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Federal State Autonomous Educational Institution for Higher Education
PEOPLES FRIENDSHIP UNIVERSITY OF RUSSIA NAMED AFTER PATRICE
LUMUMBA
(RUDN University)

Higher School of Management

(faculty/institute/academy - the higher education program developer)

COURSE SYLLABUS

Lean Manufacturing

(name of the discipline/module)

Recommended by the Didactic Council for the Education Field of:

38.04.02 Management

(field of studies / speciality code and title)

The study of the discipline is conducted as part of the professional program of higher education.

Engineering Management

(name (track/specialization) of professional program of higher education)

1. THE GOAL OF MASTERING THE DISCIPLINE

The goal of mastering the *Lean Manufacturing* discipline is to build in students the theoretical knowledge and skills of applying the lean manufacturing approach.

2. REQUIREMENTS FOR DISCIPLINE OUTCOMES

The mastering of the *Lean Manufacturing* discipline envisages building the following competencies (parts of competencies) in students:

Table 2.1. The list of competencies acquired by students in the course of the discipline (outcomes of the discipline)

Competence Code	Competence Descriptor	Competence Formation Indicators (within this discipline)
GC-3	Ability to perform critical analysis of problematic situations based on the systemic approach and develop a plan of action.	GC-3.1. Know: - economic and mathematical models of the modern market economy; - methods of analysis, synthesis and generalization;
		GC-3.2. Be able to: - gather and systematize the necessary economic information efficiently; - analyze economic phenomena and processes in their correlation; - to make logical thoughts necessary for effective management decision-making;
		GC-3.3. Master: - modern methods of economic analysis; - computer technologies for data collection, systematization and processing; - the ability of self-knowledge, self-actualization, self-reflection;
GC-6	Capability to determine and implement the priorities of his/her own activities and ways to improve it based on self-assessment.	GC-6.1 Controls the amount of time spent on specific activities GC-6.2 Develops tools and time management techniques when performing specific tasks, projects, goals GC-6.3 Analyzes its resources and their limits (personal, situational, temporary, etc.) for the successful completion of the task GC-6.4 Allocates tasks for long-, medium- and short-term with justification of relevance and analysis of resources for their implementation
PC-1	Capability to manage the efficiency of an investment project	PC-1.1 Defines the operations and their sequence to implement the investment project. PC-1.2 Evaluates operational, estimates human resources and determines the participants in the investment project PC-1.3 Plans the implementation stages of the investment project, ensures the quality and quality control of the investment project implementation PC-1.4 Can work in specialized computer programs for the preparation and investment project implementation PC-1.5 Can search the necessary information for the preparation and implementation of an investment

Competence Code	Competence Descriptor	Competence Formation Indicators (within this discipline)
		project PC-1.6 Can identify and assess the degree (level) of an investment project risks and develop measures to manage them

3. THE PLACE OF DISCIPLINE IN HIGHER EDUCATION PROGRAM STRUCTURE

The *Lean manufacturing* is an independent discipline that is an integral part of the Management educational program 38.04.02. It is an elective part of the curriculum.

Table 3.1. The list of the higher education program components that contribute to the achievement of the expected learning outcomes as the disciplines results.

No	Competence Code and name	Previous Disciplines	Subsequent Disciplines (Disciplines Groups)
	GC-3	Organization and Production Management	Master's Degree R&D Pre-graduation Practice Preparing for defense and defense of the degree thesis
1.	GC-6,	Strategic Management in Industrial Companies	Master's Degree R&D Pre-graduation Practice Preparing for defense and defense of the degree thesis
Professional Competencies			
3.	PC-1	Innovation Management	Master's Degree R&D Pre-graduation Practice Preparing for defense and defense of the degree thesis

4. SCOPE OF DISCIPLINE AND TYPES OF SCHOLASTIC WORK

The total workload of the discipline is 3 credits.

*Table 4.1. Types of educational work according to the periods of mastering the higher education program for **FULL-TIME** students*

Type of Educational Work		Total hours	Semesters			
			3			
1.	Classroom classes (total)	36	36			
	Including:	-	-			
1.1.	Lectures	18	18			
1.2.	Other activities					
	Including:					
1.2. 1.	Seminars (C)	18	18			
	Practice training (PT)					
2.	Autonomous work (total)	63	63			
	Including:					
2.1.	Calculation and graphic works	-				
	<i>Other types of autonomous work</i>					

	Preparation and passing of midterm assessment		9	9			
3.	Total workload (acad.hours)		108	108			
	Total workload (credits)		3	3			

5. DISCIPLINE CONTENT

Table 5.1. The content of the discipline (module) by type of academic work

No	Name of the Discipline Section	Content of the Section (topics)
1.	Subject 1. The Basics of a Lean Office.	Causes and Case History (T.Ono, S.Shingo, Tapping, Laro)
2.	Subject 2. Lean Office Concept and Philosophy	Options of Conceptual Representations of Lean Office and their Fundamental Differences
3.	Subject 3. Principles of Creating a Lean Office (value, SC flow and losses)	The Main Characteristics of the Lean Flow and its Parameters Differences Between a Lean Office and a Traditional One
4.	Subject 4. Systems and Tools for Creating a Lean Office	Lean Office Deployment Models (levels, stages, depth of changes)

Table 5.2. Sections of disciplines and types of classes

No	Name of the Discipline Section	Lectures	Prac. class.	Lab. class.	Colloq.	Aver.	Hours, total
1.	Subject 1. The Basics of a Lean Office.	4	12			10	26
2.	Subject 2. Lean Office Concept and Philosophy	4	10			5	19
3.	Subject 3. Principles of Creating a Lean Office (value, SC flow and losses)	10	8			11	29
4.	Subject 4. Systems and Tools for Creating a Lean Office	7	4			5	16
	Credit with grade						18
	Total:	25	34			31	108

6. EQUIPMENT AND TECHNOLOGICAL SUPPORT OF THE DISCIPLINE

Electronic educational materials used by professors in the teaching process, multimedia presentations, a bank of test tasks, etc. are provided on the Economist and Web-local portals.

No	Actual address of classrooms and facilities	List of main equipment
1	Miklukho-Maklay st., 6, room 19	21 workplaces: system unit P4 C2D/3160 MHz MB/ 320 GB/DVD±RW/ LCD monitor 19"+ 1 projector

2	Miklukho-Maklay st., 6, room 21	21 workplace: Celeron system unit/2600 MHz/1280 MB/ 40 GB/DVD ROM/ LCD monitor 17" + 1 projector + WiFi access point
3	Miklukho-Maklay st., 6, room 23	21 workplaces: Celeron system unit/2660 MHz/1280 MB/ 40 GB/DVD ROM/ LCD monitor 17" + 1 projector
4	Miklukho-Maklay st., 6, room 25	21 workplaces: Celeron system unit P4 /1700 MHz/1280 MB/ 40 GB/DVD ROM/ LCD monitor 17" + 1 projector
5	Miklukho-Maklay st., 6, room 300	15 workplaces: system. unit P4 C2D /2000 MHz/1024 MB/ 160 GB/DVD±RW/ LCD monitor 17" + 1 projector
6	Miklukho-Maklay st., 6, room 17	1 projector
7	Miklukho-Maklay st., 6, room 27	1 projector, WiFi access point
8	Miklukho-Maklaya, 6, room 29	1 projector
9	Miklukho-Maklay st., 6, room 101	1 projector
10	Miklukho-Maklay st., 6, room 103	1 projector
11	Miklukho-Maklay st., 6, room 105	1 projector, WiFi access point
12	Miklukho-Maklay st., 6, room 107	1 projector
13	Miklukho-Maklaya, 6, Computer class	1 projector, WiFi access point
14	Miklukho-Maklay st., 6, reading room	1 projector

Practical Classes (Seminars)

No	Seminar Subjects	Workload (hour)
1	Subject 1. The Basics of a Lean Office.	12
2	Subject 2. Lean Office Concept and Philosophy	10
3	Subject 3. Principles of Creating a Lean Office (value, SC flow and losses)	8
4	Subject 4. Systems and Tools for Creating a Lean Office	4
	Total:	34

7. INFRASTRUCTURE AND INFORMATIONAL SUPPORT NECESSARY FOR THE DISCIPLINE

a) Main Readings:

1. James P. Womack, Daniel Jones *Lean thinking: banish waste and create wealth in your corporation (MUST READ series)*. –Moscow: Alpina Publisher, 2023. –472c

2. Tsarenko, A. S. *Berezhlivoye myshlenie v gosudarstvennom upravlenii [Lean thinking in public administration]: a monograph / A. S. Tsarenko, O. Y. Guselnikova.* — Moscow : Yurayt Publishing House, 2021. - 206 p. — (Current monographs). — ISBN 978-5-534-13961-7. — Text: electronic // EBS Yurayt [website]. — URL: <https://urait.ru/bcode/477258>

b) Additional Readings: _

3. Ya. Monden *Toyota production systems - edited translation from English* — edited by A.R. Benediktov and V.V. Motyleva. —M.: Economics. —1989.

4. Staroverova, K. O. *Osnovy berezhlivogo proizvodstva [Fundamentals of lean production] : a textbook for secondary vocational education / K. O. Staroverova.* — Moscow : Yurayt Publishing House, 2023. — 74 p.

BiblioRossika An electronic library for students, professors and researchers.
<http://www.bibliorossica.com/individuals.html?ln=ru>

*Microsoft Teams software, university telecommunication training and information system of RUDN
Resources of the Internet information and telecommunication network:*

1. Electronic libraries (EL) of RUDN University and other institutions, to which university students have access on the basis of concluded agreements

- RUDN Electronic Library System (RUDN ELS) <http://lib.rudn.ru/MegaPro/Web>

2. Databases and search engines:

- electronic foundation of legal and normative-technical documentation <http://docs.cntd.ru/>

- Yandex search engine <https://www.yandex.ru/>

- Google search engine <https://www.google.ru/>

The following training toolkit for the student's autonomous work is envisaged as part of mastering the discipline/module:*

1. A course of lectures on the Lean Production discipline.

2. Laboratory workshop on the Lean Production discipline (if laboratory work is available): not available.

3. Methodological guidelines for drafting and formatting the course paper/project on the Lean Production discipline (if there are ones).

The implementation of the course provides interactive lectures, practical classes (colloquiums) using multimedia equipment, preparation of autonomous creative projects and their subsequent presentations, testing, group discussions on the subject of the course, modern knowledge control technologies.

While studying the discipline, the student must attend a course of lectures, participate in the number of colloquiums provided by the course syllabus, study autonomously some topics of the course and confirm their knowledge during control activities.

The student's work in lectures consists in clarifying the basics of the discipline, briefly taking notes of the material, and clarifying issues that cause difficulties. The lecture notes are the basic educational material along with the textbooks recommended in the main list of readings.

The teaching of the main part of the lecture material involves usage of multimedia tools that facilitate the comprehension and consolidation of the material. Presentations are available for download from the RUDN website and can be freely used by students for educational purposes.

The student must master all the topics provided for by the educational and thematic plan of the discipline. Individual topics and training issues must be mastered autonomously. The student studies the recommended literature, briefly outlines the material, and clarifies the most difficult questions that require clarification during consultations. The same should be done with sections of the course that were skipped due to various circumstances.

For an in-depth study of the issue, the student should study the literature from the additional readings list and specialized websites. It is also recommended that students communicate in professional community forums.

Students study educational, scientific literature and periodicals on an autonomous basis. They have the opportunity to discuss what they have read with the teachers of the discipline during scheduled consultations, with other students at colloquiums, as well as at lectures, asking the professor questions.

The control of autonomous work is carried out by the professor in charge. Depending on the teaching methodology, the following forms of continuous assessment can be used: a short oral or written survey before the start of classes, tests, control papers, written homework, essays, etc.

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM FOR COMPETENCES LEVEL EVALUATION

The assessment materials and the grading system* to evaluate the graduate's level of competences (part of competences) formation as the results of the Lean Production discipline are specified in the Appendix to course syllabus.

DEVELOPERS:

V.A. Ermakov

Associate Professor of the
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Position, educational department

Signature

Name, surname

HEAD OF EDUCATIONAL DEPARTMENT:

Deputy Head of the Applied
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A.A. Chursin

Name of the educational department

Signature

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Program Manager

Associate Professor

position, name of the department

A.A. Ostrovskaya

signature

Name, surname

The code of the controlled competence or its part	Controlled Discipline Section	Controlled Discipline Topic	Assessment Toolkit (forms of control of mastering the professional program)										Scores Topics	Section Scores	
			Classroom work					Autonomous work							
			Survey	Test	Colloquium	Control Paper	Discussion	Essay	Homework	Report	Creative Project	Course Paper / project	Exam/Test		
GC-3, GC-6, PC 1	Subject 1. The Basics of a Lean Office.	Subject 1. The Basics of a Lean Office.					5		5					10	20
		Subject 2. Causes and Case History (T.Ono, S.Shingo, Tapping, Laro)	5			5								10	
GC-3, GC-6, PC 1	Subject 2. Lean Office Concept and Philosophy	Subject 3. Options of Conceptual Representations of Lean Office and their Fundamental Differences							5					5	20
				10										10	
			5											5	
GC-3, GC-6, PC 1	Subject 3. Principles of Creating a Lean Office (value, SC flow and losses)	Subject 3. Principles of Creating a Lean Office (value, SC flow and losses)	5											5	5
GC-3, GC-6, PC 1	Subject 4. Systems and Tools for Creating a Lean Office	Subject 4. Systems and Tools for Creating a Lean Office	5											5	15
						5			5					10	
		Exam											40		40
		TOTAL	15	5		10	5	10	15				40	60	100

Applied Economics Department

Examination Cards

Discipline Lean Production

EXAMINATION CARD No. 1

1. Stages of the decision-making procedure.
2. Analysis of the elements of the selection task (criteria, alternatives, assessment, choice of solution).
3. The set of relations allowed for easy decision-making

Compiled by _____A.V. Yudin
(signature)

Head of the department _____A.A. Chursin
(signature)

« _ " _____ 2018

Discipline _____Lean Production_____
(name of the discipline)

EXAMINATION CARD No. 2

1. Conversion of ratings by criteria into alternative relations.
2. The approach of a single synthesizing criterion (denying incomparability).
3. A local selection approach through trial and error.

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(signature)

« _ " _____ 2018

Discipline _____ Lean Production _____
(name of the discipline)

EXAMINATION CARD No. 3

1. The technique of ordering preferences through proximity to the ideal solution.
2. Simple folds and passive-active compensation analysis between many criteria.
3. The building hierarchies layout.

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« ____ " _____ 2018

As part of the exam, the level of mastering all the competencies of the discipline can be controlled (depending on the question).

The set of examination cards includes assessment criteria for the discipline developed by the teacher and approved at the meeting of the department.

Criteria for assessing of answers to exam questions:

The answer to each exam is valued from 0 to 10 points:

Answer Assessment Criteria:	Scores		
	The answer does not meet the criteria	The answer partially meets the criteria	The answer fully meets the criteria
The answer is correct	0	1	2
The student answers without suggestive questions from the examiner	0	0.5	1
The student practically does not use the prepared draft	0	0.5	1
The answer demonstrates the student's confident command of the terminological and methodological apparatus of the discipline	0	1	2
The answer has a clear logical structure	0	1	2
The answer demonstrates the student's understanding of the connections between the subject of the question and other sections of the discipline and/or other disciplines	0	1	2

This Program has been developed in line with the requirements of the RUDN University Educational Standards.

Developers:

Ph.D., Associate Professor of the Applied Economics Department _____ A.V. Yudin
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