

## Module Handbook

Module Name:	<b>Petroleum Chemistry</b>
Module Level:	Bachelor
Abbreviation, if applicable:	KIO 401
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	<ol style="list-style-type: none"> <li>1. Natural Product chemistry</li> <li>2. Organic Chemistry</li> <li>3. Elucidation of Organic Structure</li> </ol>
Semester/term:	5 <sup>th</sup> /Third Year
Module coordinator(s):	Dr.Ir. Suyanto, M.Si.
Lecturer(s):	Ahmadi Jaya Permana, M.Si.
Language:	Bahasa Indonesia
Classification within the curriculum	Elective Studies
Teaching format / class hours per week during semester:	2 hours lecturers ( 50 min / hour)
Workload:	2 hours lectures, 2 hours structured activities , 2 hours individual study, 13 weeks per semester, and total 78 hours per semester ~ 2.6 ECTS *
Credit Points:	2
Requirements:	Organic Chemistry II
Learning goals/competencies:	<p><b>General Competences (Knowledge):</b></p> <ol style="list-style-type: none"> <li>1. Being able to distinguish abiogenik theory and the theory of biogenic origin of oil and gas</li> <li>2. Being able to distinguish the process catagenesis, diagenesis and metagenesis</li> <li>3. Being able to discern the sense geopolymer, geofosil</li> <li>4. Ability to identify biomarkers</li> <li>5. Able to analyze biomarker based on its GCMS spectra</li> <li>6. Able to explain changes in the changes of organic compounds into oil and gas</li> <li>7. Being able to distinguish the understanding of kerogen, geofosil and geochemistry</li> <li>8. Able to explain the presence of petroleum</li> <li>9. Explain how petroleum exploration</li> <li>10. Able to explain the characteristics and quality of petroleum</li> <li>11. Being able to decipher the characteristics of petroleum products</li> </ol> <p><b>Spesific competence:</b></p> <p>Be able to master the concept of the origin of petroleum (the theory of inorganic, organic theory, the collection and preservation of organic compounds, organic compounds transformation in sediment, formation of petroleum, petroleum maturation), the presence of petroleum (seepage, on the surface, mud volcanoes, in the earth's crust), exploration of petroleum, crude oil, petroleum products (gasoline, diesel oil, kerosene, lubricating oil, aviation fuel)</p>
Content:	The origin of petroleum (the theory of inorganic, organic theory, the

	collection and preservation of organic compounds, organic compounds transformation in sediment, formation of petroleum, petroleum maturation), the presence of petroleum (seepage, on the surface, mud volcanoes, in the earth's crust ) and the exploration of petroleum, crude oil, petroleum products (gasoline, diesel oil, kerosene, lubricating oil, aviation fuel)
Attribut soft skill	Discipline, communication skill, effort
Study/exam achievements:	Students are considered to be competent and pass if at least get 55  <b>Final score is calculated by follow :</b> Mid exam 35%, final exam 40%, assessments 20%, Soft Skill 5%  Table Value Graduation A: 75-100 AB: 70-74.9 B: 65-69.9 BC: 60-64.9 C: 55-59.9 D: 40-54.9 E <40
Forms of Media:	LCD , Slides, Whiteboard, Laboratory
Learning Methods	Lectures, assignments
Literature:	<ol style="list-style-type: none"> <li>1. Tissot BP and Welte DH, Petroleum Formation and Occurance, Springer Verlag</li> <li>2. BerkowitzN, 1997, Fossil Hydrocarbon Chemistry and Technology, Toronto, Tokyo</li> <li>3. Koesoemadinata RP, 1980, Diktat Geologi Minyak Bumi, ITB Bandung</li> <li>4. Hardjono, 1984, Teknologi Minyak Bumi, UGM Yogyakarta</li> <li>5. Speight JG and Wiley AJ, 2002, Hand Book of Petroleum Product Analysis, John Wiley and Sons, New Jersey</li> <li>6. Incorporated Energies, 2006, Energy Bandwidth for Petroleum Refining Process, US Department Energy, Office of Eneegy Efficiency and Renewable Energy ITP</li> </ol>
Notes:	*Total ECTS = {(total hours workload x 50 min ) / 60 min } / 25 hours <b>Each ECTS is equals with 25 hours</b>