

科目ナンバリング		U-LAS13 10022 LE60					
授業科目名 <英訳>	Chemistry of Sustainable Energy-E2 Chemistry of Sustainable Energy-E2			担当者所属 職名・氏名	エネルギー理工学研究所 准教授 ARIVAZHAGAN RAJENDRAN		
群	自然科学科目群		分野(分類)	化学(基礎)		使用言語	英語
旧群	B群	単位数	2単位	週コマ数	1コマ	授業形態	講義(対面授業科目)
開講年度・ 開講期	2025・後期	曜時限	木3		配当学年	全回生	対象学生 理系向
【授業の概要・目的】							
We learn about the basics and application of “ sustainable energy ” which can provide inexhaustible energy-supply without releasing the greenhouse gases to the atmosphere, from a chemical point of view. The lecture covers the following contents of solar, wind, geothermal, and biomass energies, photo-catalyst and environmental clean-up, and materials for sustainable energy. The aim of this lecture is to acquire the basic knowledge about materials related to renewable energy and also to understand the mechanism of energy conversion.							
【到達目標】							
The aim of this class is to understand the basic principles of chemistry of sustainable energy.							
【授業計画と内容】							
<ol style="list-style-type: none"> 1. What is sustainable energy? 2. Solar energy: Inorganic solar cells 3. Solar energy: Organic solar cells 4. Solar energy: Dye-sensitized and quantum dot solar cells 5. Wind energy: Types of wind turbines 6. Wind energy: How wind turbines work? 7. Geothermal energy: Direct use of geothermal energy 8. Geothermal energy: Geothermal power generation 9. Biomass energy: Thermochemical conversion 10. Biomass energy: Biochemical conversion 11. Photo-catalyst: Air purification and sterilization 12. Photo-catalyst: Water purification 13. Materials: Structure and thermal insulation 14. Materials: Polymers and sustainable energy 15. Assignment which is considered as a term examination 16. Feedback 							
【履修要件】							
特になし							
【成績評価の方法・観点】							
Results will be evaluated by the submission of homework written in English (30%), attendance and discipline (20%), and assignment which is considered as a term examination (50%).							
----- Chemistry of Sustainable Energy-E2(2)へ続く -----							

Chemistry of Sustainable Energy-E2(2)

[教科書]

Nancy E. Carpenter 『Chemistry of Sustainable Energy』 (CRC Press) ISBN:978-1-4665-7532-5

[参考書等]

(参考書)
授業中に紹介する

[授業外学修(予習・復習)等]

I recommend that the students should review the points to be learned.

[その他(オフィスアワー等)]

Office hours are set at 15:00-17:00 in every Friday.