

TEng3153: WOVEN FABRIC MANUFACTURING II

Department of Textile Engineering Wollo University				
Course Number	TEng3153			
Course Title	Woven Fabric Manufacturing II			
Degree Program	B. Sc. in Textile Engineering			
Module	15: Weaving Technology			
Module Coordinator	N.N.			
Lecturer	N.N.			
ECTS Credits	5			
Contact Hours (per week)	Lecture	Tutorial	Laboratory or Practice	Home study
	4	0	0	6
Course Objectives & Competences to be Acquired	This course is designed to give broad based knowledge on the technology and operations of automatic and shuttle less weaving machines. The students will have the required knowledge on the interactions of woven fabric production with mechanisms of looms; Limitations of shuttle looms; salient features of different types of weft insertion systems such as projectile, Rapier, water jet, air jet and multiphase weaving.			
Course Description/ Course Contents	Automatic shuttle loom: Introduction to automatic weaving machines ;Warp protector motions ,Stop motion –warp stop motion types of warp stop motion - mechanical warp stop motion and electric warp stop motion and weft stop motion - side weft fork motion and center weft fork motion; center weft fork motion ;Weft replenishment- weft feelers, single shuttle automatic bobbin change, bobbin loaders, loom winders, looms with multiple box motions, Types of box motions, Eccle's drop box motion			

	An out line to shuttle less loom: Limitation of shuttle loom, Parameters affecting their productivity, Methods of shuttle less weft insertion, Types of selvedge, Weft accumulator Gripper projectile weaving machines: Working elements in Sulzer machine, Torsion bar picking mechanism, Beat-up mechanism, Salient features of Sulzer projectile machine, Weft selection device Rapier weaving machines: Classification of rapier weaving machines, Rapier driving, Rapier heads, Salient features of modern rapier machines, Weft selection device Air-jet weaving machines: Principles of weft insertion of Maxbo-Murata loom, Air requirements, Machine elements and their functions, Salient features of modern Air jet machines Water-jet machines: Principles of weft insertion of Svaty water jet loom, Machine element and their functions, Salient features of modern water-jet machines Multi-phase weaving machines: Warp way multiphase weaving Weft way multiphase weaving - Flat multiphase, Circular weaving Special weaving: Terry pile weaving, Double cloth weaving, Pile weaving
Pre-requisites	TEng3151: Woven Fabric Manufacturing I & TEng3152: Woven Fabric Manufacturing Practical I
Semester	2 nd Semester, 3 rd year
Status of Course	Compulsory

Teaching & Learning Methods	Lectures supported by assignments
Assessment/ Evaluation & Grading System	1. Assignments / Project / Seminar : 20 % 2. Mid-Term Examination: 30 % 3. Final - Examination: 50 % Total 100 % (For Item 1, there shall be a minimum of 3 activities comprising of Assignments, Project or Seminar activities; the combination will be decided by the Course Instructor depending on the nature of the course).
Attendance Requirements	A minimum of 85 % attendance during lecture sessions
Literature	1. Allan Ormerod and Walter S. Sondhelm, <i>Weaving Technology and Operations</i>, the Textile Institute, 1998. 2. R. Marks and A.T.C. Robinson, <i>Principle of weaving</i>, The Textile Institute, 1986. 3. M.K. Talukdar, P. K. Sriramulu and D.B. Ajgonkar, <i>Weaving machines, Mechanisms and Management</i>, Mahajan Publishers, 1998. 4. P.R. Lord and M.H. Mohamed, <i>Weaving: Conversion of yarn to fabric</i>, Merrow, 1982. 5. A. Wynne, <i>The Motive Series: Textiles</i>, Macmillan, 1997. 6. J.E. Booth, <i>Textile Mathematics</i>, Volume 3, The Textile Institute, Manchester, 1978