



## Master's Educational Program

### Name of the program

ტექნოლოგიური პროექტების მენეჯმენტი და ინდუსტრიული პოლიტიკა

Management of Technical Projects and Industrial Policy

### Faculty

ენერგეტიკისა და ტელეკომუნიკაციის

Power Engineering and Telecommunication

### Program manager

Professor Archil Samadashvili

### Qualification to be Awarded and Program Credit Capacity

Master of Management in Project Management

მენეჯმენტის მაგისტრი პროექტების მენეჯმენტის სპეციალიზაციით

*Shall be awarded in case of performing no less than 120 credits of the educational program*

### Language of Instruction

Georgian

### Prerequisite for admission to the program

A student with a Bachelor's or equivalent academic degree has the right to study at the master's program, who will enroll in the program on the basis of the results of the Master's Exams (Centralized Entrance Master's Exams and exam defined by GTU). Examination tasks/tests will be posted on GTU Teaching Department website <http://www.gtu.ge/study> at least one month before the exams. Enrollment in the program without passing the Master's Exams is possible in accordance with the rule established by Georgian Legislation.

## Description of the program

The program is elaborated with ECTS system, 1 credit equals 25 hours, which means the contact and independent work hours. The credit distribution is presented in the program curriculum. The program lasts for 2 years (4 semesters) and includes 120 credits. Study component - 75 credits, it envisages a total of 15 courses, from which 2 are selected by the Master student from the proposed alternatives. The research component capacity is 45 credits, which includes the following: Master's research project / prospectus - 5 credits, theoretical / experimental research / colloquium - 10 credits, completion and defense of master thesis - 30 credits.

The teaching semester covers 20 weeks, from which a classroom classes are conducted for 15 weeks and one week is allocated to the midterm exams. The XVII week is a period of preparation for final exams, which are held on the XVIII-XIX week. XX week, if necessary, is allocated to add additional exams.

### Teaching component

*The first semester* includes 5-credit 6 teaching courses; Four of them are compulsory and one 5-credit so called "semi-mandatory" is the optional course: a student can select one of the 2 offers.

*The second semester* covers four compulsory and one "semi-mandatory" optional 5-credit teaching courses, which will also be selected from 2 alternatives. In the same semester, the Master student completes Master's Research Project / Prospectus (5 credits)

*The third semester* covers 4 compulsory 5-credit teaching courses, in the same semester, the Master student completes Theoretical / Experimental Research / Colloquium (10 credits).

The maximum score of midterm assessment is 60 points, from which: the maximum score of the midterm exam is 30 points, minimum competence limit - 15 points, maximum score of current activity is 30 points, minimum competence limit - 15 points; The maximum score of the final / additional exam is 40 points, minimum competence limit - 20 points.

The additional exam is conducted after the final examination, interval is at least 5 days.

### Research component

Compulsory Elements of the Program Research Component: Master Research Project / Prospectus (5 credits), Theoretical / Experimental Research / Colloquium (10 credits), Master's thesis design and defense (30 credits). Master student completes the research component according to the topic of the master's thesis.

*Master's Research Project / Prospectus* is rated at a maximum of 100 points, its assessment criteria and scales are given in GTU's evaluation guidelines for the Master's Educational Program:

[http://gtu.ge/pdf/magistraturis\\_danarti\\_4\\_Sefasebis\\_wesi.pdf](http://gtu.ge/pdf/magistraturis_danarti_4_Sefasebis_wesi.pdf)

Master student starts working on the *Theoretical / experimental research / colloquium* in the second year of the course, in the third semester. It includes searching, systematizing and presentation of the material related to the master's topic and / or its individual parts on the colloquium. During the presentation, the master should show the depth of research of a particular issue and present the results. The main purpose of the colloquium is to widen the Master's knowledge and presentation of the results of the work, the acquisition of modern methods of research, the independent formulation and solution of the issues arising during the work, and the ability to communicate with the professional community. For the purpose of evaluating the colloquium, before the completion of the corresponding teaching semester (no later than 15th week), the results of the research will be submitted to the Faculty Dean, who composes a Commission of 3-5 persons. Representatives of the appropriate direction/field academic personnel should be included in the Commission. The colloquium assessment is made according to 5 criteria: the compliance of the research methods and the direction to the survey, the quality of the given problem, quality of conducted research, trustworthiness of the conclusion based on the conducted research, the determination of the further direction of the research, the ability to present the topic. The evaluation criteria and scales of the evaluation of colloquium, qualification work, and detailed information on the Rule of Evaluation of the Master's Education Program Research Component are given in the GTU website in the Rule of Evaluation of the Master's Educational Program:

[http://gtu.ge/pdf/magistraturis\\_danarti\\_4\\_Sefasebis\\_wesi.pdf](http://gtu.ge/pdf/magistraturis_danarti_4_Sefasebis_wesi.pdf)

*In the fourth semester* the Master student designs and defends Master's thesis - 30 credits.

Instruction of master's thesis design for getting Master's Degree is given on GTU website:

[http://gtu.ge/pdf/magist\\_debuleba\\_dan5\\_2017\\_SD.pdf](http://gtu.ge/pdf/magist_debuleba_dan5_2017_SD.pdf)

Decree on the title of the Master's thesis and Master's supervisor is issued by the Dean in accordance with

### Goal of the program

The aim of the program is to prepare highly qualified specialists for development and realization of innovative solutions, with respect to manufacturing systems and industrial policies.

### Learning Outcomes and Competences (General and Sectoral)

**Knowledge and understanding** - has solid and systemic knowledge required for innovative engineering of industrial systems and radical improvement of their efficiency; The graduate is fully aware of the role of complex socio-technical systems in society development and the importance of relevant industrial policy.

**Ability of applying knowledge in practice** - ensures optimization of professional standards established in the area of his/her activities; Through conducting relevant research, he/she has ability to study independently new approaches to organization of industrial and service operations and production potential of new technologies; Has ability to develop adequate strategic decisions regarding technologies and manufacturing operations, based on the use of quantitative analysis and imitation modeling of the received information, and provide their realization to innovative production systems.

**Making Judgement** - on the basis of analyzing the scientific information obtained by others as well as analysis of the results of his/her own research, is able to synthesize proposals for long-term entrepreneurial policy for specific enterprises and individual sectors as well as for the industry as a whole. Formulates his/her conclusions in quantitative formulas, in addition gives exhaustive argumentation of the innovations of his/her own choice.

**Communication skills** - In compliance with the standards of academic honesty and adequate use of information-communication technologies, adequate representation of his/her conclusions, arguments, research methods and results, for both professional and any other society.

**Learning skills** - Ability to evaluate the level of his/her qualifications objectively and to comprehend the need for perfection; Ability to elaborate strategy of professional development and to use its realization capabilities (independent work, internship in other organizations, studies in doctoral studies, post-doctoral research) creatively.

**Values** - Share the professional values established in the field of his/her activities, actively promoting establishment and further development of subordinates, co-performers, business partners his/her own environment; Fully takes responsibility for professional activities before both employers and subordinate employees as well as for the society as a whole.

### Forms and methods of learning outcomes

Lecture  Seminar (team working)  Practice work  Laboratory  Practice  Course paper/project  Master thesis  Consultation  Independent work

Based on the specificity of the particular course, the appropriate activities of teaching-learning methods are used that are depicted in the course programs (syllabus):

1. **Discussion / debate** - one of the most common methods of interactive teaching. Discussion process increases the quality and activity of student engagement. Discussions can be overcome in the debate and this process is not limited to the questions asked by the teacher. It develops a student's ability to reason and to justify his opinion.
2. **Cooperative Teaching** - Is a teaching strategy in which each group member is obliged not only to study for himself, but also to help his team members to understand the subject better. Each member of the group works on the problem, until all of them master the subject.
3. **Problem Based Learning (PBL)** - Activity, which uses a specific problem as the initial stage of acquiring new knowledge and integration process.
4. **Case study** - The teacher discusses particular cases with students and they will learn the issue

thoroughly. For example, in the field of engineering security it can be a particular accident or catastrophe in political science, for example, the analysis of the Karabakh problem (Armenian-Azerbaijani conflict), etc.

5. **Brain storming** - This activity promotes formation and expression of the radically different opinion, idea within the premises of the topic. The mentioned activity contributes to the development of a creative approach to the problem. Use of the method is effective in the existence of 2 large number groups of students and consists of several main stages:
  - Determining problem / issue in creative perspective; Making note without criticizing the ideas expressed by the listeners in a certain period of time (mainly on the board);
  - Determining assessment criteria to state the relevance of the idea with the aim of the research;
  - Assessing selected ideas according to the predetermined criteria;
  - Selecting the ideas that are most relevant to the issue, by the method of exclusion;
  - Identifying the idea having the highest assessment, as the best means revealing the solution of the problem.
6. **Role-playing and situational games** - include the types of games that involve business (role-playing) games, didactic or educational games, playing situations (situational games), playing techniques and procedures. The games under the predefined scenario allow students to look at the issue from different positions. It helps them to develop an alternative viewpoint. As discussions, these games also formulate the student's ability to express his/her position independently and to defend his/her argument in debates.
7. **Demonstration Method** - This method involves visual representation of information. In terms of achieving the result it is quite effective. In many cases, it is best to provide the materials simultaneously with audio and visual means. The study material can be demonstrated by both - the teacher and the student. This method helps to visualize the different levels of learning material, to specify what students will have to do independently; at the same time, this strategy will visually represent the essence of the issue/problem. Demonstration may be simple.
8. **Analysis Method** - Helps dissolve the learning material as part of one whole component. This will simplify detailed coverage of individual issues within a difficult problem.
9. **Synthesis** implies the creation of one whole by grouping separate issues. This activity contributes to the development of the ability to see the problem as a whole;
10. **Verbal or oral method** - Narration, speaking, etc. belong to this activity. In this process, the teacher represents the teaching material verbally, explains the teaching material, and the students perceive and acquire the material by listening, remembering and apprehending.
11. **Written work method**, which implies the following types of activities: making extracts and records, summarizing material, composing the theses, composing/writing abstract or essay etc.
12. **Explanatory method** – is based on the discussion around the given issue, a teacher gives particular example being discussed in details within framework of the topic.
13. **Action-oriented teaching** - requires the involvement of the teacher and the student in the teaching process, where the practical interpretation of the theoretical material is taken into consideration.

### Student knowledge assessment system

Assessment system is based on a 100-point scale.

Positive grades:

- (A) - Excellent - the rating of 91-100 points;
- (B) – Very good - - the rating of 81-90 points
- (C) - Good - the rating of 71-80 points
- (D) - Satisfactory - the rating of 61-70 points
- (E) - Enough - the rating of 51-60 points

Negative grades:

- (FX) - Did not pass - 41-50 points of rating, which means that the student needs more work to pass the subject and is given the right to take the additional exam once with independent work;
- (F) – Failed - 40 points and less, which means that the work carried out by the student is not enough and he/she has to learn the subject from the beginning.

## Field of employment

Research, engineering and management functions in any enterprise, scientific organizations or the state governing body, which is related to the development of entrepreneurial strategies in regard to technologies, conversion of the operating systems by using innovative approaches, development and implementation of long-term industrial policy.

## Opportunity to continue learning

Doctoral Educational Programs

## Human and material resources necessary for the implementation of the program

The program is provided with relevant human and material resources, CVs and additional information in the attached documentation. The program is provided with material-technical resources (the document confirming the material resource is attached): Department of Industrial Innovations and Operations Management (8th building, GTU), teaching classrooms, computer classes, GTU library.

### Software Systems:

1. Production and Operational Management – Quantitative Methods (POM-QM for Windows), Which is accompanied by methodical material: POM – QM for Windows. Software for Decision Sciences: Production and Operations Management, Quantitative Methods. Version 3. H. J. Weiss. Pearson Education, Inc. 2005. 235 p.
2. Excel Examples for Quantitative Methods, Which is accompanied by methodical material:Excel QM. H. J. Weiss. Pearson Education, Inc. 2012. 174 p.
3. Program Management Computer Packages: Microsoft Project, Expert Choice.
4. SAP ERP 6.0 Enhancement Package 4 GBI system, Which is accompanied by methodical material:SAP ERP Using Global Bike Inc. 2.0, Stefan Weidner, Nov 2009

### The program will be implemented by the following academic personnel

Archil Samadashvili, Professor, Candidate of Technical Sciences - Management of Entrepreneurial and Technological Innovations, Production Systems of Process Organization, Conceptual Basis of Enterprise Management, Engineering Processes and Management, System Engineering;

Konstantine Khmaladze, Professor, Candidate of Economic Sciences - Technological Basis for Economic Development;

Manana Maghradze, Professor, Candidate of Technical Sciences - Modeling Logistics Systems;

Aleksandre Abesadze, Associate Professor, Candidate of Technical Sciences - Quantitative Methods for Decision Making 1;

Avtandil Asatiani, Associate Professor, Candidate of Pedagogical Sciences - Communication and Negotiation;

Teimuraz Berdzenishvili, Professor, Candidate of Technical Sciences - Conceptual Basis of Strategic Management;

Ketevan Kutateladze, Associate Professor, Candidate of Technical Sciences - Enterprise Economics (Invited Associated Professor);

Manana Samadashvili, Assistant Professor, Candidate of Technical Sciences - Methods and Models of Personnel Management;

Zurab Giorgobiani, Senior Teacher - Quantitative Methods for Decision Making 2; High-tech programs and projects management;

Tamaz Gigilashvili, Senior Teacher - Excel Models in Engineering and Operations Management Objectives;

Rusudan Gotsiridze, Professor - Business Communication (English), Theory and Practice of Translating the Subject (English);

Ia Chikvinidze, Associate Professor - Business Communication (French), Theory and Practice of Translating the Text (French);

Ia Burduli, Associate Professor - Business Communication (German), Theory and Practice of Translating the Text (German);

Tatyana Megrelishvili, Associate Professor - Business Communication (Russian), Theory and Practice of Translating the Subject (Russian).

**Number of attached syllabuses: 23**

## Program subject load

№	Subject	Precondition to admission	ECTS credit					
			I Year		II Year			
			Semester					
			I	II	III	IV		

1	Business Communication (English language)	N/A	5			
	Business communication (French language)					
	Business Communication (German language)					
	Business Communication (Russian language)					
2	Theory and Practice of Field Text Translation (English)	N/A	5			
	Theory and Practice of Field Text Translation (French)					
	Theory and Practice of Field Text Translation (German)					
	Theory and Practice of Field Text Translation (Russian)					
3	Economy of the enterprise	N/A	5			
4	Production systems of the process organization (Optional subject)	N/A	5			
	Business Processes Engineering and Management (Optional Subject)					
5	Quantitative Methods for Decision Making 1	N/A	5			
6	Communication and negotiation in business	N/A	5			
7	Technological basis for economic development	N/A	5			
8	Quantitative methods of decision making 2	Quantitative methods of decision making1		5		
9	High-tech programs and projects management	N/A		5		
10	Conceptual bases of strategic management	N/A		5		
11	Conceptual Basis of Enterprise Management (Optional subject)	N/A		5		
	Systems Engineering (Optional subject)					
12	Excel models in engineering and operation management tasks	Quantitative methods of decision making2			5	
13	Entrepreneurial and Technological Innovations Management	N/A			5	
14	Personnel management models and methods	Communication and negotiation in business			5	
15	Modeling of logistics systems	N/A			5	
			<b>In semester:</b>	<b>30</b>	<b>25</b>	<b>20</b>
			<b>Total:</b>	<b>75</b>		
<b>Research component:</b>						
	Master Research Project / Prospectus			5		
	Theoretical / experimental research / colloquium				10	
	Completion and protection of master thesis					30
			<b>Total in semester:</b>	<b>30</b>	<b>30</b>	<b>30</b>

	<b>Total in year:</b>	<b>60</b>	<b>60</b>
	<b>Total:</b>	<b>120</b>	

### Map of learning outcomes

Nº	Subject	Knowledge and understanding	Use knowledge in practice	Judgment skill	Communication skill	Learning skill	Values
1	Business Communication (English)	x	x		x	x	x
2	Business communication (French language)	x	x		x	x	x
3	Business Communication (German)	x	x		x	x	x
4	Business Communication (Russian)	x	x		x	x	x
5	Theory and Practice of Field Text Translation (English)	x	x	x	x		
6	Theory and Practice of Field Text Translation (French)	x	x	x	x		
7	Theory and Practice of Field Text Translation (German)	x	x	x	x		x
8	Theory and Practice of Field Text Translation (Russian)	x	x	x	x		
9	Economy of the enterprise	x	x	x			
10	Production systems of the process organization (Optional subject)	x	x				
11	Business Processes Engineering and Management (Optional Subject)	x	x	x			
12	Quantitative Methods for Decision Making 1	x	x			x	
13	Communication and negotiation in business	x	x		x		x
14	Technological basis for economic development	x		x		x	
15	Quantitative methods of decision making 2	x	x	x			
16	High-tech programs and projects management	x	x	x	x		
17	Conceptual bases of strategic management	x	x	x			
18	Conceptual Basis of Enterprise Management (Optional Subject)	x	x			x	
19	Systems Engineering (Optional)	x	x	x			
20	Excel models in engineering and operation management tasks	x	x			x	
21	Entrepreneurial and Technological Innovation Management	x	x			x	
22	Personnel management models and methods	x	x	x			
23	Modeling logistics systems	x	x	x			
<b>Reserch components:</b>							
	Master Research Project / Prospectus	x	x	x	x	x	x
	Theoretical / experimental research / colloquium	x	x	x	x	x	x

Completion and protection of master thesis	x	x	x	x	x	x
--	---	---	---	---	---	---

### Program curriculum

№	Subject code	Subject	ESTS credit/hours	Hours								
				Lecture	Seminar (working in group)	Practical work	Laboratory	Practice	Course paper/project	Semi-semester exam	Final exam	Independent work
1	LEH12412G1-P	Business Communication (English)	5/125			45				2	2	76
2	LEH12212G1-P	Business communication (French language)	5/125			45				2	2	76
3	LEH12612G1-P	Business Communication (German)	5/125			45				2	2	76
4	LEH12812G1-P	Business Communication (Russian)	5/125			45				2	2	76
5	LEH12512G1-LP	Theory and Practice of Field Text Translation (English)	5/125	15		30				2	2	76
6	LEH12312G1-LP	Technical Theory and Practice (French)	5/125	15		30				2	2	76
7	LEH12712G1-LP	Technical Translation Theory and Practice (German)	5/125	15		30				2	2	76
8	LEH12912G1-LP	Theory and Practice of Field Text Translation (Russian)	5/125	15		30				2	2	76
9	SOS11902G1-LP	Economy of the enterprise	5/125	15		30				1	2	77
10	ISPO002-LS	Production systems of the process organization (Optional subject)	5/125	15	30					1	2	77
11	BUA36502G1-LSB	Business Processes Engineering and Management (Optional Subject)	5/125	15	15		15			1	2	77
12	MAS35802G1-LB	Quantity Methods for Decision Making 1	5/125	15			30			1	2	77
13	BUA36802G1-LS	Communication and negotiation in business	5/125	15	30					2	2	76
14	SOS11802G1-LS	Technological basis for economic development	5/125	15	30					2	2	76
15	MAS35902G1-LB	Quantitative methods of decision making 2	5/125	15			30			1	2	77
16	BUA37002G1-LSB	High-tech programs and projects management	5/125	15	20		10			1	2	77
17	BUA37402G1-LS	Conceptual bases of strategic management	5/125	15	30					1	2	77
18	BEMAN02-S	Conceptual Basis of Enterprise	5/125	15	30					1	2	77



		Management (Optional Subject)										
19	EET06702G1-LS	Systems Engineering (Optional)	5/125	15	30					1	2	77
20	ICT14402G1-B	Excel models in engineering and operation management tasks	5/125				45			1	2	77
21	BUA36402G1-LB	Entrepreneurial and Technological Innovation Management	5/125	15			30			1	2	77
22	BUA37102G1-LP	Personnel management models and methods	5/125	15		30				1	2	77
23	BUA36902G1-LSP	Modeling logistics systems	5/125	15	12	18				1	2	77

Head of the program

Archil Samadashvili

Head of Quality Assurance Service of  
Faculty of Power Engineering and Telecommunication

Nikoloz Abzianidze

Dean of the faculty

Gia Arabidze

**Approved by**

Faculty of Power Engineering and telecommunication  
At the Faculty Board Meeting  
03.07.2012.

**Agreed with**

Quality Assurance Service of GTU

Irma Inashvili

**Modified by**

Faculty of Power Engineering and Telecommunication  
At the Faculty Board Meeting  
27.03.2018, Protocol №2  
Chairman of the Faculty Board

Gia Arabidze