

1.	Course		Spectroscopy
2.	Module Level	:	Undergraduate
3.	Code	:	FIM304
4.	Sub-heading, if applicable	:	-
5.	Courses included in the module, if applicable	:	--
6.	Semester/Term	:	7 th /Fourth year
7.	Module Coordinator :	:	Drs. Adri Supardi, M.S
8.	Lecture (s)		Drs. Adri Supardi, M.S.; Herri Trilaksana, MS, Ph.D
9	Language		Bahasa Indonesia
10	Classification Within the Curriculum		Elective Course
11	Teaching format/ class hours per week during semester		2 hours of lectures (50 minutes/hour)
12	Workload :		2 hours of lectures, 2 hours of structural activities, 2 hours of individual study, 14 weeks per semester, and total 84 hours per semester~ 2.8 ECTS*
13	Credit point		2
14	Requirement(s)		Quantum Physics
	Learning Goals/ Competencies	:	<p>General Competence (Knowledge) able to apply the principle of spectroscopy to study the structure of matter</p> <p>Specific Competence able to analyze the spectrum of atoms and molecules through infrared, microwave, UV-Vis spectroscopy, and laser spectroscopy</p>
15	Contents	:	<p>Principle of spectroscopy, interaction of electromagnetic radiation and matter, time-dependent perturbation theory, absorption and emission, line shape and line broadening</p> <p>Electronic spectroscopy, atomic spectra, molecular orbital, vibrational structure, electron spectroscopy, ion spectroscopy, laser spectroscopy</p> <p>Vibration-Rotation spectroscopy, rotation of rigid molecule, centrifugal distortion, harmonic vibration, anharmonicity, vibration-rotation spectra, infrared spectroscopy, analysis of infrared spectra</p>
10.	Softskill Attribute	:	Effort and Ethic
11.	Study Exam Achievements	:	<p>Students are considered to be competent and passed if at least get 50% of maximum mark of the midterm test, final examination, quizzes and home work.</p> <p>Final score is calculated as follow: 15 % homework + 15% quizzes + 35% midterm test + 35% final exam</p> <p>Final grade is defined as follow :</p> <p>A : 75 – 100 AB : 70 - 74.99 B : 65 - 69.99 BC : 60 - 64.99</p>

			C : 55 - 59.99 D : 40 - 54.99 E : 0 - 39.99
	Learning Methods		Lecture, discussion, tutorial
12.	Forms of Media	:	Powerpoint slides, LCD projector and whiteboard
17.	Literature(s)	:	1.
	Notes		Total ECTS= $\frac{\text{total hours workload} \times 50 \text{ min}}{60 \text{ min}} / 25 \text{ hours}$ Each ECTS is equals with 25 hours