

科目ナンバリング		U-LAS06 20052 LE43							
授業科目名 <英訳>		Energy and Industrial Decarbonization-E2 Energy and Industrial Decarbonization-E2			担当者所属 職名・氏名		エネルギー科学研究科 特別招へい教授 RUSLI, Ridwan Dewayanto		
群	人文・社会科学科目群		分野(分類)	法・政治・経済(各論)			使用言語	英語	
旧群	A群	単位数	2単位	時間数	30時間	授業形態	講義(対面授業科目)		
開講年度・ 開講期	2026・ 後期集中		曜時限	集中		配当学年	主として1・2年生	対象学生	全学向
[授業の概要・目的]									
This intensive undergraduate course examines energy use and decarbonization from the perspective of industry, firms, and economic systems. Rather than focusing solely on global climate science, the course analyzes how real industrial sectors-such as steel, cement, chemicals, automotive, and semiconductor manufacturing-face technological, economic, and political constraints when attempting to reduce emissions. The course integrates physical energy systems, industrial economics, corporate strategy, and public policy to develop analytical tools for understanding industrial transformation.									
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After taking this course, students will be able to identify, interpret, evaluate and formulate industrial decarbonization strategies at the level of firms, industries and public policy (what). This is accomplished by analyzing and discussing energy systems, industrial production processes, technological pathways, corporate investment decisions and industrial policies across major sectors (how). Thus, students can apply these analytical tools to evaluate feasible industrial transition pathways, corporate strategies and policy frameworks shaping energy and industrial transformation towards national and international net-zero targets (what for). After successful completion of this course, students shall be able to: • Evaluate physical and economic constraints of industrial decarbonization • Analyze firm-level investment decisions under technological and policy uncertainty • Compare sector-specific transition pathways across industries • Assess industrial policy instruments and competitiveness implications • Develop structured strategic arguments regarding industrial energy transitions.									
[授業計画と内容]									
Day 1 Energy, Industry, and Economic Development Day 2 Industrial Energy Flows Day 3 Industrial Carbon Accounting and Emissions Data Day 4 Transition Risk for Firms Day 5 Fossil Fuels in Industry Day 6 Electrifying Industry Day 7 Renewable Power Procurement Day 8 Firm Power for Industry Day 9 Hydrogen and Industrial Storage Day 10 Industrial Decarbonization Economics Day 11 Industrial Decarbonization Politics Day 12 Industrial Policy and Trade Day 13 Climate Policy and Industrial Innovation Day 14 Climate Policy and Industrial Transition Pathways Day 15 Firm Strategy and Industrial Futures									
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Energy and Industrial Decarbonization-E2(2)

【履修要件】

No formal prerequisites required. Basic familiarity with economics, social sciences, or introductory natural science concepts is helpful but not required. The course is designed for early undergraduate students from all disciplines.

【成績評価の方法・観点】

- Participation and in-class engagement - 25%
- Short reflection responses - 30%
- Final group strategy simulation and presentation - 45%.

【教科書】

使用しない

【授業外学修（予習・復習）等】

Short reflection responses and final group strategy presentation preparations may be required out of class.

【その他（オフィスアワー等）】

【主要授業科目（学部・学科名）】