

## Innovative Software Systems: Design, Development & Application

### PROGRAM STRUCTURE (Curriculum)

<b>Total: 120 ECTS</b>			
<b>23</b> ECTS	Core and required courses	<b>40</b> ECTS	Elective courses
<b>27</b> ECTS	Internships and industrial placement	<b>30</b> ECTS	Research and MSc Thesis project
<b>First year</b>	<b>First semester</b>		<b>27 ECTS</b>
	Foreign Language (English / Russian)		4
	Modern Methods of Structural Characterisation of Micro- and NanoSystems		4
	Introduction to Data Science		5
	Management of Quality		3
	Project Management		3
	Object-oriented Analysis and Development. Development Patterns Using	Modern Quantum Physics of Solids	4
	Research		4
	<b>Second semester</b>		<b>33 ECTS</b>
	Foreign Language (English / Russian)		4
	Databases and Data Warehouses		3
	Machine Learning	Formulation of Requirements and Scope Definition for Innovative Information Systems	4
	Computer-Aided Design of Software Systems	Modern Quantum Physics of Solids	4
	Tensor method of complex systems network models	Electronic Properties of Quantum Confined Semiconductor Heterostructures	4
	Internship		6
Research		8	

<b>Second year</b>	<b>Third semester</b>		<b>30 ECTS</b>
	Operating environment Innovative software systems	Superconducting Circuits and Qubits	6
	Artificial Neural Networks	Experimental Methods in Low dimensional Systems	5
	Web-services and SaaS-services Design and Development	Introduction to Path Integral Methods in Condensed Matter Physics	6
	Parallel Programming Technologies	Intelligent Software in Geological System	4
	Research		9
	<b>Fourth semester</b>		<b>30 ECTS</b>
	Industrial Placement		21
	Final State Examination		9