

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ ЕКОНОМІЧНИЙ УНІВЕРСИТЕТ
ІМЕНІ СЕМЕНА КУЗНЕЦЯ

ЗАТВЕРДЖЕНО
на засіданні кафедри
менеджменту та бізнесу
Протокол № 1 від 25.08.2023 р.



Каріна НЕМАШКАЛО

ВИРОБНИЧИЙ МЕНЕДЖМЕНТ
робоча програма навчальної дисципліни (РПНД)


Галузь знань 07 «Управління та адміністрування»
Спеціальність 073 «Менеджмент»
Освітній рівень перший (бакалаврський)
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Статус дисципліни вибіркова
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Гарант програми

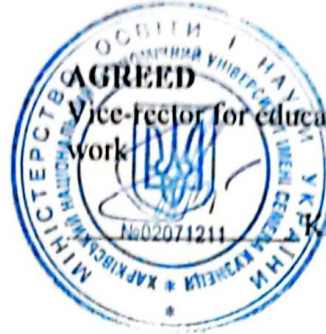

Ольга МИРОНОВА

Харків
2023

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS**

APPROVED

at the meeting of the department
management and business
Protocol № 1 of 25.08.2023



Karina NEMASHKALO

PRODUCTION MANAGEMENT

Program of the course

Field of knowledge	07 “Management and Administration”
Specialty	073 “Management”
Study cycle	first (bachelor)
Educational program	“Business Administration”

Course status	elective
Language	English

Developers:
PhD (Economics), Associate Professor

Oleksandra KANOVA

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Head of Study Programme

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INTRODUCTION

Production management, as an applied economic science and a type of activity, encompasses a complex set of knowledge and skills related to the design and implementation of production and labor processes, establishment of labor norms, organization of its payment, and stimulation. It covers a wide range of tasks in the field of production – from planning production processes to promoting finished products (services) in the market and performing service functions.

The **purpose** of the course “Production management” is to develop a complex of knowledge in the field of theoretical foundations of production management and practical skills necessary for performing managerial functions in the field of production.

The **objectives** of the course include:

- mastering theoretical knowledge and acquiring practical skills in the organization of production processes in an enterprise in space and time;
- developing skills to calculate production capacity and assess its effective utilization;
- developing skills to develop a production program for the enterprise, conduct technical and economic justification of the production program, and determine the need for various types of resources for its implementation;
- acquiring skills to develop a production strategy for the enterprise in a competitive environment;
- developing skills to justify approaches and models of managerial decision-making;
- mastering skills to apply knowledge in practice regarding the management of product and service quality;
- acquiring skills to use various inventory management systems;
- developing skills to assess the economic efficiency of production using performance indicators.

The **subject** of the course is the processes of production of enterprises and associations, the socio-economic efficiency, and final financial results of their activities, which are formed under the influence of objective and subjective factors reflected through the system of economic information.

The **object** of the course is the regularities of the functioning and development of production systems and processes, while the subject is the relationships between people in the systems considered, arising in the process of production, transformation, distribution, and redistribution of material goods.

The learning outcomes and competencies formed by the course are given in Table 1.

Table 1

Learning outcomes and competencies formed by the course

Learning outcomes	Competencies
LO3	GC9, SC3, SC4
LO4	GC11, SC2, SC5, SC12
LO5	SC1
LO6	SC2, SC12
LO7	GC12, SC1, SC2, SC4
LO8	GC4, GC11, SC2, SC5, SC7
LO17	SC3, SC4
LO18	GC4, GC11

where LO3. Demonstrate knowledge of theories, methods and functions of management, modern concepts of leadership.

LO4. Demonstrate skills in identifying problems and justifying management decisions.

LO5. Describe the content of the functional areas of an organization's activities.

LO6. Demonstrate skills in searching, collecting and analyzing information, calculating indicators to justify management decisions.

LO7. Demonstrate organizational design skills.

LO8. Implement management techniques to ensure the effectiveness of the organization.

LO17. Perform research individually and/or in a group under the guidance of a leader.

LO18. Evaluate opportunities to use technology to optimize business efficiency.

GC4. Ability to apply knowledge in practical situations.

GC9. Ability to learn and master modern knowledge.

GC11. Ability to adapt and act in a new situation.

GC12. Ability to generate new ideas (creativity).

SC1. Ability to identify and describe organizational characteristics.

SC2. Ability to analyze the results of the organization's activities, to compare them with the factors of influence of the external and internal environment.

SC3. Ability to determine the prospects for the development of the organization.

SC4. Ability to identify the functional areas of the organization and the connections between them.

SC5. Ability to manage the organization and its divisions through the implementation of management functions.

SC7. Ability to select and use modern management tools.

SC12. Ability to analyze and structure organizational problems, to form reasonable decisions.

COURSE CONTENT

Content module 1. Theoretical and methodological foundations of production organization and management

Topic 1. Production as the object of management.

1.1. Essence of production management and its development stages.

Production management: nature, historical development, and its position in the management system. Goals and main tasks of production management. Characteristics of production management in various economic sectors. Modern principles of production management. Functions of production management: planning, organization, coordination, motivation, and control. Methods of production management. Production manager as a management subject. Objectives and tasks of the production manager's activities. Decision-making spheres and functions of the production manager. Content, nature, and specific features of the production manager's work. Essence of production and the evolution of production management (its main stages).

1.2. Production and production systems.

Concept of the production process and production cycle. Role and place of production management in the management system. Specialized departments and their functions. Model of the production system in the overall production structure. Production system and its main functions. Diagnosing the state of the production system. Importance of formalization in economic phenomena and production situations. Role of formalization in production management.

1.3. Concept and principles of production management.

Conceptual scheme of production management. Basic principles of production management. Main responsibilities of production managers.

Topic 2. Organization and management of the production process.

2.1. Production process and its structure.

Concept of the production process. Elements of the production process. Classification of production processes. Operational model of the production process. Structure of the production process and its main stages.

2.2. Basic principles of production process organization.

Essence and basic principles of organizing the production process.

2.3. Organization of the production process in time.

Organization of production processes. Production plan and its main components. Planning production processes and resources.

2.4. Types of production.

Essence and characteristics of production types. General structure of production and its production units. Models of production management. Types of production structures. Impact of production type on the organizational structure of management.

Topic 3: Production capacity

3.1. Concept and factors of production capacity.

Essence, concept, and main types of production capacity. Factors influencing the magnitude of production capacities.

3.2. Calculation of production capacities.

Indicators of production capacities. Initial production capacity. Average annual production capacity. Rules for calculating production capacities.

3.3. Indicators of utilizing production capacities and basic production funds.

Effective operating time of equipment. Input and output production capacity. Temporary equipment capacity.

3.4. Ways of rational use of production capacities.

Main ways to improve the use of production capacities.

Topic 4: Planning of production program.

4.1. Essence and objectives of production planning.

Plans for production-technical and economic-financial activities of the enterprise. Essence and features of implementing production planning. Basic principles governing production planning. Main types and objectives of production planning. Characteristics of operational-production planning systems. Operational-schedule planning and operational production management.

4.2. Main sections and technical-economic indicators of the production program.

Main sections of the production program and their essence. Technical-economic indicators of the production program.

4.3. Stages of development of the economic decision production program.

Main stages of developing the economic decision production program.

4.4. Determining the need for labor, material, and financial resources to implement the production program.

Concept, composition, and basic characteristics of technical resources. Place and role of technical resources in the production process. Characteristics of the technical resource management system. Tasks and functions of the units participating in the technical resource management process. Methodological approaches to the analysis and evaluation of the state and effectiveness of technical resource utilization. System of indicators for assessing the state and effectiveness of technical resource utilization. Planning the technical development of the enterprise. Ways to improve the efficiency of technical resource management. Forms of technical resource reproduction. Sources of financing technical resource reproduction. Concept, composition, and basic characteristics of material resources. Place and role of material resources in the production process. Characteristics of the material resource management system. Principles of material resource management: pluralism of sources and forms of material and technical support; autonomy; self-regulation; resource conservation and cost-effectiveness; intensification of material resource use; complexity; promptness; implementation of the consumer's priority in practice. Tasks and functions of the units participating in the material resource management process. Methodological approaches to the analysis and evaluation of the state and effectiveness of material resource utilization. System of indicators for assessing the state and effectiveness of material resource utilization.

Content module 2. Decision-making in production management in market conditions

Topic 5. Production strategy and competitiveness.

5.1. Essence of production strategy.

The essence and goals of production strategy.

5.2. Production strategy and competitive priorities.

Methods of achieving firm competitiveness through production functions. Quality categories. Factors determining the level of firm competitiveness. Key competitive priorities.

5.3. Formulation of production strategy.

The place and role of production strategy. Goals and strategic guidelines of production strategy. Strategic decisions in the field of production.

5.4. Strategy development and addressing competitiveness issues.

Quality-based strategies. Time-based strategies. Measures to enhance competitiveness.

Topic 6. Making production decisions.

6.1. Management decision-making

Characteristics of management decisions in production management. Classification of management decisions in production management.

6.2. Decision-making models

Principles, methods, and techniques for evaluating decisions in production management. Structural and procedural decisions in production management. External integration decisions. Economic-mathematical modeling of production functions. Mathematical models and modeling. Goals, limits, and possibilities of modeling. Classification of economic-mathematical models and methods. Areas of application of quantitative decision-making methods in production management. Key models in operations research: queuing theory models, inventory management models, linear programming models, dynamic programming models, etc.

6.3. Decision-making process

Stages of the management decision-making process in production management. Problem identification and goal formulation, information search and processing, identification of resource provision opportunities, goal prioritization, decision implementation.

6.4. Decision theory

Basic decision theories. Characteristics of types of strategic partners.

Topic 7. Basics of quality management

7.1. Essence and system of product quality indicators

Essence of product quality. Criteria and indicators of quality.

7.2. Methods for evaluating product quality

Cost of quality. Classical approach, reactive, and preventive approaches.

7.3. Quality system. Significance of standardization and certification

Quality system and its criteria. Standardization and certification. Technical specifications.

7.4. Current quality management

Control charts. Cause-and-effect diagram structure.

7.5. Quality control of production

Statistical quality control. Key criteria for evaluating service quality.

Topic 8. Inventory management.

8.1. Essence and objectives of inventory creation

Essence and objectives of inventory creation. Reasons for creating inventory.

Finished product inventories, production inventories, and work-in-progress inventories.

8.2. Role, accounting, and evaluation of material inventories.

Role and functions of inventories. Costs of maintaining inventory levels. Costs of acquisition, safety stock. Efficiency of inventory use.

8.3. Inventory management systems (ims)

Main objective of inventory management. Key features of effective inventory management. Classification of material inventories using the abc method.

8.4. Inventory management with independent and dependent demand

Models of inventory management systems. Fixed volume model and fixed period model. Cycle order system, demand reduction. Determination of safety stock level.

8.5. Japanese "just-in-time" inventory management system

Organizational essence of the "just-in-time" system. Organization and implementation of production with the "just-in-time" system. Advantages and disadvantages of the "just-in-time" system.

Topic 9. Economic efficiency of production.

9.1. Essence of economic efficiency of production and main directions of its improvement

Concepts of "economic effect" and "economic efficiency" of production. Main directions for improving the economic efficiency of production.

9.2. Strategy of scientific and technological progress in the modern stage of economic development

Strategy of scientific and technological progress. Relationship between costs and production volumes. Method of local efficiency.

9.3. System of economic efficiency indicators in production

Designing the flow of work and its efficiency. System of economic efficiency indicators in production. Automation of production.

9.4. Indicators of comparative economic efficiency

Modern productivity management concept. Evolution of views on the content of productivity management. Components of performance and efficiency in production activities. Methods of evaluating efficiency. Indicators of performance of production systems. Modeling the process of productivity management in a production system. Factors influencing the dynamics of enterprise productivity. Ways to improve the efficiency of production system functioning.

The list of practical (seminar) studies in the course is given in table 2.

Table 2

List of practical (seminar) studies

Name of the topic and/or task	Content
Topic 1. Task 1	Assessment of the production potential of an industrial enterprise
Topic 2. Task 2	Technical and economic planning
Topic 3. Task 3	Operational production planning
Topic 4. Task 4	Analysis and evaluation of production risks of the enterprise
Topic 5. Task 5	Analysis of the dynamics of production efficiency indicators using matrix method. Practical (seminar) session “production strategy and competitiveness”
Topic 6. Task 6	Production and sales planning using linear programming method
Topic 7. Task 7	Operational planning and management of mass production flow
Topic 8. Task 8	Choosing the option for transitioning to the production of new products
Topic 9. Task 9	Forecasting technical and economic indicators of product manufacturing during the production preparation stage Quality indicators. Measurement of quality.

The list of self-studies in the course is given in table 3.

Table 3

List of self-studies

Name of the topic and/or task	Content
Topic 1 – 9	Study of lecture material and the normative base of Ukraine
Topic 1 – 9	Preparation for practical class
Topic 1 – 9	Preparation of the presentation
Topic 1 – 9	Preparation for the test
Topic 1 – 9	Preparation for the exam

The number of hours for lectures, practical (seminar) classes, and self-study is given in the technological card of the course.

TEACHING METHODS

In the process of teaching the course "Production management" for the implementation of the defined competencies of the educational program and the activation of the educational process in lectures and practical classes the following teaching methods are used:

Verbal (lecture-discussion (Topics 1-9), problem-oriented lectures (Topics 1, 3, 5, 6, 9), work in small groups (Topics 1, 3, 6, 7, 8, 9), mini-lectures (Topics 2, 4, 7, 8)).

Visual (demonstration (Topics 1-9)).

Practical (practical work (Topics 1, 2, 3, 4, 6, 7, 8, 9), seminar-discussion (Topic 5), brainstorming (Topics 4, 7, 8, 9), scenario method (Topic 9)).

FORMS AND METHODS OF ASSESSMENT

The University uses a 100-point cumulative system for assessing the learning outcomes of students.

Current control is carried out during lectures, practical and seminar classes and is aimed at checking the level of readiness of the student to perform a specific job and is evaluated by the amount of points scored:

– for courses with a form of semester control as an exam: maximum amount is 60 points; minimum amount required is 35 points.

The final control includes current control and an exam.

Semester control is carried out in the form of a semester exam.

The final grade in the course is determined:

– for disciplines with a form of exam, the final grade is the amount of all points received during the current control and the exam grade.

During the teaching of the course, the following control measures are used:

Current control: express tests (evaluated at 10 points each, with two express tests during the semester – the total maximum score is 20); competence-oriented tasks on topics (maximum grade – 3 points each, with ten competence-oriented tasks during the semester – the total maximum score is 30); and a presentation (maximum grade – 10 points).

Semester control: Grading including Exam (40 points).

More detailed information on the assessment system is provided in technological card of the course.

An example of an exam card and assessment criteria

Example of an exam card

Simon Kuznets Kharkiv National University of Economics

First (bachelor) level of higher education

Specialty: "Management"

Study programme: "Business administration"

Course: Production Management

Exam card № 1

Task 1 (multiple-choice) (10 points)

1. Production management as a type of activity includes:

- a. purposeful influence on a team or individual performers to achieve the goals set before the enterprise;
- b) effective determination of tasks in managing the operational system;
- c) activity related to managing the processes of creating the final product by transforming inputs (resources of all kinds) into outputs (goods and services);
- d) activity related to managing material flows within the enterprise and between the enterprise and the external environment.

2. An operations manager is considered:

- a) an executor who knows the set of operations of the operational system;
- b) a manager of production or service activities at the level of performing individual operations that ensure the efficient and rational conduct of all work;
- c) a manager who possesses skills in decomposing the production process into individual technological operations and describing them at a theoretical-abstract level;
- d) a specialist in organizing processes of carrying out production operations.

3. The objects of production management are:

- a) enterprises in the manufacturing sector;
- b) enterprises in the non-manufacturing sector;
- c) operations in various spheres of human activity;
- d) operational strategies in enterprises of various types of activities.

4. A production (operational) system is:

- a) a socio-technical formation capable of changing its structure and shaping behavior variants;
- b) a structure capable of and striving to set goals, i.e., implement the purpose of the formation within the system;
- c) an isolated part of the production process resulting from the social division of labor, capable of independently or in interaction with other similar systems satisfying the needs and demands of potential consumers by producing goods or services;
- d) a functional element of the organization oriented towards solving a specific set of tasks, characterized by the unpredictability of behavior and limited capabilities arising from existing resources.

5. The lower level of the production system is considered:

- a) the "human-machine" system;
- b) a set of workplaces capable of creating the final product;
- c) a set of specialized functional units that ensure the implementation of the functional purpose of the operational system;
- d) an enterprise as a set of diverse interconnected elements.

6. According to the systemic approach to management, a production system is:

- a) an open natural system;
- b) a closed natural system;
- c) an open artificial system;
- d) a closed artificial system.

7. The subsystem of the operational system that performs work directly related to transforming input variables into output results is:

- a) processing subsystem;
- b) support subsystem;
- c) planning and control subsystem;
- d) information subsystem.

8. The subsystem of the operational system not directly related to the production of output but performs necessary functions to support the processing subsystem is:

- a) support subsystem;
- b) processing subsystem;
- c) planning and control subsystem;
- d) information subsystem.

9. Choose the most complete definition of the concept of "production process":

- a) the set of interconnected labor processes, and sometimes natural processes, through which input materials and semi-finished products are transformed into finished products;
- b) the interval of time during which objects of labor are transformed into finished products;
- c) the set of natural processes through which the transformation of input raw materials, materials, and semi-finished products into finished products (goods, services) is carried out;
- d) the process of transforming tools of labor into production results using a specified technology.

10. Choose the most complete definition of the concept of "production cycle":

- a) The process of transforming means of labor into production results using a specified technology;
- b) the interval of time during which objects of labor are transformed into finished products;
- c) the set of interconnected labor processes, and sometimes natural processes, through which input materials and semi-finished products are transformed into finished products;
- d) the set of natural processes through which the transformation of input raw materials, materials, and semi-finished products into finished products (goods, services) is carried out.

Task 2 (diagnostic) (12 points)

Based on the data provided in Table 1, calculate the throughput capacity of each equipment group and draw conclusions about the overall throughput capacity of the mechanical workshop.

Table 1

№	Equipment groups	Labor intensity of one product, labor hours		Effective fund of working time of equipment, machine hours
		Product A	Product B	
1	Turning machines	1,0	1,0	4800
2	Drilling machines	2,0	0,83	4000
3	Milling machines	0,5	0,75	3600
4	Grinding machines	0,6	0,5	2400

Task 3 (diagnostic) (18 points)

At the enterprise, 2 automatic production lines for dry milk and three for butter production are installed. The productivity of the automatic dry milk production line is 200 kg per shift, and the company operates in a mode of 480 shifts per year. The productivity of the automatic butter production line is 2000 kg per shift, with 460 shifts per year. The cost of 1 ton of butter is 289,600 UAH, and the cost of 1 kg of dry milk is 64 UAH.

To determine the annual production capacity of the enterprise for dry milk and butter production, as well as the production capacity of the enterprise in monetary terms.

Approved at the meeting of the management and business department
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Examiner PhD (Economics), Associate Professor Oleksandra KANOVA

Head of the department Doctor of Economics, Professor Tetyana LEPEYKO

Assessment criteria

The final scores for the exam are composed of the sum of points for completing all tasks, rounded to the nearest whole number following mathematical rules.

The algorithm for solving each task includes distinct stages that differ in complexity, effort, and significance for task resolution. Therefore, individual tasks and stages of their solution are evaluated separately as follows:

Task 1 (multiple-choice) (10 points)

1 point for each correct answer.

Task 2 (diagnostic) (12 points)

11-12 points are awarded for a thorough mastery of the course material and the ability to navigate through it, conscious application of knowledge to solve practical situations. When completing tasks, the student must draw correct conclusions regarding the proposed production situation and formulate their own recommendations for improving the problem. The presentation of the completed task should be neat.

8-10 points are awarded for a complete mastery of the course material and the ability to navigate through it, conscious application of knowledge to solve a task. The presentation of the completed task should be neat.

6-7 points are awarded for partial ability to apply theoretical knowledge to solve practical tasks, if the task is partially completed; the student's answers demonstrated an understanding of the fundamental principles of the academic discipline.

3-5 points are awarded for mastering a significant amount of material, however, if the student completes tasks without sufficient understanding of how to use the educational material and cannot correctly complete all tasks.

1-2 points are awarded for knowledge and providing at least one formula for calculations.

0 points are awarded for not completing the task at all.

Task 3 (diagnostic) (18 points)

17-18 points are awarded for deep knowledge of the course material, application not only of recommended but also additional literature, and a creative approach. Clear mastery of concepts, methods, techniques, and tools of financial science, as well as the ability to use them to solve specific practical tasks and address production situations, is expected. When completing heuristic tasks, students must provide a practical solution to the proposed situation and draw relevant conclusions. The formulation of questions should be clear, logical, and sequential.

15-16 points are given for a thorough understanding of the course material and the ability to navigate it, conscious application of knowledge to solve heuristic tasks, with the possibility of minor errors (i.e., the approach to problem-solving is correct, but there may be inaccuracies in calculations of individual parameters) or incomplete presentation of the results obtained. The presentation of the completed task should be neat.

12-14 points are awarded for the ability to apply theoretical knowledge to solve heuristic tasks, with most tasks completed and the student's answer demonstrating understanding of the conceptual material of the discipline.

9-11 points are given for the assimilation of a large volume of material, but if a student attempts a heuristic task without sufficient understanding of the application of educational materials and cannot correctly complete all tasks.

3-8 points are awarded for partial ability to apply theoretical knowledge to solve practical tasks, for not fully mastering the extensive material if the student cannot correctly complete tasks and faces many difficulties in analyzing economic phenomena and processes.

1-2 points are given for knowledge and presentation of at least one formula for calculations.

0 points are awarded for not completing the task at all.

RECOMMENDED LITERATURE

Main

1. Веретенникова Г. Б. Планування та організація діяльності підприємства [Електронний ресурс] : навч. посіб. / Г. Б. Веретенникова, В. В. Томах, І. М. Геращенко ; Харківський національний економічний університет ім. С. Кузнеця. - Електрон. текстові дан. (2,45 МБ). - Харків : ХНЕУ ім. С. Кузнеця, 2020. - 209 с. - Режим доступу : <http://www.repository.hneu.edu.ua/handle/123456789/26529>.

Additional

2. Iastremska O. Formation of mutual relations between enterprises and business partners in the process of preparation and production of new products / O. Iastremska, H. Strokovych, O. Iastremska et al // Marketing and Management of Innovations. – 2021. – Issue 1. – P. 196-211. – Access mode: <http://repository.hneu.edu.ua/handle/123456789/25320>.

3. Myronova O. M. The new product introduction process as a managerial activity / O. M. Myronova // Сучасні проблеми управління підприємствами: теорія та практика : матеріали міжнар. науково-практ. конф., 18-19 бер. 2019 р. — Х.: ФОП Панов А.М., 2019. — С. 33–36. – Access mode: <http://repository.hneu.edu.ua/handle/123456789/21669>.

4. Pysmak V. O. Innovative development of the management potential at a modern enterprise / V. O. Pysmak, L. O. Mazhnyk, T. Sigaieva // Economy of Development. - 2021. - Volume 20. - Issue 1. - P. 46-55. Access mode : <http://repository.hneu.edu.ua/handle/123456789/27163>

Internet resources

5. Management: methodology and practice. Ukrainian electronic journal. URL: www.management.com.ua.