

# Warsaw University of Technology | Doctoral School No. 4

Course offered in the Doctoral School No. 4  
– Spring semester of the 2021/2022 academic year

TITLE
Basis of Theory of Turbomachinery
CONDUCTING UNIT
Doctoral School No. 4
SCIENTIFIC DISCIPLINE
Environmental engineering, mining and energy
IMPLEMENTING UNIT
113000 - Faculty of Power and Aeronautical Engineering
SUMMARY DESCRIPTION
Theory – to use thermodynamic. The theory of the turbomachinery stage. Group of stages. The performance characteristics of the stage and group of stages. Dimensional analysis utilization. Experimental investigations – rules of results application in project workflow.
FULL DESCRIPTION
<ol style="list-style-type: none"><li>1. Introduction</li><li>2. Thermodynamic</li><li>3. Dimensional analysis</li><li>4. 1-D Stage theory</li><li>5. Losses</li><li>6. Turbine stages</li><li>7. Specific factors</li><li>8. Working principles of turbomachinery—remarks</li></ol>
LITERATURE
<p>[1] S. Dixon, Fluid Mechanics And Thermodynamics Of Turbomachinery, 1998. [2] R. Gorla and A. Khan, Turbomachinery Design and Theory, 2003. [3] B. Lakshminarayana, Fluid Dynamics And Heat Transfer Of Turbomachinery, 1996. [4] E. Logan and R. Roy, Handbook Of Turbomachinery, 2003. [5] M. Schobeiri, Turbomachinery Flow Physics and Dynamic Performance, 2003. [6] M. Thiagarajan, A Design Study of Single-Rotor Turbomachinery Cycles, 2004. [7] R. Turton, Principles Of Turbomachinery, 1995.</p>

LEARNING OUTCOMES		
The knowledge about the turbomachinery characteristic, utilization and developing. Background about turbine stage project workflow.		
ASSESSMENT METHODS AND CITERIA; COURSE COMPLETION FORM		
Project evaluation		
LANGUAGE OF THE COURSE		ECTS CREDITS
English		2
TYPE OF CLASSES	NUMBER OF HOURS	COURSE INSTRUCTOR
Project classes	30	Jarosław Milewski, prof. dr hab. inż.