Module Description/Course Syllabi

Study Programme: Bachelor of Mathematics
Faculty of Mathematics and Natural Sciences
Universitas Andalas

1. *Course number and name*

MAT61253 Statistical Quality Control

2. *Credits and contact hours/Number of ECTS credits allocated*

3 SKS / 4,53 ECTS

3. *Instructors and course coordinator*

1. Dr. Maiyastri
2. Yudiantri Asdi, M.Sc.

4. *Text book, title, author, and year*

1. Montgomery, D. C. 2009. *Introduction to Statistical Quality Control*, 6th edition, John Wiley & Sons, N. Y.

5. *Recommended reading and other learning resources/tools*

1. Zack and Zelemayu, 2000, *Modern Industrial Statistics*, Mc. Graw Hill. N. Y.

6. *Specific course information*

A. Brief description of the content of the course (catalog description)

In this course, material is provided on: Basic concepts and terminology of Statistical Quality Control, Seven Tools in Quality Improvement, Variable Control Chart, Attribute Control Chart, Capability index, TQM and Six-Sigma.

B. Prerequisites or co-requisites
MAT 61151 Data Analysis
C. Indicate whether a required or elective course in the program
Elective
D. Level of course unit (according to EQF: first cycle Bachelor, second cycle Master)
First Cycle Bachelor
E. Year of study when the course unit is delivered (if applicable)
4th year
F. Semester when the course unit is delivered
Odd Semester
G. Mode of delivery (face-to-face, distance learning)
Face to face
7. *Intended Learning Outcomes*
ILO-1: Possesses a good ethics and integrity PI-1: Able to explain academic ethics and integrity PI-2: Able to act in accordance with academic ethics PI-3: Able to act in accordance with academic integrity ILO-2: Possesses profound knowledge of the basic concept mathematics PI-1: An ability to explain the basic concept mathematics PI-2: An ability to give examples related to the basic concept mathematics PI-3: An ability to determine solution of the simple problems using the basic concept mathematics ILO-3: An ability to identify, explain and generalise simple mathematical PI-1: An ability to identify simple mathematical problems PI-2: An ability to explain simple mathematical problems

PI-3: An ability to generalise simple mathematical problems

ILO-4: An ability to use concept and fundamental technique of mathematics in solving simple mathematical problems

PI-1: An ability to illustrate simple mathematical problems based on appropriate basic mathematical concepts and techniques

PI-2: An ability to illustrate simple mathematical problems based on appropriate basic mathematical concepts and techniques

PI-3: An ability to solve simple mathematical problems using the proper concept and mathematical fundamental techniques

ILO-5: An ability formally and correctly proves a simple mathematical statements using facts and methods that have been studied

PI-1: An ability to identify the formal structures and analogy forms in mathematics

PI-2: An ability to use fact and apply methods in proving simple mathematical statement

PI-3: An ability to present simple mathematical statement proof rigorously (sequentially and conscientious)

PI-4: An ability to conclude or interpret result of the proving simple mathematical statement

ILO-6: Have ability data literacy and technology and can apply them in solving simple mathematical problems or other relevant fields

PI-1: Able to identify the right data and technology to solve simple mathematical problems or other fields

PI-2: Able to use data and technology and apply them to solve simple mathematical statements or other areas

PI-3: Able to process data using available technology in simple mathematical problems or other fields

PI-4: Able to conclude and interpret data processing results for simple mathematical problems or other fields

PI-5: Able to design an algorithm to solve simple mathematical problems or other fields

ILO-7: An ability to communicate effectively especially in the area of mathematics in with diverse communities

PI-1: Able to convey ideas or study results orally, especially in the field of mathematics

PI-2: Able to present ideas or study results in writing, especially in the field of mathematics

PI-3: Able to respond to feedback given

8. *Course Learning Outcomes*

1. Students are able to explain theoretical concepts about continuous quality improvement.
2. Students are able to explain of the basic concepts, terminology and definitions of Statistical Quality Control.
3. Students are able to use seven tools in quality improvement.
4. Students are able to use variable control charts.

5. Students are able to attribute control charts.
6. Students are able to explain TQM and Six-Sigma.

9. *Brief list of topics to be covered*

1. Basic concepts and terminology of Statistical Quality Control
2. Seven tools for quality improvement
3. Variable control Chart
4. Attribute control Chart
5. Capability index
6. TQM and Six-Sigma

10. Learning and teaching methods

Directed Learning, Teacher Center Learning, Discussion.

11. Language of instruction

Indonesian

12. Assessment methods and criteria

Summative Assessment :
1. Mid-term exam: 35%
2. Final exam: 35%
3. Assignment (homework): 10%
4. Quizzes: 10%
5. Attendance: 5%
6. Attitude: 5%