UNIVERSITY of DEBRECEN

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Name of the course:	**Exergetic-based analysis of building services systems**
Course type:	Optional
Responsible lecturer:	Dr. Gábor L. Szabó
Content:	In the context of this course, the concept of exergy is described alongside its historical relevance across various engineering disciplines. Moreover, the determination of exergy content in chemical, kinetic, electrical, and thermal energies is expounded upon. Students are familiarized with the exergetic-based analysis of complex processes, with particular attention drawn to their differentiation from energy-based analyses. A notable emphasis is placed on the exergetic-based examination of heating and cooling systems within the framework of this curriculum. Notably, both energy generators and distribution networks, as well as energy emitters, undergo exergetic scrutiny. The primary exergy efficiency of complex systems incorporating multiple energy generators is assessed, too. Furthermore, an exergetic-based analysis of air technology and domestic hot water systems is provided for consideration.
Literature:	• Shukuya M. Exergy. Theory and applications in the built environment. Springer-Verlag London; 2013 • R.T. Balmer, Modern Engineering Thermodynamics, Elsevier Inc., 2011 • C.P. Arora, Refrigeration and Air Conditioning, third ed., vol. 3, Tata McGraw-Hill Education Pvt. Ltd, New Delhi, India, 2009.