MODULE HANDBOOK DESCRIPTION

Module designation	*Energy Planning*	
Code	*FBA0013*	
Semester(s) in which the module is taught	*6/third year*	
Person responsible for the module	*Dr.Rosmaliati, S.T., M.T.*	
Language	*Indonesian/English*	
Relation to curriculum	*Free Elective for Electrical Power System Engineering*	
Teaching methods	*lectures, small group discussion, case base method.*	
Workload (incl. contact hours, self-study hours)	Contact minutes every week, each week of the 16 weeks/semester: • Lectures (incl. on-site lectures): 2 x 50 minutes • Exercises and Assignments: 2 x 60 minutes • Self-study: 2 x 60 minutes. Total study hours = 5 hours 40 minutes/week.	
Credit points	*2 SKS (~ 3.2 ECTS)*	
Required and recommended prerequisites for joining the module	- Engineering Economics - Energy Conversion	
Module objectives/ intended learning outcomes	*1. Students are able to explain the basic concept of energy planning systems, units of energy, and primary and secondary energy.*	**P3**
	2. Students are able to explain the development of regulations and policies in the energy sector.	**P3**
	3. Students are able to plan and evaluate the energy needed in demand (demand and supply) in a particular area.	**P4, P8**
	4. Students are able to design an energy system (reference energy system).	**P4**
	5. Students are able to apply and analyse methods of energy demand forecasting.	**P4, P8**

	6. *Students are able to explain and compile energy databases.*	**P3, P4, P8**
	7. *Students are able to compile and analyse energy modeling.*	**P3, P4, P8**
Content	*This course* provides an overview to students *about the representation of energy fossil and new renewable energy sources (NRE), current and future energy needs with the substitution of fossil energy into NRE, the current and future impact of the use of fossil or NRE energy on environmental conditions, climate, availability of energy sources, government policies in the development of NRE, which are supporting factors in energy planning baselines, energy database collection techniques, analysing commodity and energy balances, compiling energy profiles, and creating and analysing energy models.* This course material includes: 1. *Introduction to Energy Planning* 2. *Energy Sector Restructuring* 3. *Energy Policy* 4. *Scope of Energy Planning* 5. *Interconnection of Energy Use and Economy* 6. *Elasticity and Intensity of Energy Use* 7. *Demand Approach and Supply Approach* 8. *Final Energy and End Use Energy* 9. *Division of Energy User Sectors* 10. *Characteristics of Energy User Sectors* 11. *Availability of Energy User Data* 12. *Methods of Energy Demand Estimation* 13. *Reference Energy System* 14. *Energy Reserves and Potentials* 15. *Primary Energy Production* 16. *Secondary Energy Production* 17. *Energy Supply Forecast* 18. *Modeling* 19. *Energy Modeling* 20. *Energy Database Coverage* 21. *Energy Unit Systems and Conversions* 22. *Energy Classification by Type* 23. *Commodity Balance and Energy Balance* 24. *Energy Transformation* 25. *Self-Use, Losses, and Statistical Differences* 26. *Load Duration Curve* 27. *Energy Profile.*	

Examination forms	- *Written and oral case study* - *Midterm and final test*
Study and examination requirements	*The final grade in the module is composed of:* *a. Case assessment: 2 x 30% = 60%* *b. Midterm assessment: 20%* *c. Final assessment: 20%* *Students must have a final grade of 65% or higher to pass*
Reading list	1. Winarno, Oetomo., 2007, ”Perencanaan Energi dan Profil Energi”, CAREPI project, Indonesia. 2. Hanke, J. E., & Wichern, D. W. (2009). Business Forecasting. New Jersey: Pearson Prentice Hall. 3. LEAP Applications, Stockholm Environment Institut, http://www.energycommunity.org