UNIVERSITY of DEBRECEN

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Name of the course:	**Building Energy**
Course type:	Optional
Responsible lecturer:	Dr. Ferenc Kalmár
Content:	In the framework of this course besides the climatic factors that thoroughly influence energy use in buildings, the principles of energy-conscious design are presented letting the integration of passive techniques for heating, cooling, and ventilation. The factors influencing the energy losses of heating, ventilation, and cooling systems are presented showing the interrelation between these parameters. The efficient energy generation, distribution strategies, the heating-cooling modes are presented, and the calculation methodologies of heat losses are introduced. The energy uses of circulation pumps (in the case of both qualitative and quantitative control) are presented. The measures necessary to achieve the decarbonisation goals, as well as the efficient integration of renewable energy sources in buildings with different functions, are introduced. In the framework of this course, dynamic building energy analysis using TRNSYS simulation software is possible.
Literature:	• F. Kalmár, Energy conscious heating, Budapest, Akadémiai Kiadó, 2011. • J.F. Kreider, P.S. Curtiss, A. Rabl, Heating and Cooling of Buildings: Design for Efficiency, CRC Press, 2017. • U. Desideri, F. Asdrubali, Handbook of Energy Efficiency in Buildings: A Life Cycle Approach, Butterworth-Heinemann, 2018.