

CONFIRM

Vice Rector for Academic Affairs

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Ministry of Education and Science of the Russian Federation
«National Research Tomsk State University»

Training content

Name of Master Programme

«Mathematical Analysis and Modelling»

Field of study

01.04.01 Mathematics

Qualification (degree) of diploma

Master

Duration of training

2 years

№	Title blocks, modules, courses, practices, research	Numbers of credits ECTS		The distribution of disciplines per semesters				Forms of training work	Forms intermediate certification	Competence
		Total Credits (ECTS)	Teaching hours Total/hours of active teaching	1	2	3	4			
Block 1. Disciplines		61	2196/662							
Basic courses (General Science)		21	756/262							
B.1.1	<i>Philosophy and methodology of scientific knowledge</i>	3	108/32		3			L, S	pass/fail	GC-2, GC-3, GPC-5
B.1.2	<i>History and methodology of mathematics</i>	3	108/32		3			L	pass/fail	GC-3, GPC-5
B.1.3	<i>Modern computer technologies</i>	3	108/54	3				L, PW	pass/fail	GPC-3, PC-3, SC-1
B.1.4	<i>LaTeX Soft</i>	2	72/16		2			PW	pass/fail	PC-3
B.1.5	<i>Mathematical models</i>	5	180/64		5			L, PW	exam	GC-1, GPC-1, GPC-2, PC-1, PC-2, PC-3, SC-1
B.1.6	<i>Foreign language (English)</i>	5	180/64	2	3			PW	pass/fail exam	GPC-4
	<i>Foreign language (Russian)</i>									
	<i>Foreign language (French)</i>									
Options (Professional Courses)		40	1440/400							
O.1.1	<i>Additional chapters of mathematical analysis</i>	5	180/32	5				L, PW	exam	GC-1, GPC-1, PC-1
O.1.2	<i>Stochastic Modelling</i>	5	180/48	5				L, PW	exam	GPC-2, PC-1, PC-2
O.1.3	<i>Numerical methods</i>	6	216/64		6			L, PW	exam	GPC-3, SC-1
O.1.4	<i>Optimization methods</i>	5	180/48		5			L, PW	exam	GC-1, GPC-1, PC-1
Options (Elective Courses)		19	684/208							
O.1.5	<i>Option 1</i>	3	108/64			3		L, PW	pass/fail	PC-3
O.1.6	<i>Option 2</i>	5	180/48	5				L, PW	exam	GC-1, GPC-1, PC-1
O.1.7	<i>Option 3</i>	4	144/32			4		L, PW	pass/fail	PC-1
O.1.8	<i>Option 4</i>	4	144/32			4		L, PW	pass/fail	PC-1
O.1.9	<i>Option 5</i>	3	108/32			3		L, PW	pass/fail	GPC-3
Block 2. Research and internship		53	1908/0							
B.2.1	<i>Research</i>	47	1692/0	10	3	16	18		report	GC-1, GC-3, GPC-1, GPC-4, GPC-5, PC-1
B.2.2	<i>Internship, including pre-diploma practice</i>	6	216/0				6	P	report pass/fail	GC-2, GC-3, GPC-2, GPC-5, PC-2
Block 3. Thesis with defense		6	216/0							
B.3.1	<i>Thesis with defense</i>	6	216/0				6			PC-1, PC-2, PC-3
Total		120	4320/662	30	30	30	30			

Symbols: L – lectures, S – seminars, PW – practical work; GC – general competence, PC – professional competence, GPC – general professional competence, SC – special competence

List of options

	Tomsk State University	Rouen University
Option 1 (S3)	<i>Industrial mathematics</i>	<i>Linear optimization</i>
	<i>Modern methods of analysis and data visualization</i>	<i>Control and optimization</i>
Option 2 (S1)	<i>Functional analysis and its applications</i>	<i>Operators and Measures</i>
	<i>Qualitative analysis of ODE</i>	<i>Sobolev spaces</i>
Option 3 (S3)	<i>Statistical analysis and forecasting of time series</i>	<i>Asymptotic statistics</i>
	<i>Multivariate statistical methods</i>	<i>Non asymptotic statistics</i>
Option 4 (S3)	<i>Methods of spline functions</i>	<i>Markov processes and chains</i>
	<i>Methods of solving ill-posed problems</i>	<i>Probability: limit theorems and ergodic theory</i>
Option 5 (S3)	<i>Methods of parallel computing</i>	<i>Analyse EDP and modelling</i>
	<i>Organization and Software High Performance Computing Systems</i>	<i>Scientific calculus</i>
	<i>Parallel programming technologies</i>	