Diponegoro University
Faculty of Science and Mathematics
Undergraduate Program Of Chemistry

Module designation	**Chemical Process Design (DPK)**
Semester(s) in which the module is taught	6
Person responsible for the module	Drs. WH rahmanto, Msi Dra. Linda Suyati, Msi
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	KRX, KO3, KAno3
Module objectives/intended learning outcomes	(S9) Demonstrate an attitude of being responsible for work in the field of expertise independently (KK1) Able to produce appropriate conclusions based on the identification, analysis, isolation, transformation, and synthesis of chemicals that have been carried out (KK2) Able to solve science and technology problems in general and straightforward chemical fields such as identification, analysis, isolation, transformation, and synthesis of micro-molecules through the application of knowledge of structure, properties, kinetics, and energetics of molecules and chemical systems, with analytical methods and synthesis in specific chemical fields, as well as the application of relevant technologies (KU2) Able to demonstrate independent, quality, and measurable performance (KU3) Able to study the implications of the development or implementation of 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

Content	1. Concepts of Energetic Theory, Chemical Reactions / Industrial Chemical Processes Introduction, The process of producing substances, the design of new substances 2. Process control, production stability 3. Process Engineering Foundation: Principles of "Green Chemistry" 4. Chemical principles: kinetic, thermodynamic, and structural framework 5. physical principles 6. "Batch" Reactor Model and Design 7. "Flow" Reactor Model and Design 8. Engineering the production process of organic substances: design of organic reactions (substitution, addition, elimination), category of reaction kinetics 9. Engineering the production process of organic substances: Production of Key Ingredients of Organic Compounds 10. Inorganic Substance Production Process Engineering: designing chemical processes 11. Engineering of Inorganic Substances Production Process: design of electrochemical processes 12. Operation of process units: laboratory and industrial-scale chemical processes 13. Capita Selecta Drying Technique: Bernoulli and Gibbs Law
Exams and assessment formats	Mid-Semester Exam and Final Exam
Study and examination requirements	Participatory Activities -15% Project Results -15% Cognitive/Task Knowledge -10% Quiz -10% Mid-semester -25% Final exams -25%
Reading list	1. Atkins dan de Paula, 2010, Physical Chemistry, W. H. Freeman and Company, New York