



Diponegoro University
Faculty of Science and Mathematics
Undergraduate Program Of Chemistry

Module designation	General Mathematics 1 (MD1)
Semester(s) in which the module is taught	2
Person responsible for the module	Robertus Heri Soelistya Utomo, S.Si., M.Si.
Language	Indonesian
Relation to curriculum	Compulsory /elective/ specialisation
Teaching methods	Lecture
Workload (incl. contact hours, self-study hours)	Face to face : 1 x (2 x 50 min); Structured study: 1 x (2 x 60 min); Self study: 1 x (2 x 60 min)
Credit points	2
Required and recommended prerequisites for joining the module	No requirement
Module objectives/intended learning outcomes	1. Demonstrate an attitude of being responsible for work in their field of expertise independently. 2. Mastering the basic principles of software for analysis, synthesis, and molecular modeling in general or more specific chemical fields. 3. Able to apply logical, critical, systematic, and innovative thinking in the context of the development or implementation of science and technology that pays attention to and uses humanities values following their field of expertise. 4. Able to demonstrate independent, quality, and measurable performance. 5. Able to make decisions regularly in the context of solving problems in their area of expertise, based on the results of analysis of information and data. 6. Able to produce appropriate conclusions based on the results of identification, analysis, isolation, transformation, and synthesis of chemicals that have been carried out.

Content	1. Indefinite integral 2. Substitution and partial integration techniques 3. Integrals of trigonometric functions 4. Trigonometric substitution integration technique 5. The technique of integrating rational functions of types 1 and 2 6. The technique of integrating rational functions of types 3 and 4 7. The technique of integrating rational functions in sine and cosine 8. The concept of definite integral as an infinite limit to the number of rectangular partitions 9. Applied definite integral for area calculation 10. Applied definite integral for the calculation of the volume of the rotation of a plane about a certain axis 11. Applied definite integral for curve length calculation 12. Indefinite integrals in solving differential equations 13. Separate variable differential equation 14. Homogen differential equation
Exams and assessment formats	Mid-Semester Exam and Final Exam
Study and examination requirements	Participatory Activities 20% Project Results 30% Task 10% Quiz 10% Mid-semester 15% Final exams 15%
Reading list	1. Kreyszig, E., 1998, "Advanced Engineering Mathematics", 6th ed., John Wiley & Sons, Inc., New York.