<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">Chemistry of Natural Resources</td></tr>
<tr><td colspan="2">Module level, if applicable</td><td colspan="4">3rd Year</td></tr>
<tr><td colspan="2">Code, if applicable</td><td colspan="4">SPK – 425</td></tr>
<tr><td colspan="2">Semester(s) in which the module is taught</td><td colspan="4">6th semester</td></tr>
<tr><td colspan="2">Person responsible for the module</td><td colspan="4">Dr. Tatang Shabur Julianto, M.Si.</td></tr>
<tr><td colspan="2">Lecturer</td><td colspan="4">Dr. Tatang Shabur Julianto, M.Si.
Lina Fauzi’ah, M.Sc.</td></tr>
<tr><td colspan="2">Language</td><td colspan="4">Indonesia</td></tr>
<tr><td colspan="2">Relation to curriculum</td><td colspan="4">Compulsory</td></tr>
<tr><td>Teaching methods</td><td>Class size</td><td>Forms of active participation</td><td colspan="3">Workload: 91 hours</td></tr>
<tr><td rowspan="3">Class discussion</td><td rowspan="3">50-60</td><td rowspan="3">Discussion</td><td>Lecture: 100 (min) x 16 (meeting)</td><td colspan="2">27 hours</td></tr>
<tr><td>Assignment: 120 (min) x 16 (week)</td><td colspan="2">32 hours</td></tr>
<tr><td>Independent study: 120 (min) x 16 (week)</td><td colspan="2">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 the 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">Organic chemistry, Biochemistry</td></tr>
<tr><td colspan="2">Module objectives/intended learning outcomes</td><td colspan="4">On successful completion of the course students should be able to:
1. Explain theoretical concepts about primary and secondary metabolites.
2. Explain the biosynthesis of secondary metabolites.
3. Explain the classification, biosynthesis, abundance, and activity of the secondary metabolite class.</td></tr>
<tr><td colspan="2">Content</td><td colspan="4">• Primary and secondary metabolites, biosynthesis of secondary metabolites, metabolites of the shikimic acid pathway, metabolites of the acetic acid/polyketide pathway, secondary metabolite class: flavonoids; stilbenes; terpenoids; steroids; alkaloids: biosynthesis;</td></tr>
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<tr><td></td><td colspan="3">classification; biological activity; abundance in plants; extraction and isolation of natural materials.</td></tr>
<tr><td rowspan="5">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>10</td><td>Written test: assignment, midterm</td></tr>
<tr><td>2</td><td>40</td><td>Written test: assignment, midterm</td></tr>
<tr><td>3</td><td>50</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 list</td><td colspan="3">Raharjo, T.J., 2012, Kimia Hasil Alam, Yogyakarta: UGM Press.
Ramawat, K.G., Merillon, J-M., 2013, Natural Products: Phytochemistry, Botany and Metabolism of Alkaloids, Phenolics and Terpenes, Berlin: Springer.</td></tr>
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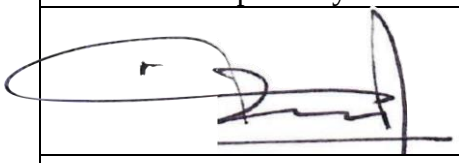
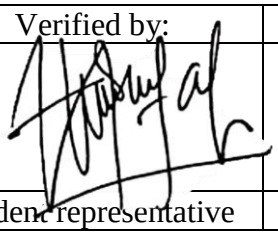
Prepared by:	Verified by:	Authorized by:
		
Person responsible for the module	Student representative	Coordinator Program