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MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION

Federal State Autonomous Educational Institution of Higher Education

"Moscow Polytechnic University"

APPROVE
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"27" февраля 2025

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of Economics and Management
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"27" февраля 2025

WORKING PROGRAM OF THE DISCIPLINE

"System Analysis in Management"

Field of study
38.03.02 Management

Educational program (profile)
"Business Process Management"

Qualification (degree)
Bachelor

Form of study
Part-time

Moscow 2025

Developer(s):

Ph.D., Associate Professor of the Department of Management  /V.V.Ziulina/

Agreed:
Head of the Department of Management,
Ph.D., Associate Professor  .E. Alenina/

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1. Goals, objectives and planned learning outcomes in the discipline

The main goal of mastering the discipline "System Analysis in Management" is to consider the theoretical foundations and patterns of construction and operation of systems, including economic, methodological principles of their analysis and synthesis, and the application of the studied patterns to develop systematic approaches to decision making.

The main objectives of mastering the discipline "System Analysis in Management" include:

- Familiarization with the basic concepts and definitions of systems, the structure and general properties of systems, factors of influence of the external environment, possibilities and basic approaches to using system analysis at the organizational level;
- Acquisition by students of theoretical knowledge on a systems approach to the study of systems and practical skills in their modeling;
- Students acquire practical knowledge of basic methods used in systems analysis.

Training in the discipline "System Analysis in Management" is aimed at developing the following competencies in students:

Code and name of competencies	**Indicators of Competency Achievement**
UK-1. Is able to search, critically analyze and synthesize information, apply a systematic approach to solve assigned problems	IAA-1.1. Analyzes the task, highlighting its basic components IUC-1.2.Searches, critically evaluates, summarizes, systematizes and ranks information required to solve a given problem IUC-1.3. Considers and offers rational options for solving a given problem, using a systematic approach, critically evaluates their advantages and disadvantages

2. Place of discipline in the structure of the educational program

The discipline belongs to the elective part of block B1 "Disciplines (modules)".

The discipline "System Analysis in Management" is logically, substantively and methodologically interconnected with the following EP disciplines and practices:

- Project activities
- Fundamentals of Management
- Business process management
- Economic theory

3. Structure and content of the discipline

The total labor intensity of the discipline is 4 credit units (144 hours).

3.1 Types of educational work and labor intensity

(According to forms of study)

3.1.2. Part-time education

No.	**Type of educational work**	**Quantity hours**	**Semesters**	
			9	
1	**Auditory lessons**	**36**	36	
	Including:			
1.1	Lectures	18	18	
1.2	Seminars/practical sessions	18	18	
2	**Independent work**	**108**	108	
3	**Interim certification**			
	Test/differential test/exam	**Exam**	Exam	
	Total	**144**	144	

3.2 Thematic plan for studying the discipline

(According to forms of study)

3.2.2. Part-time education

No. p/p	Sections/topics disciplines	Labor intensity, hour					
		Total	Classroom work				Independent work
			Lectures	Seminars/practical sessions	Laboratory exercises	Practical training	
1.1	Topic 1. Introduction to the discipline. Basic definitions. Concepts characterizing systems	26	4	2			20
1.2	Topic 2. Models and methods of system analysis	30	4	4			22
1.3	Topic 3. Analysis and formation of system goals	30	4	4			22
1.4	Topic 4. Decision making on business process management	30	4	4			22
1.5	Topic 5. System analysis in managing the economic activities of an organization	28	2	4			22
	Total	**144**	**18**	**18**			**108**

3.3 Contents of the discipline

Topic 1. Introduction to the discipline. Basic definitions. Concepts characterizing systems

Introduction to the discipline. Basic definitions: system, system element, connection, subsystem, goal, structure, types of structures, control system, cybernetic system, system analysis, systems approach. Concepts characterizing systems: state, equilibrium, development, stability. Classification of systems: the purpose of any classification, according to interaction with the environment, the basis of the classification, the name of the classes of systems, the distinctive features of classes, examples of classes.

Fundamentals of systems theory: the system and its components, forms of representation, purpose of operation. Concepts characterizing the structure and functioning of systems: elements, variables, parameters, system states, system behavior, program. Classification and patterns of systems. Formalized models of system analysis.

System approach and its basic principles. Fundamentals of the systems approach: systems approach, system objects, direct connection, feedback, positive feedback, negative feedback, feedback coefficient. Principles of the systems approach: the principle of integrity, the principle of compatibility of elements in the system, the principle of organization, the principle of purposefulness and expediency. The principle of neutralization of dysfunctions, the principle of labilization of functions, the principle of adaptability, the principle of evolution, the principle of isomorphism, the principle of multi-functionality of a complex system, the principle of an integrated approach, the principle of expediency, the principle of “complete system”. The principle of complementarity and

continuity of the processes of design and implementation of complex systems, the principle of taking into account the dynamics of the system.

Scheme of system analysis procedures. Principles of systems analysis. Panorama of systems analysis methods. Selecting modeling methods. Methods for formalized representation of systems. Direct resource allocation problem based on linear programming.

Topic 2. Models and methods of system analysis

Models and methods of system analysis. Model as the main means of studying systems: well-structured problems, unstructured problems, weakly structured problems, model, modeling of economic systems, experimental problem, meaningful formulation of the problem, stages of practical modeling, classification of mathematical models, analytical mathematical models, algorithmic mathematical models. Methods of formal representation of systems: analytical, statistical, and graphical. Information approach to systems analysis: information, input information, output information, internal, intra-system, amount of information.

Features of the application of the dual LP problem for the analysis of the economic system. Variants of transport tasks (TZ). Criteria for choosing a target and optimal transport flows. Sequence of solving a transport problem based on the cost criterion.

Specific models of system analysis. IDEF family standards Types of IDEF standards: functional block, dominance, interface arc, branching arcs.

IDEF0 methodology: merging arcs, decomposition, stable subsystems, tunneling. The process of creating an IDEF0 model: the main stages of the process, choosing a goal and point of view, compiling a list of data, compiling a list of functions, constructing a diagram, decomposition and refinement, evaluating the model. IDEF3 methodology: purpose of IDEF3, types of diagrams in IDEF3, classification of types of intersections, basic principles of ontological analysis, IDEF5 concepts, types of IDEF5 diagrams and diagrams.

Topic 3. Analysis and formation of system goals

Analysis and formation of system goals. Purpose and its characteristics. Goal analysis. Synthesis of goals (goal setting). Solving the problem of optimizing an organization's production plan. Modeling the functioning of an organization when resources and structure change.

Organization and evaluation of complex examinations: Concordance, Spearman, and confusion coefficients. Methods for conducting expert procedures. Calculation of weighting coefficients of criteria.

Making decisions based on many criteria. Experts. Methods for organizing group examinations. System analysis in strategic planning and management. Solving the problem of choosing a strategy taking into account synergies, effects and costs. Particular problems of system analysis.

Topic 4. Decision making on business process management

General characteristics of the operational management of the main production and the complex of tasks of the subsystem. Characteristics of tasks of operational scheduling of main production. System dynamics. Concept of analysis of resource flows by dynamic equations. Dynamics of development of business organizations.

System analysis in management. Management concept. Principles of management theory. Business process management functions. Solving typical problems for calculating the probabilities of system states, calculating technological and economic efficiency.

Topic 5. System analysis in managing the economic activities of an organization

Indicators of efficiency of economic activity. Analysis and assessment of organizational management structures. Indicators of efficiency of economic activity. System analysis in managing the investment activities of an organization.

3.4 Topics of seminars/practical and laboratory classes

3.4.1. Seminars/practical sessions

Topic 1. Introduction to the discipline. Basic definitions. Concepts characterizing systems	Seminar lesson 1
Topic 2. Models and methods of system analysis	Seminar session 2
Topic 3. Analysis and formation of system goals	Seminar session 3
Topic 4. Decision making on business process management	Seminar session 4
Topic 5. System analysis in managing the economic activities of an organization	Seminar session 5

4. Educational, methodological and information support

4.1 Main literature

1. Prokofieva, T. A. System analysis in management: textbook for universities - Moscow: Yurayt Publishing House, 2021. - 313 p. — ISBN 978-5-534-10451-6. — Text: electronic // Educational platform Urayt [website]. — URL:https://urait.ru/bcode/475448

2. Zagranovskaya A.V. System analysis: textbook for universities - M.: Yurait Publishing House, 2021. - 424 p. - (Higher education). — ISBN 978-5-534-13893-1. — Text: electronic // Educational platform Urayt [website]. — URL:https://urait.ru/bcode/467205

4.2 Additional literature

1. Belov P. G. System analysis and program-targeted risk management: textbook and workshop for universities / P. G. Belov. - Moscow: Yurayt Publishing House, 2021. - 289 p. - (Higher education). — ISBN 978-5-534-04690-8. — Text: electronic // Educational platform Urayt [website]. — URL:https://urait.ru/bcode/473132

4.3 Electronic educational resources

1. An electronic educational resource on the discipline is under development.

5. Logistics support

Auditorium for lectures and seminars of the general fund. Study tables with benches, a blackboard, a portable multimedia complex (projector, projection screen, and laptop). Teacher's workplace: table, chair.

6. Guidelines

6.1 Methodological recommendations for teachers on organizing training

A presentation (from the English word - presentation) is a set of color pictures-slides on a specific topic, which is stored in a special format file with the PP extension. The term “presentation” (sometimes called “slide film”) is associated primarily with the information and advertising functions of pictures, which are designed for a certain category of viewers (users).

In order for the presentation to be well received by the audience and not cause negative emotions (subconscious or fully conscious), it is necessary to follow the rules of its design.

A presentation involves a combination of information of various types: text, graphics, music and sound effects, animation and video clips. Therefore, it is necessary to take into account the specifics of combining pieces of information of different types. In addition, the design and display of each of the listed types of information is also subject to certain rules. Therefore, for example, the

choice of font is important for textual information, brightness and color saturation are important for graphic information, and optimal relative position on the slide is necessary for the best possible perception of them together.

In addition to the correct arrangement of text blocks, we must not forget about their content - the text. Under no circumstances should it contain spelling errors. You should also take into account the general rules of text formatting.

After creating a presentation and its design, you need to rehearse its presentation and your speech, check how the presentation as a whole will look (on a computer screen or projection screen), how quickly and adequately it is perceived from different places in the audience, under different lighting, noise, in an environment as close as possible to real performance conditions.

6.2 Guidelines for students on mastering the discipline

A lecture is a systematic, consistent, monologue presentation by a teacher of educational material, usually of a theoretical nature. When preparing a lecture, the teacher is guided by the work program of the discipline. During lectures, it is recommended to take notes, which will allow you to subsequently recall the studied educational material, supplement the content when working independently with literature, and prepare for the exam.

You should also pay attention to categories, formulations that reveal the content of certain phenomena and processes, scientific conclusions and practical recommendations, positive experience in oratory. It is advisable to leave margins in your working notes in which to make notes from the recommended literature, supplementing the material of the lecture you listened to, as well as emphasizing the special importance of certain theoretical positions.

Conclusions from the lecture summarize the teacher's thoughts on educational issues. The teacher provides a list of used and recommended sources for studying a specific topic. At the end of the lecture, students have the opportunity to ask questions to the teacher about the topic of the lecture. When delivering lectures on the discipline, electronic multimedia presentations can be used.

Guidelines for students when working at the seminar

Seminars are implemented in accordance with the working curriculum with sequential study of the topics of the discipline. In preparation for the seminars, the student is recommended to study the basic literature, familiarize himself with additional literature, new publications in periodicals: magazines, newspapers, etc. In this case, you should take into account the recommendations of the teacher and the requirements of the curriculum. It is also recommended to finalize your lecture notes by making appropriate notes from the literature recommended by the teacher and provided for by the curriculum. Abstracts should be prepared for presentations on all educational issues brought up for the seminar.

Since the student's activity in seminar classes is the subject of monitoring his progress in mastering the course, preparation for seminar classes requires a responsible attitude. During interactive classes, students must be active.

Guidelines for students on organizing independent work

Independent work of students is aimed at independent study of a separate topic of the academic discipline. Independent work is mandatory for each student; its volume is determined by the curriculum. When working independently, the student interacts with the recommended materials with the participation of the teacher in the form of consultations. To perform independent work, methodological support is provided. The electronic library system (electronic library) of the university provides the possibility of individual access for each student from any point where there is access to the Internet.

7. Appraisal Fund

7.1 Methods for monitoring and assessing learning outcomes

Indicator of the level of competence development

System analysis in management					
Federal State Educational Standard of Higher Education 38.03.02 "MANAGEMENT"					
In the process of mastering this discipline, the student forms and demonstrates the following: **competencies**:					
COMPETENCIES		**List of components**	**Technology for developing competencies**	**Form of assessment tool****	**Degrees of levels of mastering competencies**
INDEX	**FORMULATION**				
UK-1	Is able to search, critically analyze and synthesize information, apply a systematic approach to solve assigned problems	**To know:** - Basic provisions of the systems approach, terms of system analysis, - Areas of application of methods for formalized representation of systems and methods for activating the experience and intuition of specialists, options for their mutual complementation and intersection; **To be able to:** - apply the laws, models and methods of general systems theory in practice; - carry out analysis and synthesis of system structures; **To possess:** - Skills of informed choice and use of methods of system analysis of an organization in the decision-making process in managing the operational (production) activities of organizations	Lecture, independent work, seminar classes	DS, E, T	**Basic level**: Methodological foundations for determining goals and criteria for achieving goals in systems research and system analysis. **Advanced level:** - knows how to use basic methods and techniques of system analysis in the study of complex objects.

7.2 Scale and criteria for assessing learning outcomes

Scales for assessing the results of intermediate certification and their description:

Form of intermediate certification: exam.

Interim certification of students in the form of an exam is carried out based on the results of completing all types of academic work provided for by the curriculum for a given discipline (module), while taking into account the results of ongoing monitoring of progress during the semester. Assessment of the degree to which students have achieved the planned learning outcomes in the discipline (module) is carried out by the teacher leading classes in the discipline (module) using the method of expert assessment. Based on the results of the intermediate certification for the discipline (module), a grade of "excellent", "good", "satisfactory" or "unsatisfactory" is given.

Only the students who have completed all types of academic work provided for by the work program in the discipline "System Analysis in Management" (passed the intermediate control) are allowed to take the intermediate certification.

Grading scale	Description
Excellent	All types of educational work provided for by the curriculum have been completed. The student demonstrates compliance of knowledge, abilities, and skills with those given in the tables of indicators, operates with acquired knowledge, abilities, skills, and applies them in situations of increased complexity. In this case, minor errors, inaccuracies, and

	difficulties during analytical operations and the transfer of knowledge and skills to new, non-standard situations may be made.
Good	All types of educational work provided for by the curriculum have been completed. The student demonstrates incomplete, correct compliance of knowledge, skills and abilities with those given in the tables of indicators, or if 2-3 insignificant errors were made.
Satisfactory	All types of educational work provided for by the curriculum have been completed. The student demonstrates the consistency of knowledge, which covers the main, most important part of the material, but at the same time, one significant mistake or inaccuracy was made.
Unsatisfactory	One or more types of educational work provided for by the curriculum have not been completed. The student demonstrates incomplete compliance of knowledge, abilities, skills with those given in the tables of indicators, significant mistakes are made, a lack of knowledge, abilities, and skills is manifested in a number of indicators, the student experiences significant difficulties in operating knowledge and skills when transferring them to new situations.

7.3 Evaluation tools

List of evaluation tools for the discipline
"System analysis in management"

ET No.	Name of the evaluation tool	Brief description of the evaluation tool	Submission of the assessment tool to the Evaluation Tools Fund
1	Report, presentation (RM)	A product of a student's independent work, which is a public speech presenting the results obtained in solving a specific educational, practical, educational, research or scientific topic	Topics of reports, presentations
2	Test (T)	A system of standardized tasks that allows you to automate the procedure for measuring the level of knowledge and skills of a student.	Test task fund
3	Exam (E)	Final form of knowledge assessment. In higher educational institutions they are held during the session.	Questions for the exam

7.3.1. Current control

Topics of reports on the discipline
"System analysis in management"
(Formation of competenceK-1)

1. Systematic approach in economics and management.
2. The concept and essence of system analysis and its areas of application.
3. Principles of systems analysis.

4. The concept of a system and its properties.
5. System structure: black box model.
6. The structure of the economic system and its formalized representation.
7. Characteristics of the functioning and development of the system.
8. Classification of systems.
9. Patterns of functioning and development of systems: interaction of part and whole.
10. Regularities of hierarchical ordering of systems.
11. Patterns of emergence of systems.
12. Patterns of systems development.
13. Regularities of goal setting of systems.
14. Analytical approach to management: characteristics of the main components.
15. Synthetic approach to management: characteristics of the main components.
16. Synthetic approach to management: control of a simple system.
17. Synthetic approach to management: management of a complex system.
18. Synthetic approach to management: management by parameters.
19. Synthetic approach to management: management by structure.
20. Synthetic approach to management: management by objectives.
21. Synthetic approach to management: management of large systems.
22. Synthetic approach to management: management in the absence of information about the final goal.
23. Sequence of system analysis.
24. System analysis technology: fixing and diagnosing problems.
25. System analysis technology: formation of a group of stakeholders.
26. System analysis technology: identifying the problem mess.
27. System analysis technology: definition of a configurator.
28. Technology of system analysis: methods of target identification.
29. Technology of system analysis: formation of criteria.
30. System analysis technology: methods of experimental research of systems.
31. System analysis technology: building and improving the model.
32. System analysis technology: ways to generate alternatives.
33. Methods of selection or decision-making in system analysis.
34. System analysis technology: implementation of improving intervention.
35. Comparative characteristics of methods for optimizing management decisions.
36. Method of simple multi-criteria selection: essence and algorithm.
37. Making management decisions based on a systemic analysis of hierarchies: essence and algorithm.
38. TOPSIS method: essence and algorithm.
39. Method of tree and decision analysis: essence and algorithm.
40. Simulation modeling: essence and algorithm.

Report evaluation criteria

No.	Criterion	Grade			
		Excellent	Good	Satisfactory	Unsatisfactory
1	Structure of the report	The report contains semantic parts balanced in volume	The report contains three semantic parts, unbalanced in volume	One of the semantic parts is missing from the report	The report does not show the presence of semantic parts
2	Contents of the report	The content reflects the essence	The content does not fully reflect the	The content does not fully reflect the	The content does not reflect the

		of the problem under consideration and the main results obtained	essence of the problem under consideration or the main results obtained	essence of the problem under consideration and the main results obtained	essence of the problem under consideration or the main results obtained
3	Mastery of the material	The student has complete command of the material presented, is problem oriented, and answers questions freely	The student knows the material presented, is oriented in the problem, finds it difficult to answer some questions	The student is not fluent enough in the material being presented and is poorly oriented in the problem	The student does not know the material being presented and has poor understanding of the problem
4	Matching topic	The presented material fully corresponds to the stated topic	The presented material contains elements that are not relevant to the topic	The material presented contains a large number of elements that are not related to the topic.	The material presented is slightly relevant to the topic

Tests by discipline
"System analysis in management"
(Formation of competenceK-1)

The main task of Business Process Management:

A) Bring clarity, draw the company's attention to possible growth points that allow you to get the maximum

B) The emergence of free time for subordinates increased profits and an increase in the number of clients

C) Involving employees in the new process by explaining the prospects for obtaining new opportunities and benefits as a result of implementing new processes

D) Introduction of new business process algorithms into the current work scheme upon completion of staff training

ANSWER: A

Special methods for modeling systems:

A) Graphical modeling

B) Topology modeling

C) Combinatorial modeling

D) Dynamic simulation

ANSWER: D

One of the founders of set theory. He accepted plurality as "the many things that we think of as one."

A) G. Kantor

B) G. Gant

C) J.Bull

D) W. Churchman

ANSWER: A

_____ is understood as "a set of semantic elements of a language with given semantic relationships," and is used to characterize a specific language and its multi-level structure.

A) Thesaurus

B) Grammar

C) Semantics

D) Pragmatics

ANSWER: A

A simplicial complex is a natural mathematical generalization of the concept of a planar graph, reflecting the _____ nature of a binary relation.

A) Physical

B) Combined

C) Multidimensional

D) Monomeric

E) Multifaceted

ANSWER: C

According to the content, the goals are divided onto:

A) Specific, special, administrative, technical, economic, technological.

B) Social, marketing, administrative, scientific and technical, production, geographical, technical.

C) Social, marketing, administrative, scientific and technical, production, economic, technological.

D) Administrative, popular science, economic, technological, market, management.

ANSWER: C

Dividing a large number of goals into levels is called

A) Classification

B) Stratification

C) Ranking

D) Verification

ANSWER: B

One approach to constructing a goal tree involves constructing

A) Task tree, event tree and reserve tree

B) Task tree, identity tree and recursion tree

C) Task tree, celebration tree and perspective tree

D) Task tree, event tree and resource tree

ANSWER: D

Approaches to business process management:

A) Adoption of business process management standards

B) Improvement of business processes

C) Information technology

D) Systematization of business processes

ANSWER: C

When building a goal tree:

A) During decomposition, the independence of goals should be increased, and combining the subgoals of one branch of the tree leads to the achievement of a goal of a higher level

B) During decomposition, the independence of goals should be reduced, and combining the subgoals of one branch of the tree leads to the achievement of a goal of a higher level

C) During decomposition, the dependence of goals should be increased, and the division of subgoals of one branch of the tree leads to the achievement of a goal of a higher level

D) During decomposition, the dependence of goals should be increased and combining subgoals of one branch of the tree leads to achieving a goal of a lower level

ANSWER: B

Elements influencing operational management:

A) Composition and number of vehicles used

B) Mathematical support for production planning tasks

C) Leadership composition

D) Planning and accounting units used in the enterprise

E) Calendar and planning standards

F) Composition of planning and accounting documentation, as well as its contents

G) Nature of information flows
H) All of the above
I) None of the above
ANSWER: H
To develop optimal management decisions, we use
A) Information models
B) Economic and mathematical models
C) Mathematical models
D) Simulation models
ANSWER: B
Operational management functions
A) In violation of the established deadlines, partially fulfill the production program.
B) It is irrational to use labor resources and production means.
C) During production, use as much working capital as possible and speed up production as little as possible.
D) Provide conditions for the development of advanced forms of organizing recreation at work.
E) Transfer basic planning and accounting work to manual labor, prepare all the necessary documentation.
F) All of the above
G) None of the above
ANSWER: G
Types of calendar plans
A) Detailed-operational, detailed, schedule-list of parts
B) Single-shift schedule, irregular schedule, flexible schedule, shift schedule, rotational schedule
C) Line graph, bar graph, chart, geographic chart
D) Line graph, plane graph, volume graph
ANSWER: A
Stages of organization development:
A) Birth, development, adulthood, depression, demoralization
B) Awakening, formation, ripeness, collapse, splitting
C) Formation, establishment, experience, atrophy, ammonification
D) Emergence, formation, maturity, decline, decomposition
ANSWER: D
The controlled system includes:
A) Universal system, control object and combined system
B) Control system, control object and communication system
C) Managed system, subject of management and mixed system
D) Developing system, control object and stable system
ANSWER: B
Factors of production can be classified according to various criteria:
A) Synthetic
B) Analytical
C) Internal
D) External
E) All of the above
F) None of the above
ANSWER: E
What economic reserves of an enterprise are the main source of increasing the organization’s efficiency?
A) Synthetic

B) Analytical
C) Internal
D) External
ANSWER: C
The main goal of management analysis is:
A) Making intuitive decisions in business management
B) Making tactical decisions in enterprise management
C) Formulation of the vector of management decisions made
D) Formulation of the scalar of management decisions made
ANSWER: C
The basic concepts of complex analysis include:
A) Completeness or comprehensiveness of the analysis
B) Systematic analysis
C) The presence of a single goal of analysis
D) Consistency and simultaneity of analysis
E) All of the above
F) None of the above
ANSWER: E
The methodology for comprehensive economic analysis for management purposes should NOT contain the following components:
A) Determining the goals and objectives of economic analysis
B) A set of indicators to achieve goals and objectives
C) Frequency and timing of management reviews
D) Methods of obtaining information and processing it
E) The procedure for recording the analysis results and their evaluation
F) All of the above
G) None of the above
ANSWER: G
How many stages of business process management are there?
A) 4
B) 5
C) 2
D) 3
ANSWER: D
Signs of compliance of the information used in the analysis of economic activities with the requirements set:
A) Possibility of use
B) Completeness
C) Timeliness of formation
D) Credibility
E) All of the above
F) None of the above
ANSWER: E
A systematic approach to business process management, the main goal of which is to organize the company's activities in such a way as to combine the organization's goals and customer expectations, is:
A) BPMS (Business Process Management System)
B) BPMN (Business Process Model and Notation)
C) BPM (Business Process Management)
ANSWER: C
Special software, without which it will be extremely difficult to implement the necessary business processes, is:

A) BPMN (Business Process Model and Notation)
B) BPMS (Business Process Management System)
C) BPM (Business Process Management)
ANSWER: B

According to the classification of systems, the flora and fauna of the planet belong to this subsystem, incl. human body:
A) Biological
B) Social
C) Technical
ANSWER: A

Among the stages of business process management, this stage includes the planned modernization of the business process:
A) Separation of business processes
B) Business process development
C) Improvement of business processes
ANSWER: C

A way of describing business processes that helps specialists convey the main ideas of BPM to businessmen is:
A) BPMS (Business Process Management System)
B) BPMN (Business Process Model and Notation)
C) BPM (Business Process Management)
ANSWER: B

In mathematical linguistics and semiotics, a term expressing the rules by which the semantic elements of language are formed is:
A) Grammar
B) Semantics
C) Pragmatics
ANSWER: A

Documented standards:
A) Provide high quality work
B) Provide assistance in adaptation to new employees
C) Reduce risks in production
D) All of the above
E) None of the above
ANSWER: D

When analyzing and managing business processes, a stable, purposeful set of interrelated activities that, using a certain technology, transforms inputs into outputs that are valuable to the consumer (client) is:
A) Process
B) Operation
C) Verification
D) Validation
E) Event
ANSWER: A

CRM system is:
A) Customer relationship management system
B) An enterprise system that uses operating resources to transform input factors of production into finished products or services.
C) An organized set of means, methods and activities used to regularly process information to solve a problem
D) A working system whose activities are aimed at collecting, transmitting, storing, retrieving, processing and displaying information

ANSWER: A

When analyzing and managing business processes, the material or information object necessary to complete the process is:

A) Consumer
B) Event
C) Resource
D) Process output
E) Process instance

ANSWER: C

In business process analysis and management, a transformable resource or management resource required to execute a process, supplied by other processes:

A) Supplier
B) Process instance
C) Process input
D) Process output
E) End-to-end resource

ANSWER: C

When analyzing and managing business processes, the resource converted during process execution:

A) Consumer
B) Process instance
C) Process input
D) Process output
E) End-to-end resource

ANSWER: D

Management of an organization's business processes is presented in the standard:

A) ISO 9000
B) ISO 9001
C) ISO 9010
D) ISO 9100

ANSWER: B

The content of the business process does NOT include:

A) Inputs
B) Outputs
C) Performer
D) Project

ANSWER: D

In mathematical linguistics and semiotics, a term expressing the rules by which the semantic elements of language are formed is:

A) Grammar
B) Semantics
C) Pragmatics

ANSWER: A

The method in which general goals are divided into specific ones using decomposition methods is called:

A) Goal tree
B) Decision tree
C) Work tree

ANSWER: A

This is the name given to a group of methods used to evaluate complex systems at a qualitative level by specialists (for example, the Thurstone and von Neumin-Morgenstern methods):

A) Expert assessment methods

B) Structuring methods
C) Methods for reconciling estimates
ANSWER: A

This special method of system modeling is one of the types of physical modeling that represents a relatively small number of activity factors necessary and sufficient to appropriately display a specific management situation:

A) Dynamic simulation
B) Structural-linguistic modeling
C) Situational modeling
ANSWER: C

A related generalizing set, within the framework of which operations are carried out on sets (their removal, adding new ones, union, intersection, etc.), is:

A) Totality
B) Continuum
C) Set
ANSWER: B

In set-theoretic representations, sets that are specified by specifying some characteristic property A are called:

A) Intensional
B) Extensional
C) Existential
ANSWER: B

In mathematical linguistics and semiotics, a term expressing the content, meaning, meaning of formed or recognizable constructions, language, is:

A) Semantics
B) Pragmatics
C) Grammar
ANSWER: A

These methods are a means of involving managers in developing a collective leadership style, increasing the motivation and involvement of participants in solving the problems under discussion:

A) Brainstorming method
B) "Script" type method
C) Discussion methods
ANSWER: C

This method is based on the hypothesis that among a large number of ideas, there are at least a few good ones that are useful for solving a problem that need to be identified:

A) "Script" type method
B) Discussion methods
C) Brainstorming method
ANSWER: C

These methods allow you to divide a complex problem with great uncertainty into smaller ones that are better amenable to research (for example, “goal tree”, “decision tree”, portfolio analysis methods):

A) Expert assessment methods
B) Structuring methods
C) Methods for reconciling estimates
ANSWER: B

These methods are used when processing individual expert assessments and have many options, differing in the ways in which a generalized assessment is obtained from individual assessments (for example, the Delphi method, and the combinatorial topology method):

A) Structuring methods
B) Methods for reconciling estimates

C) Expert assessment methods

ANSWER: B

Methods that represent real objects and processes in the form of points that make various movements in space or interact with each other are:

A) Methods of discrete mathematics

B) Strategic methods

C) Analytical methods

ANSWER: C

When classifying goals, this category includes the creation and introduction into production of new and improvement of existing product samples, bringing them to the level of world standards:

A) Marketing

B) Scientific and technical

C) Social

ANSWER: B

7.3.2. Interim certification

Questions for the discipline exam
"System analysis in management"
(Formation of competenceK-1)

1. Development of systemic ideas in economics and management. Systems methodology as a research theory.
2. Main directions in scientific research (elementarism, structural approach).
3. Main directions in scientific research (functional approach, systems approach).
4. System approach and system analysis in economics. Principles and postulates of systems analysis.
5. The concept of "system". Constructive description of the socio-economic system.
6. Systematic description of the socio-economic object of study.
7. Matrix of system characteristics and principles of its formation.
8. External and internal environment for the functioning of social - economic system.
9. Matrix of system characteristics. Input and output parameters
10. Function and goals of system development. The concept of multi-functionality.
11. System structure. The concept of poly-structurality.
12. System characteristics. Connections and elements of the system. The concept of a subsystem.
13. System characteristics. System processor. Components of the processor.
14. Principles of classification of systems. Classification of systems by degree of complexity and conditionality of action.
15. Principles of classification of systems. Classification of systems by the nature of interaction with the external environment.
16. Laws and principles of systems research. "Black box" method, possibilities of use.
17. Laws and principles of systems research. Feedback principle. Positive and negative feedback. Automatic regulation formula.
18. Laws and principles of systems research. Feedback principle. The concept of a homeostatic system.
19. Laws and principles of systems research. Feedback principle. Automatic regulation formula.
20. Laws and principles of research of socio-economic systems. The law of necessary diversity, examples.
21. Features of socio-economic systems. Specifics of goal-directed behavior.

22. Features of socio-economic systems. Specifics of external dynamics.

23. Features of socio-economic systems. Specifics of internal dynamics.

24. Systematic methods for studying the internal environment of socio-economic objects. System characteristics matrix.

25. Matrix of system characteristics. Physical and dynamic measurement of system elements.

26. Matrix of system characteristics. Predictive and control measurement of system elements.

27. Morphological method of studying the external environment of a socio-economic system. Basic steps of morphological research.

28. System analysis of the external environment. Stratification of the environment and expert determination of the significance of factors.

29. Analysis of the external environment of the socio-economic system. Methods for identifying key external factors of functioning and development.

30. Construction and assessment of scenarios for the development of the external environment of the socio-economic system - optimistic, pessimistic and most likely.

31. Methods for identifying and describing the “problem field” of an organization using a system classifier.

32. System analysis of the organization's goals. Methods for forming targets. Identify and evaluate key goals.

33. Methods for decomposing the goals of an organization. Basic requirements and principles for constructing a “goal tree”.

34. Assessment of the current strategy of the organization. Analysis of the possibilities of changing the current strategy taking into account scenarios for the development of the external environment.

Examination form

MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
FEDERAL STATE AUTONOMOUS EDUCATIONAL INSTITUTION OF HIGHER EDUCATION
"MOSCOW POLYTECHNIC UNIVERSITY"
(MOSCOW POLYTECH)

Faculty of Economics and Management, Department of Management
Discipline: System analysis in management
Field of Study: 03/38/02 “Management”
Course: _, group _____, form of study: part-time

EXAMINATION TICKET No. 1.

1. Formation of UK-1 competence.
2. Formation of the competence of UK-1

Approved at the meeting of the department “___” _____ 202_, minutes No. __.

Head of the Department of Management _____ /Alenina E.E./