UIN SUNAN KALIJAGA YOGYAKARTA
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Undergraduate Programme in Physics

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MODULE HANDBOOK

Module Name	Thermodynamics
Module level, if applicable	Bachelor
Code, if applicable	FIS414019
Subtitle, if applicable	-
Courses, if applicable	Thermodynamics
Semester(s) in which the module is taught	5th (fifth)
Person responsible for the module	Andi, M.Sc.
Lecturer(s)	Andi, M.Sc
Language	Indonesia
Relation to curriculum	Compulsory course in the third year (5st semester) Bachelor Degree
Type of teaching, contact hours	100 minutes lectures and 120 minutes structured activities per week.
Workload	Total workload is 90.6 hours per semester, which consists of 100 minutes lectures per week for 14 weeks, 120 minutes structured activities per week, 120 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam
Credit points	2
Requirements according to the examination regulation	Minimum attendance 75% All assignments submitted Attendance on time
Recommended prerequisites	No prerequisites stated on
Module objectives/intended learning outcomes	After completing this course, the students: CO 1. Able to master the concepts and theories of the laws of thermodynamics and its consequences. CO 2. Able to apply the principles of thermodynamics to simple systems. CO 3. Able to explain the principles of thermodynamics applied to household appliances and industrial machines.
Content	1. Temperature and the Zeroth Law of Thermodynamics 2. Simple Thermodynamic Systems 3. Work 4. Heat and the First Law of Thermodynamics 5. Ideal Gas 6. The Second Law of Thermodynamics 7. The Carnot Cycle and the Thermodynamic Temperature Scale 8. Entropy 9. Pure Substances 10. Mathematical Methods: Characteristic Functions and Maxwell Relation 11. First Order Phase Transation and Clausius-Clapeyron Equation.
Study and examination requirements and forms of examination	The final mark will be weighted as follows:

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NO	Assessment methods (components, activities)	Weight (percentage)
1	Final Examination	40%
2	Mid-Term Examination	30%
3	Class Activities : Quiz, Homework, etc.	30%

The final assessment is expressed in the form of a letter value converted from a number value with the following categories:

NO	Number Value	Letter Value	NO	Number Value	Letter Value
1	≥ 95	A	7	65-69.99	B/C
2	90-94.99	A-	8	60-64.99	C+
3	85-89.99	A/B	9	55-59.99	C
4	80-84.99	B+	10	50-54.99	C-
5	75-79.99	B	11	55-34.99	D
6	70-74.99	B-	12	<35	E

Media employed	White-board, Lcd Projector, e-learning (https://daring.uin-suka.ac.id/)
Reading list	1. Zemansky, M. W. & Dittman, R.H., Heat and Thermodynamics, 7th ed., McGraw-Hill, New York, 1997 2. Thermodynamics, Kinetic Theory, and Statistical Termodynamics, F.W.Sears and G.L.Salinger, 3rd edition, Addison Wesley 3. Basic and Applied Thermodynamics, P.K.Nag, Tata McGraw-Hill

PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CO 1		√	√						
CO 2		√	√						
CO 3		√	√						