Module Description/Course Syllabi

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

1. *Course number and name*

MAT82211 Algebraic Structure

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

3 sks / 4,53 ECTS

3. *Instructors and course coordinator*

Dr. Yanita

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

Joseph A. Galian, *Contemporery Abstract Algebra*, 9th eds, Cengange Learning. 2017

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

1. P._B._Bhattacharya,_S._K._Jain,_S._R._Nagpau, 1995. *Basic Abstrac Algebra*, Cambrige, USA
2. David S. Dummit, Richard M. Foote, *Abstract Algebra*, 3rd eds. John Wiley & Sons. USA. 2004
3. Pierre A. Grillet, *Abstract Algebra*, 2nd eds. Springer Science + Business Media

6. *Specific course information*

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

This course will discuss mathematical concepts in the form of definitions and mathematical properties in the form of entries and theorems related to Abstract Algebra, including group theory, ring theory, and polynomial rings.

B. Prerequisites or co-requisites

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C. Indicate whether a required or elective course in the program

Required

D. Level of course unit (according to EQF: first cycle Bachelor, second cycle Master)

Second Cycle Master

E. Year of study when the course unit is delivered (if applicable)

2nd Year

F. Semester when the course unit is delivered

Even Semester

G. Mode of delivery (face-to-face, distance learning)
Face to face
7. *Intended Leening Outcomes*
ILO 2 Mastering mathematical concepts and applications (real analysis, advanced linear algebra, and statistics) in solving complex mathematical problems. PI-1 Able to explain mathematical concepts (Real Analysis, Advanced Linear Algebra, and Statistics).
ILO 3: Comprehensive mastery of one or several theories for development in the fields of analysis, algebra, applied mathematics, statistics and combinatorial mathematics. PI-1 Able to identify theories used in related mathematical problems. PI-2 Able to apply the approach for development in associated fields (advance theory). PI-3: Able to use advanced theory in solving related mathematical problems.
8. *Course Learning Outcomes* *ex. The student will be able to explain the significance of current research about a particular topic.*
1. Able to understand the properties and solve problems in group theory (ILO-2: PI-1, CPL-3: PI-1, PI-2, PI-3)
2. Able to understand the properties and solve problems in ring theory. (ILO-2: PI-1, CPL-3: PI-1, PI-2, PI-3)
3. Able to understand the properties and solve problems in polynomial rings (ILO-2: PI-1, CPL-3: PI-1, PI-2, PI-3)
9. *Brief list of topics to be covered*
1. Group Theory (definition and properties of group theory, cyclic group, permutation group, dihedral group, direct product group, subgroup, subgroup normal, group factor, coset dan Langange theorem, and homomorfisma group) 2. Ring theory (definition and properties of ring theory, integral domain, field, subring, ideal, ring factor and ring homomorphism) 3. Polynomial ring
10. Learning and teaching methods
Small group discussion, Directed Learning
11. Language of instruction
Bahasa Indonesia
12. Assessment methods and criteria
Summative Assessment : 1. Tasks : 40% 2. Mid Semester : 30% 3. Final Semester : 30%