



**Diponegoro University**  
**Faculty of Science and Mathematics**  
**Undergraduate Program Of Chemistry**

Module designation	<b>General Mathematics 2 (MD2)</b>
Semester(s) in which the module is taught	3
Person responsible for the module	Robertus Heri Soelistya Utomo, S.Si., M.Si.
Language	Indonesian
Relation to curriculum	Compulsory <del>/elective/</del> <del>specialisation</del>
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	<ol style="list-style-type: none"><li>1. Demonstrate an attitude of being responsible for work in their field of expertise independently.</li><li>2. Mastering the basic principles of software for analysis, synthesis, and molecular modeling in general or more specific chemical fields.</li><li>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.</li><li>4. Able to demonstrate independent, quality, and measurable performance.</li><li>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.</li><li>6. Able to produce appropriate conclusions based on the results of identification, analysis, isolation, transformation, and synthesis of chemicals that have been carried out.</li></ol>

Content	<ol style="list-style-type: none"> <li>1. Functions: Linear functions, Quadratic functions, Trigonometric functions, Exponential functions, and other functions in chemistry.</li> <li>2. Function Derivatives: the meaning and benefits of negative, zero, and positive derivatives of functions at the price of a specific independent variable</li> <li>3. Application of Functions and Function Derivatives in Thermodynamics, Kinetics, and Structures (Orbitals)</li> <li>4. Limits and Continuous Functions on Functions</li> <li>5. Integration Techniques on Functions</li> <li>6. Order 1 and Order 2 Ordinary Differential Equations in Thermodynamics, Kinetics, and Structures (Orbitals)</li> <li>7. Application of Ordinary Differential Equations in Thermodynamics, Kinetics, and Structures (e.g., particles in a one-dimensional box)</li> </ol>
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	<ol style="list-style-type: none"> <li>1. Kreyszig, E., 1998, "Advanced Engineering Mathematics", 6th ed., John Wiley &amp; Sons, Inc., New York.</li> </ol>