

## Synthetic Biology

Module name		Synthetic Biology				
Module level		Third year of Bachelor program				
Abbreviation, if applicable						
Sub-heading, if applicable						
Courses included in the module, if applicable		BI-3202 Synthetic Biology				
Semester/term		6 <sup>th</sup> Semester				
Module coordinator(s)		Dr. Fenny M. Dwivany				
Lecturer(s)		Dr. Maelita R. Moeis Dr. Sony Suhandono Dr. Indra Wibowo				
Language		Indonesian				
Classification within the Curriculum		Compulsory courses for Bachelor Program in Biology				
Teaching format/ class hours per week during the semester		2 parallel classes consists of 40 students / class: 3) 1 <sup>st</sup> -12 <sup>th</sup> week Lecture (Face to face lecture & student presentation): 2 hr for 12 weeks 2) 13 <sup>th</sup> -14 <sup>th</sup> week Student class presentation/group (4-5 students/group) : 2 hr for 2 weeks				
Workload	Total Workload	96 hours; 2 CU				
		Face to face teaching	Assignment	Independent study	Exam	Total
	Lecture	28	32	32	4	96
Credit points		Synthetic Biology (2 CU)				
Requirements		<i>Genetics, Cells &amp; Molecular Biology I &amp; II, Project in Cells &amp; Molecular Biology</i>				
Learning goals/ competencies	<ol style="list-style-type: none"> <li>1. What is Synthetic Biology?</li> <li>2. Synthetic Biology in the Future</li> <li>3. Molecular Biology and Engineering concepts</li> <li>4. Foundational Technologies that Synthetic Biology is built upon</li> <li>5. Minimal Cells and Synthetic Life</li> <li>6. Design and Modeling of Synthetic Biology Systems</li> </ol>					
Content	<p><i>After completion of this module students are expected to be able to:</i></p> <p>Knowledge :</p> <ul style="list-style-type: none"> <li>• describe the concepts of synthetic biology and its social impacts.</li> <li>• analyze social impacts of synthetic biology</li> </ul> <p>Skill:</p> <ul style="list-style-type: none"> <li>• Design gene construct to produce simple and novel metabolic pathway.</li> </ul> <p>Competences :</p> <ul style="list-style-type: none"> <li>• Interpret and apply the concepts of synthetic biology and its social impacts</li> <li>• Interpret and apply critical thinking in evaluating and explaining novel metabolic pathway.</li> </ul>					
Study/exam achievements	<i>Lecture (100%)</i>					
		<i>Midterm exam</i>	<i>Final exam</i>	<i>Quiz</i>	<i>Student class presentation</i>	<i>Total</i>
	<i>Lecture</i>	30%	30%	10%	30%	100%
Forms of media	<i>Classical teaching tools:</i>	<i>white board/ chalk and talk, power point, film, animation</i>				
	<i>Integrated teaching tools:</i>	-				
	<i>Digital teaching tools:</i>	<i>Blended learning</i>				
	<i>Problem based teaching tools:</i>	<i>Journal</i>				
Literature	<i>Geoff Baldwin, Travis Bayer, Robert Dickenson, Tom Ellis, Paul S. Freemont, Richard I. Kitney, Karen Polizzi, Guy-Bart Stan, "Synthetic Biology-A Primer", Imperial College Press., 2012, London</i>					

