

Module Description

MPK 1301 Fundamentals of Atomic Theory

Module Name	Fundamentals of Atomic Theory
Module level, if applicable	Undergraduate Programme
Code, if applicable	MPK 1301
Subtitle, if applicable	-
Course, if applicable	-
Semester(s) in which the module is taught	2 nd Semester
Module coordinator(s):	Berlian Sitorus, S.Si, M.Si, M.Sc, Ph.D
Lecturer	Berlian Sitorus, S.Si, M.Si, M.Sc, Ph.D Risya Sasri, S.Si, M.Sc Ferdinand Hidayat, S.Si, M.Si
Language	Bahasa Indonesia
Relation to curriculum	Compulsory Courses for the undergraduate programme in Chemistry
Type of teaching, contact hours	Decide teaching/training components for each course outcome <ul style="list-style-type: none"> ● Theory /Face-to-face lecture (for understanding): 9 lecture meetings ● Seminar (for communication skills): 1 ● Problems: 2 ● Assignments: 2
Workload	<i>(Estimated)</i> <i>Total workload: 2 x 2,83 hours = 5,67 hours per week.</i> <i>Contact hours (lecture): 2 x 0,83 hours = 1,66 hours per week</i> <i>Private study including examination preparation, specified in hours: 2 x 2 hours = 4 hours per week</i> <i>2 x 50 minutes lectures,</i> <i>2 x 60 minutes structured activity,</i> <i>2 x 60 minutes individual activity,</i> <i>14 weeks per semester,</i> <i>80 total hours</i>
Credit points	2 (3.34 ECTS)
Requirements according to	Registered in this course

the examination regulations	Minimum 75% attendance in this course						
Learning goals/competencies:	Intended Learning Outcomes (ILO) After taking this course, students will be able to: <ol style="list-style-type: none"> LO-1 LO-3 						
Module objectives	<ol style="list-style-type: none"> Students are able to describe lights and their properties. Students are able to describe about concept of light as particles. Students are able to describe about concept of light as a wave. Students are able to use de Broglie's hypothesis to determine wavelength and a particle's speed. Students are able to determine the position of an electron using Heisenberg's uncertainty principle Students are able to describe Rutherford and Bohr's Atomic Postulates. 						
Content:	<ol style="list-style-type: none"> Light and its properties Light as a particle Light as a wave De Broglie's Hypothesis determines wavelength and the particle's speed. determine the position of an electron using Heisenberg's uncertainty principle. Rutherford and Bohr Atomic Postulates. 						
Attribute Soft skill:	Discipline, collaboration, responsibility, and argumentation in the natural classroom setting						
Recommended prerequisites	-						
Study and examination requirements and forms of examination	Students are considered to be competent and pass if they get at least 50% of the maximum final grade. The final grade (NA) is calculated based on the following : <table border="1" data-bbox="597 1675 1151 1860"> <thead> <tr> <th>Assessment Components</th> <th>Percentage Contribution</th> </tr> </thead> <tbody> <tr> <td>Participation</td> <td>10%</td> </tr> <tr> <td>Assignment</td> <td>20%</td> </tr> </tbody> </table>	Assessment Components	Percentage Contribution	Participation	10%	Assignment	20%
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Participation	10%						
Assignment	20%						

	Mid-semester test	35 %	
	Final semester test	35%	
	Total	100%	
	Mid and final semester tests are carried out as an essay exam.		
Learning Methods	Case-Based Teaching Method		
Media employed	white board; power point presentation; and e-learning system		
Reading list	<ol style="list-style-type: none"> 1. Kenneth S. Krane, 2011, Modern Physics, 3rd Edition, Department of Physics, John Wiley & Sons, Inc. 2. Peter Atkins and Julio de Paula, 2014, Physical Chemistry: Thermodynamics, Structure, and Change, 10th edition, W.H.Freeman and Company, New York. 		