

Module Handbook

Module Name:	Thermodynamics
Module Level:	Bachelor
Abbreviation, if applicable:	FI 3103
Sub-heading, if applicable:	
Courses included in the module, if applicable:	
Semester/term:	5/ third year
Module coordinator(s):	
Lecturer(s):	
Language:	Bahasa Indonesia
Classification within the curriculum:	General Studies / Major Subject / Elective Studies
Teaching format / class hours per week during the semester:	3 hours lecture
Workload:	3 hours lectures, 6 hours individual study, 16 weeks per semester, and total 144 hours a semester
Credit Points:	4
Requirements:	-
Learning goals:	<p>Knowledge:</p> <ol style="list-style-type: none"> 1. Understand the basic concept of thermodynamics especially for simple systems, thermodynamics laws, heat transfer, and special topics in thermodynamics. <p>Skill:</p> <ol style="list-style-type: none"> 1. Ability to solve and analyze in simple thermodynamics problems. 2. Ability to communicate the thermodynamics problems through oral and written scientifically.
Content:	Temperature, Simple Thermodynamic Systems, Work, Heat and the First Law of Thermodynamics, Ideal Gas, Second Law of Thermodynamics, The Carnot Cycle and Kelvin Temperature Scale, Entropy, Pure Substance, Characteristic Functions and Maxwell Relation, First Order Phase Transation and Clausius-Clapeyron Equation.
Study/exam achievements:	Students are considered to be competent and pass if at least get 50% of maximum mark of the exams, homework, quizzes
Forms of Media:	Slides and LCD projectors, blackboards
Literature:	<ol style="list-style-type: none"> 1. Zemansky, M. W. & Dittman, R.H., Heat and Thermodynamics, 7th ed., McGraw-Hill, New York, 1997 2. Pitzer, K. S., Thermodynamics, 3rd ed. McGraw-Hill, New York, 1995 3. Van Wylen, G. J., Sonntag, R.E., Borgnakke, C., Fundamentals of Classical Thermodynamics, 4th ed. John Wiley & Sons, 1999 4. Sears, F. W. and Salinger, Thermodynamics, Kinetic Theory, and Statistical Thermodynamics, Addison Wesley, 1986. 5. Guénault, T., Statistical Physics, 2nd ed. Chapman & Hall, 1995
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