UNIVERSITY of DEBRECEN

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Name of the course:	**Solar radiation geometry**
Course type:	Optional
Responsible lecturer:	Dr. Imre Csáky.
Content:	Within the frame of Solar geometry course, students will get knowledge about the solar radiation, solar geometry, direct diffuse radiation to the horizontal/vertical surface. They also will accumulate knowledge about the factors affecting radiation: clearness index, solar constant, Rb factor, zenith angle... Atmospheric factors that modify irradiation: the path of the sun's rays through the atmosphere, the ability of the atmosphere to transmit radiation, water vapour content and pollution, cloud cover. Therefore, it is important to analyse the solar radiation for a given sample year. Within the frame of present course, we pay special attention to the increasingly hot summer month, we examine the effect of the solar radiation heat load.
Literature:	• Hay, J. E. (1979): Calculation of monthly mean solar radiation for horizontal and inclined surfaces, Solar Energy, Vol. 23, pp. 301-307. • Erbs, D. G., Klein S. A. & Duffie, J. A., (1982): Estimation of the diffuse radiation fraction for hourly, daily and monthly-average global radiation, Solar Energy Vol. 28, No. 4, pp. 293-302. • Bogoslovskij, B. N., Poz, M. J., (1983): Teplofizika apparatov utilizatii tepla system otoplenija, ventilatii i konditionirovania vazduha, Stroizdat, Moskva. • Goetzberger, A., Wittner, V., (1993): Sonnenenergie: physikalische Grundlagen und thermische Anwendung, Teubner Studienbücher, Stuttgart. • Heinemann, D., (2000): Energy Meteorology, Lecture Notes, Postgraduate programme „Renewable Energy" Carl von Ossietzky Universitat, Oldenburg 2000. • Duffie, J. A., Beckman, W. A., (2006): "Solar engineering of thermal processes", third edition. John Wiley & Sons Inc., U.S.A. • Dragicevic, S., Vuckovic, N., (2007): Evaluation of Distributional Solar Radiation Parameters of Cacak Using Long – Term Measured Global Solar Radiation Data, Thermal Science, 11, 4, pp.125-134. • Chwieduk, D. A., (2009): Recommendation on modelling of solar energy incident on a building envelope, Renewable Energy 34, pp. 736–741. • Dragsted, J., Furbo, S., (2012): Solar radiation and thermal performance of solar collectors for Denmark, DTU Civil Engineering Report R-275 (UK), October 2012.