



### Joint Curricula

Appendix for "Courses in the Collaborative Master Program

# "Systems Engineering and Engineering Cybernetics"

amendment of 23 July 2015

Participating Institutions: Otto von Guericke University (Magdeburg, Germany) and KNRTU-KAI (Kazan, Russia)

Duration of Study: 2 years

Place for Study: 1<sup>st</sup>, 2<sup>nd</sup> semesters at KNRTU-KAI, 3<sup>rd</sup> semester – at Otto von Guericke University. 4<sup>th</sup> semesters – at KNRTU-KAI or Otto von Guericke University.

## 1st semester

Module	Credits of module	Contact hours	Individual work hours	Exams	Total Student workload	Cert	
Foreign language	3	24	84		108		FL
Mathematical modeling of object and control system	4	24	84	36	144	exam	AU
Modern problems of control theory	4	24	84	36	144	exam	AU
Design of digital control systems of mobile objects	4	84	60		144	graduate test	AU
Computer-aided design of control means and systems	5	36	108	36	180	exam	AU
Optimal control (flying faculty)	3	24	48	36	108	exam	AU/OvGU
Research work	7		252		252		AU
Total	30						

## 2nd semester

<b>Module</b>	<b>Credits of module</b>	<b>Contact hours</b>	<b>Individual work hours</b>	<b>Exams</b>	<b>Total Student workload</b>	<b>Cert</b>	
Foreign language	3	18	54	36	108	exam	FL
History and methodology of science and technology in the field of control	2	18	54		72		Ph
Computer technology of control in engineering systems	5	36	108	36	180	exam	AU
Modern applied control theory	6	54	126	36	216	exam	AU
Modern methods of mobile objects control	3	36	36	36	108	exam	AU
Modern problems of automation and control	3	36	72		108	graduate test	AU
Research work	8		288		288	graduate test	AU
Total	30						

## 3rd semester

<b>Module</b>	<b>Credits of module</b>	<b>Contact hours</b>	<b>Individual work hours</b>	<b>Exams</b>	<b>Total Student workload</b>	<b>Cert</b>	
Complex Systems	5	42	108		150	exam	OvGU
Dynamics of Distributed Parameter Systems	5	42	108		150	exam	OvGU
Advanced Process Systems Engineering	5	42	108		150	exam	OvGU
Model Predictive Control	5	42	108		150	exam	OvGU
Research work	10		300		300		OvGU
Total	30						

4th semester

<b>Module</b>	<b>Credits of module</b>	<b>Contact hours</b>	<b>Individual work hours</b>	<b>Exams</b>	<b>Total Student workload</b>	<b>Cert</b>	
Master thesis	27		972		972		AU
State exam	3			108	108		AU
Total	30		972	108	1080		

**On behalf of OvGU Magdeburg**

\_\_\_\_\_ Prof. Jens Strackeljan  
Rector

\_\_\_\_\_ Prof. Dr.-Ing. A. Lindemann  
Coordinator of the MSc Programm

**On behalf of KNRTU-KAI**

\_\_\_\_\_ Prof. Albert Gilmutdinov  
Rector

\_\_\_\_\_ Prof. Andrey Ferenc  
Coordinator of the MSc Programm