



**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>B3 Waste Management</b>
Module level, if applicable:	Undergraduate
Code:	KMA 6246
Sub-heading, if applicable:	-
Classes, if applicable:	1
Semester:	Even
Module coordinator:	Sukisman Purtadi, M.Pd.
Lecturer(s):	Drs. Sunarto, M.Si.
Language:	Bahasa Indonesia and English
Classification within the curriculum:	Elective 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. describe the theoretical concept of emergency response systems for the management of hazardous and toxic waste based on PP 101/2014 and other B3 Waste management regulations</p> <p>CO2. understand how to manage B3 waste and overcome the various problems caused by chemicals in the environment</p> <p>CO3. apply ways to prevent and overcome various problems caused by B3 waste in the environment in everyday life</p> <p>CO4. arrange the design of B3 waste processing installation</p>
Content:	<p>This course provides experience to students to analyze the physicochemical properties of B3 waste and its management related to environmental health. Lecture materials are focused on 1) Definition, nature and classification of B3 waste, 2) Regulations related to B3 Waste Management, 3) Identification, documents, symbols, labels, packaging, storage, collection, transportation, processing, utilization, stockpiling and final disposal of waste B3, 4) Emergency response system in the processing of B3 waste, 5) Hospital waste treatment, 6) Processing of chemical laboratory waste, 7) Processing of chemical industry waste, 8) Printing waste treatment. Lectures are conducted with discussions,</p>

	demonstrations, and assignments that provide experience to students to solve the problem of B3 waste management.															
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>CO1, CO2, CO3, CO4.</td> <td>Performance Individual and Group Assignment Mid-term Exam Final Exam</td> <td>Observation Presentation / written test</td> <td>10% 35% 25% 30%</td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1, CO2, CO3, CO4.	Performance Individual and Group Assignment Mid-term Exam Final Exam	Observation Presentation / written test	10% 35% 25% 30%	Total				100%
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1	CO1, CO2, CO3, CO4.	Performance Individual and Group Assignment Mid-term Exam Final Exam	Observation Presentation / written test	10% 35% 25% 30%												
Total				100%												
Forms of media:	Handout, Board, LCD Projector, Laptop/Computer, Module.															
References:	<p><b>Handbooks:</b></p> <p>A. Vanguilder C. 2018. <i>Hazardous Waste Management: an Introduction</i>: Merclearning.</p> <p>B. Keputusan Menteri Tenaga Kerja No.Kep. 187/Men/1999</p> <p>C. Perda Prop DIY No 2 Thn 2012 tentang pengelolaan limbah B3 dan lampirannya</p> <p>D. Peraturan Menteri Negara Lingkungan Hidup Nomor 18 Tahun 2009 tentang Tata Cara Perizinan Pengelolaan Limbah B3</p> <p>E. Keputusan Menteri Negara Lingkungan Hidup Nomor 128 Tahun 2003 tentang Tata Cara dan Persyaratan Teknis</p> <p>F. Pengolahan Limbah Minyak Bumi dan Tanah Terkontaminasi oleh Minyak Bumi Secara Biologis</p> <p>G. PP RI No 101 Thn 2014 tentang Pengelolaan Limbah B3 dan lampirannya</p> <p>H. SNI 6989.59:2008 pengambilan sampel air dan air limbah</p> <p>I. Peraturan daerah Propinsi DIY Nomor 2 Than 2012 tentang Pengelolaan Limbah B3</p> <p>J. Peraturan Menteri Lingkungan Hidup dan Kehutanan RI Nomor PP.55/MenLHK-Setjen/2015 tentang Tata Cara Uji Karakteristik Limbah B3</p> <p><b>Suggested Readings:</b></p> <p>A. Ign. Suharto. 2011. <i>Limbah Kimia: dalam Pencemaran Udara dan Air</i>. Andi Offset: Yogyakarta</p> <p>B. Sugiharto.1987. <i>Dasar-dasar Pengelolaan Air Limbah</i>.UI-Press: Jakarta</p> <p>C. Sakti A. Siregar. 2005 <i>.Instalasi Pengolahan Air Limbah</i>. Kanisius: Yogyakarta</p> <p>D. Sumanto Imamkhasani. 1990. <i>Keselamatan Kerja dalam Laboratorium Kimia</i>. Gramedia: Jakarta</p> <p>E. Achadi Budi Cahyono. 2004. <i>Keselamatan Kerja Bahan</i></p>															

**PLO and CO mapping**

	PLO					
	Attitude		Knowledge	Specific Skill	General Skill	
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
<b>CO1</b>			√			
<b>CO2</b>			√			
<b>CO3</b>					√	
<b>CO4</b>						√