



[Energy and environment]

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SHORT COURSE DESCRIPTION

This course introduces the definition, production and uses of energy. Based on the thermodynamic principles, the methods for conversion of fuels and renewable energy sources (solar, wind etc.) into useful forms of energy are explained. Emphasis is also given to the problems associated with the consumption of energy such as the greenhouse gases and pollution, and how to control those problems and principles and technological development of renewable energy.

READING MATERIALS

Prerequisite subjects for this class are general physics, thermodynamics, and fluid mechanics. The class materials will be provided online. The textbook will be 'energy science: principles, technologies, and impacts' written by John Andrews and Nick Jelley,, 2nd Ed. Oxford University Press.

COURSE REQUIREMENTS AND GRADING

The portion for grading will be as follows; attendance-10%, homework-10%, presentation-10%, midterm-35%, final-35%. All ISS classes are pass/fail based on the student academic achievement evaluated by grades on a scale of 100 points (grade of 60 or above is Pass). **SKKU regulations require students to attend at least 80% of all classes.**

COURSE SCHEDULE

– WEEK I –

Thursday (27 June): Introduction to the course and energy issues

Friday (28 June): Greenhouse gas

– WEEK II –

Monday (1 July): Thermal energy

Tuesday (2 July): Hydroenergy

Wednesday (3 July): Wind energy I

Thursday (4 July): Wind energy II

– WEEK III –

Monday (8 July): Mid-term exam

Tuesday (9 July): Solar energy I

Wednesday (10 July): Solar energy II

Thursday (11 July): Biomass

– WEEK IV–

Monday (15 July): Electric vehicle

Tuesday (16 July): Smartgrid and Energy storage system (ESS)

Wednesday (17 July): Fuels and combustion

Thursday (18 July): Carbon sequestration and storage

Friday (19 July): Final exam