Pengantar Statistika Pengendalian Kualitas

Course Brief Description:	This course is designed to introduce students to the concept of quality in a production process and apply statistical tools to ensure product quality. This course will teach students about statistical concepts, quality control, and application of statistical techniques as quality control tool.
Course Learning Objectives:	[1] Explain the principle of quality in a production process [2] Applying statistical principles to maintain quality in a production process [3] Complete the calculation of statistical data either manually or by using a computer program.
Related Expected Learning Outcomes (ELOs):	• ELO-3: Apply knowledge of mathematics, sciences, and engineering principles in agricultural fields. • ELO-4: Use quantitative analysis, information technology and critical thinking in agricultural engineering profession. • ELO-5: Use techniques, skills, and modern tools necessary for agricultural engineering practices.
Teaching Method	• Lecture and in-depth discussion • Tutorial • Independent assignment
Grading Policy	• Quiz and Assignment : 20% • Exam : 80%
Reference	Montgomery, Douglas C. 2009. Introduction to Statistical Quality Control, 6th Ed. John Wiley & Sons, Inc. Danvers, MA.
Lecturer Name	• Dr. Ir. Supratomo, DEA • Diyah Yumeina, STP., M.Arg., Ph.d

Course Outline

I	INTRODUCTION
	Meaning of Quality
	Quality Improvement
	A Brief History of Quality Control
	Statistical Methods for Quality Control
II	THE DEFINE, MEASURE, ANALYZE, IMPROVE, AND CONTROL (DMAIC) PROCESS
	Overview of DMAIC
	Examples of DMAIC
III - IV	MODELING PROCESS QUALITY
	Describing Variation
	Discrete Distributions
	Continuous Distributions
	Probability Plots

V - VI	INFERENCES ABOUT PROCESS QUALITY
	Sampling Distributions
	Point Estimation of Process Parameters
	Statistical Inference for a Single Sample
	Statistical Inference for Two Samples
	Statistical Inference More than Two Populations
	Linear Regression Models
VIII	MID-TEST
IX - X	METHODS OF STATISTICAL PROCESS CONTROL
	Introduction
	Causes of Quality Variation
	Statistical Basis of the Control Chart
	The Rest of the Magnificent Seven
	Implementing Statistical Process Control (SPC)
XI - XII	CONTROL CHARTS FOR VARIABLES
	Introduction
	Control Charts for –x and R
	Control Charts for –x and s
	The Shewhart Control Chart for Individual Measurements
	Applications of Variables Control Charts
XIII - XV	CONTROL CHARTS FOR ATTRIBUTES
	Introduction
	The Control Chart for Fraction Nonconforming
	Control Charts for Nonconformities (Defects)
	Choice Between Attributes and Variables Control Charts
	Guidelines for Implementing Control Charts
VIII	FINAL-TEST