Wollo University
Kombolcha Institute of Technology
School of Mechanical and Chemical Engineering
Industrial Engineering Department

Course Code	IEng3152
Course Title	Ergonomics and Industrial Safety
Degree Program	B. Sc. in Industrial Engineering (target group 3rd year students)
Lecturer	Yared.A
ECTS Credits	5
Course Objectives& Competences to be Acquired	**At the end of this course, students will be able to:** Design workplace and work, Familiar with the application of computers in Information processing, and integrating the industrial information to assist the decision-making, Understand human physiological responses to stressful situations, Understand hazards in industry, and their impacts on safety of personnel, property and environments.
Course Description/ Course Contents	**Course Outline:** **Section-1** **Ergonomics/ Human Factors, definitions** Ergonomics definition, Ergonomics Approach Event stage and System Dimension **Section-2** **Introduction to Engineering Anthropometry** Types of Anthropometry, Anthropometric design Philosophies, Use of Anthropometric Data in design and analysis **Section-3** **Work station design** General Principles of Reaches and Clearances for Job & Workplace Designs, Work station design problems, consideration of common work place postures and motions in design, ergonomic tools and techniques and General Guidelines for The Design of Aisles and Corridors, Activities involved in MMH, NIOSH original lifting model, Ergonomics manual handling checklist, Risk factors of MMH, How to prevent Manual handling injuries **Section-4** **Ergonomics Hazard and risk Assessment** Introduction to ergonomic hazard and risks, steps to risk assessment, cumulative trauma disorder Prevention of CTDs, Structure and Function of the Musculoskelet

	System **Section-5** **Environmental and cognitive Ergonomics** Physiological responses and heat exchange, Illumination & Luminance, Noise impacts & prevention, Quantitative noise analysis Temperature Related Stress, an Vibration, Human information processing, skill and performance, Human-comput and human-machine interaction Controls and displays **Section-6** **Safety hazard** Common Accident Causes, Chemical, Explosive and Compressed Gas Related hazards &, Electrical hazards, Construction Related hazards, Fire hazard, Classification and Prevention, Types of Extinguishers **Section-7** **Safety and Health Management** Safety Program Development, Reasons for comprehensive safety program, Buildir a Safety and Health Program, Waste Material Management and Treatment, Characteristics of an Occupational Safety and Health Program
Pre-requisites	None
Semester	Second
Status of Course	Compulsory
Teaching& Learning Methods	Lectures, supported by lab work and project Projects: Individual or group project relevant to the field.
Assessment/ Evaluation &Grading System	1. Assignments / Project / Seminar : 50 % 3. Final - Examination: 50% Total 100%
Attendance Requirements	A minimum of 85 % attendance during lecture sessions
Literature	1. David C. Alexander and Randall A. Rabourn. (2001) Applied Ergonomics 2. Stephen Pheasant. (1996) Body space Anthropometry, Ergonomics and the Design of Work 3. Shrawan KUMAR. (1998) Advances in Industrial Ergonomics and Safety IV 4. Tatyana A. Davletshina, M.S. (1998) Industrial Fire Safety Guidebook 5. Thomas, S. (1995). Industrial Pollution Prevention.