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Institut für Prozeßtechnik, Prozeßautomatisierung und Meßtechnik (IPM)

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Master Thesis Review

Name	Jan Krofta
Task	Development of simulation models in energy technology
Form and technical Content of the master thesis	Mr. Krofta wrote his master's thesis at the Institute of Process Technology, Process Automation and Measurement (IPM) at the Zittau/Görlitz University of Applied Sciences. The work deals with the development of numerical simulation models for thermal energy storage. It specifically involves the development of simulation models for phase change heat storage. For this purpose, a simple model and a more complex finite difference model were designed and tested with MATLAB. The first and the second chapter deal with the introduction to the problem and the definition of a thermodynamic system. In the third chapter he performed a literature research on numerical models for thermal energy storage, in particular, for phase change heat storage models. In the fourth chapter, Mr. Krofta deals with the implementation of the selected models of "Shamsundar" into MATLAB. Finally he presents the simulation results. The model is analyzed for weaknesses. Mr. Krofta comes to the conclusion that the model of "Shamsundar" has too many simplifications and a more accurate model is needed. He has selected the finite difference method for the new model and implemented it into Matlab. At the end, the results for discharging and charging are presented. Chapter five includes a short summary and recommendations for further studies.

The master thesis of Mr. Krofta has a logical structure and meets the requirements for the form of a scientific paper. Mr. Krofta has been working absolutely independently. Characterized by high complexity, the model implementations into MATLAB are an excellent aspect of his work.

Rating proposal for thesis (university)	1.7
Rating proposal for thesis (company)	1,7

Prof. Dr.-Ing. A. Kratzsch

University of Applied Sciences Zittau/Goerlitz
Institut of Process Technology, Process Automation and Measuring Technology (IPM)
Departement Measurement Technology / Process Automation

Zittau/Görlitz

TRANSCRIPT OF RECORDS

Institution

Hochschule Zittau/Görlitz – University of Applied Sciences

Student

Name:	**Krofta**	*First name:*	**Jan**
Date and place of birth:	6 October 1988 in Prag	*Sex:*	male
Period of study:	27 September 2012 to 28 November 2013	*Student ID:*	204904
Major field of study:	Mechatronics International		

Course Code	Course Title	ECTS Credits	Local Grade
[illegible]	Automatic Control II (advanced course)	5	**3,8**
[illegible]	Digital Signal Processing	5	**2,0**
[illegible]	Artificial Intelligence/Neural Networks	5	**1,3**
[illegible]	Digital Communication Technology	5	**3,0**
[illegible]	Optional Module/International Project Mechatronic *Utilization of Water and Wind Energy* *International Project*	5	**1,5**
[illegible]	Image Processing	5	**1,0**
	Master`s Thesis and Defense *Development of simulation models in energy technology*	30	**1,7**

ECTS Credits: 60

1	(1,0 – 1,5)	excellent/very good	outstanding performance with only minor errors
2	(1,6 – 2,5)	good	above the average standard but with some errors
3	(2,6 – 3,5)	satisfactory	fair but with a number of notable errors
4	(3,6 – 4,0)	sufficient	performance meets the minimum criteria
5	(from 4,1)	fail	considerable further work is required