

<p style="text-align: center;"><b>Department of Textile Engineering</b></p> <p style="text-align: center;"><b>Wollo University</b></p>				
<b>Course Number</b>	TEng2141			
<b>Course Title</b>	Yarn Manufacturing I			
<b>Degree Program</b>	B. Sc. in Textile Engineering			
<b>Module</b>	14: Spinning Technology			
<b>Module Coordinator</b>				
<b>Lecturer</b>	Bayeleyegn M and Lami A.			
<b>ECTS Credits</b>	5			
<b>Contact Hours (per week)</b>	Lecture	Tutorial	Laboratory or Practice	Home study
	4	0	0	6
<b>Course Objectives &amp; Competences to be Acquired</b>	<p>The course aims to introduce students to the basics of spinning processes and principles of spinning:</p> <ul style="list-style-type: none"> <li>➤ Know materials for spinning</li> <li>➤ To understand the purposes of opening, cleaning, mixing and blending of fibers</li> <li>➤ To understand the objectives and principles of drafting</li> <li>➤ To understand the combing process</li> <li>➤ To know methods of waste collection and recycling</li> </ul>			
<b>Course Description/ Course Contents</b>	<p><b>CHAPTER ONE</b></p> <p><b>Raw material requirement and Spinning performance:</b></p> <ul style="list-style-type: none"> <li>➤ Spinning</li> <li>➤ Important characteristics of raw materials for spinning</li> </ul> <p><b>CHAPTER TWO: BLOWROOM</b></p> <p>Opening, cleaning, mixing and blending of fibers:</p> <p>Purpose of opening, Principles of fiber opening in blow room, Types of opening, Principles of cleaning, Principles and methods of fiber mixing and blending, Blending and Cleaning devices ,Control of fibre flow; Ancillary Equipment, Chute Feeding, Calculation involved in Blow room, Blow room line for Man-made fibre and Blends, Waste disposal and recycling.</p>			

	<p><b>CHAPTER THREE: CARDING</b></p> <p><b>Objectives and principles of carding</b></p> <p>□ <b>Objective of carding;</b> Principles of fiber opening in card, Types of carding machines with their different organs, Operation Principles of revolving flat cards, Card wires and their specifications for processing various types of fibres, Principle of auto levellers in carding machine, Production calculations pertaining to carding system, Woollen and worsted cards features and working principles, Sequence of opening machine , Influence of process parameters on opening and cleaning, Analysis of opening and cleaning processes</p> <p><b>CHAPTER FOUR: DRAW FRAM</b></p> <p><b>Objective and principles of drafting:</b></p> <p>Purpose and Principles of condensation of fibbers, Types of roller drafting systems, Floating fibres, Fibre control elements, Methods of top roller loading, Setting and adjustment, Short medium and long term variation, Draw frame production calculation, Auto levellers in carding and draw frame to control short, medium and long term variation, Causes of mass variation of fibrous assembly and control.</p> <p><b>CHAPTER FIVE: COMBING</b></p> <p><b>Fiber Fractionation and combing:</b></p> <p>Objectives of combing, Sequence of operation of combing, Comber machine elements, Preparation of fiber assembly for combing, Theory of fiber fractionation, Automation and recent developments in opening and cleaning machines</p>
<b>Pre-requisites</b>	None
<b>Semester</b>	2 <sup>nd</sup> Semester, 2 year
<b>Status of Course</b>	Compulsory
<b>Teaching &amp;</b>	Lectures supported by assignments
<b>Learning Methods</b>	

<b>Assessment/ Evaluation &amp;Grading System</b>	1. Assignments / Project / Seminar : <b>20 %</b> 2. Mid-Term Examination: <b>30 %</b> 3. Final - Examination: <b>50 %</b> Total <b>100 %</b>
<b>Attendance Requirements</b>	A minimum of 85 % attendance during lecture sessions
<b>Literature</b>	1. Klein W, <i>Manual of Textile Technology</i> - The Technology of Short-staple Spinning, The Textile Institute, UK, 1998. 2. Klein W, <i>Manual of Textile Technology</i> - A Practical Guide to Opening and Carding, The Textile Institute, UK, 1998 3. Klein W,, <i>Manual of Textile Technology</i> - Man-made Fibres and their Processing, The Textile Institute, UK, 1994 4. Klein W, <i>Manual of Textile Technology</i> - A Practical Guide on Drawing and Combing, The Textile Institute, UK, 1998 5. Richards, R.T.D., and Sykes, A.B., <i>Woollen YarnManufacture (MOTT)</i> , The Textile Institute, UK, 1984 6. Byrdon, A.G., <i>Flexible Card Clothing and its Applications</i> ,The Textile Institute, UK, 1988 Berkstresser, G.A.,Buchanan, D.R., and Grady, P., <i>Automation in the TextileIndustry:</i> 7. <i>From Fibers to Apparel</i> , The Textile Institute, UK, 1995 8. Wood, G.F., <i>Wool Scouring, (Textile Progress Vol. 12 No. 1)</i> , The Textile Institute, UK, 1982 9. Lord, P.R., and Grover, G., <i>Roller Drafting (Textile Progress Vol. 23 No. 24)</i> , The Textile Institute, UK 10. Doraiswamy, I., Chellamani, P and Pavendhan, A., <i>CottonGinning (Textile 10..Progress Vol. 24 No. 2)</i> , The TextileInstitute, UK, 1993

