Course code	
Type and description	Background Course
ECTS credit	2 and 2
Course name	**Transport phenomena 1 and Transport phenomena 2**
Course name in Polish	Zjawiska przenoszenia
Language of instruction	English
Course level	8 PRK
Course coordinator	Prof. Dr. Rajendra Prasad Chhabra - Indian Institute of Technology, Kanpur, India
Course instructors	Prof. Dr. Rajendra Prasad Chhabra - Indian Institute of Technology, Kanpur, India

Delivery methods and course duration

	Lecture	Tutorials	Laboratory	Project	Seminar	Other	Total of teaching hours during semester
Contact hours	30	0	0	0	0	0	30
E-learning	No	No	No	No	No	No	
Assessment criteria (weightage)	0,00					0,00	

Course objective	Provide the knowledge on the fundamental principles (three pillars: momentum, heat and mass transfer) of chemical engineering.
Learning outcomes	After the course a PhD student we be able to: 1. describe the momentum, heat and transfer phenomena with the use of valid mathematical tools: effects W1, U2, K1 2. discuss the analogies between momentum, heat and transfer phenomena: effects U2, K1 3. apply the knowledge of transfer processes to describe the unite operation in chemical engineering: effects U1, U3, K1
Assessment methods	The final grade consists of: Exam - 100% (effects W1, U1, U2, U3, K1)
Prerequisites	None
Course content with delivery methods	Lecture: 1. Momentum transfer, basic laws of fluid mechanics, balance of energy in the flow, flow in the tube and other systems 2. Mechanisms of heat transfer: conduction, convection radiation for various geometries 3. Mechanism of mass transfer: diffusion convection

	Tutorials: - performing calculations connected with momentum, heat, and mass transfer
Basic reference materials	Robert H. Perry (ed.) "PERRY'S CHEMICAL ENGINEERS' HANDBOOK" McGraw and Hill, New York
Other reference materials	Materials of the lecturer
Average student workload outside classroom	15 h
Comments	
Last update	