SCME 130 Energy Science and Technology (3 credit)

Academic Year 2023/semester 1

Class Schedule: Tuesday (10.00 am -1:00 pm)

Room: Onsite at SC1 building

Course Coordinator: Assoc. Prof. Dr. Pongsakorn Kanjanaboos

Contact details: email: Pongsakorn.kan@mahidol.edu

Office: SC1 208, Salaya campus

Phone: 0902472221

Instructors:

1. Associate Professor Pongsakorn Kanjanaboos
   email: Pongsakorn.kan@mahidol.edu
   Office: SC1-208, Salaya campus
   Phone: 0902472221
2. Associate Professor Prayad Pokethitiyook
   email: prayad.pok@mahidol.ac.th
   Office: B410/1, Phayathai campus
   Phone: 022015479
3. Associate Professor Kittitat Subannajui
   email: kittitat.sub@mahidol.ac.th
   Office: SC1-207, Salaya campus
   Phone: 022015471
4. Associate Prof. Pasit Pakawatpanurut
   email: pasit.pk@gmail.com
   Office: C308, Phayathai campus
   Phone: 02201 5133
5. Mr. Chatapong Wungtanagorn, Thai Oil Public Company Limited
6. Mr. Werasak Hormkajai from EGAT
7. Dr. Kanittha Kamonchaivanich from SCG Building Materials

For consultation relating to this course, please contact the instructor and arrange a time for meeting if necessary. In the case of contacting guest lecturers, please do it through course coordinator.

Course Description: This course introduces students to understand energy from different sources, mechanisms, and technical standpoints. The courses will cover many important energy related topics including solar cells, LEDS, batteries, supercapacitors, biofuel, biomass, fossil fuels, turbine, motors, and different energy topics from various organizations in Thailand.

Grading Policy: Course assessment will be based on the following:

Attendance and course activities: 25%

Midterm Examination 35%

There will be questions from the first half of the lectures.

Final Examination 40%

There will be questions from the second half of the lectures.

The final grade given will be based on letter scale (A, B^+, B, C^+, C, D^+, D, F). In order to pass the course, you must achieve an overall mark of at least 50%.

Reference Materials

1. Power points and other materials as indicated by instructors

Class Schedule

Date	Week	Topic	Instructor
8 Aug 2023	1	**Introduction to Energy sciences and technology**	Assoc. Prof. Pongsakorn Kanjanaboos
15 Aug 2023	2	**Energy from mechanical sources**	Assoc. Prof. Kittitat Subannajui
22 Aug 2023	3	**Energy from mechanical sources**	Assoc. Prof. Kittitat Subannajui
29 Aug 2023	4	**Batteries and supercapacitors**	Assoc. Prof. Pasit Pakawatpanurut
5 Sep 2023	5	**Batteries and supercapacitors**	Assoc. Prof. Pasit Pakawatpanurut
12 Sep 2023	6	**Batteries and supercapacitors**	Assoc. Prof. Pasit Pakawatpanurut
19 Sep 2023	7	**Solar cells**	Assoc. Prof. Pongsakorn Kanjanaboos
26 Sep 2023	8	**Solar cells**	Assoc. Prof. Pongsakorn Kanjanaboos
3 Oct 2023		**Midterm examination week**	
10 Oct 2023	9	**Solar cells**	Assoc. Prof. Pongsakorn Kanjanaboos
17 Oct 2023	10	**Biofuels and biomass**	Assoc. Prof. Prayad Pokethitiyook
24 Oct 2023	11	**Biofuels and biomass**	Assoc. Prof. Prayad Pokethitiyook
31 Oct 2023	12	**Hydrogen for energy transport**	PTT Exploration and Production
7 Nov 2023	13	**Fossil fuels:** Crude oil, Petroleum products, Introduction to refinery configuration	Mr. Chatapong Wungtanagorn from Thai Oils Groups
14 Nov 2023	14	**Materials for Power Plant**	Mr. Werasak Hormkajai from EGAT, Engineer (level 10)
21 Nov 2023	15	**Energy-saving Materials**	Dr. Kanittha Kamonchaivanich SCG Building Materials
		Final examination week	