphasis or understate design modes. c. Colour: The psychological effect of colour and the importance of the creation of seasonal colour ranges. d. Pattern: The effect of surface pattern detailing and modeling on man - made or leather upper materials, and on unit design. e. Texture: The effect that surface texture can have on the appearance and wear ability of footwear products.					130	100
II	Select the components of footwear; select last for different types of users; Developing graphic representation/simulation of the style.	II. <u>Foot and Last :</u> a. Styles and designs covering men's, women, and children work, including shoes, sandals and boots.						

	<p>III Select appropriate pattern cutting techniques; Selection and drawing 2D and 3D sectional patterns; Implement the working standards for the styles and construction of footwear.</p> <p>IV Select trims, accessories and furniture design; Select and Use bottom stock patterns; Apply/implement specialized pattern cutting techniques for economy and fit over.</p> <p>V Produce design prototypes, ready for appraisal and assessment.</p> <p>VI Implement the different specification procedures for use in production.</p>	<p>b. Different lasts for men's, women's and children's footwear.</p> <p>c. Selection of sole units, both rigid and flexible of man-made/natural composition.</p> <p>d. A comprehensive selection of footwear components.</p> <p>III. <u>Introduction to pattern cutting Techniques:</u></p> <p>Variety of last covering and forme taking methods. Paper, tapes, , slotted/crumpled paper. Designing on the 3 dimensional shape of the last or vacuum forme, geometrically designing on the flat 2 dimensional, mean formeshapes. Production of a working standard (compatible to construction allowances) and sectional patterns for outside and linings</p> <p><u>Production of Pattern Standards:</u></p> <p>Using knowledge and techniques to produce working standards for the main styles and constructions of men, women, and children. Work: Court, Oxford, Gibson, Monk, One, two and three bar straps, trainer, gusset, casual and slip-on taking into account modern production methods, techniques and processes. purposes. Relationship to each other.</p> <p><u>Production of Bottom Sock Patterns:</u></p> <p>Develop bottom plate pattern and its use in the production of the insole, sock and sole pattern for various construction, cemented</p> <p><u>Design/Style Specification:</u></p> <p>Specification procedures for use in production, detailing of style, edge treatments, materials and components used, colors, last and constructions, information and sequence for uppers and bottom stock processes, finishing and shoe room treatments.</p>		
<p>Intellectual Skills: Design, Material and Manufacturing Technology, Design and Pattern Making</p> <p>Motor Skills: Drawing, Design and Pattern Making, creativity and innovations designing, clicking, closing, lasting & finishing, cutting, creativity and innovations,</p>				

PROGRAMME NAME:			CONDENSED COURSE IN FOOTWEAR DESIGN & PRODUCTION						
COURSE TITLE			CLICKING TECHNOLOGY						
COURSE CODE			CCFDP-102						
TEACHING & EXAMINATION SCHEME									
TEACHING SCHEME			EXAMINATION SCHEME						
TH	TU	PR	PAPER Hrs.	TH	PR	OR	TW	TOTAL	
10	--	120	3	20	80	-	-	100	
Rationale :									
<p>In the process of footwear manufacturing, clicking is term widely used. The purpose of clicking is to cut the components in a predetermined shape and size by hand or machine, It is important process in the footwear manufacturing sector. The aspects of productivity ,quality compliance ,testing procedures are followed to achieve the desired results in the clicking department. Knowledge in the clicking technology is inevitable in this programme and job holder should be familiar in this subject.</p>									
COURSE OUTCOMES:									
<ul style="list-style-type: none"> • Cut the material by machinery technology as well as traditional handmade technology. • Cutting of material by traditional HANDMADE with the knife and tin-patterns. • Apply material economics in clicking • Select the tools and machinery based on the material • Perform clicking process on the basis of position of footwear component and footwear material • Perform Costing and proper interlocking • Describe different cutting methods and tools • Explain the clicking and product cost relationship • Describe the precautions to be taken in clicking 									
Unit	Unit outcomes	Contents					Hours	Marks	
I	Cut the material by machinery technology as well as traditional handmade technology; Cutting of material by traditional HANDMADE with the knife and tin-patterns; Apply material economics in clicking;	I. <u>Clicking Technology :</u>					130	100	
II	Select the tools and machinery based on the material; Perform Costing and proper interlocking.	<ul style="list-style-type: none"> • The upper components (upper, lining, reinforcement). • Materials used in footwear upper making man-made materials, leather (basic characteristics), • Hand cutting and related tools and equipment. • Machine cutting and related equipment and dies. • The various material wastes causes. • Pattern layout on plain materials, Pattern layout on patterned materials • Pattern layout on fabric materials. • Characteristics of leather from the view point of the upper cutting. 							
III	Perform clicking process on the basis of position of footwear component and footwear material; Describe the precautions to be taken in clicking.	<ul style="list-style-type: none"> • The leather material quality variations in relation tom different parts of the skin/ hide (stretch - resistance - colour - grain - texture). • The upper components specific quality requirement {vamp - quarters – inside-outside etc.) • Defects marking up. • Leather grading, Leather sorting, Leather store and storage. 							

<p>IV</p> <p>Describe different cutting methods and tools; Explain the clicking and product cost relationship.</p> <p>V</p> <p>Perform Costing and proper interlocking.</p>		<ul style="list-style-type: none"> • Hand cutting pattern storage, Size making (figure and codes). • Importance of rational and economic cutting as required to product cost. • The economic aspect of hand clicking as compared with press clicking. • The advantage of press clicking for intricate patterns. • The importance of light in the clicking room. • Quality control applied to upper clicking. • Safety precautions applied to upper clicking <p>II. <u>Clicking Department Procedure :</u> <u>The nature of clicking.</u></p> <ol style="list-style-type: none"> a. Hand cutting equipment - maintenance - the clicking room managers Responsibility for the maintenance of equipment's b. Need for economy and accuracy in clicking. c. Accuracy, brevity and clarity. d. Produce basic graphic information. e. Elements of occupational health and safety. f. personal protective equipment in the work place. Practice: The use of hand clicking knife in cutting exercises. <p>III. <u>The general qualities of leather:</u></p> <ol style="list-style-type: none"> (i) Lines of tightness and stretch (ii) Quality variance in skin, Defects in upper leather <ol style="list-style-type: none"> a. Materials for shoe uppers. b. Types of leather in common use. c. Examinations of leather. d. Skins, hides and sides. . e. correct storage of leather. <p>Review of fabrics in general use for linings and the cutting system need.</p> <ol style="list-style-type: none"> a. Press cutting equipment b. Compare swing beam and traveling head presses <p>c Types of knife comparisons</p> <p>IV. <u>Basic Clicking Costing</u> Cutting allowance and clicking cost sheet.</p>		
<p>Intellectual Skills: Material, Manufacturing technology, Machinery & Equipment Motor Skills: Clicking skill using latest machinery, Team work, Communication</p>				

PROGRAMME NAME:		CONDENSED COURSE IN FOOTWEAR DESIGN & PRODUCTION						
COURSE TITLE		CLOSING TECHNOLOGY						
COURSE CODE		CCFDP -103						
TEACHING & EXAMINATION SCHEME								
TEACHING SCHEME			EXAMINATION SCHEME					
TH	TU	PR	PAPER Hrs.	TH	PR	OR	TW	TOTAL
10	--	180	3	20	80	-	-	100
<p>Rationale:</p> <p>In the process of footwear manufacturing, closing is term widely used. The purpose of closing operations is to attach the components and stitch it in a particular shape and size by machine; It is important process in the footwear manufacturing sector. The aspects of productivity, quality compliance, testing procedures are followed to achieve the desired results in the closing department. Knowledge in the closing technology is inevitable in this program me and job holder should be familiar in this subject.</p>								
<p>COURSE OUTCOMES:</p> <ul style="list-style-type: none"> • Describe the types of stitching machines • Explain types of seams/joints/layers • Describe the operational sequence for closing • Apply different closing techniques and treatments • Use/select appropriate needle and thread • Operate different machines for closing technology • Check and inspect the closing 								
Unit	Unit outcomes		Contents				Hours	Marks
I	Describe the types of stitching machines; Explain types of seams/joints/layers; Describe the operational sequence for closing;		I. <u>Closing Technology:</u>				190	100
II	Apply different closing techniques and treatments.		Machinery: <ul style="list-style-type: none"> • Basic types and specialist stitching machines. • operational sequence for basic styles • Skiving, backing, stitch marking, perforation, folding and ancillary machinery • Methods of upper reinforcements, edge and decorative treatments. Types of seams. Welding treatment for upper assembly, decoration and ornaments.					
III	Use/select appropriate needle and thread; Operate different machines for closing technology.		II. Needles and threads:					
IV	Check and inspect the closing		<ul style="list-style-type: none"> • Types, sizes, selection, classification, relationship, application to Work. Upper shaping by forming equipment/blocking machine <u>Closing Practical:</u> <ol style="list-style-type: none"> Students will be introduced to the different types of stitching and Non-stitching machine available. They will be taught the techniques of 					

		<p>handcrafts and the use of Machines for similar operations.</p> <p>c. They will be trained in their use and in the use of adjustments necessary to functional efficiency.</p> <p>This will be followed by the making up .of basic styles of men's and women's footwear"</p>		
<p>Intellectual Skills:Material, Manufacturing technology, Machinery & Equipment</p> <p>Motor Skills: Closing skill using latest machinery Team work, Communication</p>				

PROGRAMME NAME:	CONDENED COURSE IN FOOTWEAR DESIGN & PRODUCTION							
COURSE TITLE	LASTING & MAKING TECHNOLOGY							
COURSE CODE	CCFDP-104							
TEACHING & EXAMINATION SCHEME								
TEACHING SCHEME			EXAMINATION SCHEME					
TH	TU	PR	PAPER Hrs.	TH	PR	OR	TW	TOTAL
10	--	190	3	20	80	-	-	100

Rationale:

In the process of footwear manufacturing, Lasting is term widely used. The purpose of lasting is to attach the upper, with the sole as per the last shape and size by machine. It is important process in the footwear manufacturing sector. The aspects of productivity, quality compliance, testing procedures are followed to achieve the desired results in the lasting department. Knowledge in the lasting technology is inevitable in this program me and job holder should be familiar in this subject.

COURSE OUTCOMES:

- Explain the concept of lasting
- Explain lasting principles
- Implement lasting principles in footwear manufacturing
- Explain different processes at different layers in lasting technology
- Explain the bottoming procedure and processes involved in bottoming
- Perform bottoming and finishing procedure
- Describe the finishing types and processes
- Compare different finishing systems
- Explain the functions and processes of the shoe room,
- Describe shoe room operations and techniques

Unit	Unit outcomes	Contents	Hours	Marks
I	Explain the concept of lasting; Explain lasting principles; Implement lasting principles in footwear manufacturing; Explain different processes at different layers in lasting technology.	<p>I. Lasting:</p> <p>a. Types and uses of toe-puffs and stiffeners.</p> <p>b. Identification of methods of attachments.</p> <p>c. Methods of conditioning uppers and components.</p> <p>d. Lasting principles and methods of application.</p> <p>e. Lasting and bottoming systems for different types of construction in general use.</p> <p>f. Heeling processes, including heel building</p>	190	100

	<p>and heel finishing, covering Systems and methods of heel attachment.</p> <p>g. Systems of transportation and track management.</p> <p>h. Combined lasting system.</p> <p>i. The theory and practice of head setting - moist and dry head effects on. Materials and adhesive</p> <p>j. The use of hot-melt adhesive in lasting and bottoming.</p> <p>k. Lasting faults and effects upon subsequent operations.</p>			
<p>II</p>	<p>Explain the bottoming procedure and processes involved in bottoming; Perform bottoming and finishing procedure.</p>	<p>II. Bottoming:</p> <p>a. Correct techniques for sole attachment.</p> <p>b. Composition, characteristics and uses of insole and soling materials for different constructions.</p> <p>c. Machine cutting direct/caster and planet, rounding operations.</p> <p>d. preparation of cut stock and bottom components including pre finishing and assembly of pre-fabricated and Louis heel bottom units</p> <p>e. assembly and storage of lasts and components.</p> <p>f. Standardization of components.</p> <p>g. Multiple thicknesses cutting of components</p> <p>h. Pre-moulded shank, insole assemblies</p> <p>i. Insole confirming equipment's.</p> <p>j. Departmental management.</p> <p>k. Control of components and raw materials Fitting up to ticket requirements"</p>		
<p>III</p>	<p>Describe the finishing types and processes; Compare different finishing systems.</p>	<p>III. Finishing :</p> <p>a. Procedure and processes for various soling and heating materials and units.</p> <p>b. Top- piecing methods of attaching and types and characteristics of material available.</p> <p>c. The objective and methods of finishing - types and functions of machines and equipment used. Finishing processes for both leather and non-leather soles and heels. Effects of faults in preceding operations on the finishing processes. Selection of appropriate processes.</p> <p>d. Comparisons between various finishing systems - pre - finishing vs finishing on the shoe. Cutters, irons, adhesives, inks, stains, waxes and finishes used. Decorative treatments and rending.</p> <p>Statutory requirements concerning general, fire, mechanical and electrical</p>		

IV	Explain the functions and processes of the shoe room; Describe shoe room operations and techniques.	<p style="text-align: center;">safe working conditions will be emphasized.</p> <p>IV. Shoe Rooming :</p> <p>a. The functions and processes of the shoe room, their importance to sales appeal. shoe room operations and techniques - socking, cleaning, repairing, dressing, top spraying, trim attaching, quarter reforming, irons, inspection procedures, boxing etc., for leather and non - leather materials. Machine adjustments.</p>		
<p>Intellectual Skills:Material, Manufacturing technology, Machinery & Equipment</p> <p>Motor Skills: Lasting skill using latest machinery, Team work, Communication</p>				

PROGRAMME NAME:			CONDENSED COURSE IN FOOTWEAR DESIGN & PRODUCTION					
COURSE TITLE			INDUSTRIAL MANAGEMENT & SAFETY					
COURSE CODE			CCFDP-105					
TEACHING & EXAMINATION SCHEME								
TEACHING SCHEME			EXAMINATION SCHEME					
TH	TU	PR	PAPER Hrs.	TH	PR	OR	TW	TOTAL
20	--	60	3	20	30	-	-	50
Rationale:								
<p>The modern managerial concepts and the principles is inevitable in the manufacturing sector. To improve the productivity, application of scientific method is important as per the demand ,the job holder should be aware about the concepts of management including finance ,production , human resource etc .And the safety is one of the important aspects to be ensured during the production. The knowledge in the safety audit for different industries is vital to perform the task to meet the international standards. Due to the growth, one should be familiar with the concepts of industrial management and safety.</p>								
COURSE OUTCOMES:								
<ul style="list-style-type: none"> • Describe the Term Managerial Concepts • Explain the fundamental of finance management. • Basic concepts of production management. • Discuss the fundamental of Human resource management. • List the functions of management • Follow healthy and safety measures at workplace 								

Unit	Unit outcomes	Contents	Hours	Marks
I	Describe Managerial Concepts and principles of Mgmt	a)Managerial Concepts and principles, functions of management, purchase and store s control, materials requirement planning, inviting tenders and quotations, comparison statement, identifying the sources, purchase order, receiving of materials, verification, store keeping, inventory control	80	50
2.	Explain the fundamental of finance mgmt..	b)Fundamentals of finance Management: financial statement and budgetary control provision and management or working capital.		
3.	Basic concepts of production mgmt..	c)Fundamentals of production Management : pre – production, planning, production planning and control, method study, work measurement etc.		
4	Discuss the fundamental of Human resource mgmt	d)Fundamentals of human resource management: manpower requirement planning recruitment of employees, job analysis, job description, specialization, payment method, job evaluation, career planning, legal requirements.		
5	List the functions of Mgmt	e)Functions of Management a. Planning b. Organizing c. Staffing d. Directing e. Administering f. CO – ordination g. Communication h. Controlling Management Principals. Purchase & store control Problem planning & control		
II	Follow healthy and safety measures at workplace	f)Occupational (Industrial) Hygiene- Anticipation, Identification, Assessment and Control of all Health Hazards at Workplace, Evaluation of Health Hazards at Workplaces. Occupation Hazards with respect to Physical Hazards, Chemical Hazards, Biological hazards. List of Industries involving Hazardous process Occupational Hazards under the First Schedule of the Factories Act,1948; Permissible Limits of certain Chemical substances in work		

	environment under the Second Schedule of the Factories Act, 1948. Hazards Control : Elimination, Control, Substitution, Isolation, Personal Protective Equipment (PPE). First-aid practice in industry: ABC of First-aid for injured and sick in Industry- Managing First-aid centers- Equipping First-aid center- Training of First-aiders- Training of employees in First-aid.		
	g) Industrial Safety- Causes of Accident, Accident statistics, Accident Reporting system, Safety Audit, Accident prevention, Disaster Planning, Safety Committee, MAHC, Case studies on Bhopal, Chernobyl and similar disasters		
Intellectual Skills: Health and safety requirements, Material handling, stacking and stores management Motor Skills: Implementing precautions, Use of safety equipment, communication, Optimization, management			

PROGRAMME NAME:		CONDENSED COURSE IN FOOTWEAR DESIGN & PRODUCTION						
COURSE TITLE		QUALITY CONTROL & STANDARDIZATION						
COURSE COD		CCFDP-106						
TEACHING & EXAMINATION SCHEME								
TEACHING SCHEME				EXAMINATION SCHEME				
TH	TU	PR	PAPER Hrs.	TH	PR	OR	TW	TOTAL
20	--	40	3	20	30	-	-	50
Rationale:								
<p>In the growth of Indian export market particularly in the footwear commodities, the work force should know the concepts behind quality control and standardization. To understand the process of quality standards manual preparation followed by different countries, the job holder should possess knowledge in the standards and quality control systems. The job holder should know how to prepare the quality manuals and the corrective measures to control the quality of the production within the tolerance level. The job holder should know the responsibilities of the operator who performs different tasks. Due to the tremendous growth in the quality standardization and controlling systems, one should be aware about the concept in detail.</p>								
COURSE OUTCOMES:								
<ul style="list-style-type: none"> Describe the concept of quality in footwear technology Discuss the preparation of Quality policy documents. Describe the cost to a company of non-conformance Explain the role of operator in quality assurance Discuss about supplier and customer requirements. 								

Unit	Unit outcomes	Contents	Hours	Marks
I	Describe the concept of quality in footwear technology; Explain the benefits of Quality assurance systems; Describe the role of policy at different levels in quality control and assurance.	a)Meaning of Quality "Assurance", "guarantees" and company commitment to being the "best". Critical dimensions of quality. Vision and Mission of organization-concept & purpose. Benefits of a quality assurance system, i.e., eliminate customer complaints and increased efficiency. Absolutes of quality - i.e., a system of Prevention. Preparation of a quality policy document.	60	50
II	Discuss the preparation of Quality policy documents.	b)Discuss the benefits of a Quality Assurance system ie eliminate customer complaints and increased efficiency . c)Define the absolute of Quality – ie a system of prevention d)Discuss the preparation of a Quality policy documents. e)Discuss the impact of operator motivation in having quality standards of operation .		
III	Describe the cost to a company of non-conformance	Discuss the cost to a company of non conformance (rejects)especially those returned from the customer. Discuss the value of Audits and audit trails to identify and eliminate non-conformance .		
IV	Explain the role of operator in quality assurance.	f)Explain how a system of prevention is far better than one of compensation. Discuss the cost of not meeting the customer requirements.		
V	Discuss about supplier and customer requirements .	g) Discuss the need of commitment to change ,to adapt to succeed in production technologies . h)Explain the need to reduce lead time on delivery ,capability ,speed technology and flexibility. Explain the supplier customer requirements, the need to keep each other information.		
Intellectual Skills: Quality standards, Testing requirements- procedures- equipment Motor Skills: Costing, Testing , experimenting, Standardization, measuring				

7	Examination and Assessments	A sum of total 50 hours is allotted to apprise the subject wise outcome through examinations/assessments etc.		
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List of Practical:

1. Introduction about clicking section.
2. Introduction about machine and its functions.
3. Introduction about clicking tools.
4. Practice of knife holding and sharpening.
5. Practice in pre-training paper sheet by hand.
6. Practice in machine maintenance and safety parameters.
7. Cutting in leather/synthetic materials by hand.
8. Clicking in insole board/shank board materials by machine.
9. Clicking in leather/synthetic/fabric material by machine.
10. Layout of components in different materials.
11. Skiving practice in leather for different components.
12. Introduction about closing section.
13. Introduction about closing machine part and function.
14. Stitching Practice in pre-training exercise (level-1 to 6)
15. Introduction about different tools used in closing section.
16. Needle fitting in stitching machine and practice.
17. Upper threading in stitching machine and practice.
18. Bobbin fitting and practice.
19. Bobbin winding and practice.
20. Folding practice in components.
21. Components folding with pattern practice.
22. Components stitching in leather practice.
23. Closing machine maintenance and safety parameters.
24. Pre-assembly of components practice.
25. Upper closing practice.
26. Introduction about bottom/lasting sections.
27. Introduction about bottom machine and its function.
28. Introduction about tools used in bottom sections.
29. Drafting practice and its principles.
30. .Practice in fore part lasting machine.
31. Practice in side lasting and seat lasting machine.
32. Practice in bottom roughing machine.
33. Practice in application of adhesive.
34. Practice in heat activator chamber.
35. Practice in sole attaching and pressing.
36. Practice in Chiller and its functions.
37. De-lasting of shoe.

38. Finishing and boxing.
39. Practice in general maintenance of lasting machineries.
40. Safety parameters in bottom sections.
41. Introduction about footwear designing.
42. Different types of shoe last.
43. Different types of shoe constructions.
44. Introduction about size system and fitting.
45. Introduction about foot anatomy.
46. Masking on last
47. Preparation of inside/outside forme.
48. Preparation of mean forme.
49. Preparation of standard.
50. Draw style line on standard.
51. Splitting of pattern.
52. Adding allowance in components.
53. Detailing on components.
54. General maintenance and safety.
55. Time study and work study.
56. Preparation of quality guidelines and reports.

Learning Resources:

1. Books:

S.No.	Author	Title	Publisher
1	S.N.GANGULY	Comprehensive Footwear Technology	Indian Leather Tech. Asso.
2	S.N.GANGULY	ABC of Shoe Designing	CFTI
3	S.S. DUTTA	An Introduction to the Principles of Physical Testing Leather	Indian Leather Tech. Asso.
4	MICHAEL FLEATHER	Footwear Open Tech. Material Testing Unit – M- 41	Accrington and Rossendale
5	Harvey,A.J	Footwear Materials and Process Technology	Lasra
6	MICHAEL H. SHARP	Footwear open Tech.Material Testing M-42	Accrington and Rossendale
7	MICHAEL H. SHARP	Step-by-Step – The Pattern Cutter Handbook	Accrington and Rossendale
8	WILLIAM A. ROSSI	Professional Shoe Fitting	NSRA.
9	A.V.SURESH	Pattern Area Measurement Techniques	CFTI
10	DAVID LYON	A Modern Approach to Footwear Pattern Cutting	FCFI
11	Clarks	Manual of Shoemaking	C.& J. Clark Ltd
12	NORMAN TAYLOR	Footwear Open Tech. Unit Upper Cutting	Her Majesty
13	RICHARD COLES	Footwear Open Tech. Closing Supervision Unit – M-16	Accrington and Rossendale
14	K.Shooter	Footwear open Tech.Lasting& Making	Accrington and Rossendale
15	Roger T Beeby	Footwear open Tech.Lasting& Making M-21	Accrington and Rossendale
16	GEORGE OMURA	Autocad	BPB Pub.
17	ALAN HART	Quality Handbook	FTI
18	Juran,J.M	Juran'sQuality Control Handbook	McGraw Hill
19	C.B.MAMORIA	Dynamics of Industrial Relations	Himalaya Pub.
20	M.I.KHAN	Industrial Engineering	New Age
21	Francis Cherunilam	International Business Environment	Himalaya Pub.
22	Anant K Sundaram	The International Business Environment	PHI
23	John V. Thill	Business Communication today	PrarsonEdu.
24	M.S.SYED	Perspective & Communication Management	Shaz Pub.
25	JOHN D. DANIELS	International Business	Pearson Education
26	L.A.WOOLCOTT	Mastering Business Communications	Macmillan
27	Philip R Cateora	International Marketing	Tata McGraw Hill
28	K.Aswathappa	Production and Operation Management	Himalaya Pub.
29	GLENN A. WELSCH	Budgeting–Profit Planning & Control	Prentice-Hall International Ed.
30	S.A.Chunawalla	Production and operation Management	Himalaya Pub.
31	Philip kotler	Marketing and Management	Person
32	Philip kotler	Marketing Management	PHI

33	DOUGLAS FOSTER	Mastering Marketing	Macmillan
34	Sunil Chopra	Supply Chain Management	Pearson
35	RICHARD SWEDBERG	Entrepreneurship	Oxford Univ.Pres.
36	C.B.GUPTA	Entrepreneurship Development in India	Sultan Chand
37	K.C.MITTAL	Industrial Entrepreneurship	Deep & Deep Pub.
38	M.PONNUSWAMY	Industrial Management	Om Shakti Pub.
39	M.N Arora	Cost Accounting	VikasPub.House
40	S.P.JAIN	Cost Accounting	Kalyani Pub.
41	HAMMER	Cost Accounting	South-Western Pub.
42	I M Pandey	Financial Management	VikasPub.House
43	LUIGI PARMEGGIANI	Encyclopaedia of Occupational Health & Safety – Vol. 2	Inter.Labour Org.
44	CLRI CHENNAI	Survey of India's Export Potential of Leather & Leather Products	CSIR
45	T.S. RANGANATHAN	UPPER AND LINING LEATHER	CLRI, Madras

2. **Websites:**

1. <https://en.wikipedia.org/wiki/Shoemaking>
2. <http://www.unido.org/fileadmin/import/userfiles/timminsk/leatherpanel14schmelcosts.pdf>
3. www.unido.org/fileadmin/import/10201_StudioCipriani.3.pdf
4. www.satrapara.co.uk/durable_footwear
5. www.indialeatherssc.org/QP-NOS-Endorsements.html
6. www.icra.in/Files/ticker/SH-2015-H2-1-ICRA-Footwear%20Industry.pdf
7. <https://en.wikipedia.org/wiki/Footwear>