

Документ подписан простой электронной подписью
Информация о владельце:
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Должность: Ректор
Дата подписания: 29.05.2024 11:46:54
Уникальный программный ключ:
ca953a0120d891083f939673078ef1a989dae18a

**Federal State Autonomous Educational Institution for Higher Education
Peoples' Friendship University of Russia named after Patrice Lumumba
(RUDN University)**

ANNOTATION OF DISCIPLINES (MODULES)

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

Engineering Management

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

training program/specialty:

38.04.02 Management

(field of studies / specialty code and title)

Disciplines (modules) are studied as part of the Engineering Management professional program of higher education, 38.04.02 Management

Name of the Discipline	<i>Managerial Economics</i>
The volume of discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
Section 1. Introduction. Economics and Managerial Decision-making.	<p>Subject 1. Introduction.</p> <ol style="list-style-type: none"> 1. Economics and Managerial Decision-making. 2. The Concept of Managerial Economics. 3. Economic Theory and Managerial Economics Analytical Tools. Managerial Economics and the World Economy.
Section 2. Theory of Consumer Behavior and Market Demand	<p>Subject 2. Consumer Preferences and Choices</p> <ol style="list-style-type: none"> 1. Demand Analysis and Consumer Behavior. 2. Axioms of Consumer Choice. 3. Utility Function and its Types. Budget Constraint. 4. Plotting of Income-Consumption Curves and Engel Curves for Different Categories of Economic Goods. 5. Income and Substitution Effects (Hicks and Slutsky Methods). <p>Subject 3. Individual and Market Demand.</p> <p>Demands' Elasticity.</p> <ol style="list-style-type: none"> 1. Individual and Market Demand. 2. Demands' Elasticity upon a price. Factors. Price elasticity. Arc Elasticity. 3. Demands' Elasticity by Income, Cross Elasticity of Demand by Price. 4. The Surplus (Benefit) of the Consumer.

<p>Section 3. Theory of Production, Costs, Profits and Market Supply. Market Structures.</p>	<p>Subject 4. The Company and its Goals.</p> <ol style="list-style-type: none"> 1. Classification of Companies. Organizational and Legal forms. 2. Economic and Non-economic Goals of the Company and the Best Possible Decision-Making. 3. Supply's Elasticity. Surplus (Rent) of the Manufacturer. <p>Subject 5. Company. Assessment of Production and Costs.</p> <ol style="list-style-type: none"> 1. Production Function. The Limiting Function of Technological Substitution. 2. Theory and Cost Estimation: Short-term and Long-term Period. 3. Profit Maximization and the Supply of a Competitive Company. <p>Subject 6. Market Structures.</p>
	<ol style="list-style-type: none"> 1. Decisions on Pricing Policy and Production Output: Perfect Competition. 2. Decisions on Pricing Policy and Production Output: Monopoly. Types of Discriminatory Pricing. 3. Decisions on Pricing Policy and Production Output:
<p>Section 4. Development of a Solution in the Context of Uncertainty of Risk and Information Asymmetry.</p>	<p>Subject 7. Risk and Uncertainty Analysis.</p> <p>The concept of certainty and uncertainty.</p> <p>Causes and consequences of incomplete information.</p> <p>Decision-making under risk conditions (estimated cost, risk measurement, risk adjustment, decision tree).</p> <p>Development of a Solution in the conditions of uncertainty.</p>
<p>Section 5. Production Factor Markets.</p>	<p>Subject 8. A Company in the Resource Market.</p> <ol style="list-style-type: none"> 1. The Market and the Company as Alternative Forms of Interaction. The reasons for the Company Emergence. The Boundaries of the Company. 2. Labor. Labor Supply (dependence on wages, non-payroll payments, restrictions on working hours, etc.). 3. Information Asymmetry on the Labor Market. <p>Signaling. 4. Capital. Intertemporal Choice.</p>

Section 6. State, Society and Managerial Decisions of the company.	<p>Subject 9. Asymmetry of Information and Managerial Decisions. The Theory of "Principal-Agent" and the Drafting of Managerial Decisions.</p> <ol style="list-style-type: none"> 1. Markets with Asymmetric Information. Insurance and Moral Hazard. 2. The "Principal-Agent" Situation. 3. The Impact of Risk on the "Principal-Agent" Interaction. <p>Subject 10. Institutional Aspects of the Market Economy. Public Choice.</p> <ol style="list-style-type: none"> 1. External Effects. Taxes and Subsidies. 2. Public Goods. The Problem of the Stowaway. 3. Problems of Public Choice.
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Name of the Discipline	<i>Methodology of Management Problems Research</i>
The volume of discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
1. Management System as an Object of Research Methodology.	<p>The concept and practical content of the research methodology.</p> <p>The object and subject of the research.</p> <p>The concept and classification of systems.</p> <p>Conceptual apparatus and ways to improve the system.</p>
2. Research as an Integral Part of Management.	<p>The research levels and stages.</p> <p>Problems and types of research.</p> <p>Approaches to the management systems research. The functional role of management systems research.</p>
3. The Main Methodological Provisions of the Management Systems Research.	<p>Classification and composition of methods for the management systems research.</p> <p>The concept and development of a hypothesis for the management systems research.</p>
4. Logical-Intuitive Methods of Management Systems Research.	<p>The brainstorming method.</p> <p>The scripting method.</p> <p>The expert assessments method.</p> <p>Synectics as a method of management systems research.</p> <p>The Delphi method.</p> <p>The goal tree method.</p> <p>Morphological methods.</p>

5. Empirical Methods of Management Systems Research.	Socio-economic experiments. The experiment method. The observation method. The survey method.
6. Specific Methods of Management Systems Research.	Methods of documents study. Methods of sociological management research. Testing method. Methods of expert assessments and SWOT analysis in the management systems research. The method of studying the factors interaction.
7. Models of Decision Theory.	The essence and significance of modeling the processes of management decisions development. Types of decision theory models. The basic decision-making model. Decision factors (determinants) as target management components.
8. Methods of Development and Managerial Decision-making.	Classification of Managerial Decision-making. Methods used at the stage of problems determination. Methods of generating alternatives. Creativity as the basis for developing non-standard (unique) solutions. Methods applied at the evaluation stage and alternatives selection. Methods of solution implementation and control.
9. Planning, Organization, Technology and Efficiency of Management Problems Research. Diagnostics of management systems.	Research program and plan. Organization of research: terms, requirements, types. Management systems research technology. Efficiency of management systems research: factors and principles of assurance. Diagnostics of the organization's management system.

Name of the Discipline	<i>Management Organization Theory</i>
The volume of discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
1. The Basics of Organizational Behavior Theory. 2. Personality in the Organization, Staff Motivation. 3. Conflict	The Basics of Organizational Behavior Theory. Theories of organization and organizational behavior of people. The subject of the theory of organizational behavior as part of the theory of organization. The concept, genesis and goals of organizational behavior. Interdisciplinary nature of the theory of organizational behavior. Fundamental concepts of organizational behavior. Elements of the organizational

<p>Management in Organization.</p> <p>4. Corporate Culture, Formation of Corporate Behavior.</p>	<p>behavior system. Models of organizational behavior. Modern problems of higher education program. Features of organizational behavior in Russia.</p> <p>Personality in the Organization, Staff Motivation. The concept of personality and its structure. Personal development and socialization. Modern theories of personality. Typologies of personalities. Interaction of a person and an organization. The criterion basis of behavior. Characteristics of a person's individuality. The entry of a person into an organization. Human adaptation to the organizational environment. Employee attitudes of the organization. Job satisfaction. The importance of systematic motivation of employees, motivational management. Diversity and development of motivational management ideas. National features of motivational management. Individual approach to staff motivation.</p> <p>Conflict Management in the Organization. The conflict nature. Conflict situation. The incident. Frustration. Causes of conflicts. The conflict model. Classification of conflicts. Types of behavior of people in a conflict situation. Methods of conflict resolution. Conflict management. The role of conflict in modern organizations.</p>
	<p>Corporate Culture, Formation of Corporate Behavior. The concept of the "organizational and corporate culture". Types of organizational cultures. Components of organizational culture. Organizational climate. Value orientations and principles of labor behavior. Purposeful formation of corporate culture and corporate behavior of personnel. Characteristics of a "healthy corporate culture". The system of training and formation of managerial culture, work culture, communication, conflict resolution, etc. Principles of culture change. Assessment of the degree of compliance of the management system with the declared strategic values</p>

Name of the Discipline	<i>Modern Strategic Analysis</i>
The volume of discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects

<p>Section 1. General information from the Theory of systems. The Concept of a System Approach and System Analysis</p>	<p>Subject 1. Introduction to Systems Theory and System Analysis.</p> <p>System concepts in practical activities.</p> <p>Evolution of system representations. General definition of the system. Examples of systems. A brief description of the system. General properties of systems. Classification of systems. Ashby's Law of Requisite Variety.</p> <p>Signs of the system. Classification of systems.</p> <p>Types of system topology.</p> <p>The emergence of system analysis</p> <p>The concept of a systematic approach. General System Theory (theory of systems) by Ludwig von Bertalanffy. Isomorphism of laws governing the functioning of systems is the main idea of the General System Theory proposed by Bertalanffy.</p> <p>Subject 2. General Patterns of Technical Systems Development</p> <p>Types of technical systems.</p> <p>Minimal technical system.</p> <p>The law of increasing the degree of the system ideality. The law of S-shaped development of technical systems.</p> <p>The law of dynamization.</p> <p>The law of completeness of the system parts.</p> <p>The law of the through passage of energy.</p> <p>The law of advanced development of the working body.</p> <p>The law of "mono — bi — poly" transition.</p> <p>The law of transition from the macro to the micro level.</p>
<p>Section 2. Systems and Modeling.</p> <p>Systems and Modeling.</p> <p>Description. Typical Tasks of System Analysis and Method of their Solution</p>	<p>Subject 3. Systems Description. Typical Tasks of System Analysis. The Concept of the System Model.</p> <p>Concepts of system analysis necessary to describe systems.</p> <p>Classifications of challenges – objects of system analysis:</p> <ul style="list-style-type: none"> - well structured; - unstructured; - poorly structured. <p>Classical formulation and formalization of the problem in applied system analysis. The criterion of the problem solution quality. An indicator of the problem solution quality.</p> <p>Internal and external description of systems</p>

	<p>Definition of the model. Classification of modeling methods</p> <p>Model Requirements.</p> <p>Subject 4. Fundamentals of the Theory of Choice and Decision-Making. Analytical Hierarchical Decision-making Process (ANR) by T.Saati</p> <p>Choice as the realization of the systems purpose. Criterion language of choice description</p> <p>Formulation of optimization problems and their classification.</p> <p>Fundamentals of the analytical hierarchical process</p> <p>The ANR three main functions</p> <p>Axioms of ANR</p> <p>Subject 5. Conditional Optimization. Mathematical Programming</p> <p>Example of setting an optimization challenge</p> <p>Linear Programming (LP). Geometric method. The Symplex method</p> <p>Methods to solve nonlinear software problems. Geometric interpretation</p> <p>Nonlinear programming</p> <p>Subject 6. Choosing Alternatives in Multi-Criteria Tasks</p> <p>Reducing a multi-criteria task to a single-criteria one</p> <p>Conditional maximization</p> <p>Search for an alternative with the specified properties</p> <p>Finding the Pareto set</p>
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Name of the Discipline	<i>Professional command of foreign language</i>
The volume of discipline, credits/academic hours	6/216
DISCIPLINE CONTENT	
Sections	Subjects
Professional Communication in a Foreign Language. Language Command	Professional Communication in a Foreign Language At this stage, the skills and abilities of foreign language communication in a foreign language of professional communication are being developed. The training content is determined by the spheres and situations of communication displayed in the basic textbooks of the corresponding levels. The approximate content at the 3rd stage of training is determined by the thematic content of the basic textbook, as well as the materials selected by the teacher and covers the following topics:

	<ul style="list-style-type: none"> - Innovative way of economic development - Theoretical foundations of innovation - Investments in the innovation process - Analysis of the innovations efficiency - Risk management in the innovation process, etc. <p>Language Command</p> <ul style="list-style-type: none"> - the development of language command continues throughout the professional-industrial, official-business, educational and general scientific spheres. The total volume of the lexical minimum is 4000-6000 units, where 5000 units are productive; - development of word building skills; expanding the vocabulary of students due to stable phrases, synonyms, antonyms of a modern foreign language of professional communication
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Name of the Discipline	<i>Enterprise Finance and Investment in Engineering Management</i>
The volume of discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
<p>Section 1. Theoretical Foundations of Corporate Finance.</p> <p>Section 2. Financial and Economic Analysis of Financial Statements.</p> <p>Section 3. Financial Environment: Markets and Financial Institutions</p> <p>Section 4. Risk and Profitability Assessment Tools</p> <p>Section 5. Securities: Concepts, Types, Yields.</p> <p>Section 6. The Cost of Equity. Evaluation of the Corporation and its Sources of Financing.</p>	<p>The concept of an efficient market. Changing the valuation of money over time. Analysis of discounted cash flows. Opportunity costs. Balanced portfolio theory. The risk and return ratio. Market risk assessment. A model for assessing the profitability of financial assets. The concept of the β-coefficient. The arbitrage pricing theory. Valuation of stocks and bonds. The theory of options and their evaluation. Analysis of financial activity. Assessment of needs in equity. Equity management policy. Planning the duration of the operational cycle. Equity financing. Spontaneous financing. Short-term loans. Cash flow management. Forecasting cash flows. Inventory management and control. Ways to improve the efficiency of the supply chain.</p>

	<p>Formation of the capital investment budget. Methods of project evaluation. Net present value (NPV). Internal Rate of Return (IRR). Comparison of NPV and IRR criteria. The present value of future costs. Change in the price of capital. Change of net circulating capital. The impact of taxes. Liquidation value. The components of capital and their price. The price of the "debt capital" source. The price of the "preferred shares" source. The price of the "retained surplus" source. The price of the "common stock of the new issue" source. A model for assessing the profitability of financial assets. Weighted average and marginal cost of capital. Capital structure theory Costs associated with financial difficulties and agency costs. Models of financial leverage. Calculation of the optimal capital structure. Managing the capital. Models of sustainable growth. Production and financial leverage. Production and financial risks in the context of general risk. Dividend Policy. Theories of dividend preference. Dividend reinvestment plans. Stock buyback. Payment of dividends by shares and splitting of shares. Principles of financial planning. The system of forecasts and plans of the organization. Methods of planning and forecasting. Budgeting as an organization's financial management tool.</p>
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Name of the Discipline	<i>Innovation Management</i>
The Volume of Discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
<u>Subject 1.</u> Definition of Innovation.	Features of the modern stage of innovation development. Innovation as a management object. Schumpeter's approach to the definition of Innovation. The "new combinations" issues.
<u>Subject 2.</u> Innovations Classification.	Classification of innovations: by innovation potential, by technical parameters, by content, by place at the enterprise, by reasons of emergence, by the nature of needs satisfaction, by the degree of territorial novelty.
<u>Subject 3.</u> The Essence of Innovation Process.	The Essence of Innovation Process. Formulation of the innovation process concept. Comparative characteristics of innovation and production processes. Factors influencing innovation processes. The innovation process stages. The innovation process periodicity.

<p><u>Subject 4.</u> The Concept of Innovation Management.</p>	<p>The Concept of Innovation Management. Innovation management in the context of a systematic approach. The management subject in innovation management. Functions of the management subject. The management objects in innovation management. Priority goals of innovation management. Challenges to ensure exogenous harmonization of innovation activities. The correlation of the innovation management discipline with other disciplines.</p>
<p><u>Subject 5.</u> The Basis of Innovative Management Forms.</p>	<p>The Basis of Innovative Management Forms. Intra-organizational innovation process. Subjects of the innovation process: innovators, early recipients, early majority, late majority and laggards.</p>
<p><u>Subject 6.</u> Strategic Management as a Management Technology in the Context of Increased Instability of Environmental Factors and their Uncertainty over Time.</p>	<p>Strategic Management as a Management Technology in the Context of Increased Instability of Environmental Factors and their Uncertainty over Time. The formulation of the common goal of the organization. The specifics of the organization's innovation strategy. Formation of the enterprise innovative strategy. A comprehensive plan for innovative goals achievement.</p>
<p><u>Subject 7.</u> Two Main Types of Enterprise Innovative Strategies.</p>	<p>Two Main Types of Enterprise Innovative Strategies. The main similarities and differences in the management of new and improving technologies. The Technology development and implementation stages.</p>

<p>Name of the Discipline</p>	<p><i>Organization and Production Management</i></p>
<p>The volume of discipline, credits/academic hours</p>	<p>5/180</p>
<p>DISCIPLINE CONTENT</p>	
<p>Sections</p>	<p>Subjects</p>
<p>An industrial Enterprise as a Complex Production System.</p>	<p>The main areas of improvement the production organization at enterprises in modern environment. The role, goals and objectives of the production organization in ensuring the integrated development of the enterprise in the service sector.</p>
<p>Fundamentals of Production Organization.</p>	<p>Organizational and production structure. The production organization as a system of scientific knowledge and an area of practical activity. The essence of the production organization: the basic concepts and categories of the production organization. The laws of organization in statics (structures) and dynamics (processes). Classification of structures' connections and links. Classification of structures. General principles of structures and processes organization.</p>
<p>Production Systems.</p>	<p>Features of production systems. Principles of production systems organization. Principles of production systems development.</p>

Building an Enterprise's Production Structure.	The enterprise's production structure. Specialization of the main shops of the enterprise. The production structure of the main shops of the enterprise.
Economic Basis of Managerial Decision-Making in Production Organization.	The essence and role of solutions in production management. Classification of solutions. Scientific approaches to the solutions development. Requirements for the quality of solutions. Risk assessment in decision-making. Economic basis of decisions. Technology and organization of solution development.
Organization of Production Processes.	Principles of process rationalization. The essence of the production process organization: types of production processes; organization of production processes in time and space. Characteristics of production organization types. Forms of production organization.
Organization of Flow-Production.	The essence of flow-production. The structure of flow-production. Types and forms of production lines. Calculation of the main parameters of production lines. Organization of machine-aided manufacturing. Types and organizational and technical features of the creation and operation of automatic lines. Organizational and technical features of the creation and operation of rotary lines. Organizational and technical features of the creation and operation of robotic complexes. Organizational and technical features of the creation and operation of flexible production systems. Assessment of the economic effect of the use of production automation tools.
Organization of Production Maintenance.	Tool department organization. The designation, challenges and structure of the tool department. Equipment classification and indexation. Maintenance service organization. The designation, challenges and structure of the maintenance service. Organization of transportation facilities. The designation, challenges and structure of the transportation facilities. Organization of storage facilities. Organization of a central tool warehouse and tool-distributing storerooms. Challenges and structure of storage facilities. Storage facilities organization. Organization of material and technical supply of the enterprise. Organization of the energy utilities. The role, challenges and structure of the energy utilities.
Organization of Work Flows and Workplaces. Performance Standards.	Performance standards. Classification of work time expenditures. Methods of studying the work time expenditures.

	Methods of performance standards.
Organizational and Production Quality Assurance and Products Competitiveness.	Product quality management at the enterprise. Product quality: characteristics, indicators. Quality management of products, works, services. Quality Systems. The essence and system of product quality indicators. The Total Quality Management concept. Analysis of the Total Quality Management concept. The system of ensuring competitiveness.
Designing a New Product.	The project life cycle. Formation of the company's product program. Innovation process: content and features. Typology of innovations and their classification. The research stage of product design. Comprehensive preparation of production for the new products release.
Organization of R&D.	R&D. Evaluation of the scientific and technological level of a new product. Design preparation of production. Network planning and management.
Organization of Technological Production Preparation.	The essence of the technology concept. The level of technology. Technological preparation of production. Economic basis of the drafting technological process
Integrated Planning Systems.	Corporate information systems. Methodology of CIS. Integrated automated production management systems. Other modern approaches to planning.
Lean Manufacturing Methodology .	General principles of building a "just in time" system. "Push" and "pull" production management systems. Just-in-time system efficiency factors. The Kanban information system. Comparison of the MRP II concept and the just-in-time management system.
Economic Effectiveness and Production Efficiency.	Profit and profitability. The production cost assessment. Economic production efficiency: criteria, indicators, challenges.

Name of the Discipline	<i>Strategic Management in Industrial Companies</i>
The volume of discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects

Section 1. Strategic Management as an Independent Section of Management.	Subject 1. Theoretical and Methodological Foundations of Strategic Management.
	Subject 2. The Strategic Management Process. Types of Strategies of a Science-Based Company.
Section 2. Strategic Planning as the Main Function of Strategic Management.	Subject 3. Strategic Planning in the Strategic Management System.
	Subject 4. Basic models of strategic planning: Harvard Business School model, Igor Ansoff model, G. Steiner model, strategic planning contour.
	Subject 5. The System of Strategic Planning Indicators. Strategically oriented KPIs.
Section 3. Strategy of Innovative Development.	Subject 6. Modern Methods of Strategic Management in State Corporations.
	Subject 7. Programs of Innovative Development of Science-Based Companies (National Practice of PID Development).

Name of the Discipline	<i>Marketing and Competitiveness Management</i>
The Volume of Discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
Subject 1. Industrial Market: Concept, Essence, Subjects.	The conceptual apparatus of the industrial economy. Defining the boundaries of the industrial market. Types of industrial markets. Determination of the structure of the industrial market, the level of concentration in the industrial market. Strategic and non-strategic barriers to entry into the industrial Market.

Subject 2. Differentiated Industrial market.	The concept of a differentiated product: prerequisites and the need for product differentiation. A voluminous, limited, specialized, fragmented industrial market. Brand as the highest form of differentiation in the industrial market.
Subject 3. Goals, Objectives and Functions of Marketing Research. Stages of Marketing Research.	Goals and objectives of marketing research. The main areas of marketing research. Principles of marketing research. Classification of marketing research. Stages of planning and conducting marketing research. Methods of conducting marketing research (independently, involving the marketing research agencies).
Subject 4. Research of the External Marketing Environment. Analysis of the Macro Environment.	Environment as an object of research. The concepts of macroenvironment and microenvironment of the company. The main factors of the macro environment (political and legal, economic, socio-cultural, technological). Methods of macroenvironment research. PEST analysis. Determination of market capacity.
Subject 5. Research of the Competitive Environment.	The main components of the external microenvironment of the company. M. Porter's five competitive forces model. A matrix of comprehensive analysis of the company's business environment in the b2b market at the macro-environment level and at the industry level. The main methods of research of the competitive environment, sources and methods of obtaining information about competitors.

Name of the Discipline	<i>Accounting in Engineering Management</i>
The Volume of Discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects

<i>Principles of Organizing Accounting</i>	<i>The concept and essence of the organizing accounting in an economic entity. Regulation of accounting. Conceptual foundations of accounting The facts of an organization's economic activity as an object of accounting. Classification of economic activity facts.</i>
<i>The Place and Legal Status of the Accounting Service in the Management System</i>	<i>Functions of the accounting service of an economic entity. Organizational structure of accounting. Accounting Statute and its development. Rights and duties of the chief accountant. The preparation and documentation of job descriptions of accounting employees. Types of control by the accounting department. Control functions of the accounting service.</i>
<i>Fundamentals of Accounting</i>	<i>The organization of accounting and the organization of the accounting process in an operating economic entity. Legal entities: concept and types. Characteristics of legal entities. Inventory. Documenting the facts of economic life. Primary accounting documents. Organizational and administrative documents. Documents on the personnel of the enterprise (collective agreement</i>
	<i>enterprises, employment contracts, workbooks). Organizing of paperwork. Accounting registers and their role in organizing accounting. Systematization of accounting information. Correction of erroneous entries in documents and registers. Storage of documentation. Forensic accounting audit. Features of organizing accounting in the context of computerization.</i>
<i>Professional Activity of a Modern Accountant</i>	<i>Professional ethics of accountants Professional judgment of an accountant. The concept of audit activity. Types of audit goals and objectives. Regulatory and legal regulation of auditing activities in Russia. The difference between an audit and a documentary audit. The concept of state audit. The subject and objectives of the state audit. The constitutional model of state audit in Russia and the problems of its actual implementation.</i>

Name of the Discipline	<i>Commercial Law and Legal Engineering</i>
The Volume of Discipline, credits/academic hours	2/72
DISCIPLINE CONTENT	
Sections	Subjects

<p>I. The Right to Conduct a Business</p>	<p>Subject 1.1. <u>The Content of the Right to Conduct a Business.</u></p> <p>Organizational and legal forms of entrepreneurship. Types and forms of state regulation of entrepreneurial activity. The system of requirements for entrepreneurial activity. Subject 1.2 <u>Business entities.</u></p> <p>The concept and features of business law subjects. Creation of business law subjects: the concept and methods. The procedure and the main stages of the creation of business law subjects. Entrepreneurship licensing. Reorganization of business law subjects. Liquidation of business law subjects.</p> <p>Subject 1.3. The Legal Status of Certain Types of Business Law Subjects. Types of business law subjects: citizen, state-owned enterprise, financial and industrial group, small business entity, credit organization, insurance organization, investment fund, commodity exchange, stock exchange, self-regulatory organizations, non-profit organizations.</p>
<p>II. Legal Basis of Insolvency (Bankruptcy)</p>	<p>Subject 2.1 The Concept and Regulation of Insolvency (Bankruptcy). The concept and signs of insolvency (bankruptcy). The bankruptcy procedures system. Initiation of bankruptcy proceedings. Arbitration managers. Observation. Financial recovery. External control. Bankruptcy Administration. Settlement.</p> <p>Features of bankruptcy of certain types of entities.</p>
<p>III. Legal Structure of Property Owned by Business Entities</p>	<p>Subject 3.1. The Right of Ownership as the Basis of Entrepreneurship. The right of economic management of property. The right of operative administration. Rent of public and municipal property. The legal structure of certain types of property. The legal structure of the organization's equity, funds and reserves. The procedure for foreclosing on property.</p>
<p>IV. Legal Support of Competition and Market Monopolization Restriction</p>	<p>Subject 4.1. Regulation of Competition and Monopolization Restrictions. The concept and types of monopoly activity. Restriction of competition by state and local authorities. Responsibility for violation of antitrust legislation</p>
<p>V. Regulation of the Stock Market</p>	<p>Subject 5.1.The Concept and Legal Basis of Securities Market Regulation. Objects of the securities market. Subjects of the securities market. State regulation of the securities market.</p>

VI. Regulation of Investment Activity	Subject 6.1. The Concept, Types and Stages of Investment Operation. The concept and types of investments. Subjects and objects of investment operation. State Regulation of Investment Activity. Regulation of foreign investments. Regulation of certain types of investment regulation.
VII. Regulation of Funding and Lending of Entrepreneurial Activity	Subject 7.1. Types of Funding and Lending of Entrepreneurial Activity. Legal basis of public funding. The legal basis of public lending. Control and responsibility in public funding and lending. Legal bases of banking, commodity and commercial lending. Self-funding of entrepreneurial activity.
VIII. Legal Basis of Innovation Activity	Subject 8.1. Regulation of Innovation Activity. The concept and types of innovations and innovation activity. Legal forms of creation and implementation of innovations. State regulation of innovation activity.
IX. Legal Bases of Information Support of Entrepreneurial Activity	Subject 9.1. Regulation of Information Relations. The concept of information, the legal structure of information resources. Documenting of the information. The right of ownership of information resources. Types of information resources. The procedure for using information. Protection of information and the rights of subjects in the area of information support. State regulation of information relations.
X. Legal Basis of Pricing and Price Regulation	Subject 10.1. <u><i>The Concept and Types of Prices. Legal Bases of State Regulation of Prices.</i></u> Methods of price regulation. The system of state price regulation authorities. Responsibility in pricing.

Name of the Discipline	<i>Evaluation of Labor Efficiency and Personnel Management</i>
The Volume of Discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
The Essence of Motivation and Stimulation of Professional Activity.	Approaches to determining motivation. The essence and function of work motivation. Motivation and stimulation. Classification of work motives. The basic rules enabling to raise the effectiveness of motivational activities. Motivational model of achieving goals through needs. Needs, reasons and motives. Internal and external rewards.

<p>Theories and Concepts of Professional Motivation, Stimulation. Trends of Their Development.</p>	<p>Classification of work motivation theories: primary and secondary, substantive and procedural. Foreign theories of motivation. Motives, incentives, needs. First theories of motivation. Meaningful theories of employee motivation: A. Maslow, F. Herzberg, K. Alderfer, D. McClelland. Procedural theories of motivation: K. Lewin, V. Vroom and D. Atkinson, L. Porter and E. Lawler, S. Adams, D. McGregor, B. Skinner. Russian concepts of motivation. The essence and classification of motivation elements. Analysis of methods of work motivation. The current state of the development of scientific and practical problems of professional motivation in Russia and foreign countries.</p>
<p>The Specifics of Professional Motivation Process.</p>	<p>Classification of professional motives and areas of professional motivation. Structure, elements, and mechanisms of professional motivation. Elements of the external and internal environment that affect the motivation of the organization's staff. Methods of motivation. Structures responsible for effective motivation in the organization. Motivational resources of organization management. Formation of the motivational core of the staff.</p>
<p>Implementation of the Stimulating Professional Activity.</p>	<p>Classification of incentives and areas of stimulation of professional activity. Material incentives: monetary (wages, allowances and fringe benefits, bonus systems, profit sharing systems, capital), non-monetary (benefits, wage supplements). Non-monetary incentives: morale-boosting, organizational, free time.</p>

<p>Name of the Discipline</p>	<p><i>Agile Project Management</i></p>
<p>The volume of discipline, credits/academic hours</p>	<p>5/180</p>
<p>DISCIPLINE CONTENT</p>	
<p>Sections</p>	<p>Subjects</p>
<p>Section 1. Introduction to Project Management</p>	<p>The project concept. The project management concept. The main stages of the project management history. The difference between operational and project activities. Criteria for the project success. Project limitations. The main reasons for project failures.</p>

<p>Section 2. Fundamentals of Project Management</p>	<p>Standards in project management. PMI Institute of Project Management. PMI standards. Project program. Project portfolio. Organizational environment of projects.</p> <p>Project interested parties. Project sponsor. Project manager. Project customer. The art and technologies of management in project management.</p> <p>Project management in various organizational structures. Functional structure. Project structure. Weak matrix. Balanced matrix. Strong matrix. Mixed matrix.</p> <p>The project life cycle. The product life cycle. Project phases.</p> <p>Process groups and project management knowledge areas.</p>
<p>Section 3. The Main Stages of the Project Management.</p>	<p>Project initiation. Development of the project statute. Project objectives. Identification of interested parties. Interested parties analysis.</p> <p>Project planning. Project management plan. Basic plan. Action plan of the project. The "incoming wave" method.</p> <p>Product content and project content. Product acceptance criteria. Results, exceptions and limitations of the project</p>
<p>Section 4. Project Execution</p>	<p>Project management and work management. Project team development tools. The main causes of conflicts in the project. Ways to resolve conflicts in the project. Project execution reporting</p>
<p>Section 5. Project Monitoring and Control</p>	<p>Project content control. Deviations analysis. Project schedule control. Failure of the project deadlines.</p> <p>The method of mastered volume. Basic planned indicators. Basic measurable indicators. The main indicators. Forecasting methods in the project</p>

Name of the Discipline	<i>Engineering Innovations</i>
The volume of discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects

<p>Section 1. Innovation and Innovative Activity. Subject 1. The Concept and Essence of Innovation.</p>	<p>Innovative economy development. The importance and role of innovation for the enterprise and the national economy. Fundamentals of J. Schumpeter's theory of innovation.</p> <p>N.D. Kondratieff's long waves of economic activity. The concepts and logic of the change of technological patterns by S. Glazyev. Characteristics of the 6th Technological Order. The concept of innovation, signs of innovative products (novelty, demand compliance, profitability). Classification of innovations: product, process, marketing and organizational innovations. Their main features and characteristics.</p>
<p>Subject 2. Innovative Work and Innovative Activity of a Company.</p>	<p>The conceptual apparatus of innovation-related activities (innovation marketing, innovation management, innovative product development).</p> <p>The innovation process, the life cycle stages of the innovation process.</p> <p>Methodological foundations of the survey of processes and results of innovation activity (Frascati Family Reference Books, Oslo Manual).</p> <p>Innovative activity, its goals and distinctive features.</p> <p>Assessment of innovation costs in accordance with the classification of innovative activities recommended by the Oslo Manual.</p> <p>Innovation activity, indicators for innovation activity assessment.</p> <p>Diffusion of innovations.</p>
<p>Subject 3. Innovation Models: Continuing and Substitutive.</p>	<p>Continuous and substitute innovations by Clayton Christensen. Disruptive innovation theory; theory of resources, procedures and values; theory of value chain development. The main modern substitute technologies: the human genome, nanotechnology, wireless technologies.</p> <p>Factors that foster innovations (globalization, competent customers in individual markets, a diversity and change of technologies, shorter product life cycles).</p>

<p>Section 2. Innovation and Commercialization Process Stages. Subject 4. Innovation and Commercialization Process Main Stages.</p>	<p>General characteristics and sequence of the innovation and commercialization process stages.</p> <p>The creative process of creating an idea. Engineering approach to creative problem solving, TIPS.</p> <p>Identification of opportunities, their sources (industry research, search for patent literature, customer feedback, research of university opportunities, research of government sources, search for new opportunities in existing technologies, etc.) Assessment of technological opportunities. Evaluation of innovation in terms of market opportunities: compliance with the goals, objectives and mission of the company; advantages for potential buyers; distribution potential; assessment of risks associated with development.</p>
<p>Subject 5. Business Concept Development. Innovation Commercialization Opportunities Analysis.</p>	<p>Commercialization, its essence and necessity. Business concept, its main elements. Feasibility analysis: industry analysis, technical feasibility analysis, market analysis, analysis of alternative distribution channels, financial plan.</p>

<p>Name of the Discipline</p>	<p>Economics and Management of Energy & Environment</p>
<p>The Volume of Discipline, credits/academic hours</p>	<p>3/108</p>
<p>DISCIPLINE CONTENT</p>	
<p>Sections</p>	<p>Subjects</p>
<p>Subject 1. Energy Enterprise in the Market Relations System</p>	<p>The goal and objectives of the discipline. The discipline in education program structure. Planned results of the discipline outcomes. The enterprise as the basis of the economy. Classification of enterprises. The legal basis of the enterprises operations. Organizational and legal forms of enterprises. Energy enterprise and its features. Enterprise resources.</p>

<p>Subject 2. Fixed Assets and Capital of an Energy Company</p>	<p>The essence, classification and structure of fixed assets of an energy enterprise. Methods of fixed assets evaluation. Depreciation and amortization of fixed assets. The concepts of "investments" and "capital expenditures", their structure. Classification and structure of capital of an energy enterprise. Indicators of the efficiency of the use of fixed assets and capital of the enterprise and techniques to improve them.</p>
<p>Subject 3. Human Resources of an Energy Company</p>	<p>Human resources (personnel) as the main resource of the enterprise. Labor productivity. Organization and rationing of work at an energy enterprise. Work discipline. Salary and its functions. Motivation and remuneration.</p>
<p>Subject 4. Organization of Production and Management of an Energy Enterprise</p>	<p>Production and production systems. Forms, types and methods of production organization. Characteristics and principles of the organization of the production process in space and time. The production cycle and the factors determining its duration. The essence of the organization of enterprise management. Types of enterprise management structures (general, organizational and production).</p>

Subject 5. The Economic Mechanism of Enterprise Functioning	External and internal environment of an energy enterprise. The essence and main elements of the economic mechanism of enterprise functioning (the mechanism of market regulation of an enterprise; the internal mechanism of enterprise management; the mechanism of state regulation of the energy enterprise). Enterprise activity planning system: classification of enterprise plans; principles and methods of planning; strategic planning; business planning. Product quality and competitiveness.
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Name of the Discipline	<i>Business Process Management</i>
The Volume of Discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
Business Process as a Research Object	Process approach to company management. Business process characteristics. Mandatory Elements of the Business Process
Systemic Analysis of Activities of the Organization	Business processes classification. Eight-Process Enterprise Model. IBM's Component Business Model. ETOM Multilevel Model of Production Management Business Processes. Toyota Model.
Modern Approaches to Modeling of Business Processes	Methods of business processes description. Fundamental Business Process Modeling Methodologies. SADT Functional Modeling Methodology. ARIS Business Process Modeling Methodology. BPMN Business Process Modeling Methodology.
Improvement of the Organization's Operation	Principles and Methods of Business Process Analysis and Management. Business Processes Assessment. The main approaches to business processes optimization. Balanced Scorecard and Key Performance Indicators in Business Process Management.

Name of the Discipline	Cloud technologies in enterprise management
The Volume of Discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
The History of Cloud-Based Computing	The first ideas of the application of computing using remote computation centers.
The Essence of Cloud Technologies	Infrastructure as a Service (IaaS);•Platform as a Service (PaaS);•Data as a Service (DaaS);•Software as a Service (SaaS);•Workplace as a service (WaaS);•All as a Service (AaaS).
Overview of Cloud Services	EC2 (ElasticComputeCloud)— Xen-hosting;•S3 (SimpleStorageService)— storage
Trends in the Cloud Technologies Development	Dynamic scalability.

Name of the Discipline	<i>Lean Manufacturing</i>
The Volume of Discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
Subject 1. The Basics of a Lean Office.	Causes and Case History (T.Ono, S.Shingo, Tapping, Laro)
Subject 2. Lean Office Concept and Philosophy	Options of Conceptual Representations of Lean Office and Their Fundamental Differences
Subject 3. Principles of Creating a Lean Office (value, SC flow and losses)	The Main Characteristics of the Lean Flow and its Parameters Differences Between a Lean Office and a Traditional One
Subject 4. Systems and Tools for Creating a Lean Office	Lean Office Deployment Models (levels, stages, depth of changes)

Name of the Discipline	<i>Data Mining and Decision Making</i>
The Volume of Discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
Business Process as a Research Object	Process approach to company management. Business process characteristics. Mandatory Elements of the Business Process
System Analysis of the Organization's Operations	Business processes classification. Eight-Process Enterprise Model. IBM's Component Business Model. ETOM Multilevel Model of Production Management Business Processes. Toyota Model.
Modern Approaches to Business Process Modeling	Methods of business processes description. Fundamental Business Process Modeling Methodologies. SADT Functional Modeling Methodology. ARIS Business Process Modeling Methodology. BPMN Business Process Modeling Methodology.
Improvement of the Organization's Operation	Principles and Methods of Business Process Analysis and Management. Business Processes Assessment. The main approaches to business processes optimization. Balanced Scorecard and Key Performance Indicators in Business Process Management.

Name of the Discipline	<i>Standardization and Quality Management</i>
The volume of discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
The Concept of Quality. Product Quality Indicators System	Quality is a success factor in a market economy. The discipline in education process. Quality and customer satisfaction. Definition of quality. Quality objects: activity or process; products (tangible and intangible); organization. Quality loop. Product Quality Indicators System: generalizing, single and complex indicators. Classification of product quality indicators.

Stages of a Modern Quality System Formation	The main quality management approaches: improvement achieved by innovation (kairio), and improvement obtained by continuous improvement (kaizen).
The Concept and Methodology of Total Quality Management	Definition of Total Quality Management (TQM). The basic principles and goals of TQM. The most important elements of TQM that ensure the success of the quality strategy: satisfying the needs and wishes of consumers; ensuring the real participation of each employee in the process of improving the product quality; improving organizational activities, making decisions based on facts, the role of top management.
The Main Methods of Improving the Company's Operation	Functional structure. Functional structure problems: functional structure separates staff from consumers; functional structure slows down process improvement.
Deploying the Quality Function. House of Quality	Quality profile. Basic, required and desired quality. Key elements of the Quality Function Deployment: customer requirements; quality parameters; the matrix of the closeness of the relationship between the components "what" and "how"; goal setting; establishment of the rating of the components importance. An example of building a House of Quality. Concept of House of Quality

Name of the Discipline	<i>Industrial Ecology</i>
The volume of discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
Theoretical Foundations of Environmental Management	Theoretical Foundations of Environmental Management
The Main Areas of Environmental Policy	The Main Areas of Environmental Policy
International Environmental Management Standards	International Environmental Management Standards
Environmental Certification	Environmental Certification
Environmental Product Labelling	Environmental Product Labelling

Environmental Food Safety Management	Environmental Food Safety Management
Environmental Management System Development	Environmental Management System Development
Environmental Information Systems of the Enterprise	Environmental Information Systems of the Enterprise
Fundamentals of Environmental Regulation	Fundamentals of Environmental Regulation

Name of the Discipline	<i>Fundamentals of Logistics and Supply Chain Management</i>
The Volume of Discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
Subject 1. Conceptual Foundations of Logistics	<p>Origins of logistics. Definition, concept, tasks, functions, objects of research. Types of logistics, macro- and micrologistics. Methodology and scientific base of logistics, interaction with other sciences, the essence of a systematic approach. Economic compromises as a method of balancing expenses, income and profits of firms. Logistic costs, their role in the formation of the final cost of products (M. Porter's pyramid of total cost). The role of logistics in increasing the competitiveness of the company, the 7Rs of logistics.</p> <p>Logistics concepts and their evolution (period before logistics, classical logistics, integrated logistics, supply chains). Logistics features in globalization and the main trends of its development. The outsourcing development.</p> <p>Functional areas of logistics and their characteristics: procurement logistics, production, sales, transport logistics.</p> <p>Levels of company logistic development: transportation and storage, distribution, integrated logistics.</p>
Subject 2. Types of Logistic Flows	Definition of the logistic flow. Types of logistic flows: material, financial, information and service. Parameters of logistic flows. Logistic operations.
Subject 3. Characteristics of Logistic Systems	<p>Logistic systems definition and properties. Territorial logistics systems. Types of logistic systems. Enterprise as a logistics system. The concept of logistics chain and its key elements: link, chain and channel. The scheme of links interaction of a simple logistic system on commodity, information and financial flows.</p> <p>Logistics life cycle.</p>

<p>Subject 4. Procurement Logistics</p>	<p>Tasks and functions of procurement logistics. The mechanism of procurement logistics work, the procurement cycle structure, needs identification, procurement planning, preparation and placement of orders, monitoring of order fulfillment and control of fulfillment and/or forwarding of orders.</p> <p>Concepts of interaction with suppliers. Selection of logistics intermediaries using expert methods and multi-criteria assessments, supplier ratings calculation.</p> <p>Legal basis of procurement: proposals receipt and assessment, terms of delivery, order and deliveries paperwork, procurement methods, incoming quality control and quantity of products received, payment for deliveries.</p> <p>Development of procurement strategy and interaction with suppliers, features of procurement of goods of different value groups (ABC), procurement in a free and monopolized market. The practice of "kickbacks" in the procurement activities of Russian enterprises and its economic consequences.</p>
<p>Subject 5. Production Logistics</p>	<p>Production as a process of making goods. The purpose and objectives of production logistics. The dependent demand principle. Principles of production organization: specialization, flexibility, synchronization, optimization, integration. Concept and evaluation of production capacity, Concepts of logistics processes organization: "just in time", "push" and "pull" systems. The essence, advantages and disadvantages of MRPII, LP, Kanban, DRP methods, etc.</p> <p>Stages of production planning in MRP-II method: drafting of a production schedule, planning of full and net resource requirements, production cycle of product manufacturing, planning of technological equipment utilization. The main production schedule.</p> <p>ERP systems, prospects for the development of resource planning systems.</p>
<p>Subject 6. Transport Logistics</p>	<p>The essence of forwarding services, challenges and participants of transport logistics. Characteristics of different types of transport. Transport systems classification. Unimodal, intermodal, multimodal, combined and terminal cargo transportation. The key terminology of transport logistics: trip, turnover, transport route, transport work, cargo class, etc. Methods of visual representation of the material flows movement (MP): cartograms, squinted tables, MP curves.</p> <p>Road transport customer service. Technical and operational performance indicators of road transport on routes. General</p>

	<p>indicators of the efficiency of the rolling stock exploitation: load factors, mileage utilization factors, average distance of cargo transportation, etc.</p> <p>Transport challenges and their types. Vehicles route calculation. Simplified algorithms for solving typical transport problems: Vogel approximation, imaginary beam method (Svir method), "branches and boundaries" method. General algorithm for freight transport route calculation. Planning of cargo delivery in a mixed traffic based on a network schedule.</p> <p>Organization and calculation of the supply system "just in time", scope of application, pros and cons. Legal support of cargo transportation in the Russian Federation: legal framework, basic shipping documents. International agreements in the cargo transportation area: INCOTERMS, General Agreement on Trade and Tariffs, CMR Convention, FIATA, etc.</p>
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Name of the Discipline	<i>Enterprise Management Information System</i>
The Volume of Discipline, credits/academic hours	3/108
DISCIPLINE CONTENT	
Sections	Subjects
Section 1: Introduction to the Methodology of Designing and Working with Information Systems.	General definitions. Set theory and logical operations in information systems. Data bases. Creating queries.
Designing and Creating Databases.	Creating Data Bases. Creation of the "Firm" database. Data selection using queries. Using forms in database. Drafting reports.
Information Technologies in Professional Activity.	Modern computer technologies in management. Office applications for effective optimization of manager's work. Calculations and
	special functions. in Excel. Electronic Paperwork

Program Manager

Associate Professor

position, name of the department



A.A. Ostrovskaya

Head of the Applied

Economics Department

signature



A.A. Ostrovskaya