



Budapest University of Technology and Economics

Faculty of Mechanical Engineering

Department of Energy Engineering

<http://www.energia.bme.hu/>

FINAL PROJECT ASSIGNMENT

Publicly Available

Identification	Name: Aqel Saif-Aldain Ahmad Deeb	ID: 73763256003
	Code of the Curriculum: 2NAAG0	Specialisation: Document ref. number:
	Curriculum: Bachelor of Science Degree Program in Mechanical Engineering	2NAAG0-PE GEEN:2026-1:2NAAG0:QTY3S6
	Final Project issued by: Energetikai Gépek és Rendszerek Tanszék	Final exam organised by: Áramlástan Tanszék
	Supervisor: Dr. Lezovits Ferenc (71957946594), associate professor	

Project Description	Title	Heat transfer and fluid flow calculations of industrial shell boilers and evaluation of operation conditions Nagyvízterű ipari kazánok hőátadási és folyadékáramlási számításai, valamint működési feltételek értékelése
	Details	1. Give an overview of application of shell boilers in industrial energy supply 2. Select a certain design of shell boilers for investigation and show its main data 3. Make combustion calculations considering gaseous and/or liquid fuel firing 4. Make heat transfer calculations for both fluegas and water-steam side 5. Make hydraulic calculations for both fluegas and water-steam side 6. Summarize all calculations and evaluate operation conditions of selected boiler 7. Make a sensitivity analysis of selected shell boiler on possible operation condition variations 8. Summarize all the results and evaluate them
	Advisor	Advisor's Affiliation: Advisor: ,

Final Exam	1 st subject (group)	2 nd subject (group)	3 rd subject (group)
	ZVEGEENBGHK Hőközlés	ZVEGEVGBX01 Áramlástechnikai gépek	ZVEGEENBGEB Energetikai folyamatok és berendezések

Authentication	Handed out: 8 September 2025	Deadline: 12 December 2025
	Compiled by: Dr. Lezovits Ferenc (71957946594) Supervisor	Verified by: Dr. Attila Imre (signed) Head of Department
	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.	Approved by: Dr. Gábor Györke (signed) Vice-Dean

Aqel Saif-Aldain Ahmad Deeb



Declarations

Declaration about the acceptability of the thesis

This thesis fulfills every formal and content requirements of the regulation of the Budapest University of Technology and Economics, moreover it fulfills the assignment of the final project. This thesis is suitable for a review and an open defense.

Budapest,



Dr. Lezsovits Ferenc

Declaration about the independent work

I, Saif-Aldain Ahmad Deeb Aqel (QTY3S6), hereby declare that the Thesis submitted for assessment and defense, exclusively contains the results of my own work assisted by my supervisor. Further to it, it is also stated that all other results taken from the technical literature or other sources are clearly identified and referred to according to copyright (footnotes/references are chapter and verse, and placed appropriately).

I accept that the scientific results presented in my Thesis can be utilized by the Department of the supervisor for further research or teaching purposes.

Budapest,



Saif-Aldain Aqel