



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

|   |  |
|---|--|
| Module designation  | <b>Non-aqueous Analytical Chemistry (KANA)</b>   |
| Semester(s) in which the module is taught                     | 5  |
| Person responsible for the module                             | Drs. Abdul Haris, M.Si.,<br>Didik Setiyo W., S.Si., M.Si.,   |
| Language  | Indonesian   |
| Relation to curriculum  | <del>Compulsory/elective/specialisation</del>  |
| Teaching methods  | Lecture  |
| Workload (incl. contact hours, self-study hours)              | Face to face : 1 x (2 x 50 min);<br>Structured study: 1 x (2 x 60 min);<br>Self study: 1 x (2 x 60 min)  |
| Credit points   | 2  |
| Required and recommended prerequisites for joining the module | KRX, KAI1  |
| Module objectives/intended learning outcomes                  | (S9) Demonstrate a responsible attitude towards work in their area of expertise independently<br>(PP2) Mastering complete operational knowledge about functions and analysis of data and information from classical and modern (instrumental) measurement results<br>(KU1) 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 by their field of expertise<br>(KU2) Able to demonstrate independent, quality, and measurable performance<br>(KU7) Able to be responsible for the achievement of group work results and supervise and evaluate the completion of work assigned to workers under their responsibility<br>(KK3) Able to conduct research that includes identification, formulation, and analysis of engineering problems on processes and equipment needed to convert raw materials into products with added value |

|                                    |  |
|------------------------------------|--|
| Content                            | <ol style="list-style-type: none"> <li>1. Introduction to non-aqueous system</li> <li>2. Characteristics of non-aqueous systems</li> <li>3. Acid-base in non-aqueous media</li> <li>4. Acid-base titration in non-aqueous media</li> <li>5. Thermodynamic properties</li> <li>6. Electrode Process</li> <li>7. Application of non-aqueous ion solvation for hydrometallurgy, including solvent extraction</li> </ol> |
| Exams and assessment formats       | Mid-Semester Exam and Final Exam   |
| Study and examination requirements | Participatory Activities -20%<br>Project Results -30%<br>Task -10%<br>Quiz -10%<br>Mid-semester -15%<br>Final exams -15%   |
| Reading list                       | <ol style="list-style-type: none"> <li>1. Popovich, C. dan Tomkins, RPT, Nonaqueous Solution Chemistry, 1981, John Wiley and Sons, New York</li> <li>2. 2. Kenneth, J.H., 1990, Analytical Chemistry: Principles, Edisi ke-2, Saunders College Pub., New York</li> </ol>   |