



Republic of the Philippines  
**SULTAN KUDARAT STATE UNIVERSITY**  
Isulan, Sultan Kudarat  
**College of Industrial Technology**  
**S.Y. 2025-2026**



**MST 008**  
**STATISTICS IN INDUSTRIAL TECHNOLOGY**  
**Syllabus**

1<sup>st</sup> Semester  
A.Y 2025 – 2026



## MST 008 – STATISTICS IN INDUSTRIAL TECHNOLOGY

### UNIVERSITY VISION

A leading University in advancing scholarly innovation, multi-cultural convergence, and responsive public service in a borderless Region.

### UNIVERSITY MISSION

The University shall primarily provide advanced instruction and professional training in science and technology, agriculture, fisheries, education and other related fields of study. It shall also undertake research and extension services, and provide progressive leadership in its areas of specialization.

### UNIVERSITY STRATEGIC GOALS

- Deliver quality service to stakeholders to address current and future needs in instruction, research, extension, and production
- Observe strict implementation of the laws as well as the policies and regulations of the University
- Acquire with urgency state-of-the-art resources for its service areas
- Bolster the relationship of the University with its local and international customers and partners
- Leverage the qualifications and competences in personnel action and staffing
- Evaluate the efficiency and responsiveness of the University systems and processes

### INSTITUTIONAL OUTCOMES (IO)

- Enhance competency development, commitment, professionalism, unity and true spirit of service for public accountability, transparency and delivery of quality services
- Provide relevant programs and professional trainings that will respond to the development needs of the region
- Strengthen local and international collaborations and partnerships for borderless programs
- Develop a research culture among faculty and students
- Develop and promote environmentally-sound and market-driven knowledge and technologies at par with international standards
- Promote research-based information and technologies for sustainable development
- Enhance resource generation and mobilization to sustain financial viability of the university

### PROGRAM OUTCOMES (PO) COMMON TO ALL PROGRAMS AND ITS RELATIONSHIPS TO INSTITUTIONAL OUTCOMES

A graduate of Sultan Kudarat State University can:	INSTITUTIONAL OUTCOMES (IO)					
	a	b	c	d	e	f
a. assume professional, technical, managerial and leadership roles in industrial organizations with the desired competence in the fields of practiced such as Automotive, Architectural Drafting, Civil, Electrical, electronics, food and its allied discipline.	✓	✓				
b. innovate explicit and modern technologies in the advancement of economy, society, technology and environmental sustainability.	✓	✓	✓		✓	✓
c. generate research-based information and technologies at par from international standards; and	✓	✓	✓	✓	✓	✓

d. promote and transfer knowledge and technologies for effective and efficient school-industry partnership.

✓	✓	✓	✓	✓	✓
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1	<b>COURSE CODE</b>	MST 008
2	<b>COURSE TITLE</b>	Statistics in Industrial Technology
3	<b>PREREQUISITE</b>	None
4	<b>CREDITS</b>	3 units

## 5 COURSE DESCRIPTION

This course is designed to deepen students' concepts and techniques that are essential to data processing and analysis. Topics will cover Descriptive and Inferential Statistics.

The course begins with defining statistics; sampling techniques to be used; levels of measurement; data presentation; and different measures of central tendency, variability, relative position and variation.

It followed by the parametric tests such as: t-test for both dependent and independent samples, Analysis of Variance, and Linear Regression. It also incorporates the software application.

In this course, the non-parametric test will be discussed such as: Chi-square Goodness of Fit test, Sign Test Wilcoxon Matched-paired Signed Ranks Test, Mann – Whitney U Test,  $X^2$  Test for  $k$  Independent Samples, Kruskal – Wallis One-way Analysis of Variance by Ranks, and Kendall Rank Correlation Coefficient  $r$ .

This course will enhance students' ability in producing quality research study in their field of specialization.

## 6 COURSE LEARNING OUTCOMES (CLO) AND ITS RELATIONSHIPS TO PROGRAM OUTCOMES

Course Learning Outcomes (CLO)	Program Outcomes						
	a	b	c	d	e	f	g
At the end of the course, a student can:							
a. Exhibit mastery of basic concepts and procedures of parametric and non-parametric statistics by illustrating examples that apply statistical concepts;	✓	✓	✓	✓	✓	✓	✓
b. Demonstrates a deeper understanding in analyzing data by using appropriate technology for informed decision-making;	✓	✓	✓	✓	✓	✓	✓
c. Display competence in correct usage of statistical tests by conducting investigations and researches to formulate data-driven conclusions and decisions;	✓	✓	✓	✓	✓	✓	✓
d. Demonstrate proficiency in problem solving by giving appropriate examples that can be solved using parametric and non-parametric statistics;	✓	✓	✓	✓	✓	✓	✓
e. Appreciate statistics by advocating the use of statistical data in making important decisions in everyday life.	✓	✓	✓	✓	✓	✓	✓

## 7 COURSE CONTENTS

WEEK	CONTENT	INTENDED LEARNING OUTCOMES (ILOs)	TEACHING AND LEARNING ACTIVITIES (TLA)	OUTCOMES-BASED ASSESSMENT (OBA)	COURSE LEARNING OUTCOMES (CLOs)
1	<b>Course Orientation</b> <i>SKSU VMGO, Classroom Policies, Course Overview, Course Requirements, Grading System</i>	At the end of the week, the pre-service teacher (PST) can: a. discuss the University's VMGO, classroom policies, course overview, requirements and grading system	Discuss the VMGO of the University, the classroom policies, scope of the course, course requirements and grading system		

	<b>Basic Statistical Concepts</b>  a.. What is Statistics? b. Sampling Techniques c. The difference between the probability and non-probability sampling techniques d. Measurement of Skewness and kurtosis	At the end of the week, the student can:  a. defines statistics. b. discusses the importance of statistical sampling techniques in doing research c. differentiates the importance of the probability and non – probability sampling techniques d. distinguishes the uses of skewness and kurtosis	a. Misconception check b. Gallery walk c. Separate what you do and don't understand d. Analogy prompt	a. Oral recitation b. Group output c. T – chart or Venn diagram d. Oral recitation (get responses from the class through analogy prompt)	a, b, e
2 – 3	<b>Data Descriptions (Grouped and Ungrouped Data)</b> a.Measures of Central Tendency b.Measures of Variation	At the end of the week, the student can:  a. summarize data using measures of central tendency b. decide the appropriate measure of central tendency to be used given a data set c. interpret numerical output to describe the distribution of data set in terms of its variability	a. Socratic Method on Inferencing and Interpreting b. Cooperative Learning Structure: Think-Pair-Share- students thinking about a question, pairing off and discussing the question with a classmate, and then sharing their answers with the whole class Note: The teacher may also use the data collected by the students to do data descriptions and the succeeding lectures	Written Work: Long Quiz and One-sentence summary Performance Task: Problem Set	a, b, e
5 – 6	<b>Data Descriptions (Grouped and Ungrouped Data)</b> a. Measures of Position b. Exploratory Data Analysis	At the end of the week, the student should be able to:  • identify the position of a data value using various measures of positions such as percentiles, deciles, and quartiles, median, and Z Scores • Interpret the values of quantiles • Use the techniques of exploratory analysis, like Boxplot and five-Number summaries to summarize data • Use digital technology to describe and compare data sets	a. Socratic Method on Inferencing and Interpreting b. Cooperative Learning Structure: Think-Pair-Share- students thinking about a question, pairing off and discussing the question with a classmate, and then sharing their answers with the whole class c. Hands-on Activity using digital technology	a. Written Work: Long Quiz and One-sentence summary b. Performance Task: Problem Set	a, b, c, d, e
7 – 8					

## MIDTERM EXAMINATION

10 - 12	<p>Parametric Test</p> <p>a. T - test for Dependent Samples</p> <p>b. T - test for independent samples</p> <p>c. One - way Analysis of Variance</p> <p>d. Two - way Analysis of Variance</p> <p>e. Linear Regression</p> <p>f. Digital Technology Application (using Excel)</p>	<p>At the end of the week, the student should be able to:</p> <ul style="list-style-type: none"> <li>a. perform and interpret data samples for dependent and independent samples</li> <li>b. formulate hypothesis having three or more than samples using Analysis of Variance</li> <li>c. formulate hypothesis having three or more than samples from the population</li> <li>d. use the methods of linear regression and correlation to predict the value of a variable given certain condition</li> <li>e. solves problems using technology.</li> </ul>	<p>a. Students' Organized Ideas</p> <p>b. Individual activity</p> <p>c. Individual output</p> <p>d. Peer output</p> <p>e. Individual Output</p> <p>f. Individual output</p> <p>g. Hands-on Activity using digital technology</p>	a, b, c, d, e	
13 - 14	<p>Non - Parametric Test</p> <p>a. Chi- Square (<math>\chi^2</math>) Goodness of Fit test</p> <p>b. Sign Test Wilcoxon Matched - paired</p> <p>c. Signed-ranks Test</p> <p>d. Mann - Whitney U Test</p> <p>e. <math>X^2</math> Test for <math>k</math> Independent Samples</p> <p>f. Kruskal - Wallis Test One-way ANOVA by ranks</p> <p>g. Kendall Rank Correlation Coefficient: r</p>	<p>At the end of the week, student can:</p> <ul style="list-style-type: none"> <li>a. examines the difference between an observed sample distribution and an assumed distribution in a population</li> <li>b. assesses whether two related or dependent observations for treatments are different or not</li> <li>c. describes when a non-parametric test for two independent samples be used; and student determines the degree or extent to which the unrelated groups differ on some variable</li> <li>d. evaluates differences among multiple distributions when the response variable is dichotomous or ranks</li> <li>e. analyzes differences in three or more independent groups; and student interprets the results of the analysis</li> </ul>	<p>a. Video watching</p> <p>b. Brainstorming</p> <p>c. Short quiz</p> <p>d. Summative assessment</p> <p>e. Seatwork</p> <p>f. Quiz</p> <p>g. Output Presentation</p> <p>h. Hands-on Activity using digital technology</p>	<p>a. Product-based: Test of difference</p> <p>b. One-sentence summary to interpret results using z-test, t-test</p>	a, b, c, d, e

	f. determines whether there is relationship between variables that are of rank order.			
15	<b>Applying Statistical Procedures to Problems</b>	<p>At the end of the week, the student can:</p> <ul style="list-style-type: none"> <li>a. investigate several teacher-made tests, profile of students' performance and choose appropriate statistical treatments to analyze the data</li> <li>b. generate recommendations for the enhancement of the teacher-made tests and profiling of students' performance</li> </ul>	<p>a. Hands-on Activity: Students are given sample teacher made tests and ask them to compute the different measures like mean, median, mode, and the like and ask them to interpret these values.</p>	<p>a. Written Work: Interpretation of the teacher-made test b. Profile of students' academic achievement c. One-sentence summary of recommendation</p>
16	<b>Mini-Research Project</b>	<p>At the end of the week, the student can:</p> <ul style="list-style-type: none"> <li>a. conduct a mini-research related to teaching and learning that showcases the use of both descriptive and inferential statistics</li> <li>b. manifest accuracy in data handling</li> </ul>	<p>a. Punctuated Lecture b. Inquiry Method</p>	<p>a. Product-based: Mini Research</p>
17	<b>Presentation of Mini-Research Proposal</b>	<p>At the end of the week, the student can:</p> <ul style="list-style-type: none"> <li>a. present and discuss results of their research</li> </ul>		<p>a. Individual/Group Presentation : Learning Walk Posting of Outputs Presentation and demo b. Modifying Works to integrate comments and suggestions Finalizing Results c. Scoring Rubric</p>
18		<b>FINAL EXAMINATION</b>		

Total No. of Hours : 54

## 8 COURSE REQUIREMENTS AND COURSE POLICIES

Each student is required to:

### COURSE REQUIREMENTS

1. submit accomplished assignments, problem sets and a mini-research project;
2. prepare a comprehensive lecture notebook;
3. make a PowerPoint presentation, and a written summary of the assigned report;
4. discuss an assigned topic to report and participate in class discussions; and

## COURSE POLICIES

5. pass the major exams (midterm and final)

**Attendance:** A student will be marked late if he/she enters the class 5 minutes after start of class period. Any student who comes to class 15 minutes after the scheduled time or always late for three consecutive meetings shall be marked absent.

**Missed work or exam:** Any student who missed to submit a work assignment or to take a test should consult the concerned instructor for immediate compliance

**Cheating and Plagiarism:** Any student who committed any form of academic dishonesty (e.g., copy-paste plagiarism) shall be given disciplinary action provided in the SKSU Student's Handbook

**Use of Technology:** Cell phones should be turned off while the session is in progress. Using laptops, notebook PCs, smart phones, and tablets shall be allowed only when needed. A scientific calculator (e.g. Casio fx-991ES) shall be utilized in solving.

## 9 GRADING SYSTEM AND RUBRICS FOR GRADING GRADING SYSTEM

Midterm Grade	
Midterm Examination	50%
Attendance/ Class Participation	10%
Quizzes	15%
Project (E-Portfolio/ Lesson Plan)	15%
Assignment/Problem Sets	10%
TOTAL	100%

Final Term Grade		FINAL GRADE
Final Term Examination	50%	Midterm Grade
Attendance/Class Participation	10%	<u>Final Term Grade</u>
Quizzes	15%	
Project (E-Portfolio/ Lesson Plan)	15%	<u>TOTAL</u>
Assignment/Problem Sets	10%	
TOTAL	100%	

## RUBRIC FOR THE INDIVIDUAL/ GROUP SHORT LESSON VIDEO PRESENTATION OF THE TOPIC

CRITERION	UNSATISFACTORY 1	FAIR 2	GOOD 3	EXCELLENT 4
MATHEMATICAL CONCEPTS	<ul style="list-style-type: none"> <li>▪ Displays errors in knowledge of mathematical concepts</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explains mathematical concepts without difficulty, but expresses ideas in rudimentary form</li> </ul>	<ul style="list-style-type: none"> <li>▪ Clearly articulates mathematical concepts</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fully and eloquently mathematical concepts</li> <li>▪ Develops connections mathematical concepts</li> </ul>
MATHEMATICAL PROCEDURES	<ul style="list-style-type: none"> <li>▪ Has difficulty explaining mathematical procedures.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explains mathematical procedures without difficulty</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explains mathematical procedures without difficulty and provides partial explanations for why mathematical procedures are valid or appropriate</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explains mathematical procedures without difficulty and provides full explanations for why mathematical procedures are valid or appropriate</li> </ul>
EXAMPLES	<ul style="list-style-type: none"> <li>▪ No examples or inappropriate examples are given.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Adequate choice of examples; may contain minor flaws</li> </ul>	<ul style="list-style-type: none"> <li>▪ Appropriate choice of examples</li> </ul>	<ul style="list-style-type: none"> <li>▪ Well-chosen and well-examples.</li> </ul>
MATHEMATICAL COMMUNICATION	<ul style="list-style-type: none"> <li>▪ Consistently inappropriate use of mathematical terminology and/or symbols</li> </ul>	<ul style="list-style-type: none"> <li>▪ Adequate use of mathematical terminology and symbols; may contain minor flaws</li> </ul>	<ul style="list-style-type: none"> <li>▪ Appropriate use of mathematical terminology and symbols</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sophisticated use of mathematical terminology and symbols</li> </ul>
PRESENTATION STRUCTURE	<ul style="list-style-type: none"> <li>▪ The presentation has no clearly defined structure; or the structure is chaotic</li> </ul>	<ul style="list-style-type: none"> <li>▪ The presentation has a recognizable structure with an introduction and conclusion</li> </ul>	<ul style="list-style-type: none"> <li>▪ The presentation has a clearly defined structure with some clear transitions and a logical introduction and conclusions.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The presentation has a clearly defined structure with elegant transitions effective introduction and conclusion.</li> </ul>
ORAL PRESENTATION	<ul style="list-style-type: none"> <li>▪ Does not speak clearly or demonstrated consistent grammatical errors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Speaks clearly with no grammatical errors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Speaks clearly and effectively</li> </ul>	<ul style="list-style-type: none"> <li>▪ Speaks clearly and effectively in a sophisticated manner.</li> </ul>
WRITTEN COMMUNICATION	<ul style="list-style-type: none"> <li>▪ Writing is illegible or not adequately used to record information</li> </ul>	<ul style="list-style-type: none"> <li>▪ Writing is legible and grammatically correct</li> </ul>	<ul style="list-style-type: none"> <li>▪ Writing is legible and well-organized.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Communicates clearly and Legible and grammatically correct</li> </ul>

## 10 REFERENCES

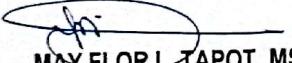
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