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"THE RUSSIAN PRESIDENTIAL ACADEMY OF NATIONAL ECONOMY AND PUBLIC ADMINISTRATION"

NORTH-WEST INSTITUTE of MANAGEMENT - branch of RANEPA

DEPARTMENT OF BUSINESS INFORMATICS

Approved

Директор СЗИУ РАНХиГС
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WORKING PROGRAM OF THE DISCIPLINE
Б1.В.ДВ.03.01 Enterprise IT-Infrastructure Management

38.04.05 Business Informatics
((code, name of the field of training / specialty)

Business-analytics
(*master program*)

Master
(qualification)

full-time
(form of studying)

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Working program of the discipline “Enterprise IT-Infrastructure Management” approved by the minutes of the meeting of the Department of Business Informatics No. 6 dated 06.03.2023.

CONTENT

1. A list of intended learning outcomes for the discipline, associated with the planned results of the educational programs

1.1. The discipline «Enterprise IT-Infrastructure Management» ensures mastery of the following competencies:

Table 1.1

Competency code	Title of competence	competency stage code	Description of competency development stage
ПКс-2	Ability to prove chosen approaches used in business analysis, manage business analysis using information and communication technologies	ПКс -2.2	Ability to solve business-analyses tasks using modern IT management tools.
ПКс-3	Ability to manage maintenance activities and projects for the Information system development or modification.	ПКс-3.2	Ability to automate business processes of IT maintenance and design using modern IT tools.
ПКс-4	Ability to manage information services, IT resources, and IT innovation	ПКс -4.1	Ability to plan and to manage IT-projects
		ПКс 4.2	Ability to manage IT Services

1.2.As a result of mastering the discipline, undergraduates should have the following competencies:

Table 1.2

ОТФ/ТФ (if there is in profession standard)/ professional activities	competence stage	Learning outcomes
08.037. Business Analysis management. rationale Performance of possible solutions based on the target score developed for them. (Development of management strategy for the IT infrastructure.)	ПКс -2.2 Ability to solve business-analyses tasks using modern IT management tools.	Knowledge level **To know:** – IT-infrastructure components – Processes. Methods. Requirements. Managing tools – Organization maturity standards
		Skill level **To be able:** - To determine IT-infrastructure level and enterprise maturity level - To formalize business analysis results according to selected approaches
		level of proficiency **To show proficiency:** - Methods of survey of enterprise IT infrastructure, IT and IP status, - Application of modern standards in the evaluation of the enterprise IT infrastructure. - Methods of development of IT infrastructure regulations.
Management of maintenance works and IS development or modification projects that automates organizational management tasks and business	ПКс -3.2 Ability to automate business processes of IT maintenance and design using modern IT tools	Knowledge level **To know:** - Software tools for modeling IT infrastructure processes;
		Skill level **To be able:** – To use modern software tools to analyze IT; – to carry out survey of activity and IT infrastructure of the enterprises; use modern standards and methods, develop regulations for the enterprise

processes / Management of systems requirements development and maintenance processes and their quality, (D/08.7)		level of proficiency **To show proficiency in:** – IT infrastructure survey methods; – Application of modern standards to assess enterprise IT infrastructure – Methods of developing IT regulations
IT Innovation Management	ПКс -4.1 Ability to plan and to manage IT-projects	Knowledge level **To know:** – Fundamentals of the best practices, represented in ITIL – Methods and tools for interactions with stakeholder
		Skill level: **To be able:** – To plan, to organize and to hold meetings and discussions with stakeholders – To define IT project tasks and time constraints – To monitor the implementation of the IT project plan
		level of proficiency **To show proficiency in:** – Using of modern IT management project software
	ПКс -4.2 Ability to manage IT Services	Knowledge level: **To know:** – Concept of IT services, types of IT services – Modern software solutions for managing IT services
		Skill level **To be able**: – to identify, to register, to classify types of services, – to assess the cost of the means and tools used to implement the service, – to prepare the necessary documents for the interaction of the IT department with the customer
		level of proficiency **To show proficiency in:** – using the tools for registration, collection of IT - service management data, – Methods of IT-service cost determination

2. The scope and place of discipline in higher education program structure

2.1. Scope of discipline

The total labour intensity of the discipline is 4 credit units/144 academic hours.

Table 2

Internal form

Working type	Labour Intencity (academic/astronomical hours)
Total labour intencity	144/108
Contact work	50/36
Lectures	20/15
Practical classes	28/21
Consultation	2/1,5
Self-executing work	58/43,5
Control	36/27
Type of intermediate control	Exam

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

The discipline Б1.В.ДВ.03.01 Enterprise IT-Infrastructure Management refers to the optional disciplines of curriculum of the federal state educational standard of higher education and is studied during the second year of study.

Discipline study is based on concepts obtained from the study of disciplines - Б1.О.01 "Enterprise Architecture," Б1.О.05 "Information Systems Lifecycle Management," Б1.О.06 "System Engineering and Systems Analysis Tools," Б1.О.07 "Analytical Decision Support." From the other side, the discipline develops the necessary prerequisites for mastering the programs of Organizational and Managerial and Pre-Diploma Practices, as well as for completing final qualification work, passing the state exam and for research work. The form of intermediate certification in accordance with the curriculum is an exam.

The form of intermediate certification in accordance with the curriculum is an exam. Access to the system of remote educational technologies is carried out by each student independently from any device on the portal: https://sziu-de.ranepa.ru/. The password and login to the personal account/profile are provided to the student in the Dean's Office.

3. The content and structure of the discipline

9. The structure of the discipline

Table 3

№	Title of topics	Scope of discipline (module), hour						Form of current control * *, intermediate certification * * *
		Total	Contact work of the trainees with the teacher by type of training session				Self-executive Work	
			L/DOT	LW/DOT *	P/DOT	C		
Section 1	Enterprise IT Infrastructure	22	6/2				16	OS, T
Section 2	Service Approach in Enterprise IT Infrastructure Management	44	8/4		16/8		20	OS, PT
Section 3	Project Approach in Enterprise IT Infrastructure Management	40	6/2		12/6		22	OS, PT
Consultation		2						
Intermidiate certificaion		36						E
Total (acad./astron. hours):		144/108	20/12		28/15		58/40,5	

VO - oral survey
T - test
PT - practical tasks
E - Exam

3.2.The discipline content

Section 1. Enterprise IT Infrastructure

Organizational structures of Enterprise. Enterprise information systems. Process and project approaches in business management. Enterprise IT infrastructure and business goals. IT

infrastructure components. Assessment of enterprise IT infrastructure maturity level. Methods for assessing the quality of the organization's information infrastructure. IT-infrastructure management models Standards ITIL, MOF, ITSM, COBIT.

Section 2. Service Approach in Enterprise IT- Infrastructure Management
Methodologies for practical use of ITIL best practices in enterprise IT- infrastructure management. ITSM model. IT Service Support Processes: incident, problem, configuration, release management, e t.c. IT service delivery processes: service level, capacity, availability, continuity, finance, security management processes. Service Level Agreement Types of IT service providers. Organization of IT service management in the ITSM-365. Maintenance of configuration base, accounting of incidents and problems. Service Catalog. Basic concepts. Virtualization. SaaS - software as a service. PaaS - platform as a service. IaaS - infrastructure as a service. Service agreement (SLA) development.
IT- infrastructure management in Microsoft Azure decisions. Microsoft Azure Labs Services Overview. Types of subscriptions. Resource groups and their properties. Lab roles and users. Assigning roles. The concept of a laboratory. Virtual machine templates.
comparison of parameters and cost of virtual machines. Set up a schedule for labs. Add users to the lab.

Section 3. Project Approach in Enterprise IT- Infrastructure Management
IT project management features. Manage project content. Development of the project organizational structure. Project monitoring and management. Cost analysis of IP development project management. Manage project resources. Risk management. PMBOOK Methodology. Project management information technology.

4. Tools of the current control of students' progress and the fund of assessment tools for intermediate certification of the discipline

Intermediate certification can be carried out using remote educational technologies (Distance Educaional Technologies - DET).

4.1. Forms and methods of control of students' progress and intermediate certification

During the teaching of the discipline "Management of IT infrastructure of the enterprise," the following methods of monitoring the performance of students are used:

Table 4.1

Section	Forms of current performance monitoring
Section 1. Enterprise IT Infrastructure	OS /T
Section 2. Service Approach in Enterprise IT-Infrastructure Management	OS /PT
Section 3. Project Approach in Enterprise IT-Infrastructure Management	OS /PT
Exam	

The methods, used during exam

The examination is conducted orally in a computer class. The level of knowledge of the discipline "IT Management - Enterprise Infrastructure" is checked, as well as the level of skills in solving educational tasks during the exam. For admission to the exam, students must complete tasks in all topics of the training discipline. During the exam, the student must show an understanding of the material, substantiate the answers to the questions asked and show the ability to perform tasks and explain them.

* In force majeure situations, the exam can be conducted in a remote form: testing and oral questions using the electronic interaction environment (Teams).

4.2. Materials for control of current students' progress

Typical assessment questions on section 1

1. Define the concepts of IT infrastructure.
2. Describe the IT subsystems.
3. Specify the types of IT infrastructure resources.
4. Identify the relationship between IT infrastructure and enterprise strategy.
5. Describe the factors that affect the organizational structure of enterprise IT-infrastructure.
6. List the main IT infrastructure management objects.
7. Explain the reasons of constant changes in the IT infrastructure.
8. Specify which characteristics indicate the maturity of your IT infrastructure.
9. Describe the standards of the IT maturity model.
10. Specify criteria for selecting IT infrastructure components.
11. Define the cost structure for developing, implementing, and maintaining IT-infrastructure.
12. List the standards used in IT-infrastructure management
13. Identify the benefits of using typical IT business process models.
14. Describe advantages of the process approach to enterprise IT-infrastructure management.
15. Describe the purpose of ISACA.
16. Describe the characteristics of the Cobit standard.
17. Specify the purpose of the ITIL library.
18. Describe the structure of ITIL and the relationship between its components.

Typical assessment questions on section 2

1. Specify ITSM model ideas.
2. Define the concept of SaaS.
3. Define the concept of PaaS.
4. Define the concept of IaaS.
5. Describe the differences of ITSM model and the traditional functional approach to IT service organization.
6. Explain the purpose of the incident management process.
7. Explain the purpose of the problem management process.
8. Explain the purpose of the configuration management process.
9. Explain the purpose of the configuration unit database.
10. Explain the main objectives of the change management process.
11. Define the concept of "release."
12. Explain the purpose of the service level management process.
13. Explain the concept of "SLA".
14. Specify the purpose of the security and availability management processes.
15. Specify the features of IT service ("service time", "performance").
16. Specify what IT - infrastructure spends on IT development and maintenance.
17. Explain ideas for integrating IT management systems into the cloud.
18. Describe the possibilities of ITSM-365.
19. Specify a group policy assignment.
20. Describe the possibilities of Microsoft Azure for managing IT- infrastructure.
21. Specify the types of subscriptions to Microsoft Azure services.
22. Specify the benefits of virtualization.
23. Define the role assignment of the lab user.

24. Specify basic lab settings.
25. Define the basic timetable ideas for labs.
26. Describe the schedule settings for AZURE labs.
27. Describe possibilities of Microsoft Azure Labs.

Typical assessment questions on topic 3

1. Describe the key of the project approach in managing enterprise IT infrastructure.
2. Describe the combination of process and project approaches to achieve business objectives.
3. Identify the advantages of the project office.
4. Describe the concepts of the content and boundaries of the project.
5. Define the concept of project tasks and their use.
6. Describe the process of creating a project IT team.
7. Identify the competencies required for a team of IT project developers using flexible methodologies.
8. Describe the stages of the IT project.
9. Define the concept of project budget.
10. Define the concept of milestone. Describe what constitutes a milestone plan.
11. Define the concept of network in project plan.
12. Specify the purpose of the Gantt chart and its characteristics.
13. Define the methods of improvement of the project, the impact of the critical path on the results.
14. Describe the composition of the IT project team. Describe the process of its formation.
15. Specify how work breakdown structure is used
16. Define the concept of milestone. Give examples.
17. Describe what constitutes a milestone plan.
18. Describe how the cost of the IT project is managed.
19. Specify which IT project resources can be managed in MS Project.
20. Describe the purpose of PMBOOk.

Typical test questions on section 1

Question № 1 (choose right answers)

What name can be given to the combination of technologies, hardware and software, including hardware, network equipment, software and personnel that ensure the uninterrupted operation of these resources?

Answer Options:
a. IT Infrastructure
b. Enterprise Architecture
c. Information system
d. Software
e. IT Department

Question № 2 (choose right answers)

What are fundamental in determining the goals of an IT service?

Answer Options:
a. Current level of information technology development
b. Strategic Business Goals
c. Opportunities for rapid enterprise success in any area
d. Customer Desire

e. Market News

Question № 3 (choose right answers)

Which area of corporate governance is responsible for overseeing strategy implementation and resource efficiency?

Answer Options:
a. IT Management Performance Assessment
b. Risk Analysis
c. Process Optimization
d. Strategy Compliance

Question № 4 (choose right answers)

How many key areas of corporate governance are allocated to COBIT?
Answer Options:
a. 5
b. 20
c. 10
d. 3
e. 4

Question № 5 (choose right answers)

Who evaluates IT services?

Answer Options:
a. Head of Business Unit
b. Board of Directors and Senior Management
c. IT Management
d. Internal Control Service

Question № 6 (choose right answers)

Select from the answers the features of a mature enterprise.

Answer Options:
a. Using the Project Approach in Process Management
b. Application of corporate standards in interaction with customers.
c. IT services are run without standards.
d. The IT infrastructure is managed by the director of the enterprise.

Question № 7 (choose right answers)

The CMM standard defines that "Processes of the _____ level are planned and managed on the basis of a single enterprise standard. Select one from the responses that could determine the name of this level.

Answer Options:
a. Initial
b. Operated
c. Certain
d. Chaotic

Question № 8 (choose right answers)

According to the enterprise maturity model, one of the maturity levels involves managing problems, configurations, availability, change, and performance. Choose which one.

Answer Options:
a. Initial
b. Reactive
c. Chaotic
d. Proactive

Question № 10 (choose right answers)

What is the COBIT methodology used for?

Answer Options:
a. To manage the business strategy
b. For risk management
c. To manage enterprise information security
d. To manage the IT infrastructure
e. For Human Resources

Question № 11 (choose right answers)
Select the name of the organization that developed COBIT

Answer Options:
a. ISO
b. ISACA
c. JTC1
e. OSI
f. ANSI
g. ROSSTANDART

The key: 1 – a; 2-b; 3-a; 4- a; 5-d; 6-a, b; 7- c; 8 –d; 9-d; 10- b.

Typical test questions on Section 2

Question № 1 (choose right answers)
The enterprise is going to another enterprise to get the opportunity to work with the software application using cloud technologies. This capability is called:

Answer Options:
a. Service
b. function
c. Process
d. Monitoring

Question № 2 (choose right answers)
Select the correct answer to end the phrase: Verification process _____.

Answer Options:
a. automates routine operations
b. ensures that the results of a specific stage of the development process meet the requirements of

this and previous stages, i.e. (the product is created correctly - according to the specification
c. provides clear regulation of activities

Question № 3 (choose right answers)

Select the correct answer to end the phrase: The appraisal (certification) process _____ .

Answer Options:
a. ensures that the IT service meets the customer's requirements and expectations
b. identifies user requirements and concept development
c. minimizes human factor

Question № 4 (choose right answers)

Specify which of the following refers to the actions performed to create a valuable service according to the ITIL4.

Answer Options:
a. Planning
b. Standardization
c. Replication
d. Improvement
e. Interaction
f. Control
g. Distribution

Question № 5 (choose right answers)

Select the correct answers. The following practice descriptions are available in the ITIL4:

a. 4 Monitoring practices
b. 17 Service Management Practices
c. 3 Technology management practices
d. 28 General Management Practices

Question № 6 (choose right answers)

Select the correct answers. What from listed does the Model of four measurements ITIL4 belong to a concept?

Answer Options:
a. Enterprise Organizational Structure
b. Products
c. Competitors
d. Processes
e. Projects
f. Technologies
g. Partners

Question № 7 (choose right answers)

Select the correct answers. ITSM, unlike the technological approach, recommends _____ .

Answer Options:
a. Specific algorithm for service quality management

b. Use performance parameters predefined in service level agreements.
c. IT departments measure and improve the quality of services provided.

Question № 8 (choose right answers)

Select the correct answers. According to the agreement (SLA), the following indicators can be attributed to the achievement of a certain level of services:

Answer Options:
a. KPI
b. Salary of performers
c. Number of projects
d. List of works performed
e. Time of works execution
f. Price of service

Question № 9 (choose right answers)

Select the correct answers. Requirements for providing IT services define the following types of management:

Answer Options:
a. Service Delivery Level Management
b. Management of economic security of the enterprise
c. Service Availability Management
d. Financial Management
e. Power Management
f. IT Service Continuity Management
g. Human Resources Management

Question № 10 (choose right answers)

Select from the list which abbreviation is appropriate for the concept of software as a service.

Answer Options:
10. SaaS
11. PaaS
12. IaaS

Question № 11 (choose right answers)

Select from the list which concept the PaaS number corresponds to.

Answer Options:
a. Software as a Service
b. Platform as a Service
c. Infrastructure as a service

Question № 12 (choose right answers)

Select from the list which concept does the IaaS number correspond to?

Answer Options:
a. Platform as a Service
b. Infrastructure as a service
c. Software as a Service

Question № 13 (choose right answers)

Select the correct answer. How many days after signing up for a free account do you have access to Microsoft Azure Services?

Answer Options:
a. 30 days
b. 14 days
c. 2 months

Question № 14 (choose right answers)

Choose what does the registration for a free Microsoft Azure account give for subscriber.

Answer Options:
a. Subscriber receives a link to download the Software distribution file.
b. Subscriber immediately receives data to access the desired service by login and password.
c. Subscriber needs to provide his/her credit card information to get $200 into the account.

Question № 15 (choose right answers)

How are user roles created? Select the correct answer from the list.

Answer Options:
a. An administrator creates roles to access system features to assign to groups of users.
b. For each user, the administrator creates a separate role that defines the functionality of the system used.
c. Each user can create a role for themselves and change it from time to time

The key: 1-a; 2-b; 3-a; 4– a, d, e; 5 – b, c; 6 – b, d, g; 7 – b, c; 8 –a, d, e; 9-a, c, d, f; 10-a; 11-b; 12- b; 13-a; 14-c; 15 –c.

Typical test questions on Section 3

Question № 1 (choose right answers)

Select from the list which fits the project lifecycle definition. Answer Options:
a. IT activities related to the use or development of IT.
b. These are processes related to defining roles of performers and their relationships during project execution.
c. This is the sequence of project phases that must be performed to achieve the project objective.

Question № 2 (choose right answers)

Select from the list which fits the definition of the project organizational structure.

Answer Options:
a. Identify the roles of performers that are required to complete the project, define relationships between performers, and assign responsibility for tasks.
b. Sequence of project phases to achieve objectives
c. Project Work Structure

Question № 3 (choose right answers)

Select from the list which actions relate to IT project quality management.
Answer Options:
a. Evaluation of project alternatives

b. Define Roles of participants
c. Development Testing
d. Acceptance of results
e. Risk Analysis

Question № 4 (choose right answers)
Select from the list which defines the description of the project content.

Answer Options:
a. Number of project structure hierarchy levels
b. Industry Average Package Size
c. Customer Requirements
d. Technical Justification

Question № 5 (choose right answers)
Select from the list by which the organizational boundaries of the project are defined.

Answer Options:
a. Business directions and business processes covered by the IT project
b. Industry Regulations
c. List of departments that will be participants in the IT project

Question № 6 (choose right answers)
Select from the list what applies to the description of the project schedule network charts.

Answer Options:
a. Planned Project Work
b. Cost per project activity
c. Logical links between works

Question № 7 (choose right answers)
IT Project Operations Management includes _____ .

Answer Options:
a. management of relationships in the environment (macro and microenvironment of the project), including customers, companies, contractors and subcontractors, company strategy
b. project processes and project management processes aimed at achieving project results of the specified quality, on time, within the planned costs
c. technical problem resolution management, including system management object components

Question № 8 (choose right answers)
Select the correct answer. The main task of ensuring the quality of the IT- project operational management is to _____.

Answer Options:
a. Analyze all change requests, manage policies
b. Refine strategies, standards and procedures to ensure that they are consistent with the objectives of each next phase of the project
c. Generation of reports on schedule execution, on expenses based on data collection.

Question № 9 (choose right answers)

Select the correct answers that define the risk probability concept.

Answer Options:
a. This is an indicator that combines the probability of a risk and its consequences
b. This is the probability that a risk event will occur
c. This is a potential event causing damage or success to the project that may occur

The key: 1 – c; 2 –a; 3 – c, d; 4 – b, c, d; 5 - c; 6 – a, c; 7 – c; 8 – b; 9 –b.

Typical practice taks

Typical practice tasks on section 2

1. Use the UML usage chart to define the required employee workplace interface.
2. Use the UML activity chart to determine the algorithm for registering applications for the provision of IT services.
3. Use the UML usage chart to develop an IT customer service model.
4. Use ITSM-365 to define details of the requisition object and its malfunction.
5. Use ITSM-365 to report on open requisitions.
6. Use ITSM -365 to make an agreement to provide a service to configure the software developer's workplace.
7. Use ITSM -365 to make an agreement to provide a laptop selection service for a marketing employee.
8. Use ITSM -365 to draw up an agreement for the provision of software installation services for the deputy director for administrative and economic affairs.
9. Register your account to access Azure Labs.
10. Create Resource Group. Define structure, tags.
11. Create roles for future users.
12. Create users and select roles for them.
13. Create Azure Lan.
14. Choose a virtual machine for the lab. Explain the choice of the machine.
15. Connect a virtual machine to the lab.
16. Determine the cost of using the created resources.

Typical practical tasks on section 3

1. Define the main goals and tasks of the IT project.
2. Define the work sequence for the IT project.
3. Evaluate project options based on critical path changes in different ways.
4. Evaluate the feasibility of an IT project within a specified time frame.
5. Develop a basic IT project plan.
6. Monitor the developed plan using a tracked network chart.
7. Carry out a functional and cost analysis of the project.

5. Funds of assessment tools for intermediate attestation

Table 5.1

Competency code	Title of competence	competency stage code	Description of competency development stage
ПКс-2	Ability to prove chosen approaches used in business analysis, manage business analysis using information and communication technologies	ПКс -2.2	Ability to solve business-analyses tasks using modern IT management tools.

ПКс-3	Ability to manage maintenance activities and projects for the Information system development or modification.	ПКс-3.2	Ability to automate business processes of IT maintenance and design using modern IT tools.
ПКс-4	Ability to manage information services, IT resources, and IT innovation	ПКс -4.1	Ability to plan and to manage IT-progects
		ПКс 4.2	Ability to manage IT Services

Table 5.2

Competence Development Stage	Assessment Indicator	Evaluation criterion
ПКс -2.2	1. Demonstration of ability to solve the challenges of business analytics using digital technologies. 2. Demonstration of ability to perform basic labor functions related to decision making. 3. Demonstration of ability to draw conclusions.	1. Completeness and quality of tasks execution. 2. Tasks performance quality related to labor functions. 3. Correct and reasonable answers to the questions are provided.
ПКс-3.2	1. Demonstration of ability to solve tasks for IT-infrastructure maintenance and develop using modern information technologies. 2. Ability to decide which of automated solutions to use for IT maintenance and design	1. Completeness and quality of execution of tasks, cases. 2. The completeness and quality of the answers in the exam. 3. The ability to use IT in the tasks of managing enterprise IT-infrastructure.
ПКс -4.1	1. Demonstration of ability to develop an IT-project execution plan. 2. Capability of making changes in the plan based on the results of work monitoring.	1. The basis for selecting tasks, resources when developing an IT project execution plan. 2. Complete and comprehensive answers. 3. Ability to use project management software tools.
ПКс 4.2	Demonstration the ability to manage IT services.	1. Completeness and quality of execution of tasks, cases, use of IT technology in service management. 2. Ability to classify services, determine the priority of their provision. 3. Ability to communicate with the customer. 4. Ability to create a service agreement.

Typical question for exam preparation

1. Specify the main tasks of the enterprise IT- infrastructure management.
2. Describe the types of corporate information systems of the modern enterprise.
3. Describe subsystems of the enterprise information system.
4. Specify information systems lifecycle standards.
5. Name the core resources of IT- infrastructure.
6. Describe the role of IT- infrastructure in achieving business goals.
7. Describe the levels of the enterprise maturity model.
8. Define the concept of a process approach in the enterprise business.

9. Describe the use of a process approach in managing IT infrastructure.
10. Specify ISACA organization tasks.
11. Describe the operating standard PMBOK.
12. Name the purpose and tasks of COBIT.
13. Describe the content of the ITIL library.
14. Name the purpose of ITMS.
15. Specify the difference between incidents and problems.
16. Identify the advantages of using IT cloud services.
17. Describe the purpose of the service catalog.
18. Identify the advantages of virtualization for managing the enterprise IT- infrastructure.
19. Describe the purpose of the Service Agreement (SLA).
20. Describe existing software solutions to support enterprise IT infrastructure management.
21. Specify basic settings for Microsoft Azure Labs user accounts, role assignment principles.
22. Describe the optimal virtual machine options for task.
23. Describe the role of the project approach in implementing IT infrastructure goals.
24. Name well-known international and national project management standards. Define their goals.
25. Describe the composition of PMBOK.
26. Specify methods to define principles for shaping programs and project portfolios?
27. 31. Describe the benefits of using milestones in your IT project plan. 32. Define how the IT project team is generated.
28. 33. Describe the concept of work breakdown structure. Give examples.
29. Specify the roles, functions, skills and knowledge requirements of the IT project manager.
30. Name the main stages of the IT project lifecycle
31. Define the purpose of the project office.
32. Describe how to manage IT project risk.
33. Describe the cost management of an IT project.
34. Specify the purpose of the Project Management Basic Plan
35. Name the key performance indicators of the project-oriented company.
36. Describe the variance management scenarios.
37. Describe the goals of IT modification management.
38. Specify the purpose of the IT project management office.
39. Describe the criteria for developing programs and project portfolios
40. Name the key IT performance indicators.
41. Describe how to evaluate the quality of IT project management.

Assessment questions and tasks are used for demonstration by students the formation of competencies, acquired knowledge and skills in using modern software tools. A set of practical tasks and methodological instructions in electronic form is represented on the discipline page in the electronic educational environment system on the distance learning portal https://sziu-de.ranepa.ru

Grading scale

The results are evaluated on the basis of the rating system (BCF). The use of BRS is carried out in accordance with Order No. 168 of August 28, 2014 "On the Application of the Student Knowledge Rating System." BRS of discipline is reflected in the calculation scheme of rating points (hereinafter - the calculation scheme). The calculation scheme was formed in accordance with the curriculum of the direction, agreed with the head of the scientific and educational direction, approved by the dean of the faculty.

The calculation scheme is brought to the attention of students at the first lesson of this discipline and is an integral part of the working program of the discipline and contains information on the study of discipline specified in the Regulation on the point-rating system for assessing the

knowledge of students at the RANEPA. Based on item 14 of the Regulation on the point-rating system for assessing the knowledge of students at the RANEPA, the institute adopted the following scale for translating the assessment from a multi-point system to a five-point one.

Scale of transfer the evaluation mark from point system to system « credited »/«not credited»

Table 4.4.

from 0 to 50 point	«not credited»
from 51 to 100 points	«credited»

6. Guidelines for students on mastering the discipline

Teaching plan of the discipline provides such classes as: lectures, practices, control tasks. Lectures considers theoretical material of the discipline Lectures are accompanied with computer presentations, texts, which gives opportunity for self-executive work for repeating and understanding theory. Student are given the opportunity to work in computer classes in additional time.

Practices give examples of practical theory appliance. Then students are given home tasks which often demands using software. The tasks should be carried out in additional time for self-executed work. The methodic instructions for the help in making tasks together with files of lecture and practical work are published on the discipline page of institute LMS.

In order to control the formation of competencies and obtain scores, the student must protect the completed tasks by answering the teacher's questions, showing the understanding and skills acquired during their execution. This makes it possible to implement the score rating determined by Order No. 168 of August 28, 2014 "On the application of the score rating system for assessing students' knowledge."

In order to activate the independent work of undergraduates, a training course "Enterprise IT Infrastructure Management" https://sziu-de.ranepa.ru developed on the remote training portal of the SZIU, which includes a set of files with lecture texts, a workshop, examples of tasks, as well as a set of tests for organizing electronic testing.

An interactive form of classes is provided when conducting classes in a computer classroom. The interactive form is also provided by the presence of developed files with tasks, the presence of control questions, the possibility of access to the remote training system, as well as to the tester when the teacher communicates with students in Teams. Access to electronic resources is available for access to published and electronic resources on the institute's website (site page - "Scientific Library").

Background questions to prepare for classes

Table 5

№	Title of section	Estimation questions for the self examine
1	Section 1. Enterprise IT Infrastructure	1. Describe the concept of enterprise IT infrastructure and its role in achieving business goals. 2. Name the core resources and subsystems of your IT infrastructure 3. Specify the maturity levels of the enterprise according to the SMM model. 4. Specify how to evaluate the quality of enterprise IT management

2	Section 2. Service Approach in Enterprise IT Infrastructure Management	Identify the benefits of using cloud solutions to manage your IT infrastructure. Describe what types of services ITSM can provide. Describe the advantages and disadvantages of outsourcing. Identify the capabilities, benefits, and disadvantages of existing Azure cloud solutions.
4	Section 3. Project Approach in Enterprise IT Infrastructure Management	Describe the role of the project approach in implementing IT infrastructure goals. Name well-known international and national project management standards. Describe the advantages of using milestones in the IT project plan. Specify the roles, functions, skills and knowledge requirements of the IT project manager. Specify methods to define the content and boundaries of the project. Describe how to manage project costs.

7. Educational literature and Internet-resources, educational and methodological support for students self-executing work on the discipline

7.1 Basic resources

1. Олейник, А. И. А. В. Сизов. ИТ-Инфраструктура / Учебно-методическое пособие - Москва: Высшая школа экономики, 2012. -134 с. Лань: электронно-библиотечная система. [Электронный ресурс] URL: https://e.lanbook.com/book/66055
2. Емельянов В.А..ИТ-инфраструктура организации / Учебное наглядное пособие. Москва КноРус 2021 -144 с.
3. Наумов В.Н. Проектирование информационных систем / Учебное пособие. Санкт-Петербург, - 2018, - 392с.
4. Васильев Р.Б. Управление развитием информационных систем / -М. : Интернет-Университет Информационных Технологий (ИНТУИТ), 2016. — 507 с. [Электронный ресурс] URL: http://idp.nwipa.ru:2945/62828.html
5. Алешин А.В., Аньшин В.М., Багратиони К.А. Управление проектами: фундаментальный курс/– М.: Изд. Дом Высшей школы экономики, - 2013г. -640 с.
6. Управление жизненным циклом информационных систем: монография / Е.П. Зараменских. – Новосибирск: Издательство ЦРНС, 2014. – 270 с.
7. Грекул В.И., Коровкина Н.В., Куприянов Ю.В. Проектное управление в сфере информационных технологий – М.: Бином. Лаборатория знаний, 2013 – 336 с.
8. Павлов А.Н. Управление портфелями проектов на основе стандарта PMI. – М.: Бином. Лаборатория знаний, 2014. -214 с.
9. Оценка качества информационной инфраструктуры организации. http://www.dir-
10. consulting.ru/ocenka-kachestva-informacionnoj-infrastruktury-organizacii.html
11. Управление инцидентами и проблемами – понятия и принципы / ИнфраМенеджер, Электронный ресурс URL: [https://www.inframanager.ru/library/about-methodology/upravlenie-incidentami/]

7.2.Additional resources

13. PMBOK. Руководство к Своду знаний по управлению проектами» 4-е изд., PMI, 2004.12.http://www.ntrlab.ru/publications/190
14. Ильина О.Н. Методология управления проектами: становление, современное состояние и развитие [Электронный ресурс] М: Инфра-М, 2011, 208 с.

15. Кокинз Гэри. Управление результативностью: как преодолеть разрыв между объявленной стратегией и реальными процессами / М: Альпина Паблишер, 2017. — 328 с. [Электронный ресурс] URL: http://idp.nwipa.ru:2945/58549.html
16. Липунцов Ю.П. Управление процессами. Методы управления предприятием с использованием информационных технологий / Электрон. текстовые данные. - Саратов: Профобразование, 2017. -224 с. [Электронный ресурс] URL: http://idp.nwipa.ru:2945/63960.html
17. Сатунина А.Е. Управление проектом корпоративной информационной системы предприятия// –М.: Финансы и статистика: ИНФРА –М, 2009.
18. Кожухов А. Управление непрерывностью ИТ-услуг / Корпоративные системы, №9, 2006 // http://www.iemag.ru/?ID=608550
19. ITSM Reference Model / http://h20219.www2.hp.com/services/cache/78360-0-0-225-121.aspx
20. What is ITSM? Breaking down IT service management and related concepts //Electronic resource URL: https://freshservice.com/itsm
21. Колесов А. HP ITSM и эффективность обслуживания информационных систем предприятий / http://www.bytemag.ru/?ID=602758
22. Управление ИТ-услугами / http://www.itexpert.ru/rus/articles/200406222006/200406222044
23. Развитие ITIL / http://www.itsmportal.ru/articles/itil/2004-02-04%2000:00:00-31.html
24. Management Software: HP OpenView / http://h20229.www2.hp.com/
25. HP OV Service Desk / http://www.hp.ru/openview/products/servicedesk/
26. Решение HP OpenView Network Node Manager (NNM) / http://www.hp.ru/openview/nnm/
27. Семейство продуктов HP OpenView / http://intelotec.ru/products/hp/ 22. IT Process Model / http://www.bita-center.com/itpm

7.3 Regulatory legal documents

Are not used

7.4. Internet resources

Electronic educational resources on the website of the scientific library of the SZIU RANEPA (http://nwipa.ru)

28. Electronic textbooks of the electronic library system (ЭБС) «Айбукс» http://www.nwapa.spb.ru/index.php?page_id=76
29. Electronic textbooks of the electronic library system (ЭБС) «Лань» http://www.nwapa.spb.ru/index.php?page_id=76
30. Electronic textbooks of the electronic library system (ЭБС) «IPRbooks» http://www.nwapa.spb.ru/index.php?page_id=76
31. Electronic textbooks of the electronic library system (ЭБС) «Юрайт»
32. http://www.nwapa.spb.ru/index.php?page_id=76
33. Scientific and practical articles on economics and finance of the Electronic Library of the Grebennikov Publishing House http://www.nwapa.spb.ru/index.php?page_id=76
34. Articles from East View journals and statistical publications http://www.nwapa.spb.ru/index.php?page_id=76
35. English-language resources of EBSCO Publishing: access to multidisciplinary full-text databases of various world publishers in business, economics, finance, accounting, humanitarian and natural fields of knowledge, abstracts and full texts of publications from scientific and popular science journals. Emerald Journals, Elsevierr - the famous world publishing house specializing in electronic journals and databases on economics and management.

It is possible to use, besides the above resources, other electronic resources of the Internet.

1. www.finexpert.ru
2. http://www.itnews.ru/
3. http://www.cnews.ru/
4. http://www.prj-exp.ru/
5. http://piter-consult.ru/
6. http://www.gartner.com /
7. http://www.idc.com
8. http://bpms.ru / BPMS.ru
9. http://www.betec.ru /
10. http://www.cfin.ru / Интернет-проект «Корпоративный менеджмент»
11. http://www.osp.ru / Открытые системы
12. http://www.citforum.ru / CIT forum
13. http://www.iteam.ru / Портал iTeam – Технологии корпоративного управления
14. http://www.idef.com / Методологии IDEF
15. http://www.interface.ru/home.asp?artId=4449 / Электронная версия книги Дэвид А. Марка, Клемент МакГоуэн Методология структурного анализа и проектирования SADT.
16. http://www.fa.ru/dep/cko/msq/Pages/default.aspx / Международные стандарты качества.
17. http://office.microsoft.com/ru-ru/support/FX100996114.aspx / Microsoft Visio
18. http://wf.runa.ru/rus / СУБП RunaWFE
19. http://www.bizagi.com / Bizagi
20. http://www.businessstudio.ru / Business Studio
21. http://www.interface.ru/home.asp?artId=106 / Process Modeler
22. http://www.oracle.com/technetwork/ru/middleware/bpa/index.html / Oracle Business Process Analysis Suite
23. http://www.softwareag.com/ru / Software AG
24. http://www-03.ibm.com/software/products/ru/ru/wbi / IBM WebSphere Business Modeler
25. http://www.consultant.ru/ СПС Консультант Плюс

ITIL / http://ru.wikipedia.org/wiki/ITIL – библиотека передового опыта организации ИТ-служб / http://www.cioworld.ru/weekly/251017/page3.html

26. http://www.consultant.ru/ СПС Консультант Плюс
27. http://www.garant.ru / СПС Гарант

7.5. Other resources

Are not used.

8. The material technical facilities, information technology, software and reference information systems

All practical classes are held in a computer classes. The training discipline includes the use of Microsoft Excel, Microsoft Word, Microsoft Power Point software, Office-365 for the preparation of text and tabular material, graphic illustrations. ITSM-365, Microsoft Azure are used for ITSM tasks and IT-infrastructure managing, Ramus Educational and StarUML and Bizagi Modeller are used for design the models used in IT managing. Methods of training using information technologies (computer testing, demonstration of multimedia materials). Internet services and electronic resources (search engines, e-mail, professional thematic chats and forums, audio and video conference systems, online encyclopedias, directories, libraries, electronic educational and teaching materials). The address of LMS Moodle-based distance learning portal is https://sziu-de.ranepa.ru.