



# FINAL PROJECT ASSIGNMENT

**CLASSIFIED**

Identification	Name: <b>Koncz Máté Gábor</b>		ID: 79826837317	
	Code of the Curriculum: 2N-MW0		Specialisation:	Document ref. number:
	Curriculum: Gépészeti modellezés mesterképzési szak (angol nyelven)		2N-MW0-FM	GEÁT:2022-1:2N-MW0:QPW3EC
	Final Project issued by: Department of Fluid Mechanics		Final exam organised by: Department of Fluid Mechanics	
	Supervisor: Dr. Gergely János Kristóf (71957915589), associate professor			

Project Description	Title	<b>Thermo-hydraulic and economic analysis of variable pressure pumped energy storage</b> Változó nyomású szivattyús energiatároló termo-hidraulikai elemzése
	Details	1. Literature review 2. Creating a 3D two-phase flow section model for the gas container of a hydrophore tank with water injection. 3. Performing parametric studies with the CFD model for different reservoir diameters, water levels, charging or discharging rates, injection rate, and spray parameters. Establishing correlations between the gas temperature and the operating / design parameters. 4. Creating a lumped parameter reservoir model capable of determining the energy losses during several charging-discharging cycles. 5. Energetic optimization of the injection rate using the lumped parameter model. 6. Preparing the MSc thesis according to the formal requirements.
	Advisor	Advisor's Affiliation: Flowserve Hungary Services Kft. 1097 Budapest, Gubacsi út 6. Advisor: Péter TÓTH, seniour CFD analyst

Final Exam	1 <sup>st</sup> subject (group)	2 <sup>nd</sup> subject (group)	3 <sup>rd</sup> subject (group)	4 <sup>th</sup> subject (group)
	<b>ZVEGEÁTNW03</b> Fluid Mechanics Measurements	<b>ZVEGEÁTNW02</b> Computational Fluid Dynamics	<b>ZVEGEÁTNW01</b> Advanced Fluid Mechanics	<b>ZVEGEÁTNW27</b> Multiphase and Reactive Flow Modelling

Authentication	Handed out: 6 September 2021		Deadline: 10 December 2021		
	Compiled by: Dr. Gergely János KRISTÓF (71957915589) Supervisor		Verified by: Dr. János Vad (signed) Head of Department		Approved by: Dr. Gábor Györke (signed) Vice-Dean
	The undersigned declares that all prerequisites of the Final Project have been fully accomplished. Otherwise, the present assignment for the Final Project is to be considered invalid.  ..... Koncz Máté Gábor				