

Module Handbook

Module Name	Physical Chemistry III
Module Level	Bachelor
Abbreviation, if applicable:	KIF 301
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/term:	5 / 3 rd year
Module coordinator(s):	Drs. Handoko DK, DEA
Lecturer(s):	Dr. Abdulloh, M. ZakkiFahmi, Ph.D, Dr. FaidurRochman
Language:	Bahasa Indonesia
Classification within the curriculum	Compulsory course
Teaching format / class hours per week during semester:	3 hours lectures (50 min / hour)
Workload:	3 hours lectures, 3hours individual activities, 3 hours structured activities, 13weeks per semester, total 117hours per semester-3.9 ECTS *
Credit Points:	3 SCU
Requirements:	Physical Chemistry II, Differential Equations
Learning goals/competencies:	<p>General Competence (Knowledge): After getting the course material Physical Chemistry III, students are expected to solve the problems related to the basic principles mekanikakuantum and its application to describe the structure and properties of atoms and molecules.</p> <p>Specific Competence:</p> <ol style="list-style-type: none"> 1. Able to explain the development of classical and modern science 2. Able to Complete the wave equation 3. Able to Understand the meaning postulates of quantum 4. Able to describe the symptoms observed in spectroscopy 5. Able to solving the Schrodinger equation 6. Able to complete operator-operatormekanikakuantum 7. Able to applying the Schrodinger equation for a particle in a box. 8. Able to complete the hydrogen atom wave equation 9. Able to complete the wave equation simple molecules 10. Able to Solving the problems of chemical bonding (one and two molecules of electrons) 11. Able to calculate the energy levels of molecules and aplikasinya the selection rules 12. Able to calculate the rotational and vibrational energy
Content:	Material This course discusses the main points of discussion, as follows: The history and background of quantum chemistry, the wave equation, the Schrodinger equation and simple applications, the particle in a box, a hydrogen atom, postulates and principles mekanikakuantum, osilatorharmonik, chemical bonds: one and two molecules of electron

	spectroscopy and spectroscopic rotational vibration.
Attribute soft skill	-
Study/exam achievements:	<p>Students are considered to be competent and pass if at least :</p> <ol style="list-style-type: none"> 1. Get score ≥ 55 2. Score Presentation : <ul style="list-style-type: none"> assignment 1 :10% assignment 2 : 10% UTS (mid exam) : 40% UAS (final exam) : 40 % 3. Score Grade <ul style="list-style-type: none"> 75,00 - 100 A 70,00 - 74,99 AB 65,00 – 69,99 B 60,00 – 64,99 BC 55,00 – 59,99 C 40,00 – 54,99 D 0,00 – 39,99 E
Forms of Media:	LCD projectors, Whiteboard, slides
Learning Methods	Lectures, discussion, assignments
Literature:	<ol style="list-style-type: none"> 1. Atkins, P and Paula de J., 2010, <i>Physical Chemistry</i>, 9th ed., Oxford University Press, New York. 2. MacQuarrie, D. A., 2008, <i>Quantum Chemistry</i>, 2nd ed., Oxford University Science Books, California 3. Levine, I. N., 2014, <i>Quantum Chemistry</i>, 7th ed., Pearson, New York
Notes:	<p>*Total ECTS = {(total hours workload x 50 min) / 60 min } / 25 hours</p> <p>Each ECTS is equals with 25 hours</p>