



**UNIVERSITAS NEGERI YOGYAKARTA**  
 FACULTY OF MATHEMATICS AND NATURAL SCIENCES  
 DEPARTMENT OF CHEMISTRY EDUCATION  
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**Bachelor of Education in Chemistry**

**MODULE HANDBOOK**

Module name:	<b>Industrial Process on Chemistry</b>
Module level, if applicable:	Undergraduate
Code:	KIP 6206
Sub-heading, if applicable:	-
Classes, if applicable:	2
Semester:	7
Module coordinator:	Sunarto, M.Si
Lecturer(s):	
Language:	Bahasa Indonesia and English
Classification within the curriculum:	Compulsory Subject
Teaching format / class hours per week during the semester:	Lectures: 100 minutes lectures, 120 minutes structured activities and 120 minutes individual study per week
Workload:	Total workload of the activity is 136 hours per semester which consist of 100 minutes lectures, 120 minutes structured activities, 120 minutes individual study per week.
Credit points:	2SKS (3.28 ECTS)
Prerequisites course(s):	-
Course Outcome:	<p>After taking this course, the students are expected to be able to:</p> <p>CO1. answer correctly about the scope of the chemical industry process</p> <p>CO2. explain correctly the processes that occur in the cane sugar industry, paper, Portland cement, Ammonia, Urea Fertilizers, Textiles, Milk powder</p> <p>CO3. correctly calculate the amount of heat released during the sulfonation process</p> <p>CO4. correctly calculate the amount of sulfur that changes to SO<sub>2</sub> and SO<sub>3</sub>.</p> <p>CO5. correctly calculate the amount of oxygen needed so that the combustion of a type of hydrocarbon compound takes place perfectly</p>
Content:	<p>The Chemical Industry Process Course explains to students how to manage a chemical industry safely, efficiently and effectively. In addition, the process diagram in the industries explained: Sugar Cane, Paper, Portland Cement, Ammonia, Urea Fertilizer, Textile and Milk Powder. Explained in this course: the physical and chemical processes that occur in each of these industries. The next chapter explains how to calculate the heat released from a chemical process, using the help of experimental results curves, and examples of the use of the concept of stoichiometry in the chemical industry. Industrial Chemistry courses consist of theories, containing</p>

	material on: Chapter I: Introduction, Chapter II. Production processes in the Chemical Industry, including Industry: Sugar Cane, Paper, Petroleum, Portland Cement, Ammonia, Urea Fertilizer, Textile and Milk Powder, Chapter. III. Sulfonation Process, Chapter IV: Stoichiometry in Industry.															
Study / exam achievements:	<p>Attitude assessment is carried out at each meeting by observation and/or self-assessment techniques using the assumption that basically every student has a good attitude. The student is marked very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not taken into account in the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude. The final mark will be weight as follow:</p> <table border="1"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight (%)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>C01, C02, C03, C04, C05</td> <td>Assignment Presentation Final Exam Midterm Exam</td> <td>Presentation / written test</td> <td>30 10 30 30</td> </tr> <tr> <td colspan="4">Total</td> <td>100</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight (%)	1	C01, C02, C03, C04, C05	Assignment Presentation Final Exam Midterm Exam	Presentation / written test	30 10 30 30	Total				100
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1	C01, C02, C03, C04, C05	Assignment Presentation Final Exam Midterm Exam	Presentation / written test	30 10 30 30												
Total				100												
Forms of media:	Handout, Board, LCD Projector, Laptop/Computer, Module.															
References:	<ul style="list-style-type: none"> <li>• Shreve, R.N, and Brink, J, A, Jr, 1990, <i>Chemical Process Industries</i>, Mc Graw Hill International Book Co, Tokyo</li> <li>• Endang Dwi Siswani (2013), Diktat Proses Industri Kimia, Jurusan Pendidikan Kimia FMIPA UNY</li> <li>• Lewis.WK, Radasch. A. h and Lewis A.C (1994) <i>Industrial Stoikhiometri</i>, Tokyo: Mc GRawHill Book Co</li> <li>• Golwakar, Kiran R (2016). <i>Production Management of Chemical Industries</i>. Switzerland: Springer</li> <li>• Madkour, Loutfy H and Njenga, Helen (2013). <i>Industrial Chemistry</i>. African Virtual University: CC.</li> </ul>															

### PLO and CO mapping

	PLO					
	Attitude		Knowledge	Specific Skill	General Skill	
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
CO1						√
CO2			√			
CO3			√			
CO4			√			
CO5			√			