APPROVED BY

Rector

_______ A.A. Kuzniatsou

«06» 11 2020

Registration № 12мд-2020/уч. ин.

Educational Institution
"Vitebsk State Technological University"

CURRICULUM SHEET

Specialty: **1-40 80 02 System Analysis, Information Management and Processing (by industry branches)**

Academic degree: Master
Course duration: **1.5 years**

Form of education: **full-time**
(Course Language: English)

I. Education Schedule

II. Summary data on time budget (in weeks)

COURSES	September					October				November					December				January					February			March					April				May					June				July				August				Theoretical Training	Examination Periods	Practical Training	Master's Thesis	End-of-course Assessment	Vacations	Total
	1–6	7–13	14–20	21–27	28.09–04.10	5–11	12–18	19–25	26.10–01.11	2–8	9–15	16–22	23–29	30.11–06.12	7–13	14–20	21–27	28.12–03.01	4–10	11–17	18–24	25–31	1–7	8–14	15–21	22–28	1–7	8–14	15–21	22–28	29.03–04.04	5–11	12–18	19–25	26.04–02.05	3–9	10–16	17–23	24–30	31.05–06.06	7–13	14–20	21–27	28.06–04.07	5–11	12–18	1–25	26.07–01.08	2–8	9–15	16–22	23–31							
I																		18	:	:	:	=	=																		18	:	:	:	=	=	=	=	=	=	=	=	36	6				10	52
II								8	:	X	X	X	/	/	/	/	/	/	/	/	//	//																															8	1	3	8	2		22
																																																					44	**7**	**3**	**8**	**2**	**10**	**74**

Legend:

[ ] — Theoretical training
[X] — Practical training
[//] — End-of-course assessment
[:] — Examination period
[/] — Master's thesis
[=] — Vacations

III. Education Plan

№ п/п	Name of module, academic disciplines, course project (course paper)	Examinations	Pass/Fail (Credit) tests	Number of academic hours: Total	Classrooms	Lectures	Laboratory Classes	Practical Classes	Seminars	1st Year, 1st semester, 18 weeks: Total hours	In-class hours	Credits	1st Year, 2nd semester, 18 weeks: Total hours	In-class hours	Credits	2nd Year, 3rd semester, 8 weeks: Total hours	In-class hours	Credits	Competency Code
1.	**National component**			**936**	**220**	**102**	**80**	**38**		**120**	**56**	**3**	**408**	**96**	**12**	**408**	**68**	**12**	
1.1	**Module "Research Work"**			**396**									**198**		**6**	**198**		**6**	**UC-1**
1.1.1	Science and Research Seminar		2,3	396									198		6	198		6	
1.2	**Module "Applied Probabilistic and Statistical Methods and Models"**			**300**	**104**	**42**	**24**	**38**					**90**	**36**	**3**	**210**	**68**	**6**	
1.2.1	Models and Methods of Decision Making Support	3		210	68	24	24	20								210	68	6	APC-1
1.2.2	Random Processes in Information Processing Systems		2	90	36	18		18					90	36	3				APC-2
1.3	**Module "Optimal Management"**			**240**	**116**	**60**	**56**			**120**	**56**	**3**	**120**	**60**	**3**				
1.3.1	Nonclassical Logics	1		120	56	24	32			120	56	3							APC-3
1.3.2	Theory of Optimal Systems	2		120	60	36	24						120	60	3				APC-4
2.	**Component of Educational Institution**			**1748**	**734**	**374**	**304**	**56**		**550**	**216**	**15**	**918**	**370**	**25**	**220**	**72**	**6**	
2.1	**Module "Innovative Entrepreneurship"**			**240**	**94**	**48**	**16**	**30**		**120**	**52**	**3**							
2.1.1	Commercialization of the Research Activity Results		2	120	42	24		18					120	42	3				SC-1
2.1.2	Start-Up Projects Management	1		120	52	24	16	12		120	52	3							SC-2
2.2	**Module "Programming Systems"**			**630**	**284**	**148**	**136**			**120**	**60**	**3**	**510**	**224**	**13**				
2.2.1	Advanced Technologies of Software Development	2	1	280	144	72	72			120	60	3	160	84	4				SC-3
2.2.2	Advanced Systems of Computer Vision	2		240	90	54	36						240	90	6				SC-4
2.2.3	Contemporary Methods and Means for Project Work Organization	2		110	50	22	28						110	50	3				SC-5 / SC-6
2.3	**Module "Information Management"**			**560**	**200**	**96**	**104**			**120**	**56**	**3**	**220**	**72**	**6**	**220**	**72**	**6**	
2.3.1	Contemporary Database Management Systems	2		220	72	36	36						220	72	6				SC-7
2.3.2	ERP Systems	3		220	72	36	36									220	72	6	SC-8
2.3.3	Information Security	1		120	56	24	32			120	56	3							SC-9
2.4	**Module "Research Methods"**			**210**	**100**	**52**	**48**			**210**	**100**	**6**							
2.4.1	Experiments Planning		1	120	64	34	30			120	64	3							SC-10
2.4.2	Economic and Mathematical Methods in System Analysis		1	90	36	18	18			90	36	3							SC-11
2.5	**Pedagogy and Psychology of Higher School**		**2**	**108**	**56**	**30**		**26**					**108**	**56**	**3**				**UC-2**

3.	**Supplementary Education**			**/568**	**/316**	**/96**	**/36**	**/140**	**/44**	**/338**	**/194**	**/9**	**/230**	**/122**	**/6**				
3.1	Philosophy and Methodology of Science1	/2	/1	/240	/104	/60			/44	/120	/52	/3	/120	/52	/3				UC-3
3.2	Foreign Language1	/2	/1	/220	/140			/140		/110	/70	/3	/110	/70	/3				UC-4
3 3	Basics of Information Technologies1		/1	/108	/72	/36	/36			/108	/72	/3							UC-5
Number of academic hours				**2684**	**954**	**476**	**384**	**94**		**670**	**272**	**18**	**1326**	**466**	**37**	**628**	**140**	**18**	
Number of academic hours in a week											**15**			**25**			**18**		
Number of examinations				**10**							**3**			**5**			**2**		
Number of pass/fail (credit) tests				7							3			3			1		

IV. Practical Training				**V. Master's Thesis**			**VI. End-of-course assessment**
Name of practical training	Semester	Weeks	Amount of Credits	Semester	Weeks	Amount of Credits	Defense of Master's Thesis
Technological Practical Training	3	3	5	3	8	12	

VII. Competency Framework

Competency Code	Name of Competency	Module Code
UC-1	Ability to apply methods of scientific knowledge (analysis, comparison, systematization, abstraction, modeling, data validation, decision making, etc.) in independent research activities, generate and implement innovative ideas	1.1
UC-2	Ability to carry out pedagogical activities in educational institutions, to master and implement effective educational, information and communication technologies, pedagogical innovations	2.5
UC-3	Use of methodology of scientific knowledge, ability to analyze and evaluate the content and level of philosophical and methodological problems in solving problems of research and innovation	3.1
UC-4	Command of a foreign language for communication in an interdisciplinary and scientific environment, in various forms of international cooperation, research and innovation activities	3.2
UC-5	Skills to use modern information technology to solve research and innovation problems	3.3
APC-1	Application of advanced methods of system analysis and decision-making for the study of functional tasks based on global trends in the development of system analysis, management and information technology	1.2.1
APC-2	Use of methods for constructing mathematical models of information flows in the absence of information	1.2.2
APC-3	Analysis of complex causal relationships in decision making based on non-classical logic in systems	1.3.1
APC-4	Application of skills in the formulation and solution of optimal control problems	1.3.2
SC-1	Application of skills in building mutually beneficial commercial relations when implementing the results of research activities in the sphere of production and services	2.1.1
SC-2	Application of skills of organizing innovative activities, assessing innovative and technological risks when creating and promoting new projects	2.1.2
SC-3	Use of modern architecture of software systems to solve innovative and professional tasks (in industry)	2.2.1
SC-4	Application of methods of constructing systems designed to assign objects to one of the classes	2.2.2
SC-5	Application of skills, methods and technologies of organizing project teams.	2.2.3
SC-6	Application of skills to develop complex software systems using independent components	2.2.3
SC-7	Use of advanced technologies of data storage and management	2.3.1
SC-8	Application of modern principles and technologies for enterprise management automation	2.3.2
SC-9	Use of innovative technologies to ensure high-quality and safe exchange of data structures in information networks	2.3.2
SC-10	Analysis and solution of scientific and technical problems when planning and conducting a scientific experiment	2.4.1
SC-11	Ability to identify business needs and improve the efficiency of business processes through improvements to information systems and information management	2.4.2

1 General educational disciplines "Philosophy and Methodology of Science", "Foreign Language", "Basics of Information Technology" are optional. The course of "Philosophy and Methodology of Science", and "Foreign Language" is accomplished by passing the corresponding candidate exam, the course "Basics of Information Technologies" is accomplished by passing the end-of-course candidate test.

The Curriculum Sheet is composed on the basis of Standard Curriculum, approved on 26.03.2019 (registration № 140-2-002/пр-тип)
Recommended for Approval by the Scientific and Methodological Council of Educational Institution "Vitebsk State Technological University" (Minutes № 2 dated 06.11.2020).

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