

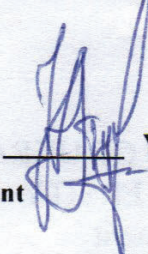
MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SUMY NATIONAL AGRARIAN UNIVERSITY
Faculty of Economics and Management
Public Management and Administration Department

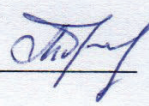
MODULE SYLLABUS

ENTERPRISE PLANNING
(compulsory)

Speciality	Management
Educational program	Administrative management
level of higher education	the second (master's)

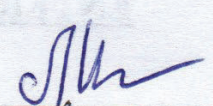
Sumy – 2026

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Department

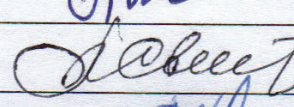
Module syllabus agreed at the Public Management and Administration Department meeting	Protocol №19 dated May 11 2026
	Head of Public Management and Administration Department  Alina BRYCHKO

Approved by:

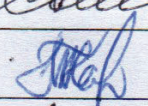
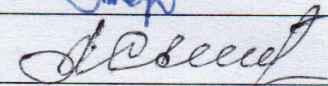
Guarantor of the Academic program

 Larysa KALACHEVSKA

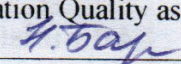
Dean of the Faculty

 Svitlana LUKASH

Syllabus review (attached) is provided by:

Representative of the Department of Education Quality assurance, licensing and accreditation

 (N. Baranik)

Registered in electronic data base 18.06 2026

Information about syllabus review:

Year for changes	Record of list of changes	Changes discussed and agreed		
		Record of Chair meeting	Head of the Chair	Guarantor of the training program

1. GENERAL INFORMATION ABOUT EDUCATIONAL COMPONENT

1.	Title	Enterprises Planning		
2.	Faculty/ Chair	Faculty of Economics and Management / Public Management and Administration Department		
3.	Type	Obligatory		
4.	Training program / Specialty (for obligatory)	Educational program « Administrative Management» second level of higher education, specialty D3 «Management»		
5.	Training program / Specialty (for selective)			
6.	Level of NQF	NQF of Ukraine – 7 level, FQ-EHEA – second cycle, EQF-LLL – 7 level		
7.	Semester and study duration	2 semester, 15 weeks		
8.	Number of ECTS credits	5 credits of ECTS (150 hours)		
9.	Total duration (hours)	Contact work (classes)		
		Lectures 44	Practices 30	Individual work 76
10.	Language	Ukrainian, English		
11.	Lecturer/Coordinator	Yurii Puhach PhD, Senior Lecturer of Public Management and Administration Department		
11.1	Contact information	Email: yurii.puhach@snau.edu.ua SNAU, building of the Faculty of Economics and Management, aud. 406 e		
12.	General description of educational component	Planning is the primary and basic function of the management cycle, so learning the basics, content, methods, principles and organization of planning in the enterprise (and acquiring relevant practical skills) is an integral part of achieving the goals of the educational program: training in management and administration. Within the educational component, the information base and planning methods are studied, including with an emphasis on methods that allow to justify optimal management decisions in the field of production, finance and investment. Such knowledge and skills, in particular, contribute to the improvement of student self-organization skills, contributing to personal development. The study of the discipline "Enterprise Planning" ends with a final control in the form of an exam.		
13.	Goal	to form knowledge about the objective laws, conditions, processes and specific features of economic activity and development of enterprises in the field of agriculture; to form practical skills in the application of planning methods in the substantiation of optimal management decisions regarding the organization of production and economic processes.		
14.	Knowledge and skills needed for study, interrelation with other educational components of TP	1. The educational component is based on the knowledge and skills acquired during the study of other educational components of the educational program (obligatory), in particular: PNP 6. Production Economics; PNP 7. Analysis and control of the enterprise. 2. The educational component provides the acquisition of competencies that are the basis for further study of other educational components of the educational program, in particular: PNP 9. Strategy of international agricultural marketing, PNP 10. Planning and evaluation of projects. 3. There are no restrictions for studying the discipline.		

15.	The policy of academic integrity	The academic integrity policy is implemented in accordance with The Academic Integrity Policy is in accordance with the Law of Ukraine on Academic Integrity dated 12/18/2025 No. 4742-IX, the "Code of Academic Ethics and Academic Integrity of Sumy National Agrarian University" (approved by the Academic Council of SNAU No. 11 dated 01/26/2026): https://drive.google.com/file/d/1jke4Ky8K53G3SnFOtD0YxyH2g6TutABK/view In particular, for violating the rules of academic integrity (in one form or another provided by the Code) during the study of the OK, persons studying at the university may be held liable for such forms as: - re-assessment; - repeated training course; - warning; - reprimand; - deductions from the university; (Part 5 of Article 48 of the draft Law of Ukraine "On Education"); - arrest or restriction of liberty, or imprisonment, with deprivation of the right to hold certain positions or engage in certain activities with a fine. Violations of the Code of Academic Integrity by any participant in the educational process (student or teacher) must be reported to the Academic Integrity Council in accordance with the procedure specified in the Code (Section 4).
16.	Distance learning course	https://cdn.snau.edu.ua/moodle/course/view.php?id=2988
17.	Keywords	Marginal cost, enterprise planning, optimal costs, opportunity costs, production processes, production plans, enterprise characteristics, production factors, production constraints, property, capital, production and economic indicators, profitability, goal analysis, goal hierarchy, stability, liquidity, planning methods, static planning, dynamic method, optimization, estimate, program planning, linear programming, simplified planning, competition, marginal revenue, financing, credit, investment, loan, effective interest, financial plan, cash balance, enterprise

2. EDUCATIONAL COMPONENT'S LEARNING OUTCOMES AND THEIR RELATION WITH PROGRAM LEARNING OURCOMES (PLO)

Educational component's learning outcomes:	Program learning outcomes to be achieved by the EC (indicate the number according to the numbering given in the profile of the TP)						Evaluation of ALO
	PLO2	PLO 3	PLO 5	PLO12	PLO13	PLO14	
ALO 1. Analyze the indicators of stability, liquidity and profitability of the enterprise to identify management problems and substantiate ways to solve them	X		X			X	Multiple choice tests; Calculation task
ALO 2. Evaluate the parameters of the production processes of the enterprise to justify decisions on the design of effective management systems of the organization		X		X	X		Multiple choice tests; Case method
ALO 3. Apply methods of program and line planning for the development of production plans, costs and resource provision of the enterprise			X	X	X		Multiple choice tests; calculation tasks; Individual research task
ALO 4. To substantiate the parameters of the optimal plan for the development of the enterprise and investment projects on the basis of dynamic methods of assessment	X		X			X	Multiple choice tests; calculation task; Individual research task

PLO 2. Identify problems in the organization and justify methods of solving them;
 PLO 3. Design effective management systems for organizations;
 PLO 5. Plan the activities of the organization in strategic and tactical sections;
 PLO12. Be able to delegate authority and management of the organization (unit);
 PLO 13. Be able to plan and implement information, methodological, material, financial and personnel support of the organization (unit);
 PLO 14. To substantiate the parameters of the directions of enterprise development, to work out the economic characteristics of the ways of their realization.

3. CONTENT OF EDUCATIONAL COMPONENT (DISCIPLINE'S PROGRAM)

Topic. Issues to be studied	Timing			Individual work	References
	Contact work				
	Lectures	Practices	Labs		
TOPIC 1. INTRODUCTION TO THE COURSE AND PRINCIPLES OF PLANNING <i>Topic 1.1. Basic Principles and Procedures of Planning</i> 1.1.1. Fundamental principles of planning and application of economic laws. 1.1.2. The baseline comparison framework for evaluating enterprise development measures. 1.1.3. Step-by-step procedures for planning enterprise operations. <i>Topic 1.2. Analysis and Planning of Additional Business Activities</i> 1.2.1. Diagnostics and analysis of current enterprise performance. 1.2.2. Quantitative evaluation and planning of supplementary business lines. 1.2.3. Appraisal of business plans and selection of the "optimal plan."	4	2	-	6	1-3, 6, 10-13, 15, 28-30
TOPIC 2. DATA COLLECTION FOR PLANNING PURPOSES <i>Topic 2.1. Information Sources for Business Planning</i> 2.1.1. Classification of primary and secondary data sources. 2.1.2. Financial accounting records and the balance sheet as a baseline for planning. <i>Topic 2.2. Data Requirements for Planning a New Business</i> 2.2.1. General background information and availability of factors of production (land, labor). 2.2.2. Fixed assets, capital infrastructure, and other operational constraints in planning.	4	2	-	6	1-3, 7, 10, 11, 14, 21, 23

TOPIC 3. ENTERPRISE PERFORMANCE ANALYSIS <i>Topic 3.1. Analytical Preparation and Profitability Assessment</i> 3.1.1. Preparation for economic analysis and differences between accounting records and break-even analysis. 3.1.2. Enterprise profitability analysis and its core performance indicators. Topic 3.2. Operational Stability Analysis 3.2.1. Key stability metrics regarding assets (capital adjustments, investment intensity). 3.2.2. Core income stability indicators (profit margin ratios). <i>Topic 3.3. Liquidity and Solvency Analysis</i> 3.3.1. Key static liquidity ratios at a "point in time." 3.3.2. Key dynamic indicators of "periodic" liquidity and debt service capacity thresholds.	6	4	-	10	1-3, 8-11, 16, 19, 27
TOPIC 4. PROGRAM PLANNING I <i>Topic 4.1. Program Planning I within the System of Planning Methods</i> 4.1.1. The role and place of Program Planning I in corporate development strategies. 4.1.2. Business planning for agricultural enterprises using the Program Planning I technique. <i>Topic 4.2. Planning Measures for Business Expansion</i> 4.2.1. Optimizing the current business model without altering fixed structural factors. 4.2.2. Development plans incorporating shifts in the availability of production factors. <i>Topic 4.3. Evaluation of Alternative Plans and Post-Planning Analysis</i> 4.3.1. Evaluating strategic options and choosing the "optimal plan." 4.3.2. In-depth analysis of planning outcomes (factor income, net farm income).	6	4	-	10	1-3, 6, 10-12, 18, 24, 25, 31

TOPIC 5. PROGRAM PLANNING II <i>Topic 5.1. Data Gathering and Aggregation of Business Lines</i> 5.1.1. Advanced data collection, comprehensive business audits, and data preprocessing. 5.1.2. Structural aggregation of forage production and livestock farming. <i>Topic 5.2. Establishing Competitive Benchmarks</i> 5.2.1. Prioritizing resource allocation and evaluating the return on production factors. 5.2.2. Selecting and filtering production processes based on priority rankings. <i>Topic 5.3. Calculation of Enterprise Development Plans</i> 5.3.1. Optimization algorithms and plan drafting using the "zero-variant" baseline. 5.3.2. Finalization and selection of the optimal business structure.	6	4	-	10	1-3, 4, 10-12, 14, 31
TOPIC 6. LINEAR PROGRAMMING <i>Topic 6.1. Foundations and Mathematical Structure of LP Models</i> 6.1.1. Definition, significance, and core concepts of linear programming. 6.1.2. Mathematical formalization of an LP model (objective functions and structural constraints). <i>Topic 6.2. Methodological Approaches to Linear Optimization (The Graphical Method)</i> 6.2.1. Baseline parameters and structural conditions of a linear optimization problem. 6.2.2. Graphical solution of optimization problems and construction of Iso-Gross Profit lines. <i>Topic 6.3. Solving LP Tasks via the Simplex Algorithm</i> 6.3.1. Linear programming as a system of equations and initial matrix design. 6.3.2. Simplex iterations, substitution steps, and economic interpretation of results (shadow prices).	6	4	-	12	1, 10-12, 21, 22, 26, 31

TOPIC 7. FINANCE AND FINANCIAL PLANNING <i>Topic 7.1. Assets, Capital, and Methods of Corporate Financing</i> 7.1.1. Capital structure, fixed vs. current assets, and investment motives. 7.1.2. Typology of financing options (internal and external sources). <i>Topic 7.2. Debt Financing: Loans and Borrowing Costs</i> 7.2.1. External debt structures via loans and different debt instruments. 7.2.2. Debt servicing costs and calculation of the effective interest rate. <i>Topic 7.3. Liquidity Management and Financial Planning</i> 7.3.1. Debt service tracking and the macroeconomic impact of inflation. 7.3.2. Capital funding rules and ensuring sustainable, timely liquidity. <i>Topic 7.4. Cash Budgeting and the Financing Plan</i> 7.4.1. The Statement of Cash Flows and dynamic cash flow analysis. 7.4.2. Short-term and long-term financial budgeting and forecasting.	6	6	-	12	1-3, 10, 11, 16, 17, 20, 22, 23
TOPIC 8. INVESTMENT THEORY <i>Topic 8.1. Capital Budgeting and Cash Flow Modeling</i> 8.1.1. Static vs. multi-period dynamic methods for evaluating investment efficiency. 8.1.2. Payment schedules, time horizons, and relevant net cash flows. <i>Topic 8.2. Compounding, Discounting, and Efficiency Criteria</i> 8.2.1. Interest compounding operations and discounting mechanisms (time value of money). 8.2.2. Multi-period capital budgeting criteria (NPV, IRR, PI). 8.2.3. Economic interpretation of conflicting efficiency criteria and investment decision-making.	6	4	-	10	1-3, 4, 10, 11, 16, 20, 22
Total	44	30	-	76	

4. METHODS OF TEACHING AND STUDYING

ALO	Teaching methods (work to be carried out by the teacher <u>during classroom classes</u> , consultations)	Number of hours	Teaching methods (what types of educational activities the student must perform <u>independently</u>)	Number of hours
ALO 1	Problem lecture with visualization of the dynamics of financial indicators; case method: analysis of real financial statements of agricultural enterprises; training on identifying "weaknesses" in the organization of production.	18	Analytical review: independent search and analysis of the financial statements of the selected enterprise in the Moodle system. Calculation and analytical work: calculation of liquidity thresholds, limits and reserves for debt servicing; preparation of an opinion on the financial stability of the business.	18
ALO 2	Interactive lecture using examples of descriptions of industries (crop production, animal husbandry); brainstorming on the choice of strategic development goals; Explanation of the principles of data aggregation.	18	Process modeling: development of quantitative characteristics of production processes; search activities: collection of regulatory and reference information on yield and costs; Data systematization: drawing up a hierarchy of goals for a specific development scenario.	18
ALO 3	Master class on building linear optimization matrices; demonstration of the operation of specialized software; step-by-step explanation of algorithms for calculating the Compared Gross Profit.	20	Implementation of an individual project: calculation of the "zero option" and the plan of "optimized current business"; solving situational problems: balancing resources and assessing the payback of scarce factors of production using the simplex method.	20
ALO 4	Seminar-discussion on the choice of funding sources; preparation of the structure of the business plan; consulting (individual and group) on the analysis of the sensitivity of projects.	18	Development of a business plan: independent justification of an investment project (from idea to financial calculations); discounting cash flows: calculation of NPV, IRR, payback period; Presentation of results: preparation and public defense of the justification for choosing the optimal development plan.	20

5. EVALUATION

5.2 Summative evaluation

5.2.1 To evaluate the expected learning outcomes will be used:

№	Methods of summative evaluation	Points / Weight in the overall score	Date
1.	Testing (multiple choice tests, open type)	30 (2x15) / 30%	7-8 week; 14-15 week
2.	Calculation and analytical tasks and cases	25 / 25%	7-8 week; 14-15 week
3.	Individual task (calculation task)	15 / 15%	14-15 week
4.	Exam (written answer to open-ended questions and performance of calculation task)	30 / 30%	According to the session schedule

5.2.2. Evaluation criteria

Method	Unsatisfactory	Satisfactory	Good	Excellent
Test	< 9 points	9-11 points	12-13 points	14-15 points
	<i>the correct answer to less than 60% of tasks is given</i>	<i>the correct answer is given to 60% - 74% of tasks</i>	<i>the correct answer is given to 75% - 89% of tasks</i>	<i>the correct answer is given to 90% and more tasks</i>
Calculation and analytical tasks and cases	< 15 points	15-17 points	18-22 points	23-25 points
	<i>Task requirements not met</i>	<i>Most requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the question</i>	<i>All task requirements are met</i>	<i>All task requirements are met, creativity, thoughtfulness is demonstrated, own solution of the problem is offered</i>
Individual task	<9 points	9-10	11-13 points	14-15 points
	<i>Task requirements not met</i>	<i>Most requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the question</i>	<i>All task requirements are met</i>	<i>All task requirements are met, creativity, thoughtfulness is demonstrated, own solution of the problem is offered</i>
Exam	<18 points	18-21 points	22-26 points	27-30 points
	<i>Theoretical issues are revealed, the complex optimization problem is not solved.</i>	<i>Theoretical issues are revealed superficially. The problem is solved with errors in the balancing of resources.</i>	<i>The student answers the question in a reasoned way, the problem is solved correctly, but the conclusions need to be detailed.</i>	<i>Deep knowledge of the material. Error-free solution of the problem; critical assessment of planned decisions.</i>

5.3 Formative assessment:

5.3.1 To assess current progress in learning and to understand areas for further improvement will be used:

№	Elements of formative assessment	Date
1	Testing using Kahoot after studying topics № 1, 2; 3, 4; 5, 6; 7, 8	Week 3, Week 7, Week 10, Week 15
2	Oral feedback from the teacher on solving calculation tasks during classroom work	constantly
3	Oral questioning during classes and feedback from the teacher during classroom work	constantly
4	Conversation and discussion during classroom lectures	constantly
5	Written feedback from the teacher on the results of the Individual task	14-15 week

Self-assessment can be used both for summative and formative assessment.

5.4 Total points for EC and rating scale

The total number of points for the educational component is 100 points.

5.4.1 Assessment scale applied in the University:

Total points	ECTS	National rating	
		Exams, term paper, practice	credit
90 – 100	A	Excellent	passed
82-89	B	Good	
75-81	C		
69-74	D	Satisfactory	
60-68	E		
35-59	FX	Unsatisfactory	Not passed, but can have second attempt
1-34	F	Poor	Not passed, need add training

6. REFERENCES

6.1 Main

6.1.1 Handbooks

1) Шу К., Калачевська Л., Лукаш С., Бричко А., Харченко Т., Пугач Ю. Планування підприємств: навчальний посібник для здобувачів освіти галузі знань Д «Бізнес, адміністрування та право» спеціальності Д3 «Менеджмент», ОП «Адміністративний менеджмент» освітнього ступеня «Магістр» денної та заочної форм здобуття освіти; за заг. ред. Калачевської Л. – Суми: Сумський національний аграрний університет, 2025. - 219 с. (Протокол № 10 від 16.05.25)

2) Коблянська І.І., Строченко Н.І. Планування і контроль на підприємстві: навчальний посібник для студентів економічного та управлінського напрямів підготовки денної та заочної форм навчання освітнього ступеня «Бакалавр». Суми: ШНАУ, 2022. 237 с.

3) Koblianska I. (ed.) Planning of enterprises: course-book for english-speaking students of master's degree of speciality 073 "Management", training program "Administrative management" / Sumy, 2020, 102 p. – 2nd edition, improved.

4) Bochtis D., Achillas C., Baniyas G., Lampridi M. (2020). Bio-economy and Agri-production: Concepts and Evidence. Academic Press; 1 edition. 348 p. ISBN-13: 978-0128197745.

5) Volk J. (2017). Compact Farms: 15 Proven Plans for Market Farms on 5 Acres or Less; Includes Detailed Farm Layouts for Productivity and Efficiency. Storey Publishing, LLC. 462 p.

6) Sharafizad, J., Wilk, V., Brown, K., Hernandez Grande, A., Sharafizad, F., & Wardale, D. (2025). *Entrepreneurship: A practical guide for business success*. Edith Cowan University. <https://doi.org/10.25958/absw-tb65>

7) Caserio, C., & Trucco, S. (2018). Business Intelligence Systems. In C. Caserio, & S. Trucco (EDS.), *Enterprise Resource Planning and Business Intelligence Systems for Information Quality* (pp. 43-73). Springer International Publishing. https://doi.org/10.1007/978-3-319-77679-8_3

8) Dr. Harl Neil E., Achenbach Jr. Robert P. (2016). Farm Estate and Business Planning. Agricultural Law Press; 19th edition. 510 p. ISBN-13: 978-0967785691

9) Stephenson G. (2019). Whole Farm Management: From Start-Up to Sustainability. Storey Publishing, LLC. 312 p. ISBN-13: 978-1635860740

6.1.2 Methodical support

10) Коблянська І.І. Планування підприємств: методичні рекомендації для практичних занять і самостійної роботи для студентів 1го курсу спеціальності 073 Менеджмент освітньої програми «Адміністративний менеджмент» освітнього ступеня «Магістр» денної та заочної форм навчання. Суми: ШНАУ, 2017. 36 с.

11) Distance learning course on "Planning of enterprises" (MOODLE course), Koblianska I.I., 2020. <https://cdn.snau.edu.ua/moodle/course/view.php?id=2988>

12) Scrypts „Unternehmensorganisation” by High School Vaienschtefan, 2019.

6.1.3 Other sources

13) Koblianska I., Kalachevska L. Problems of the Institutional-Legal and Organizational Provision of Systemic Innovation Policy: the Case of Ukraine. *Comparative Economic Research. Central and Eastern Europe*, 2019. Volume 22, Number 1. <http://doi.org/10.2478/cer-2019-0004>

14) Koblianska I., Pasko O., Kalachevska L. Adaptation of KTBL's Databases for Planning and Benchmarking the Sustainable Use of Farm Machinery in Developing Countries. Tropentag 2019: Filling gaps and removing traps for sustainable resources management. September 18 - 20, 2019, Universities of Kassel and Goettingen, Germany.

15) Beginning farmers: an online resource for farmers. URL: <http://www.beginningfarmers.org/farm-business-planning/>

16) Farm business and financial planning. Guidance. URL: <https://www.gov.uk/farm-business-and-financial-planning>

17) Agriculture farm business plan. Guidance. URL: http://www.bplans.com/agriculture_farm_business_plan/financial_plan_fc.php

18) Коблянська І. І., Лукаш С. М. Формалізація процесу планування заходів із виходу підприємства на міжнародні ринки агропродукції, *Міжнародний науковий журнал*

"Інтернаука". Серія: "Економічні науки". 2021. №9. <https://doi.org/10.25313/2520-2294-2021-9-7516>

19) Koblianska, I., Seheda, S., Khaietska, O., Kalachevska, L., & Klochko, T. (2022). Determinants of potato producer prices in the peasant-driven market: the Ukrainian case. *Agricultural and Resource Economics*, 8(3), 26–41. <https://doi.org/10.51599/are.2022.08.03.02>. (Scopus, Web of Science)

20) Elina Moroz, Olena Zhuravel, Larysa Kalachevska, Yanislava Nyzhnychenko, Maryna Baldzhy (2025). Nature-Based Economics and Renewable Energy Investments: Investor Risk and Benefit Assessment. *International Journal of Ecosystems and Ecology Science (IJEES)*. Vol. 15 (1), pp. 275-282 (Scopus) DOI: <https://doi.org/10.31407/ijeess15.131>

21) Jawad, Z.N., Balázs, V. Machine learning-driven optimization of enterprise resource planning (ERP) systems: a comprehensive review. *Beni-Suef Univ J Basic Appl Sci* **13**, 4 (2024). <https://doi.org/10.1186/s43088-023-00460-y>

22) Kunduru, A. R. (2023). Effective usage of artificial intelligence in enterprise resource planning applications. *International Journal of Computer Trends and Technology*, 71(4), 73-80.

23) Mandava, H. (2024). Streamlining enterprise resource planning through digital technologies. *Journal of Advanced Engineering Technology*. ResearchGate.

6.2 Additional

24) Dave Lavinsky. Marketing Plan Template: Exactly What To Include. URL: <http://www.forbes.com/sites/davelavinsky/2013/09/30/marketing-plan-template-exactly-what-to-include/>

25) Developing a Marketing Plan. URL: <https://www.sba.gov/content/developing-marketing-plan>

26) Taylor E. Service Operations Planning vs. Manufacturing Planning. Demand Media. URL: <http://smallbusiness.chron.com/service-operations-planning-vs-manufacturing-planning-20343.html>

27) Report on the workforce planning capabilities of agricultural employers. NRAC. URL: <http://www.daff.gov.au/SiteCollectionDocuments/agriculture-food/drought/nrac/nrac-planning-report.pdf>

28) Strategic Planning Basics. URL: <http://balancedscorecard.org/Resources/Strategic-Planning-Basics>

29) The Strategic Planning Process. URL: <http://www.quickmba.com/strategy/strategic-planning/>

30) O'Donovan, Dana & Flower, Noah Rimland. The Strategic Plan is Dead. Long Live Strategy. – URL: http://www.ssireview.org/blog/entry/the_strategic_plan_is_dead._long_live_strategy

31) Machinery management. URL: <https://www.extension.iastate.edu/agdm/cdmachinery.html>

6.3 Software

32) Kahoot Software - in the process of formative assessment, Google Cloud & Docs - to provide methodological materials, communication with students (placement of completed tasks).

33) Software of the distance learning system Moodle 3.11 - for the organization of distance learning of students (access to teaching materials, communication with the teacher, the implementation of various types of assessment).

34) Zoom Video Communications, Inc. software v. 5.6.1 - to organize training via video link (if necessary).