

Course title: Sustainable Energy Transitions		Credits 5	Course code
Type of the course		Assessment:	
Lecture		Examination	
Seminar	X	Performance-based grade	X
Practice	X	Approval	
Semester (according to the standard curriculum): 5			
Course availability (according to the standard curriculum): Autumn			
Language of instruction (if not in Hungarian): English			
Prerequisites (according to the standard curriculum): -			
Type of the course (compulsory, obligatory elective, free elective): compulsory			
Course schedule: http://www.kodolanyi.hu/neptun/			
<p>Course objectives: It is an interdisciplinary course encompassing new technologies, policy, social, and management aspects, addressing the rising challenges of energy transitions, especially in the areas of low carbon electricity supply systems, reducing energy intensity, demand and providing energy access to all physical and geographical areas. This program aims to create next-generation leaders skilled in thinking and leading the process of sustainable energy transitions for delivering a reliable, clean, affordable energy supply compatible with sustainable development in the 21st century. The main goal of this program is to prepare students to face the impending challenges in the global energy sector through strategic state-of-art knowledge, tools, and research skill to support technology, market, business, finance, and policy development. This can be making them future-ready to deliver solutions-oriented knowledge and innovative practices for cleaner energy transitions for human progress.</p> <p>Learning outcomes (based on professional competences):</p> <p>Knowledge: The students will learn to</p> <ul style="list-style-type: none"> • describe the energy resources availability, methods of conversion, energy flows, and energy demand, and identify sustainable energy solutions; • conceptualize and design sustainable energy systems to promote energy access; • evaluate, operate, monitor, verify and report the performance of sustainable energy systems and improvements in energy efficiency; • conceptualize, design, implement and evaluate sustainable energy systems, and explain their characteristics, operational behavior and interactions with all system components; • conduct a techno-economic, social, and environmental impact assessment of energy use/projects as well as describe regulation, policies and pricing mechanism for sustainable energy solutions. <p>Skills: The students will be able to</p> <ul style="list-style-type: none"> • demonstrate the feasibility of renewable energy projects considering technical and financial issues; • construct models and develop scenarios on for sustainable energy future (Nationally, regionally or at city level); • model, evaluate energy systems at sector (industry, building, transport, etc.) level in great detail; 			

- discuss the energy policies, analyze and evaluate them.

Attitudes:

The course enables students to explain the renewable energy (solar, biomass, wind, hydro and geothermal) resource availability, conversion (technologies) and applications, also with fossil fuel (coal, oil and natural gas) origin, extraction and conversion and the status of their utilization.

Foreign language competences

Students can function independently and with a great deal of precision on a wide variety of subjects and in almost any setting without any prior preparation.

1. Can understand a wide range of demanding, longer texts, and recognize implicit meaning.
2. Can express ideas fluently and spontaneously without much obvious searching for expressions.
3. Can use language flexibly and effectively for social, academic and professional purposes.
4. Can produce clear, well-structured, detailed text on complex subjects, showing controlled use of organizational patterns, connectors and cohesive devices.

Teaching methods:

Seminar, workshop activities.

Requirements (exam’s evaluation criteria and list of topics):

The students are expected to analytically understand energy market mechanisms, and use the model and policy analysis tools in various socio-economic contexts and new paradigms of sustainable development. They will present these developed abilities in the form of an essay.

Assessment & Grading:

Pass

Presence in seminars and presenting a general essay on energy transitions.

Satisfactory

Presence in seminars with some feedbacks and presenting a sustainability-driven essay on energy transitions.

Good

Active participation in the course activities and presenting an advanced essay on energy transitions.

Excellent

Active participation in the course activities and presenting an advanced essay on energy transitions incorporating several policy tools and market-based approaches.

Department/faculty responsible for the course:

Department of Management and Business Administration

Required average students’ working hours (number of credits multiplied by 30):

150

Individual assignments (expected number of hours and list of activities):

- Discussions
- Thematic workshop activities
- Written assignment

Course leader: Bálint Horváth PhD

Lecturers: Bálint Horváth PhD