Course outline

JEE 633 Energy Management in Industry 3 (2-0-6), Semester 2/2019
Thursday, 13:30 – 16:30
Coordinator: Dr. Pipat Chaiwiwatworakul

The objective of this course is to provide a sound knowledge to evaluate all major energy systems. In this course, the principles of thermal energy conversion systems will be presented. It will start with an overview about the current energy situation, its demand and supply and the characteristics of the conventional and renewable energy resources. All major energy conversion systems will be introduced and the specifics in their application explained. In addition necessary instrumentation and measurement techniques are presented to monitor and evaluate energy systems.

Week	Date	Topic
1	16/1	Introduction - Industrial energy system - Overview of energy flow in factory Steam System I - System description - System performance
2	23/1	Steam System II - Boiler plant
3	30/1	Steam System III - Steam distribution system - Condensate return system - Performance monitoring and improvement
4	6/2	Electric Power System I - System description - Electricity tariff - Performance monitoring and improvement
5	13/2	Electric Power System II - Electrical load management - Electric motor drive
6	20/2	Compressed Air System I - System description - System performance
7	27/2	Compressed Air System II - Performance monitoring and improvement
8	5/3	------- Midterm Examination -----
9	12/3	Refrigeration System I - System description
10	19/3	Refrigeration System II - System performance - Performance monitoring and improvement
11	26/3	Energy and Environmental Management System Concept - Interactions between energy and production - Energy cost center - Performance measurement system - Concept of energy and environmental management system

12	2/4	Relationship between Energy Use and Production Volume I - Energy/Production relationship - Interpretation of energy/production data
13	9/4	Relationship between Energy Use and Production Volume II - Energy/production variability analysis - Use of regression line in energy performance evaluation
14	23/4	Performance Evaluation of Energy and Environmental Management - Energy auditing - Performance improvements verification – CUSUM Technique
15	30/4	- ------- Final Examination -----