

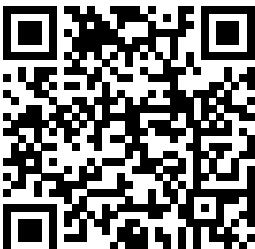
# FINAL PROJECT ASSIGNMENT

**Publicly Available**

<b>Identification</b>	Name: <b>Ridha Rasyid</b>		ID: <b>73593798329</b>		
	Code of the Curriculum: <b>2NAMW0</b>		Specialisation:	Document ref. number:	
	Curriculum: <b>Master Program in Mechanical Engineering Modelling</b>		<b>2NAMW0ERA</b>	<b>GEÁT:2021-T:2NAMW0:MPL960</b>	
	Final Project issued by: <b>Department of Fluid Mechanics</b>		Final exam organised by: <b>Department of Fluid Mechanics</b>		
	Supervisor: <b>Joshua Patrick Davidson (71569852589), research fellow</b>				

<b>Project Description</b>	Title	<b>CFD investigation of water wave transformation over varying bathymetry</b> Változó vízmélység-mérés alapú hullámenergia átalakító CFD vizsgálata
	Details	<p>Industrial partners have demonstrated experimentally the potential benefits, for coastal protection and wave energy conversion, of exploiting the resulting wave transformations which occur when an ocean wave progresses over variable bathymetry. The goal of this project is to further the understanding and optimisation of this concept, through numerical simulations. In particular, the student will develop a numerical wave tank in ANSYS FLUENT, whose bathymetry and input wave conditions can be parametrised to enable automated simulations of many different scenarios. The results of these simulations will then be analysed to provide relevant information and guidelines regarding the optimal bathymetry design for different sea conditions.</p> <p>To achieve this goal the following specific tasks must be implemented:</p> <ol style="list-style-type: none"> <li>Literature survey - surveying and analysing relevant resources of technical literature</li> <li>Numerical wave tank setup: a. Create a numerical wave tank with a constant flat bathymetry to provide the baseline case; b. Create post-process tools to analyse the waves; c. Extend the numerical wave tank to allow the creation of variable bathymetries</li> <li>Simulations: a. Perform simulations on different classes of variable bathymetries in a range of wave conditions (Wave heights, frequencies, etc.)</li> <li>Analysis: a. Analyse the results to understand the relationships between the bathymetry design and the wave transformation; b. Provide guidelines on the optimal bathymetry design for different sea conditions</li> <li>Reporting: a. Summarise the work in the required document format of the MSc Thesis.</li> </ol>
	Advisor	Advisor's Affiliation: Advisor: —

<b>Final Exam</b>	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>ZVEGEÁTNW02</b> Computational Fluid Dynamics	<b>ZVEGEÁTNW03</b> Fluid Mechanics Measurements	<b>ZVEGEÁTNW11</b> Open Source Computational Fluid Dynamics	<b>ZVEGEÁTNW19</b> Vehicle Aerodynamics

<b>Authentication</b>	Handed out: <b>8 February 2021</b>		Deadline: <b>14 May 2021</b>		
	Compiled by: <b>Joshua Patrick Davidson (71569852589)</b> Supervisor		Verified by: <i>Dr. János Vad</i> (signed) Head of Department		Approved by: <i>Dr. Péter Bihari</i> (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.				
<p>.....</p> <p style="text-align: center;"><i>Ridha Rasyid</i></p>					