

Introduction to energy chemistry

Course Name	Course type (credit/hours)	Elective course(3/3)	Course code	G081
	Target students Division/major/grade	Chemistry/Senior	Opening semester	2020 1ST SEMESTER
	Class time and classroom	Tue D(WH507)Thu C(WH507)	English Grade	A(100%English)
Reference to this course	Prerequisite courses	일반화학		
	Related basic courses	물리화학, 무기화학		
	Recommended concurrent courses			
	Related advanced courses			

Instructor	Name (title/division)		Yoo, Youngdong(Assistant Professor, Chemistry)			
	Office Room Number	원천관215-2	Office phone Number	2692	e-mail	
	Office hours			Homepage address		
Teaching Assistant	Name (title/division)					
	Office Room Number		Office phone Number		e-mail	

1. Introduction

2. Course Objectives

에너지 변환과 관련된 다양한 현상에 대해 고찰하며 이에 내재된 기본 원리를 체계적으로 이해한다. 또한 최근 급격한 발전이 이루어지고 있는 수소에너지기술, 연료전지, 태양전지 등 다양한 에너지 분야에 대한 전반적인 이해를 증진시킨다. 이러한 과정을 통해 미래 에너지 시스템 개발에 자연과학적 기본원리를 적용할 수 있는 소양을 갖추도록 한다.

3. Class types and activities

4. Teaching Method

<input checked="" type="checkbox"/> lecture	<input type="checkbox"/> discussion and debate
<input type="checkbox"/> team project(presentation and case studies)	<input type="checkbox"/> experiments(role-playing,etc)
<input type="checkbox"/> designing and production	<input type="checkbox"/> on-site learning(on-site training)
<input type="checkbox"/> others	

5. Support Systems in Use

<input checked="" type="checkbox"/> AjouBb	<input type="checkbox"/> automatic recording system	<input type="checkbox"/> web-based assignment
<input type="checkbox"/> cyber lecture	<input type="checkbox"/> online content	
<input type="checkbox"/> class behavior analyzing system	<input type="checkbox"/> others	

6. Teaching Tools

<input type="checkbox"/> PBL(Problem Based Learning)	<input checked="" type="checkbox"/> CBL(Case Based Learning)	<input type="checkbox"/> TBL(Team Based Learning)
<input type="checkbox"/> UR(Undergraduate Research)	<input type="checkbox"/> FL(Flipped Learning)	<input type="checkbox"/> DSAL(Data Science Active Learning)
<input type="checkbox"/> others		

7. Knowledge and ability required for taking this course

화학과 전공필수 과목 (분석화학, 물리화학, 유기화학, 무기화학)을 이수한 후 수강할 것을 권장함.

8. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance		10	일정 횟수 이상 지각, 결석시 감점
midterm exam	1	30	
final exam	1	40	
quiz			
presentation			
discussion			
homework		20	
etc			
study hours			

9. Textbook and supplementary material

Main/Sub	Title (Web-site)	Writer	Publisher	Publication year
Main	Chemistry of Sustainable Energy	Nancy E. Carpenter		2014
Ref.	Chemistry in Context : Applying Chemistry to Society (8th Ed.)	American Chemical Society		2015

10. Class system and Class shedule

아래 내용에 대해 차례대로 다룰 예정이다.

1. 에너지 기초
2. 열역학
3. 수소에너지기술
4. 연료전지
5. 태양전지

< Class Schedule >

* language : K-korean, E-English

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
1	Energy Basics		Yoo, Youngdong			
2	Thermodynamics		Yoo, Youngdong			
3	Hydrogen energy technology		Yoo, Youngdong			

< Class Schedule >

* language : K-korean, E-English

Week s	Topics	lang uage	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
4	Hydrogen energy technology		Yoo, Youngdong			
5	Hydrogen energy technology		Yoo, Youngdong			
6	Hydrogen energy technology		Yoo, Youngdong			
7	Discussion		Yoo, Youngdong			
8	Midterm exam		Yoo, Youngdong			
9	Fuel Cells		Yoo, Youngdong			
10	Fuel Cells		Yoo, Youngdong			
11	Fuel Cells		Yoo, Youngdong			
12	Solar Photovoltaics		Yoo, Youngdong			
13	Solar Photovoltaics		Yoo, Youngdong			
14	Solar Photovoltaics		Yoo, Youngdong			
15	Discussion		Yoo, Youngdong			
16	Final exam		Yoo, Youngdong			

11. Other items of notification