



Politechnika Krakowska
im. Tadeusza Kościuszki

FACULTY: ENVIRONMENTAL ENGINEERING

COURSE TITLE: COMPUTER METHODS IN RIVER ENGINEERING

Institute/Division: Institute of Heat Engineering and Air Protection

Number of contact hours: 30 (Lectures, seminars, Design exercises)

Course duration: 1 semester (SPRING)

ECTS credits: 2

Course description: *The students are expected to acquire knowledge about physical basis of open channel flow related processes, general philosophy of numerical modelling and computer methods used in river engineering. After completion of the course, they possess an ability to recognize and define various engineering problems and use an appropriate method/tool for solving them. Practical result will be an ability to use the professional software package HEC-RAS in wide range of engineering applications as well as familiarization with English terminology related to river engineering. Specific lectures will focus on hydraulic structures design problems: physical basis of computations/applied equations, river bed stability and sediment transport issues, review of numerical method used in 1-D modelling, general philosophy of the modelling systems and processes: model area definition and discretization, boundary/initial conditions, computational parameters. Knowledge about model calibration and verification, result analysis and visualisation, accuracy and stability.*

Literature: Reference Manual HEC-RAS, USACE, 2006; User Manual HEC-RAS, USACE, 2006; User Manual MIKE 11, DHI Software, Delft .Other books and papers will be proposed by teaching staff at the beginning of module

Assessment method: Design exercises assessment

Primary target group: 1th year students in M.SC. Programme in Environmental Engineering

Lecturer: Leszek Lewicki, Ph.D. (Eng.)

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