<table>
<tr><td colspan="2">  </td><td colspan="4">Faculty of Natural Sciences and Mathematics
Chemistry Department
Chemistry Education Study Program</td></tr>
<tr><td colspan="2">Module Name</td><td colspan="4">Green Chemistry</td></tr>
<tr><td colspan="2">Module level, if applicable</td><td colspan="4">3st year</td></tr>
<tr><td colspan="2">Code, if applicable</td><td colspan="4">SPK-646</td></tr>
<tr><td colspan="2">Semester (s) in which the module is taught</td><td colspan="4">6st semester</td></tr>
<tr><td colspan="2">Person responsible for the module</td><td colspan="4">Prof. Is Fatimah, M.Si.</td></tr>
<tr><td colspan="2">Lecturer(s)</td><td colspan="4">Prof. Is Fatimah, M.Si.
Lina Fauzi’ah, M.Sc.</td></tr>
<tr><td colspan="2">Language</td><td colspan="4">English- Indonesia</td></tr>
<tr><td colspan="2">Relation to curriculum</td><td colspan="4">Compulsory</td></tr>
<tr><td>Types of teaching and learning</td><td>Class size</td><td>Forms of active participation</td><td colspan="3">Workload: 91 hours</td></tr>
<tr><td rowspan="3">Lecture and discussion</td><td rowspan="3">50 – 60</td><td rowspan="3">Discussion</td><td>Lecture: 100 (min) x 16 (meeting)</td><td>27 hours</td></tr>
<tr><td>Assignment: 120 (min) x 16 (week)</td><td>32 hours</td></tr>
<tr><td>Independent study: 120 (min) x 16 (week)</td><td>32 hours</td></tr>
<tr><td colspan="2">ECTS credit</td><td colspan="4">3.25</td></tr>
<tr><td colspan="2">Credit points</td><td colspan="4">2 SCU</td></tr>
<tr><td colspan="2">Requirements according to examination regulations</td><td colspan="4">Minimum attendance at lectures is 75% (according to UII regulation)</td></tr>
<tr><td colspan="2">Recommended prerequisites</td><td colspan="4">N/A</td></tr>
<tr><td colspan="2">Related course</td><td colspan="4">Environmental Chemistry</td></tr>
<tr><td colspan="2">Module objectives/intended learning</td><td colspan="4">On successful completion of the course students should be able to:
1. explain the concept of the 12 principles of green chemistry and their urgency for the sustainability of the world's life
2. explain the concepts of life cycle assessment (LCA) and water footprint.
3. explain the concept of using environmentally friendly solvents in reactions.
4. explain the application of green chemistry principles to organic synthesis reactions
5. explain the concept of making and using biofuels, catalysts, and biomass as sources of renewable</td></tr>
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<tr><td></td><td colspan="3">chemicals.</td></tr>
<tr><td>Content</td><td colspan="3">Twelve principles of green chemistry, life cycle assessment (LCA) and water footprint, solvents, green chemistry in organic synthesis, biofuels as an alternative, environmentally friendly catalysis, biomass as a source of renewable chemicals.</td></tr>
<tr><td rowspan="7">Study and examination requirements and forms of examination</td><td colspan="3">Final score (NA) is calculated as follows:</td></tr>
<tr><td>Intended learning outcomes</td><td>Weight (%)</td><td>Technique of assessment</td></tr>
<tr><td>1</td><td>20</td><td>Written test: assignment</td></tr>
<tr><td>2</td><td>20</td><td>Written test: assignment, midterm</td></tr>
<tr><td>3</td><td>20</td><td>Written test: assignment, midterm</td></tr>
<tr><td>4</td><td>20</td><td>Written test: assignment, final examination</td></tr>
<tr><td>5</td><td>20</td><td>Written test: assignment, final examination</td></tr>
<tr><td>Media employed</td><td colspan="3">Power point slide presentation, video, Google classroom</td></tr>
<tr><td>Reading lists</td><td colspan="3">Fatimah, I., 2017, Kimia Hijau, Yogyakarta: UII Press.</td></tr>
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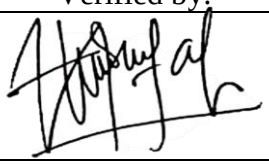
Prepared by:	Verified by:	Authorized by:
		
Person responsible for the module	Student representative	Coordinator Program