



**Norwegian-Georgian-Moldavian-Ukrainian
School on Innovation and Risk Management
Batumi Shota Rustaveli State University, Georgia,
November 19-26, 2022**

SCHEDULE

LOCAL TIME GEORGIA

Batumi – 2022

The school is organized by
Norwegian University of Science and Technology (NTNU, Trondheim, Norway)



and **Taras Shevchenko National University of Kyiv (TSNUK, Faculty of Computer Science and Cybernetics, Ukraine)**



and **Batumi Shota Rustaveli State University (BSU, Georgia)**



**Norwegian-Georgian-Moldavian-Ukrainian
Autumn School
on Innovation and Risk Management
Batumi, Georgia, November 21-26, 2022**

Dear colleagues! We are glad to inform you that International Autumn school “Norwegian-Georgian-Moldavian-Ukrainian School on Innovation and Risk Management” will be held 21-26 November, 2022 in Batumi, Georgia.

The program of the International school includes lectures and practical training on innovation theoretical area and practical problems Risk Management for participants of the school.

The program includes also a visit hotel EURASIA.

The International school participant will receive a joint Norwegian-Ukrainian-Georgian-Moldavian certificate for successful training with 4 CEU (continuing education units).

Registration, board and lodging are free for accepted Master and Ph.D. students.

The International Autumn School on Innovation and Risk Management is supported by the Eurasia Programme project CPEA-LT-2016/10003 from the Norwegian Directorate of Higher Education and Skills. Travel expenses may be covered by the project CPEA-LT-2016/10003.

The goal of The International Autumn School on Innovation and Risk Management is to help students and postgraduates from leading Georgian, Moldovan, Norwegian and Ukrainian educational and research institutions acquire creative and innovative skills and competencies, the ability to generate innovative ideas, develop and manage projects, business processes using modern mathematical models and methods, information technologies. Competitive tasks for school participants consist in the development of original innovative student projects, products and services related to the subject of the CPEA-LT-2016/10003 project and interdisciplinary research: risk management and safety in technical, ecological, economic and social systems and services, critical systems and infrastructures.



An important stage of the work of the international school and the competition of student projects is expert evaluation, support and assistance in the implementation of competitive projects and startups by domestic and foreign experts and scientists.

Participating institutions:

Norwegian University of Science and Technology (NTNU, Norway),
Taras Shevchenko National University of Kyiv (TSNUK, Ukraine),
Batumi Shota Rustaveli State University (BSU, Georgia),
Ivane Javakhishvili Tbilisi State University (TSU, Georgia),
V.M. Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine (GIC, Ukraine),
Academy of Transport, Informatics, and Communications (ATIC, Moldova),
Moldova State University (MSU, Moldova),
International Institute for Applied Systems Analyses (IIASA, Laxenburg, Austria).
Miratech Groupe Corporation (Ukraine)

International Program Committee:

Chair, Coordinator CPEA-LT_2016/10003 project: Professor Alexei Gaivoronski, Norwegian University of Science and Technology (NTNU), Department of Industrial Economics and Technology Management;

Co-Chair, Coordinator IoN's: Professor Volodymyr Zaslavskiy, Taras Shevchenko National University of Kyiv (TSNUK), Faculty of Computer Science and Cybernetics;

Co-Chair: Professor Ibraim Didmanidze, Batumi Shota Rustaveli State University (BSU), Faculty of Exact Sciences and Education, Center of Languages and Information Technologies.

Co-Chair: Professor Omar Purukhia, Ivane Javakhishvili Tbilisi State University (TSU),

Co-Chair: Professor Boris Hinchu Moldova State University (MSU),

Co-Chair: Professor Pavlo Knopov, V.M.Glushkov Institute of Cybernetics (GIC) of the National Academy of Science of Ukraine (NASU);

Local Organizing Committee: Prof. Zurab Megrelishvili, Prof. Albert Shatashvili, Assoc. Prof. Neli Akhvlediani, Assist Prof. Irma Bagrationi, Zebur Beridze, Didar Didmanidze, Merab Megrelishvili (BSU, Georgia), Prof. Omar Purtukhia (TSU, Georgia), Zurab Zakaradze (LEPL Batumi 6 Public Physics-Mathematical School).

Methodist Olha Yamkova (Education Quality Assurance Department, TSNUK)

Official languages: English, Georgian

Contacts: Professor Ibraim Didmanidze, Batumi Shota Rustaveli State University (BSU),

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Day	Time	Framework	Topic	Speaker/
Day 1. Check-in at the Hotel Eurasia. Gala opening International School				
November 18-19, 2022 Location: Hotel Eurasia			Arrival and check-in of the participants at the hotel Eurasia	
November 20, 2022 Location: Hotel Eurasia	19.00 - 21.00		Gala opening School Acquaintance of participants. Important information for students and teachers. Announcement of the schedule and features of the work of the International School	
Day 2. Opening International School at the BSU. Project presentation and communication. Moderators: Ibraim Didmanidze (from 10.00 to 12.30) Olga Yamkova (from 14.00 to 17.00)				
November 21, 2022 Location: BSU	10.00 - 10.10		Opening International School	BSU administration representative
	10.10 - 11.00		Opportunities for the development of international cooperation in the fields of higher education, science and innovative research between universities - partners of the CPEA-LT-2012/10003 project in the future. Short presentations/reviews from each partner institution of project.	Ibraim Didmanidze (BSU) Zurab Megrelishvili (BSU) Alexey Gaivoronski (NTNU) Anatoly Anisimov (TSNUK) Boris Hancu (MSU) Omar Purtukhia (TSU) Pavlo. Knopov (GIK)
	11.00-11.20		About Tbilisi Javakhishvili State University	Tinatin Davitashvili, Omar Purtukhia (TSU)
	11.20 - 11.40		Presentation of the results of the project CPEA-LT-2016/10003	Volodymyr Zaslavskiy
	11.40 - 11.45		Short video about the CPEA-LT-2016/10003 project	Alexey Gaivoronski

	11.45 - 12.10		Higher education in Ukraine during the war time and problems of its renewal in the post-war period	Volodymyr Zaslavskyy Olga Yamkova
	12.10 - 12.30		Questions / Dialogue/Project communication	
Location: Hotel Eurasia	12.30 - 14.00		Transfer to the Hotel Lunch	
Location: Hotel Eurasia	14.00 - 14.30	Lecture - presentation 1	Innovative teaching methods in the higher education system	Petre Babilua, Omar Purtukhia, Mariam Gelashvili
	14.30- 15.00	Lecture - presentation 2	Academic mobility as the basis of the internationalization of education and the risks associated with it -1	Guram Chachanidze
	15.00- 15.30	Lecture - presentation 3	Academic mobility as the basis of the internationalization of education and the risks associated with it – 2	Chachanidze Guram
	15.30- 16.00	Lecture - presentation 4	Modern educational trends and innovations in the focus of Project CPEA-LT-2016/10003	Volodymyr Zaslavskyy Olga Yamkova
	17.00		Free time. Dinner	
Theme of the Day 3: Innovation theory and innovation decision-making. System analysis in the study of innovative processes Moderator's: Omar Purtukhia (from 10.00 to 13.00) Boris Hancu (from 14.00 to 17.00)				
November 22, 2022 Location: Hotel Eurasia	10.00 - 10.30	Lecture 1	Innovation theory, innovative projects and startups, innovative management	Volodymyr Zaslavskyy
	10.30 - 11.20	Lecture 2	Informational impact in game theory	Boris Hancu
	11.20 - 12.00	Lecture 3	System analysis of innovation processes, diversity and the type-variety principle	Volodymyr Zaslavskyy
	12.00- 13.00	Lecture 4	Solving stochastic equilibrium problems with applications to energy and Internet	Alexey Gaivoronski
Location: Hotel Eurasia	13.00 - 14.00		Lunch	

Location: Hotel Eurasia	14.00 - 14.30	Lecture 1	Diffusion of innovations and its main components: innovations, communication channels.	Volodymyr Zaslavskiy
	14.30 - 15.00	Case study 2	Multi-agent modeling and simulation environment	Kakhi Kakhidze Ibraim Didmanidze Gregori Kakhiani
	15.00 - 15.30	Case study 3	Creative processes and formation of innovative idea	Volodymyr Zaslavskiy
	15.30 16.00	Lecture 4	About some applied problems of the stochastic optimization and risk theory	Pavlo Knopov
	16.00 17.00	Practice 5	Application of network effects by digital platforms	Vasyl Gorbachuk
	From 17.00		Dinner Multicultural dialogue between teachers and students. Free time.	

Theme of the Day 4:
Application of innovation technology and example of innovation solutions
Moderators: Volodymyr Zaslavskiy (from 10.00 to 13.00)
Boris Hancu (from 14.00 to 17.00)

November 23, 2022 Location: Hotel Eurasia	10.00	Lecture 1	Problems of household and industrial waste and prospects for their use as energy sources in the regions of Adjara	Madona Loria, Maia Tugushi Lasha Artmeladze
		Lecture 2	Green energy and innovative decision-making models and methods	Volodymyr Zaslavskiy Maya Pasichna
		Case study 3	Prospects for oil and gas production in Georgia, taking into account the energy crisis and risk	David Chckaidze, Zurab Megrelishvili
		Case study 4	About some applied problems of the stochastic optimization and risk theory	Pavlo Knopov
		Case study 5	Energy of the Black sea and prospects for its use	Zurab Megrelishvili, David Gurgenedze Gela Kipiani Sergei Politov Leonova Victoria
		Case study 6	On the existence of an optimal initial data for the controlled quasi-linear neutral equation	Mariami Kazaiashvil

		Case study 7	Solving stochastic equilibrium problems with applications to energy and Internet	Alexei A. Gaivoronski
Location: Hotel Eurasia	13.00 - 14.00		Lunch	
	14.00 - 17.00		Excursion. Dinner.	
	18.00 - 21.00	Team work / Pitch	Evening session - Introduction to the startup After lunch, willing students speak from universities	
Theme of the Day 5: Contemporary problems of society, risk management and innovative models and solutions Moderators: Didmanidze Ibraim (from 10.00 to 13.00) Volodymyr Zaslavskiy (from 14.00 to 17.00)				
November 24, 2022 Location: Hotel Eurasia	10.00 - 10.40	Lecture 1	Operations Research (OR) models and methods for the critical infrastructure protection	Volodymyr Norkin Gaivoronski A. A., Zaslavsky V.A., Knopov P.S.
	10.40 - 11.20	Lecture 2	Agriculture and Adaptation to Climate Change through Risk-Adjusted Crop Insurance: Estimating Probability Distributions of Crop Yields based Climate Change Indicators and Soil Characteristics	Tatiana Ermolieva Pavel S. Knopov, Vasyl M. Gorbachuk, Volodymyr Zaslavskiy, Olena M. Borodina, Alexei A. Gaivoronski, Petr Havlik, Juraj Balkovic, Rastislav Skalsky, Andrey Lessa Derci Augustynczyk, Gui-ing Cao, Gang Wang
	11.20- 11.40	Case study 3	An innovative approach to measure model risk in financial risk management	Valeriane Jokhadze, Omar Purtukhia.

	11.40-12.20	Lecture 4	Data transmission methods in in MPI programming	Boris Hancu
	12.20 - 12.40	Lecture 5	Risk management technology to ensure the safety of critical infrastructure facilities based on improving the reliability of personnel work.	Oleg Gorbunov, Volodymyr Zaslavskiy Vasyl Tereshenko Oleksander Marchenko
	11.20. - 12.00.	Lecture 6	On the Creativity Risks in the Artistic and Aesthetic Thinking	Bagrationi Irma
Location: Hotel Eurasia	13.00 - 14.00		Lunch	
	14.00 - 14.30	Lecture 1	Retrospective and modernity of mathematical education and science at Ivane Javakhishvili Tbilisi State University	Elizbar Nadaraya, Omar Purtukhia
		Lecture 2	On a novel exact projective penalty function in constrained optimization	Volodymyr Norkin
		Lecture 3	Ecology and Risk	Didmanidze Ibraim Didmanidze Didar Geladze Darejan Beridze Zebur
		Case study 4	Monitoring and studying the areas of surface and ground water passing through the settlements in the Adjara region and the types of their pollution	Guram Darchidze, Gela Kipiani,
		Case study 5	Some Problems of Convergence of General Dirichlet's Integrals"	Nika Areshuidze
		Case study 6	On One Nonlinear Ordinary Differential Equation	Nika Areshuidze Tinatin Chovelidze
	18.00		Free time. Dinner	

Theme of the Day 6: Research space and scientific and educational potential of universities for innovative research

Moderator's: Olga Yamkova (from 10.00 to 13.00)

Boris Hancu (from 14.00 to 17.00)

November, 25, 2022 Location: Hotel Eurasia	10.00 - 10.30	Overview - presentation	Ivane Javakhishvili Tbilisi State University research overview	Tamar Gogua
		Overview - presentation	Presentation of the Knowledge Transfer and Innovation Center (Ivane Javakhishvili Tbilisi State University)	Giorgi Kakauridze
	10.40. – 11.20.	Lecture 3	The Ideological Worldview for the Ethical Risks of Decision-Making	Bagrationi Irma
		Lecture 4	Transdisciplinary clusters of knowledge	Oleksandr Stryzhak
		Lecture 5	Two-Stage Transportation Problem Modifications and Their Applications	Petro Stetsyuk, Viktor Stovba, Olha Khomiak, Stanislav Tregubenko
		Lecture 6	The role of Georgian culture in the history of Ukraine	Megrelishvili Merab Didmanidze Ibraim
Location: Hotel Eurasia	13.00 - 14.00		Lunch	
		Lecture 1	Innovative management in beekeeping in the conditions of climate change and restrictions on management	Volodymyr Zaslavskiy
		Lecture 2	«Wetland» in Georgian, advantages and prospects of its usage	David Chkhubiani Zurab Megrelishvili
		Overview – presentation 3	Infrastructural technologies of big and open data of the National Academy of Sciences of Ukraine	Vasyl Gorbachuk
		Lecture 4	Discovery of radiation elements in construction materials and issues of their Removal.	Nino Dondoladze, Nana Dondoladze

		Lecture 5	On one absolutely continuous non-linear transformation of a Gaussian measure excited by "white noise" in a Hilbert space	Shatashvili Albert Didmanidze Ibraim Fomin-Shatashvili Tamara
		Lecture 6	Informatics and Quantitative Risk Management	Didmanidze Ibraim Didmanidze Didar Motskobili Ia
	From 18.00		Free time. Dinner	
Theme of the Day 7: Presentation of student innovative mini-projects. Expert advice and recommendations for students - members of the school. Moderator's: Ibraim Didmanidze, Alexey Gaivoronski				
November, 26, 2022 Location: Hotel Eurasia	10.00 - 11.00		Presentation of student innovative mini-projects from the universities of Georgia, Norway, Moldova and Ukraine	Ibraim Didmanidze
	11.00 - 11.30		Discussion and assessment of student innovative mini-projects	Jury of the competition: Ibraim Didmanidze, Volodymyr Zaslavskiy, Alexey Gaivoronskiy, Omar Purtukhia, Boris Khinku, Olha Yamkova
	11.30 – 13.00		Announcement of the results of the competition. Summarizing the work of the international school.	Alexey Gaivoronskiy
Location: Hotel Eurasia	13.00 - 14.00		Lunch	
Location: Hotel Eurasia	14.00 - 16.00		Coordination project meeting on the CPEA-LT-2016/10003 project in a mixed format	Representatives of partner institutions of the CPEA-LT-2016/10003 project
	17.00		Free time. Dinner. Departure	