



Diponegoro University
Faculty of Science and Mathematics
Undergraduate Program Of Chemistry

Module designation	Industrial Materials Analysis (ABI)
Semester(s) in which the module is taught	5
Person responsible for the module	Dr. Retno Ariadi L., M.Si. Dr. Gunawan, M.Si
Language	Indonesian
Relation to curriculum	Compulsory /elective/ specialisation
Teaching methods	Lecture
Workload (incl. contact hours, self-study hours)	Face to face = 1x(2x50") Structured study + Self study = 1x(2x60"+2x60")
Credit points	2
Required and recommended prerequisites for joining the module	KA2, KA11
Module objectives/intended learning outcomes	<p>Demonstrate a responsible attitude towards work in their area of expertise independently (S9)</p> <p>Mastering complete operational knowledge of functions, operating standard chemical instruments, and analyzing data and information from these instruments. (PP2)</p> <p>Able to apply logical, critical, systematic, and innovative thinking in the development or implementation of science and technology that pays attention to and uses humanities values by their field of expertise. (KU1)</p> <p>Able to examine the implications of developing or implementing science and technology that pays attention to and applies humanities values according to their expertise based on scientific principles, procedures, and ethics to produce solutions, ideas, designs, or art criticism. (KU3)</p> <p>Able to demonstrate independent, quality, and measurable performance. (KU2)</p> <p>Able to compile a scientific description of the study results in the form of a thesis or final project report and upload it on the college website. (KU4)</p>

Content	<ol style="list-style-type: none"> 1. Definition of Industrial Materials, kinds of industrial materials, frequently used methods for analyzing 2. Basic concept of glass industry, kinds of glass, glass specifications, glass raw materials (case method and project based learning) 3. Qualitative and quantitative analysis of Glass materials 4. The basic concept of ceramic industry, kinds of ceramics, ceramic specifications, ceramic raw materials (case method and project based learning) 5. Qualitative and quantitative analysis of ceramic materials (case method and project based learning) 6. The basic concept of cement industry, kinds of cement, cement specifications, cement raw materials (case method and project based learning) 7. Qualitative and quantitative analysis of cement materials (case method and project based learning). (case method and project based learning) 8. Introduction to the Halal industry: The basic concept of Halal industrial products, Kinds of Halal industrial products, Analysis of Halal raw materials for the Halal industry 9. Qualitative and quantitative analysis of halal industrial materials 10. Introduction of herbal medicine and herbal ingredients: The basic concept of the herbal medicine industry, Kinds of herbal products. Raw materials and chemical processes supporting the herbal medicine industry 11. Herbal products as a quality test. (case method and project based learning) 12. Introduction to the Halal industry: The basic concept of industry in the 4.0 era. industry supporting factors 4.0. challenges and opportunities in the industrial era 4.0. (case method and project based learning) 13. Industrial basic concepts based on National Industry Standards. SNI Regulation. Kinds of SNI. (case method and project based learning) 14. Basic Concepts of Quality assurance (QA) and quality control (QC) in industrial processes. The purpose and significance of QA and QC
Exams and assessment formats	Mid-Semester Exam and Final Exam
Study and examination requirements	Participatory Activities -30% Project Results -30% Cognitive/Task Knowledge -5% Task -5% Mid-semester -15% Final exams -15%

Reading list

1. Dodd, J.W. dan Tonge, K.H., 1987, Analytical chemistry by open learning, Thermal analysis.
2. Austin Gorge T, 1984, Shreve's Chemical Processes Industries, McGraw Hill, Inc