



UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF MATHEMATICS EDUCATION
PHYSICS EDUCATION STUDY PROGRAM

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Bachelor of Physics

MODULE HANDBOOK

Module name:	Statistical Physics
Module level, if applicable:	Bachelor Program
Code:	FSK6218
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:	2
Prerequisites course(s):	Calculus
Course Outcomes	CO1. To show an understanding of the concepts of classical and quantum Statistical Physics: Maxwell-Boltzmann, Fermi-Dirac, and Bose-Einstein statistics. CO2. To show a connection between Statistical Physics and Thermodynamics. CO3. To be able to apply the techniques of Statistical Physics for selected cases.

Content:	The content of this subject includes: a) Probability distribution; b) Microcanonical, canonical, and grand canonical ensembles; c) Connection of statistical physics to Thermodynamics; d) Ideal gas; e) Interacting classical; f) Simple spin systems; g) Fermion and Bosons; h) Bose-Einstein condensation.																			
Study/exam achievements:	<p>The achievements of this study are that students are able to understand i) the overall concepts of Statistical Physics, both for classical and quantum systems; ii) the connection between Statistical Physics and Thermodynamics; and iii) apply the concepts of Statistical Physics to selected cases.</p> <p>The final mark of the subject may be given as follows:</p> <table border="1"> <thead> <tr> <th>No.</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td rowspan="3">1</td> <td rowspan="3">CO1, CO2, and CO3</td> <td>a. Individual Assignment</td> <td rowspan="3">a. Presentation b. Written</td> <td>30%</td> </tr> <tr> <td>b. Mid Exam</td> <td>30%</td> </tr> <tr> <td>c. Final Exam</td> <td>40%</td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No.	CO	Assessment Object	Assessment Technique	Weight	1	CO1, CO2, and CO3	a. Individual Assignment	a. Presentation b. Written	30%	b. Mid Exam	30%	c. Final Exam	40%	Total				100%
No.	CO	Assessment Object	Assessment Technique	Weight																
1	CO1, CO2, and CO3	a. Individual Assignment	a. Presentation b. Written	30%																
		b. Mid Exam		30%																
		c. Final Exam		40%																
Total				100%																
Forms of media:	Whiteboard, LCD Projector, Laptop/Computer																			
Literatures:	A. Mandl, F. 1998. Statistical Physics, 2 nd Ed. Wiley. B. Reif, F. 1965. Fundamentals of Statistical and Thermal Physics. McGraw-Hill.																			

PLO and CO mapping

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