UNIVERSITY of DEBRECEN

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Name of the course:	**Modelling of energy processes**
Course type:	Optional
Responsible lecturer:	Dr. Ferenc Szodrai
Content:	In the framework of the subject based on their studies on BSc and MSc students learn about the aim and steps of the energy model design. The methodology for loss calculation by numerical method is presented for one-, two- and three-dimensional cases. Further topics include: the creation of single and multi-zone models furthermore the analysis with static and dynamic input data; building information modelling (BIM) methods and applications; steps to build an energy model for complex finite element and finite volume methods; methodology of the verification and validation of energy. processes; large computational demanding simulations; visualization of relevant results. During the course, students learn about various types of simulation software which they could establish building information model, or they could describe thermal and fluid mechanic related phenomena which occurs at energy processes, and they can successfully analyse it.
Literature:	• Building Information Modeling: Technology Foundations and Industry Practice by André Borrmann, Markus König, Christian Koch, Jakob Beetz ISBN-10: 3319928619 • Introduction to Computational Fluid Dynamics Development, Application and Analysis Authors: Sharma, Atul ISBN 978-3-030-72884-7