UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF PHYSICS EDUCATION
PHYSICS STUDY PROGRAM
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Bachelor of Physics **MODULE HANDBOOK**

Module name:	Quantum Physics
Module level, if applicable:	Bachelor Program
Code:	FSK6324
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	Odd
Module coordinator:	Wipsar Sunu Brams Dwandaru, M.Sc., Ph.D
Lecturer(s):	Wipsar Sunu Brams Dwandaru, M.Sc., Ph.D
Language:	Indonesian English
Classification within the curriculum:	Compulsory Course
Teaching format/class hours per week during the semester:	150 minutes lectures and 180 minutes structured activities per week.
Workload:	Total workload is 136 hours per semester, which consists of 150 minutes lectures, 180 minutes structured activities, and 180 minutes individual study per week for 16 weeks.
Credit points:	3 SKS (4.86 ECTS)
Prerequisites course(s):	Calculus
Course Outcomes	CO1. To show an understanding of the mathematical background of Quantum Mechanics. CO2.To show an understanding of the Basic Postulates of Quantum Mechanics CO3. To show an understanding of the Measurement Problem in Quantum Mechanics

<table>
<tr><td></td><td>CO4. To show an understanding of the Quantization concepts.
CO5. To be able to apply the concepts of Quantum Mechanics for Hydrogen atom.</td></tr>
<tr><td>Content:</td><td>The content of this subject includes: a) basic mathematical concepts for Quantum Mechanics; b) Basic Postulates of Quantum Mechanics; c) Quantization concepts; d) Measurement Problem in Quantum Mechanics; e) The wave function and the Schrodinger’s equation; f) the Uncertanty principle; g) the Correspondence principle; and h) the Hydrogen Atom.</td></tr>
<tr><td>Study/exam achievements:</td><td>The achievements of this study are that students are able to understand the overall concepts of Quantum Mechanics and apply these concepts to the Hydrogen atoms as well as other simple quantum mechanics cases.

The final mark of the subject may be given as follows:

<table>
<tr><th>No.</th><th>CO</th><th>Assessment Object</th><th>Assessment Technique</th><th>Weight</th></tr>
<tr><td>1</td><td>CO1, CO2, CO3, CO4, and CO5</td><td>a. Individual Assignment
b. Group Assignment
c. Quiz
d. Mid
e. Final Exam</td><td>Presentation / written</td><td>15%
15%

15%
25%
30%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
</table>
</td></tr>
<tr><td>Forms of media:</td><td>Whiteboard, LCD Projector, Laptop/Computer</td></tr>
<tr><td>Literatures:</td><td>A. Griffiths, D.J. 1995. Introduction to Quantum Mechanics. Prentice Hall Inc.
B. Rae, A.I.M. 1995. Quantum Mechanics. UK: Institute of Physics.
C. Mandl, F. 1992. Quantum Mechanics. Wiley.</td></tr>
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PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9
CO1		✓							
CO2		✓							
CO3		✓							
CO4		✓							
CO5					✓				