

**SCME 130 Energy Science and Technology (3 credit)**

Academic Year 2022/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

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**Instructors:**

1. Associate Professor Pongsakorn Kanjanaboos  
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2. Associate Professor Prayad Pokethitiyook  
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4. Associate Prof. Pasit Pakawatpanurut  
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5. Mr. Chatapong Wungtanagorn, Thai Oil Public Company Limited
6. Mr. Anuntasak Suksasilp, Thai Oil Public Company Limited
7. Miss Nattapat Vacharasuwan, Thai Oil Public Company Limited
8. Mr. Kittiwat Jitmahawong, Thai Oil Public Company Limited
9. Miss Rudemas Manosak, Thai Oil Public Company Limited

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, super capacitors, biofuel, biomass, fossil fuels, turbine, and motors.

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

*Attendance and course activities: 20%*

*Midterm Examination 40%*

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<sup>+</sup>, B, C<sup>+</sup>, C, D<sup>+</sup>, 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

<b>Date</b>	<b>Week</b>	<b>Topic</b>	<b>Instructor</b>
9 Aug 2022	1	<b>Introduction to Energy sciences and technology</b>	Assoc. Prof. Pongsakorn Kanjanaboos
16 Aug 2022	2	<b>Energy from mechanical sources</b>	Assoc. Prof. Kittitat Subannajui
23 Aug 2022	3	<b>Energy from mechanical sources</b>	Assoc. Prof. Kittitat Subannajui
30 Aug 2022	4	<b>Solar cells and LEDs</b>	Assoc. Prof. Pongsakorn Kanjanaboos
6 Sep 2022	5	<b>Solar cells and LEDs</b>	Assoc. Prof. Pongsakorn Kanjanaboos
13 Sep 2022	6	<b>Solar cells and LEDs</b>	Assoc. Prof. Pongsakorn Kanjanaboos
20 Sep 2022	7	<b>Biofuels and biomass</b>	Assoc. Prof. Prayad Pokethitiyook
27 Sep 2022	8	<b>Biofuels and biomass</b>	Assoc. Prof. Prayad Pokethitiyook
4 Oct 2022		<b>Midterm examination week</b>	
11 Oct 2022	9	<b>Batteries and supercapacitors</b>	Assoc. Prof. Pasit Pakawatpanurut
18 Oct 2022	10	<b>Batteries and supercapacitors</b>	Assoc. Prof. Pasit Pakawatpanurut
25 Oct 2022	11	<b>Batteries and supercapacitors</b>	Assoc. Prof. Pasit Pakawatpanurut
1 Nov 2022	12	<b>Fossil fuels:</b> Crude oil, Petroleum products, Introduction to refinery configuration	Mr. Chatapong Wungtanagorn
8 Nov 2022	13	<b>Fossil fuels:</b> Refinery Process: CDU, HVU, FCCU	Mr. Anuntasak Suksasilp
15 Nov 2022	14	<b>Fossil fuels:</b> Refinery Process: HCU, Isom, HMU/PSA, CCR/MX	Miss Nattapat Vatcharasuwan; Mr. Kittiwat Jitmahawong; Miss Rudemas Manosak
22 Nov 2022	15	<b>Summary</b>	Assoc. Prof. Pongsakorn Kanjanaboos
		<b>Final examination week</b>	

