



**CERTIFICATE COURSE IN FOOTWEAR
MANUFACTURING TECHNOLOGY (FMT)**



curriculum

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

CURRICULUM MAPPING:

**CERTIFICATE COURSE IN FOOTWEAR
MANUFACTURING TECHNOLOGY**

CURRICULUM MAPPING:

CERTIFICATE COURSE IN FOOTWEAR MANUFACTURING TECHNOLOGY

NAME OF TOOL ROOM/CENTRE :

MSME – Technology Development Centre (Central Footwear Training Institute, Chennai)

This document include the foundation for competent and reflective technician in the profession of Footwear Technology

MAPPING: OBE

Organization Profile:

MSME Technology Development Centre (Central Footwear Training Institute), presently under the Ministry of MSME, Govt. of India, is serving the Footwear and Allied industry by way of Human resources development, since its inception in 1957. So far more than 12000 candidates have been trained in various footwear courses and are successfully employed round the globe. This includes trainees from Fiji, Sri Lanka, Philippines, and Myanmar etc.

The Institute got modernized by UNIDO during 1993 under the United Nations Development Program – NLDP project, state of the art footwear machinery were installed. The Institute has 2 workshops including Designing, Shoe CAD, Clicking, Closing and Lasting Sections including Testing Lab. The Institute has hostel with a capacity of 120 candidates.

Land & Building

This Institute is located at a prime region of Chennai in a sprawling 3.89 acre site, with constructed area of approximately 10,000 square feet. The constructed area includes the main building with classrooms, workshop, library, conference hall and the Annex Building comprising of CAD/CAM lab, Physical Testing Lab & Common facility services and a student hostel with a capacity of 120 candidates. In addition CFTI Chennai has sub centre in Ambur.

Regular Long term Courses

The Institute conducts various long term and short term courses on Footwear Technology. The premier course “2 year Diploma in Footwear Design & Production” is approved with Textile Institute U.K. This collaboration helped the Institute to provide better students to the Industry. Apart from the above course which is conducted for 10+2 passed candidates, CFTI also conducts Post Graduate Higher Diploma in Footwear Technology and Management studies for Graduate candidates, Post Graduate Diploma in Footwear Technology courses for Graduates, Post Diploma in Footwear Technology courses from Diploma holders and Certificate Course in Footwear Technology for 10th std candidates.

Regular Short term Courses

CFTI, Chennai also conducts Short term and Part time Evening Courses for freshers, Footwear employees and entrepreneurs.

Courses for International participants

This Institute is empanelled under the TCS Colombo plan which enables CFTI to conduct training programs for International participants sponsored by the Department of Economic Affairs, Ministry of Finance, Govt. of India. So far 3 Philippines, 2 from Sri Lanka and 3 from Myanmar have benefitted through these courses.

Sponsored Courses

- Long term, Short term & Skill upgradation courses of this Institute is well recognized and hence sponsored by Backward Classes & Minorities Welfare Department (BCMWD), Tamilnadu Adidravida Housing and Development Corporation (TAHDCO) and TAMCO, Entrepreneurship Development Institute (EDI-Chennai), **Dr. Babu Jagjivan Ram Leather Industries Development Corporation Ltd.** (LIDKAR), NSDC – STAR, PMKVY & TNSDC are also being conducted with placement assistance.

COMMON FACILITY SERVICES

This Institute provides jobworks under common facility services in the areas of Product Development, Design Development, Pattern & Insole grading through Shoe CAD, PU Pouring machine & other machineries for better utilization under nominal charges.

PROGRAMME TITLE:

- ENTRY REQUIREMENTS/QUALIFICATION : Pass in 10th Standard
- DURATION: Months/Years/Hours : 1 year / 1560 hours
- NSQF Level : 4

A. PROGRAM LEVEL MAPPING

I. MISSION OF THE INSTITUTE

- To provide training and related inputs to develop and augment a class of trained personnel in footwear technology and allied Industry in the country
- To develop human resources in footwear and allied industry by introduction of advanced training methods and courses, appropriate knowledge and skills to promote rapid growth of footwear and allied industry in the country
- To promote in general and particular, the Indian footwear Industry to attain international standards of production

II. VISION OF THE INSTITUTE

- To get ISO: 9001 certificate & AICTE approval for the service rendered and courses offered by this Institute in future course.
- To introduce Modular Training programme on "Footwear Technology"
- To establish a full fledged Physical Testing Lab
- To establish Shoe CAD/CAM centre at CFTI, Chennai

III. JOB FUNCTIONS/ROLES:

- Designing Product based on Customer requirement
- Designing Product on Self Creativity
- Designing Products with use of Shoe CAD software
- Follow Safety measures
- Supervising the Clicking of Leather and Non-leather
- Supervising the activity of layout and interlocking
- Supervising the leather assortment
- Monitoring the clicking dies & machines and clicking board
- Planning the sequence of operations
- Supervising the attaching and stitching process

- Ensuring quality standards of full shoe
- Supervising the full shoe making process
- Ensuring quality standards of full shoe
- Selecting suitable finishing chemical and waxes
- Monitoring the process control at every stage of production
- Quality Assurance of overall shoemaking
- Identifying and correction of manufacturing defects of footwear
- Ensuring all raw materials availability in the store
- Executing distribution of materials to various sections as per spec sheet
- Ensuring timely shipment of the completed order
- Costing check & manpower arrangement co-ordinating with customer representation Supervising the design modification and capability
- Supervising the upper sewing quality by CNC
- Analyse the Problems and prospects of entrepreneurs
- Planning to how to set up a business
- Follow up the quality system records at various sections
- Conduct the training activities for supervisors and workers
- Monitoring and measurement of products through the quality system records
- Follow up the 5S, Kaizen and QC for continuous improvement in the factory.
- Supervising the production & quality
- Implement the show board for upper and full shoe sections
- Carry out the time & motion study to improve the productivity
- Prepare the standard operating procedure

Curriculum

CERTIFICATE COURSE IN FOOTWEAR MANUFACTURING TECHNOLOGY

SYLLABUS/ CURRICULUM

This programme is aimed at training candidates for the job of "Junior Supervisor", in the "Leather Footwear" Sector/ industry and by the end of the program aims at building the following key competencies amongst the learner:

1. Ability to appropriately identify, select and use the tools and materials required for various Footwear production activities	5. Efficiently handle, stock and store the materials.
2. Well-versed with health and safety measures to be followed while working.	6. Ability to perform various types of operations using different types of Machines.
3. Well aware of the terminology related to processes and activities.	7. Ability to skilfully make finished Leather shoe
4. Knowledge and ability to suitably estimate and prepare valuation.	8. Proficiency in skills required for the profession

CURRICULUM REVIEW

Sr. No	Subject code	Subject Name	Teaching Scheme / No. of Hours		Examination Scheme								
			Theory	Practice	Theory				Practice				Total Marks
					Sessional		Semester Exam		Sessional		Semester Exam		
					Max. Marks	Min to pass	Max. Marks	Min to pass	Max. Marks	Min to pass	Max. Marks	Min to pass	
1	CF001	Designing & Pattern Cutting	30	490	-	-	50	20	-	-	50	30	100
2	CF002	Clicking Technology	30	200	-	-	50	20	-	-	50	30	100
3	CF003	Closing Technology	30	230	-	-	50	20	-	-	50	30	100
4	CF004	Lasting Technology	30	230	-	-	50	20	-	-	50	30	100
5	CF005	QMS / QT Tools	30	-	-	-	100	40	-	-	-	-	100
6	CF006	Inplant Training	-	260	-	-	-	-	-	-	100	60	100

TABLE NO.

Sr. No	Job function	Learning outcomes	Process	Professional knowledge	Professional skills	Core Skill	Responsibility
I	<p>Designing Product based on Customer requirement</p> <p>Designing Product on Self Creativity</p> <p>Designing Products with use of Shoe CAD software</p> <p>Follow Safety measures</p>	<ol style="list-style-type: none"> 1. Fundamental knowledge in Designing & Pattern cutting 2. Implementation of ShoeCAD 3. Identification of materials and consumption calculator (Spec Sheet) 4. Designing process flow chart for upper and full shoe 5. Safety 	<p>Manual Designing</p> <p>Pattern Cutting</p> <p>Shoe CAD Grading</p>	<p>Pattern Engineering</p> <p>Sizes & fittings</p>	<p>Conversion of various sizes</p> <p>Designing of all styles</p> <p>Last Grading</p>	<p>Drawing & Sketching</p> <p>Designing Shoe and its pattern development including ShoeCAD</p>	<p>Design development</p> <p>Pattern Engineering</p> <p>Specification sheet preparation</p> <p>Obtaining sample approval from customer</p> <p>Die making</p> <p>Last Making</p>
II	<p>Supervising the Clicking of Leather and Non-leather</p> <p>Supervising the activity of layout and interlocking</p> <p>Supervising the leather assortment</p> <p>Monitoring the clicking dies & machines and clicking board</p>	<ol style="list-style-type: none"> 6. Fundamental knowledge on Properties of leather 7. Interlocking system 8. Details of various types of leather identification 9. Basic health safety and hygiene precautions 10. Costing of leather and non-leather 	<p>Hand Clicking</p> <p>Machine Clicking</p> <p>Layout</p> <p>Interlocking</p> <p>Leather Assortment</p>	<p>Grading of Upper leather</p> <p>Defects identification of leather</p> <p>Properties & Inspection of leather</p> <p>Clicking Allowances</p>	<p>Layout making</p> <p>Fixing of clicker allowance</p>	<p>Cutting directions in leather and Non-leather</p> <p>Quality Checkpoints</p>	<p>Timely delivery of cut components</p> <p>Quality in clicking</p> <p>Monitoring cutting allowances</p>

III	<p>Planning the sequence of operations Supervising the attaching and stitching process</p> <p>Ensuring quality standards of full shoe</p>	<p>11. Fundamental knowledge in Pre-closing and closing operations</p> <p>12. Knowledge about needles, threads and machines used in Closing section</p> <p>13. Quality control measures in pre-closing and Closing</p> <p>14. Fundamental knowledge in sequence of operations</p> <p>15. Basic health safety and hygiene precautions</p>	<p>Skiving Pasting Folding Attaching Stitching Quality Inspection</p>	<p>Sequence of Operations Styles of footwear Types of needles and threads</p>	<p>Production line setting Machine operating in stitching Quality of upper checking Basic machine maintenance</p>	<p>Pre-Closing sequence Types of stitching and machines</p>	<p>Timely delivery of upper Production target achievement Quality issue rectifications</p>
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IV	<p>Supervising the full shoe making process Ensuring quality standards of full shoe Selecting suitable finishing chemical and waxes Monitoring the process control at every stage of production</p>	<p>16. Fundamental knowledge in footwear machines and its applications 17. Insoles and soles used in Footwear 18. Quality control measures in lasting making & finishing 19. Sequence of Operations 20. Trouble shooting for bonding failure 21. Able to do bottoming 22. Manufacturing of Shoe Soles 23. Basic health safety and hygiene precautions</p>	<p>Last & Mould selection Forepart lasting Seat & Side Lasting Sole attaching Brushing & Polishing Packing</p>	<p>Lasting techniques Machine parameter setting Types of adhesives and soles Types of finishing chemicals and waxes</p>	<p>Production line setting Lasting machine operating Identification of quality issues at completion of each stage</p>	<p>Full shoe making sequences Types of adhesives, soles and finishing chemicals</p>	<p>Timely delivery of full shoe Production target achievement Quality issues rectification Ensuring machine condition</p>
V	<p>Follow up the quality system records at various sections Conduct the training activities for supervisors and workers Monitoring and measurement of products through the quality system records Follow up the 5S, Kaizen and QC for continuous</p>	<p>24. Fundamental knowledge in Understanding the benefits of quality system 25. Understand the Lean manufacturing implementation in the footwear industry 26. Understand the quality improvement approaches 27. Know the implementation of ISO 9000 to satisfy</p>	<p>Lean Concepts Implementation of Quality Improvement activities Quality records follow up</p>	<p>Lean manufacturing Quality Control Tools 5S Kaizen Quality circle EMS Safety Management System</p>	<p>Process Control Continuous Improvement</p>	<p>House Keeping Quality Circle</p>	<p>Follow up the quality records Marinating the quality standards</p>

	improvement in the factory.	<p>the customer needs</p> <p>28. Understand the application of 5S, Kaizen & Quality circle activities in footwear industry</p> <p>29. Know the awareness of the EMS and safety measures involved in footwear sector</p>					
X	<p>Supervising the production & quality</p> <p>Implement the show board for upper and full shoe sections</p> <p>Carry out the time & motion study to improve the productivity</p> <p>Prepare the standard operating procedure</p>	<p>30. Fundamental knowledge in conveyor setup on various articles</p> <p>31. Well versed with the quality assurance & control</p> <p>32. Identification of footwear materials & components available in the footwear industry</p> <p>33. Well versed with the various styles of design</p>	<p>Planning</p> <p>Purchase & stores</p> <p>Product Development</p> <p>Upper Production</p> <p>Full shoe Production</p> <p>Packing Warehouse</p>	<p>Productivity improvement</p> <p>Suitable costing for footwear industry</p> <p>Lean manufacturing</p> <p>6S</p> <p>Optimized activities</p>	<p>Quality Assurance</p> <p>Quality Control</p> <p>Productivity</p>	<p>Quality Production</p> <p>Planning</p> <p>Buying</p> <p>Sourcing</p>	<p>Manage the quality and production</p> <p>Monitor the process control at every stages of production</p>

TABLE NO.

Sr. No.	Job function	Learning outcomes	Knowledge	Skills	Attitude
I	Designing Product based on Customer requirement Designing Product on Self Creativity Designing Products with use of Shoe CAD software Follow Safety measures	<ol style="list-style-type: none"> 1. Fundamental knowledge in Designing & Pattern cutting 2. Implementation of ShoeCAD 3. Identification of materials and consumption calculator (Spec Sheet) 4. Designing process flow chart for upper and full shoe 5. Safety 	Designing & Pattern Cutting Shoe CAD Grading Pattern Engineering	Drawing Sketching Pattern development Mean forme Preparation Standard Preparation Lining Patterns Upper Patterns Grading Last Grading Allowances	Safety Measures Process Team work Quality in work
II	Supervising the Clicking of Leather and Non-leather Supervising the activity of layout and interlocking Supervising the leather assortment Monitoring the clicking dies & machines and clicking board	<ol style="list-style-type: none"> 6. Fundamental knowledge on Properties of leather 7. Interlocking system 8. Details of various types of leather identification 9. Basic health safety and hygiene precautions 10. Costing of leather and non-leather 	Layout on Leather Knowledge In Tightness & Stretchness of leather Reducing wastage of leather Leather consumption calculation	Hand clicking Machine Clicking Layout making Costing Grading of Upper leather	Safety Measures Process Team work Quality in work
III	Planning the sequence of operations Supervising the attaching and stitching process Ensuring quality standards of full shoe	<ol style="list-style-type: none"> 11. Fundamental knowledge in Pre-closing and closing operations 12. Knowledge about needles, threads and machines used in Closing section 13. Quality control measures in pre-closing and Closing 14. Fundamental knowledge in sequence of operations 	Adhesives Seams Stitching types Needle & Threads Types of machines Process layout Construction types	Attaching Skiving Folding Stitching	Safety Measures Process Team work Quality in work

		15. Basic health safety and hygiene precautions			
IV	Supervising the full shoe making process Ensuring quality standards of full shoe Selecting suitable finishing chemical and waxes Monitoring the process control at every stage of production	16. Fundamental knowledge in footwear machines and its applications 17. Insoles and soles used in Footwear 18. Quality control measures in lasting making & finishing 19. Sequence of Operations 20. Trouble shooting for bonding failure 21. Able to do bottoming 22. Manufacturing of Shoe Soles 23. Basic health safety and hygiene precautions	Inspection of upper quality Bond tests Adhesives Types of lasting Soles knowledge Sole attaching Finishing creams	Hand lasting Machine lasting Mixing chemicals (Finishing) Finishing activity Fit trial Packing	Safety Measures Process Team work Quality in work
V	Follow up the quality system records at various sections Conduct the training activities for supervisors and workers Monitoring and measurement of products through the quality system records Follow up the 5S, Kaizen and QC for continuous improvement in the factory.	24. Fundamental knowledge in Understanding the benefits of quality system 25. Understand the Lean manufacturing implementation in the footwear industry 26. Understand the quality improvement approaches 27. Know the implementation of ISO 9000 to satisfy the customer needs 28. Understand the application of 5S, Kaizen & Quality circle activities in footwear industry 29. Know the awareness of the EMS and safety measures involved in footwear sector	Benefits of quality Lean Implementation Quality Improvement Activities Implementation of QMS, EMS Understand the Safety Management Systems	5S Kaizen Quality Circle PDCA Cycle Process Controls	Safety measures Process Team work Quality in work

X	<p>Supervising the production & quality Implement the show board for upper and full shoe sections Carry out the time & motion study to improve the productivity Prepare the standard operating procedure</p>	<ol style="list-style-type: none"> 1. Fundamental knowledge in conveyor setup on various articles 2. Well versed with the quality assurance & control 3. Identification of footwear materials & components available in the footwear industry 4. Well versed with the various styles of design 	<p>Productivity improvement Suitable costing for footwear industry Lean manufacturing 6S Optimized activities Quality assurance and Quality control</p>	<p>Quality Production Planning Sourcing</p>	<p>Safety measures Process Team work Quality in work</p>
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TABLE NO.

Sr. No.	Learning Outcome	List of Contributing courses	Theory Hours required	Practical Hours required	Weightage for theory and practical assessment
I	1. Fundamental knowledge in Designing & Pattern cutting 2. Implementation of ShoeCAD 3. Identification of materials and consumption calculator (Spec Sheet) 4. Designing process flow chart for upper and full shoe 5. Safety	Basic Styles of Footwear Measurement Systems Footwear Last and Foot Fitting Pattern Making Costing Art & design Designing & Pattern Cutting Shoe CAD Entrepreneurship Inplant training	30	490	Theory – 50 Practical – 50
II	6. Fundamental knowledge on Properties of leather 7. Interlocking system 8. Details of various types of leather identification 9. Basic health safety and hygiene precautions 10. Costing of leather and non-leather	Basic Classification of the Footwear Materials used in Footwear Manufacture Grading of Upper Leather Clicking Press & Knives Clicking Principles and Rules Clicking Performance in Leather Usage Clicking Pre-training Clicking of 5 pairs of shoes Inplant training	30	200	Theory – 50 Practical – 50
III	11. Fundamental knowledge in Pre-closing and closing operations 12. Knowledge about needles, threads and machines used in Closing section 13. Quality control measures in pre-closing and Closing	Preparatory operations Stitching Operations Types of seams Sewing machines Needles Threads Adhesives Hooks	30	230	Theory – 50 Practical – 50

	<p>14. Fundamental knowledge in sequence of operations</p> <p>15. Basic health safety and hygiene precautions</p>	<p>Sequence of operations</p> <p>Quality Control</p> <p>Entrepreneurship</p>			
IV	<p>16. Fundamental knowledge in footwear machines and its applications</p> <p>17. Insoles and soles used in Footwear</p> <p>18. Quality control measures in lasting making & finishing</p> <p>19. Sequence of Operations</p> <p>20. Trouble shooting for bonding failure</p> <p>21. Able to do bottoming</p> <p>22. Manufacturing of Shoe Soles</p> <p>23. Basic health safety and hygiene precautions</p>	<p>Footwear machines & applications</p> <p>Insoling materials</p> <p>Soling materials</p> <p>Adhesives</p> <p>Shoe constructions</p> <p>Shoe making</p> <p>Shoe finishing techniques</p> <p>Quality Control Pertaining To Footwear</p> <p>Entrepreneurship</p> <p>Lasting pre-training exercises with 5 pairs lasting making and finishing</p> <p>Inplant training</p>	30	230	<p>Theory – 50</p> <p>Practical – 50</p>
V	<p>24. Fundamental knowledge in Understanding the benefits of quality system</p> <p>25. Understand the Lean manufacturing implementation in the footwear industry</p> <p>26. Understand the quality improvement approaches</p> <p>27. Know the implementation of ISO 9000 to satisfy the customer needs</p> <p>28. Understand the application of 5S, Kaizen & Quality circle activities in footwear industry</p>	<p>Quality & Its benefits</p> <p>Lean manufacturing</p> <p>Three Quality Gurus approach</p> <p>Seven QC tools</p> <p>Statistical Process Control</p> <p>ISO 9001:2008 Quality Management Systems</p> <p>Kaizen,5S, Quality circle</p> <p>ISO 14001:2004 Environmental Management System</p> <p>Safety Management Systems</p>	30		<p>Theory - 100</p>

	29. Know the awareness of the EMS and safety measures involved in footwear sector				
	30. Fundamental knowledge in conveyor setup on various articles 31. Well versed with the quality assurance & control 32. Identification of footwear materials & components available in the footwear industry 33. Well versed with the various styles of design	Leather Assortment Production (Upper & Full Shoe) Quality assurance Quality control Work study Suitable costing for footwear industry Lean manufacturing 6S Optimized activities		260	Project Report - 100

IV. MAPPING: PLOs & COURSES

LO	CF001	CF002	CF003	CF004	CF005	CF006
1	★				★	★
2	★				★	★
3	★				★	★
4	★				★	★
5	★				★	★
6		★			★	★
7		★			★	★
8		★			★	★
9		★			★	★
10		★			★	★
11			★		★	★
12			★		★	★
13			★		★	★
14			★		★	★
15			★		★	★
16				★	★	★

17				★	★	★
18				★	★	★
19				★	★	★
20				★	★	★
21				★	★	★
22				★	★	★
23				★	★	★
24					★	★
25					★	★
26					★	★
27					★	★
28					★	★
29	★	★	★	★	★	★
30	★	★	★	★	★	★
31	★	★	★	★	★	★
32					★	★
33					★	★

Note: (1 to 33 are programme learning outcomes and CF001 to CF006 (course numbers given to all courses offered in the certificate programme) are courses that contributes in the attainment of respective program outcomes).

V. MAPPING: POs- DELIVERY METHOD/TEACHING STRATEGY- ASSESSMENT METHOD

PO	Statement of Program Outcome	Delivery/Teaching Methods	Assessment Methods
A	Fundamental knowledge on Designing & Pattern cutting, ShoeCAD,	Classroom Lectures by Powerpoint , Pre-training & Workshop Practical	Theory Exam, Practical Exams, Projects
B	Fundamental knowledge on Clicking Machine, Dies & Various materials used for Shoe Making	Classroom Lectures by Powerpoint , Pre-training & Workshop Practical	Theory Exam, Practical Exams, Projects
C	Fundamental knowledge in Pre-closing and closing operations, Upper materials & Machines	Classroom Lectures by Powerpoint , Pre-training & Workshop Practical	Theory Exam, Practical Exams, Projects
D	Fundamental knowledge in various footwear constructions & machines	Classroom Lectures by Powerpoint , Pre-training & Workshop Practical	Theory Exam, Practical Exams, Projects
E	Fundamental knowledge in Understanding the benefits of quality system & Lean manufacturing implementation	Classroom Lectures by Powerpoint,	Theory Exam
F	Complete knowledge in managing the production with quality	Training at Industry	Project Report

TABLE NO.

Sr. No.	Learning Outcomes	Assessment Criteria	Assessment Methods
A	<ol style="list-style-type: none">1. Fundamental knowledge in Designing & Pattern cutting2. Implementation of ShoeCAD3. Identification of materials and consumption calculator (Spec Sheet)4. Designing process flow chart for upper and full shoe5. Safety	Theory : 50 Marks Practical : 50 Marks	Theory Exam, Practical Exams, Projects
B	<ol style="list-style-type: none">6. Fundamental knowledge on Properties of leather7. Interlocking system8. Details of various types of leather identification9. Basic health safety and hygiene precautions10. Costing of leather and non-leather	Theory : 50 Marks Practical : 50 Marks	Theory Exam, Practical Exams, Projects
C	<ol style="list-style-type: none">11. Fundamental knowledge in Pre-closing and closing operations12. Knowledge about needles, threads and machines used in Closing section13. Quality control measures in pre-closing and Closing14. Fundamental knowledge in sequence of operations15. Basic health safety and hygiene precautions	Theory : 50 Marks Practical : 50 Marks	Theory Exam, Practical Exams, Projects

D	<ul style="list-style-type: none"> 16. Fundamental knowledge in footwear machines and its applications 17. Insoles and soles used in Footwear 18. Quality control measures in lasting making & finishing 19. Sequence of Operations 20. Trouble shooting for bonding failure 21. Able to do bottoming 22. Manufacturing of Shoe Soles 23. Basic health safety and hygiene precautions 	<p>Theory : 50 Marks Practical : 50 Marks</p>	<p>Theory Exam, Practical Exams, Projects</p>
E	<ul style="list-style-type: none"> 24. Fundamental knowledge in Understanding the benefits of quality system 25. Understand the Lean manufacturing implementation in the footwear industry 26. Understand the quality improvement approaches 27. Know the implementation of ISO 9000 to satisfy the customer needs 28. Understand the application of 5S, Kaizen & Quality circle activities in footwear industry 29. Know the awareness of the EMS and safety measures involved in footwear sector 	<p>Theory: 100 Marks</p>	<p>Theory Exam</p>
F	<ul style="list-style-type: none"> 30. Fundamental knowledge in 	<p>Project Report : 100 Marks</p>	<p>Project Report</p>

	<p>conveyor setup on various articles</p> <p>31. Well versed with the quality assurance & control</p> <p>32. Identification of footwear materials & components available in the footwear industry</p> <p>33. Well versed with the various styles of design</p>		
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COURSE / MODULE TEMPLATE

COURSE NAME: DESIGNING & PATTERN CUTTING

COURSE CODE: CF001

COURSE OUTCOMES: After completion of course Student should be able to:

- Explain Seven Basic Styles of Footwear
- Detail about the Sizing System
- Detail about Classification of Footwear Last
- Explain Proportional Measurements of Last
- Describe Stages of Footwear Making
- Detail about Costing Methods
- Draw, Sketch, Develop patterns manually and through Shoe CAD

THEORY HOURS:30

PRACTICAL HOURS: 490

THEORY MARKS:50

PRACTICAL MARKS: 50

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	TH hours	Marks	
UNIT I	Basic Styles of Footwear	After completion of unit Student should know a) Various styles of footwear b) Characteristics of seven basic styles of footwear	1. Derby 2. Oxford 3. Court Shoe 4. Pantafola 5. Moccasin 6. Sandals 7. Boot	2	6	
UNIT II	Measurement systems	After completion of unit Student should know a) Introduction to need of different footwear measurement systems b) Comparison between sizing	1. English sizing system 2. American sizing system 3. French sizing system 4. Mondopoint sizing system 5. Size chart for each category 6. Foot measuring devices	6	8	

		systems in terms of SLL and allowances c) Initial sizes and size-to-size difference in each system				
UNIT III	Footwear Last and Foot Fitting	After completion of unit Student should know a) Classification and Various types of Footwear Last b) Various types of Lasts with Forging c) Last Dimensions d) Various proportional measurements of Last e) Last Shapes, Exit Devices and Standardization f) Distinguish Footwear Last and Foot	1. Classification of Footwear LAST 2. Types of Last 3. Types of Lasts Forging 4. Most Important Last Dimensions 5. Proportional Measurements of LAST 6. LAST Shapes 7. Last exit devices 8. Last standardization 9. Last Grading 10. Difference Between Foot and LAST 11. Different Toe Styles	8	12	
UNIT IV	Pattern Making	After completion of unit Student should know a) Requirement for patterns b) Basic tools for pattern making c) Preparation of Mean Forme d) Introduction to grading e) Difference between tool, die and mould f) Difference between jigs and fixtures	1. Patterns 2. Need of patterns 3. Tools for pattern making 4. Stages of footwear pattern making 5. Producing standard mean form of last 6. Producing Design standard (Master pattern) 7. Pattern Grading 8. Grading methods 9. Jigs, Dies & Knives 10. Ergonomics of footwear	8	12	

UNIT V	Costing	After completion of unit Student should know a) Theoretical knowledge on 2 different costing methods b) Difference and advantages between 2 methods c) Identifying grade of leather d) Waste Percentage calculation in different grades of leather e) Different types of wastage additions	1. Russ and small method of costing 2. Tracing method of costing 3. Traditional costing approaches	6	12	
Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	PR hours	Marks	
UNIT XV	Art & Design	After completion of unit Student should know Drawing of Shoes	Drawing exercises; Drawing & Sketching of Men's, Ladies and Kids shoes (10 each)	490	10	
UNIT XVI	Design & Pattern Cutting	After completion of unit Student should know a) Pattern Cutting b) Grading	Pre-training exercises Developing of patterns of seven basic styles of footwear Derby, Oxford, Monk, Court Shoe, Casual shoe, Oxford Brogue shoe and Mocassin shoe	100	20	
UNIT XVI	Shoe CAD	After completion of unit Student should know	Digitization Modification	120	20	

		Development of patterns for footwear styles using Shoe CAD	Pattern Creation Grading Cutting of Patterns			
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COURSE NAME: CLICKING TECHNOLOGY

COURSE CODE: CF002

COURSE OUTCOMES:

After completion of course Student should be able to:

- Explain about the basic classification of footwear
- Explain about materials used in footwear manufacture
- Detail about the Leather grading
- Explain in detail about Clicking Principles and Rules
- Detail about Clicking Press and Knives
- Detail about costing of upper components

THEORY HOURS:30

PRACTICAL HOURS: 200

THEORY MARKS:50

PRACTICAL MARKS: 50

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	TH hours	Marks	
UNIT-I	Basic Classification of the Footwear	After completion of unit Student should be with through knowledge on <ul style="list-style-type: none">• Footwear and its Function• Various components of footwear• Footwear classification based on construction, height, manufacture and according to the cut, end use & size	Definition of Footwear; Functions of Footwear; Main Parts of Footwear, Parts of Shoe Upper - Upper Parts & Components, Lining Parts & Components, Reinforcing Parts & Components, Trimmings and Closing Parts and Bottom shoe parts & components; Classification of footwear according to different positions: Material of Construction, Height of Footwear; Classification according to the end use; Classification according to the cut; Classification according to the method of manufacture; Classification according to the size.	5	10	

UNIT-II	Materials used in Footwear Manufacture	<p>After completion of unit Student should be with through knowledge on</p> <ul style="list-style-type: none"> • Various kinds of materials used in footwear manufacture • Leather defects identification 	<p>Main materials - Natural leather, Leather for Shoe Components, Quality Characteristics; Poromerics, leather fabrics, foils; Common Defects on Leather - Ante Mortem Defects, Post Mortem Defects, Defects occurring due to Processing, Defects on Finished Leather and Common Defects in Skins and Hides; Upper materials used in footwear manufacture</p>	6	10	
UNIT-III	Grading of Upper Leather	<p>After completion of unit Student should be with through knowledge on</p> <ul style="list-style-type: none"> • Principles of Upper Cutting • Leather Sorting 	<p>Leather grading and purchase variance; Measuring area discrepancy of leather; Measuring cuttability of leather objective of the cuttability assessment; Calculation the cost of cuttable area of leather; Leather grading sorting done by the vendor; Leather grading sorting done by the vendee</p>	6	5	
UNIT-IV	Clicking Press & Knives	<p>After completion of unit Student should be with through knowledge on</p> <ul style="list-style-type: none"> • Hand and Machine cutting • Types of Knives • How to handle the cutting knives • Dies inspection • Operation safety methods in clicking department 	<p>Types of Clicking Press, Advantages and Disadvantages of Clicking Press; Clicking Press Knives - Basic Types of Knives, Handling the Cutting Knives, Advantages and Disadvantages of Strip Knives, Storage of Knives, Knife Making Hints for Ordering Knives, Dies Checking; Safety Precaution in Clicking Department</p>	4	10	

UNIT-V	Clicking of Upper Components Principles and Rules	<p>After completion of unit Student should be with through knowledge on</p> <ul style="list-style-type: none"> • Quality control before and after cutting • Quality of hides & skins, Cut the pieces according to quality priorities, • Line of tightness in shoe upper component, Lines of stretch; • Preparation before cutting 	<p>Types of Clicking; Cutting Preparation ; Clicking/Cutting of Leathers; Variations in Leather; Quality of Upper Components, Quality of Lining Components, Causes of Stretch Direction, Stretch Direction of Side</p> <p>Cutting Technique; Cutting Rules - Cutting Rules for Leather, Cutting Rules for Textiles and Synthetics; Clicking System - Warp System of Cutting, Weft System of Cutting, Bias System of Cutting</p>	7	10	
UNIT-VI	Clicking Performance in Leather Usage	<p>After completion of unit Student should be with through knowledge on</p> <ul style="list-style-type: none"> • Costing of Upper Consumption • Clicking Room Management 	<p>Russ & Small Method - 0 degree method, 180 degree method; Factor to be Considered - Pattern Area, Second wastage, Third wastage, Further Adjustment for size</p>	2	5	
Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	PR hours	Marks	
UNIT-VII	Clicking Practical	<p>After completion of unit Student should be with through knowledge on cutting of shoe components in leather for upper and lining patterns</p>	<p>Clicking Pre-training Exercises</p> <p>Shoe Production – Clicking of upper and lining components for 5 pairs of production shoes</p>	200	50	

COURSE NAME: CLOSING TECHNOLOGY

COURSE CODE: CF003

COURSE OUTCOMES:

After completion of course Student should be able to:

- Explain about the pre-closing & closing operations
- Explain about sewing machines used in upper making
- Explain about needles and threads used in upper making
- Explain about quality control measures in pre-closing & closing operations
- Briefly about the sequence of operations for basic styles of footwear

THEORY HOURS:30

PRACTICAL HOURS: 230

THEORY MARKS:50

PRACTICAL MARKS: 50

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	TH hours	Marks	
UNIT-I	Preparatory operation	After completion of unit Student should be with through knowledge on <ul style="list-style-type: none">• Proficiency in pre-closing operations• Identification of Upper and Lining components	Checking; Identification marking - Stitch markings; Stamping; Embossing; Skiving operations – Skiving and its Types, Main features of skiving machine; Splitting operation - Band Knife Splitting; Different edge treatments; Reinforcement operations - Seam Tapes; Materials for Local Reinforcement; Strap and Stripping Reinforcement; Facing and Trim Reinforcements	4	5	
UNIT-II	Stitching Operations	After completion of unit Student should be with through knowledge on <ul style="list-style-type: none">• Mechanism of Machines	Sewing Machines – Preparation; Function; Classification; Types of stitch formation	5	5	

		in Upper making				
UNIT-III	Various Types of Seams	After completion of unit Student should be with through knowledge on <ul style="list-style-type: none"> Seams, Stitching Threads used in the Closing Department. 	Closed, Open, Silked; Brooklyn, Lapped, Butted, Welted, Piped; Bonded; Welded; Moccasin; Different Decorative stitching.	3	5	
UNIT-IV	Sewing Machine Needles	After completion of unit Student should be with through knowledge on <ul style="list-style-type: none"> Identification of Needle and Needle points used in upper closing Expertise in sewing & skiving machines 	Description of different parts and function; Needle classification; Different types of point of the needle.	3	5	
UNIT-V	Threads	After completion of unit Student should be with through knowledge on <ul style="list-style-type: none"> Identification and application of Threads used in upper closing 	Classification of Thread, Construction of Threads, Type of Threads, Thread Size/Ticket, Thread Consumption, Physical Properties, Checklist for Ensuring Against Thread Failure	3	5	
UNIT-VI	Adhesives	After completion of unit Student should be with through knowledge on <ul style="list-style-type: none"> Identification & Application of Adhesives in Upper Making 	Latex, Natural Rubber Solution, Neoprene / Dendrite / Polychloroprene; Hot Melt Adhesive; Factors Affecting Selection of Adhesives	4	10	
UNIT-VII	Hook	After completion of unit Student should be with through	Classification of hooks in lockstitch sewing machine; Hook parts and	2	5	

		<p>knowledge on</p> <ul style="list-style-type: none"> Expertise in fastener application in Upper Making 	function			
UNIT - VIII	Sequence of operations and Quality Control	<p>After completion of unit Student should be with through knowledge on</p> <ul style="list-style-type: none"> Sequence of Operations for Oxford, Derby & Court Shoe Quality Control in Pre-closing & closing operations 	<p>Sequence of Operations for Oxford, Sequence of Operations for Derby, Sequence of Operations for Court shoe, Quality Control in Pre-Closing and Closing Operations</p>	6	10	
Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	PR hours	Marks	
UNIT-VIII	Closing Practical	<p>After completion of unit Student should be with through knowledge on pre-closing & closing operations in upper making</p>	<p>Closing Pre-training Exercises</p> <p>Shoe Production – Upper Closing for 5 pairs for production shoes based on various styles</p>	230	50	

COURSE NAME: LASTING TECHNOLOGY

COURSE CODE: CF004

COURSE OUTCOMES:

After completion of course Student should be able to:

- Explain about the footwear machines & its applications
- Explain about insoles & soles used in footwear making
- Explain about adhesives & trouble shooting for bonding failures
- Detail about the sequence of operations of cemented construction
- Explain about quality control measures in lasting & making
- Briefly about the various shoe constructions
- Explain in detail shoe finishing techniques
- Explain in detail quality control pertaining to footwear

THEORY HOURS:30

PRACTICAL HOURS: 230

THEORY MARKS:50

PRACTICAL MARKS: 50

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	TH hours	Marks	
UNIT-I	Footwear Machines & its Applications	After completion of unit Student should be with through knowledge on <ul style="list-style-type: none">• Lasting & making machines & its applications	Purpose, Adjustments, Operating Instructions, Specification, Safety and precaution	2	5	
UNIT-II	Insoling Materials	After completion of unit Student should be with through knowledge on <ul style="list-style-type: none">• Various kind of insoles and Leather board preparation	The Qualities for an Ideal Insole Material; Types of Insole Boards, ; Need for Socks;	2	5	

UNIT-III	Soling Materials	<p>After completion of unit Student should be with through knowledge on</p> <ul style="list-style-type: none"> • Properties, specific uses and testing of different soling materials 	Types of soles, properties, advantages & disadvantages, uses	3	10	
UNIT-IV	Adhesives	<p>After completion of unit Student should be with through knowledge on</p> <ul style="list-style-type: none"> • Various types of adhesives and Properties of adhesives & their choice for different purposes and in construction as in DIP, DVP, cemented etc. • Trouble shooting 	Types of adhesives used in shoe making; Properties, Uses & Application of adhesive; Trouble-shooting	2	05	
UNIT-V	Shoe Constructions	<p>After completion of unit Student should be with through knowledge on</p> <ul style="list-style-type: none"> • Identification of methods of attachments • Lasting principles and methods of application • Lasting and bottoming systems for different types of construction in general use; • Composition, characteristics and uses of insole and soling materials for different 	Lasting Methods - Lasting to Rib, Flat lasting, Flanged lasting, Slip and force lasting, String lasted, Moccasin and Turnshoe lasting; Bottoming Methods - Cemented or Stuck on Process, Moccasin, Strobel, Stitch Down or Veldtschoen, Goodyear Welted, California or Slip Lasted, San Crispino, D.I.P. (Direct Injection Process), D.V.P. (Direct Vulcanize Process) and Turn Shoe Construction	3	10	

		constructions			
UNIT-VI	Shoe Making	<p>After completion of unit Student should be with through knowledge on</p> <ul style="list-style-type: none"> • Sequence of operations of Full Shoe • Quality control in lasting & making 	Introduction to Process, Tips For Quality Control (Hand Lasting); Quality Control Measures in Lasting & Making operations	2	5
UNIT-VII	Shoe Finishing Techniques	<p>After completion of unit Student should be with through knowledge on</p> <ul style="list-style-type: none"> • Shoe finishing techniques 	<p>Upper Finishing - Cleaner, Conditioning, Filler application, Repair, Shoe Dressing;</p> <p>Bottom Finishing – Heel Pairing, Heel Scour, Edge pairing, Bottom skiving, Edge set, Edge inking, Sole finishing, Heel finishing</p>	3	5
UNIT-VIII	Quality Control Pertaining To Footwear	<p>After completion of unit Student should be with through knowledge on</p> <ul style="list-style-type: none"> • Checking or controlling the qualities of footwear • How to establish and Maintain Quality footwear 	<p>Identification of Major & Minor Defects</p> <p>How To Establish And Maintain Quality Footwear?</p>	3	5

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	PR hours	Marks	
UNIT-IX	Lasting Practical	After completion of unit Student should be with through knowledge on lasting & makling of various shoe construction.	Lasting Pre-training Exercises Shoe Production – Lasting & Making for 5 pairs of production shoes based on various styles	230	50	

COURSE NAME: QMS/QT TOOLS

COURSE CODE: CF005

COURSE OUTCOMES:

After completion of course Student should be able to:

- Explain about Lean Manufacturing
- Explain about Three Quality gurus approaches
- Explain about Seven QC Tools
- Explain in detail Benchmarking Process
- Explain in detail Six Sigma
- Explain about 5S, Kaizen and Quality Circle
- Explain in Detail EMS & SMS

THEORY HOURS:30

PRACTICAL HOURS:

THEORY MARKS:100

PRACTICAL MARKS:

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	TH hours	Marks	
UNIT-I	Concepts of Quality	At the end of this Unit Student should be able to <ul style="list-style-type: none">• Understanding the meaning of quality and benefits of quality	Basic Concepts – Quality, Quality control, Quality Management, Total Quality Management; Objective; Quality – Benefits to employees, organizations, customers, suppliers, society	2	10	
UNIT-II	LEAN	At the end of this Unit Student should be able to <ul style="list-style-type: none">• Understand the Lean manufacturing implementation in the footwear industry	Definition, Why Lean, Basics of Lean Manufacturing, Lean Principles and Tools, 8 Wastes of Lean, Lean implementation , Lean Champions	3	20	

UNIT-III	Total Quality Management	At the end of this Unit Student should be able to <ul style="list-style-type: none"> Understand the quality improvement approaches 	Definition, Quality Gurus Approach Quality Management Principle, Business Excellence Award Criteria, Benchmarking,, Benchmarking Process Six Sigma	2	10	
UNIT-IV	7 QC Tools	At the end of this Unit Student should be able to <ul style="list-style-type: none"> Know the quality control tools application in upper & full shoe sections 	Flow chart, Cause and effect diagram, Pareto diagram, Check sheet, Histogram, Scatter diagram, Run chart	2	10	
UNIT-V	Statistical Process Control	At the end of this Unit Student should be able to Know How to involved in the process control at upper & full shoe operations.	Process Control and Process Capability, Mistakes in process control, Benefits of Process Control, Sampling plan	2	10	
UNIT-VI	ISO 9001:2008 Quality Management Systems	At the end of this Unit Student should be able to Know the implementation of ISO 9000 to satisfy the customer needs	Introduction to ISO 9000, Principles, Guidelines for ISO 9000, General Requirements, Management Responsibility, Resource Management, Product Realization, Implemenatation of ISO Quality syatem	2	10	
UNIT-VII	Kaizen,5S, Quality circle	At the end of this Unit Student should be able to Understand the application of 5S, Kaizen & Quality circle activities in footwear industry	Objective, Definition, Continuous improvement, characteristics of Kaizen, types of kaizen activities, house of kaizen management, ten kaizen principles What is 5S, The intent of 5S, Why 5S,	3	10	

			<p>Definition of 5S, Concepts of 5S</p> <p>Definition, Objectives, Features of quality circle, Management support, Infrastructure, Steering committee, quality circle leaders, role of facilitators, training for circle leaders, precautions</p>			
UNIT-VIII	ISO 14001:2004 Environmental Management System	<p>At the end of this Unit Student should be able to</p> <p>Know the awareness of the EMS</p>	Introduction, Why Implement an EMS?, Environmental Legislation, ISO 14001 Requirements	2	10	
UNIT-IX	Safety Management Systems	<p>At the end of this Unit Student should be able to</p> <p>Understand the safety measures involved in footwear sector</p>	Hazard, Hazard Identification, Definition, OH & Policy, Planning, Implementation & Operation, Checking, Quality and Safety combined, Change of goal setting process, Zero accident program, Benchmark, safety measures	2	10	

COURSE NAME: INPLANT TRAINING

COURSE CODE: CF006

COURSE OUTCOMES:

After completion of course Student should be able to:

- Explain about Entrepreneurship and Entrepreneur
- Explain about Market, Project appraisal and business plan
- Explain about Franchising and acquisition
- Explain about Communication, control and co-ordination

THEORY HOURS:

PRACTICAL HOURS: 260

THEORY MARKS:

PRACTICAL MARKS: 100

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	PR hours	Marks	
UNIT-I	Inplant training	At the end of this Unit Student should be knowledgeable with the latest trends of footwear manufacturing, cost effective footwear making and Quality aspects in shoe making.	To understand the present practical trends in the footwear industry in respect of all aspects of footwear manufacturing	260	100	

COURSE WISE DETAILS CONTENTS

Program Name: Certificate Course in Footwear Technology

Semester : NA

Course Title : Designing & Pattern Cutting

Course Code : CF001

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	Project	TOTAL
01	--	01	03	50	50	--		100

Program Name: Certificate Course in Footwear Technology

Semester : NA

Course Title : Clicking Technology

Course Code : CF002

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	Project	TOTAL
01	--	01	03	50	50	--		100

Program Name: Certificate Course in Footwear Technology

Semester : NA

Course Title : Closing Technology

Course Code : CF003

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	Project	TOTAL
01	--	01	03	50	50	--		100

Program Name: Certificate Course in Footwear Technology

Semester : NA

Course Title : Lasting Technology

Course Code : CF004

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	Project	TOTAL
01	--	01	03	50	50	--		100

Program Name: Certificate Course in Footwear Technology

Semester : NA

Course Title : QMS / QT Tools

Course Code : CF005

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	Project	TOTAL
01	--	--	03	100	--	--		100

Program Name: Certificate Course in Footwear Technology

Semester : NA

Course Title : Inplant Training

Course Code : CF006

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	Project	TOTAL
--	--	01	--	--	100	--		100

Rationale:

Footwear industry is a diverse manufacturing sector with producing value of 60.4 Billion USD per annum which employs a wide variety of materials to make product ranging from different styles and segments like childrens footwear, therapeutic footwear, safety footwear. In this course proposed due to tremendous growth of trends that needs to be familiar with its design & technology aspects

Outcomes:

1. Sketching & Design various types of shoes & Lasts
2. Making various types of Shoes – 5 pairs
3. Planning & Managing the Productivity in the Industry
4. Quality Control System

Theory:**Course Title : Designing & Pattern Cutting****Course Code: CF001**

Topic and Contents		Hours	Marks
Topic 1: Basic Styles of Footwear	<ol style="list-style-type: none">1. Derby2. Oxford3. Court Shoe4. Pantafola5. Moccasin6. Sandals7. Boot	2	6
Topic 2: Measurement systems	<ol style="list-style-type: none">1. English sizing system2. American sizing system3. French sizing system4. Mondopoint sizing system5. Size chart for each category6. Foot measuring devices	6	8

Topic 3: Footwear Last and Foot Fitting	<ol style="list-style-type: none"> 1. Classification of Footwear LAST 2. Types of Last 3. Types of Lasts Forging 4. Most Important Last Dimensions 5. Proportional Measurements of LAST 6. LAST Shapes 7. Last exit devices 8. Last standardization 9. Last Grading 10. Difference Between Foot and LAST 11. Different Toe Styles 	8	12
Topic 4: Pattern Making	<ol style="list-style-type: none"> 1. Patterns 2. Need of patterns 3. Tools for pattern making 4. Stages of footwear pattern making 5. Producing standard mean form of last 6. Producing Design standard (Master pattern) 7. Pattern Grading 8. Grading methods 9. Jigs, Dies & Knives Ergonomics of footwear 	8	12
Topic 5: Costing	<ol style="list-style-type: none"> 1. Russ and small method of costing 2. Tracing method of costing 3. Traditional costing approaches 	6	12
Total		30	50

Topic and Contents		TH hours	Marks
Topic 1: Basic Classification of the Footwear	Definition 7 Function of Footwear, Main Parts of Footwear, Parts of Shoe Upper - Upper Parts & Components, Lining Parts & Components, Reinforcing Parts & Components, Trimmings and Closing Parts and Bottom shoe parts & components; Classification of footwear according to different positions: Material of Construction, Height of Footwear; Classification according to the end use; Classification according to the cut; Classification according to the method of manufacture; Classification according to the size.	5	10
Topic 2: Materials used in Footwear Manufacture	Main materials - Natural leather, Leather for Shoe Components, Quality Characteristics; Poromerics, leather fabrics, foils; Common Defects on Leather – Ante Mortem Defects, Post Mortem Defects, Defects occurring due to Processing, Defects on Finished Leather and Common Defects in Skins and Hides; Upper materials used in footwear manufacture	6	10
Topic 3: Grading of Upper Leather	Leather grading and purchase variance; Measuring area discrepancy of leather; Measuring cuttability of leather objective of the cuttability assessment; Calculation the cost of cuttable area of leather; Leather grading sorting done by the vendor; Leather grading sorting done by the vendee	6	5
Topic 4: Clicking Press & Knives	Types of Clicking Press, Advantages and Disadvantages of Clicking Press; Clicking Press Knives - Basic Types of Knives, Handling the Cutting Knives, Advantages and Disadvantages of Strip Knives, Storage of Knives, Knife Making Hints for Ordering Knives, Dies Checking; Safety Precaution in Clicking Department	4	10
Topic 5: Clicking of Upper Components Principles and Rules	Types of Clicking; Cutting Preparation ; Clicking/Cutting of Leathers; Variations in Leather; Quality of Upper Components, Quality of Lining Components, Causes of Stretch Direction, Stretch Direction of Side	7	10

	Cutting Technique; Cutting Rules - Cutting Rules for Leather, Cutting Rules for Textiles and Synthetics; Clicking System - Warp System of Cutting, Weft System of Cutting, Bias System of Cutting		
Topic 6: Clicking Performance in Leather Usage	Russ & Small Method - 0 degree method, 180 degree method; Factor to be Considered - Pattern Area, Second wastage, Third wastage, Further Adjustment for size	2	5
Total		30	50

Course Title: Closing Technology

Course Code : CF003

Topic and Contents		TH hours	Marks
Topic 1: Preparatory operation	Checking; Identification marking - Stitch markings; Stamping; Embossing; Skiving operations - Skiving and its Types, Main features of skiving machine; Splitting operation - Band Knife Splitting; Different edge treatments; Reinforcement operations - Seam Tapes; Materials for Local Reinforcement; Strap and Stripping Reinforcement; Facing and Trim Reinforcements	4	5
Topic 2: Stitching Operations	Sewing Machines - Preparation; Function; Classification; Types of stitch formation	5	5
Topic 3: Various Types of Seams	Closed, Open, Silked; Brooklyn, Lapped, Butted, Welted, Piped; Bonded; Welded; Moccasin; Different Decorative stitching.	3	5
Topic 4: Sewing Machine Needles	Description of different parts and function; Needle classification; Different types of point of the needle.	3	10

Topic 5: Threads	Classification of Thread, Construction of Threads, Type of Threads, Thread Size/Ticket, Thread Consumption, Physical Properties, Checklist for Ensuring Against Thread Failure	3	10
Topic 6: Adhesives	Latex, Natural Rubber Solution, Neoprene / Dendrite / Polychloroprene; Hot Melt Adhesive; Factors Affecting Selection of Adhesives	4	10
Topic 7: Hook	Classification of hooks in lockstitch sewing machine; Hook parts and function; Specification sheet for toe cap oxford; Quality specifications; Sequence of operations for toe cap oxford	2	5
Topic 8: Sequence of Operations and Quality Control	Sequence of Operations for Oxford, Sequence of Operations for Derby, Sequence of Operations for Court shoe, Quality Control in Pre-Closing and Closing Operations	6	10
Total		30	50

Course Title: Lasting Technology

Course Code: CF004

Topic and Contents		Hours	Marks
Topic1: Footwear Machines & its Applications	Purpose, Adjustments, Operating Instructions, Specification, Safety and precaution	4	10
Topic 2: Insoling Materials	The Qualities for an Ideal Insole Material; Types of Insole Boards, ; Need for Socks;	2	5
Topic 3: Soling Materials	Types of soles, properties, advantages & disadvantages, uses	3	5

Topic 4: Adhesives	Types of adhesives used in shoe making; Properties, Uses & Application of adhesive; Trouble-shooting for bonding failures	5	5
Topic 5: Shoe Constructions	Lasting Methods - Lasting to Rib, Flat lasting, Flanged lasting, Slip and force lasting, String lasted, Moccasin and Turnshoe lasting; Bottoming Methods - Cemented or Stuck on Process, Moccasin, Strobel, Stitch Down or Veldtschoen, Goodyear Welted, California or Slip Lasted, San Crispino, D.I.P. (Direct Injection Process), D.V.P. (Direct Vulcanize Process) and Turn Shoe Construction	5	10
Topic 6: Shoe Making	Introduction to Process, Tips For Quality Control (Hand Lasting); Quality Control Measures in Lasting & Making	5	5
Topic 7: Shoe Finishing Techniques	Upper Finishing - Cleaner, Conditioning, Filler application, Repair, Shoe Dressing; Bottom Finishing - Heel Pairing, Heel Scour, Edge pairing, Bottom skiving, Edge set, Edge inking, Sole finishing, Heel finishing	3	5
Topic 8: Quality Control Pertaining To Footwear	Identification of Major & Minor Defects How To Establish And Maintain Quality Footwear?	3	5
Total		30	50

Topic and Contents		Hours	Marks
Topic1: Concepts of Quality	Basic Concepts – Quality, Quality control, Quality Management, Total Quality Management; Objective; Quality – Benefits to employees, organizations, customers, suppliers, society	2	10
Topic 2: LEAN	Definition, Why Lean, Basics of Lean Manufacturing, Lean Principles and Tools, 8 Wastes of Lean, Lean implementation , Lean Champions	3	20
Topic 3: Total Quality Management	Definition, Quality Gurus Approach Quality Management Principle, Business Excellence Award Criteria, Benchmarking,, Benchmarking Process Six Sigma	2	10
Topic 4: 7 QC Tools	Flow chart, Cause and effect diagram, Pareto diagram, Check sheet, Histogram, Scatter diagram, Run chart	2	10
Topic 5 :Statistical Process Control	Process Control and Process Capability, Mistakes in process control, Benefits of Process Control, Sampling plan	2	10
Topic 6 :ISO 9001:2008 Quality Management Systems	Introduction to ISO 9000, Principles, Guidelines for ISO 9000, General Requirements, Management Responsibility, Resource Management, Product Realization, Implementation of ISO Quality system	2	10
Topic 7 :Kaizen,5S, Quality circle	Objective, Definition, Continuous improvement, characteristics of Kaizen, types of kaizen activities, house of kaizen management, ten kaizen principles, 5-gemba principles What is 5S, The intent of 5S, Why 5S, Definition of 5S, Concepts of 5S Definition, Features of quality circle, Management support, Infrastructure, Steering committee, quality circle leaders, role of facilitators, training for circle leaders, precautions	3	10
Topic 8 :ISO 14001:2004 Environmental	Introduction, Why Implement an EMS?, Environmental Legislation, ISO 14001 Requirements	2	10

Management System			
Topic 9: Safety Management Systems	Hazard, Hazard Identification, Definition, OH & Policy, Planning, Implementation & Operation, Checking, Quality and Safety combined, Change of goal setting process, Zero accident program, Benchmark, safety measures	2	10
Total		20	100

Intellectual Skills:

- 1) Prepare Sequence of operations for different styles of footwear

List of Practical:

1. Drawing & Sketching of various styles of footwear
2. Designing Pre-training Exercises
3. Art & Design Project with 30 Designs
4. Development of Mean Forme and Standard Forme of Six Styles
5. Development of Upper and Lining Patterns of Six Styles
6. Designing & pattern cutting projects with 6 styles of footwear
7. Pattern grading of one style with ShoeCAD Software
8. Clicking Pre-Training Exercises
9. Preparation of Clicking Layout
10. Clicking of Leather Components for 5 different styles of footwear
11. Closing Pre-Training Exercises
12. Pre closing operations practices
13. Closing for 5 different styles of footwear
14. Lasting Pre-Training exercises
15. Lasting & Making for 5 different styles of footwear

Learning Resources:

1. Books:

Sr. No.	Author	Title	Publisher
1	SATRA Group	Basic Shoe Making	SATRA Technology centre
2	FDDI	Swayam Siddha	FDDI
3	Somnath Ganguly	Comprehensive Footwear Technology	Oxford University Press
4	John Henry Thornton	Text Book of Footwear Manufacture	National Trade Press
5	A. Luximon	Hand book of Footwear design and Manufacture	Woodhead Publishing
6	Ravindra S. Goonetilleke	The Science of Footwear	CRC Press

2. Websites:

<https://www.satra.co.uk/>

Learning Activity

1. Pre-Training Designing
2. Designing & Pre-Training Practical
3. Theoretical Lectures on Foot Anatomy
4. ShoeCAD Practical
5. Tools Project
6. Pre-Training Clicking
7. Theoretical Lectures on Clicking Technology
8. Clicking Practical

9. Pre-Training Closing
10. Theoretical Lectures on Closing Technology
11. Closing Practical
12. Pre-Training Lasting
13. Theoretical Lectures on Lasting Technology
14. Lasting Practical
15. Theoretical Lectures on Material Science
16. Theoretical Lectures on Advance Technology
17. Theoretical Lectures on General Management
18. Theoretical Lectures on Entrepreneurship
19. Theoretical Lectures on QMS/QT Tools
20. Inplant Training (2 Months)