Syllabus
Course Program

Operational Management

Specialty
073 – Management

Institute
Institute of Education and Science in Economics, Management and International Business

Educational program
International business
Business-administration (In English)

Department
Management (204)

Level of education
Bachelor's level

Course type
Elective,

Semester
6

Language of instruction
English

Lecturers and course developers

Valentin Kovshik
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Ph.D. (C.Sc.) in Economic Sciences, associate professor of Management department
Authored and co-authored over 40 scientific and methodological publications.
Courses: Performance management, Operational management, Logistics management, Information technologies in economic activity, Information systems and technologies in management
More about the lecturer on the department's website

General information

Summary

The Operations Management course develops the knowledge and skills necessary to effectively manage the operations of companies. During the course, students will learn how to organize, plan, control and improve manufacturing and service-providing processes, effectively achieve strategic objectives of the company, ensure product quality, and satisfy customer needs.

Course objectives and goals

Mastering theoretical knowledge and practical skills in the field of operational management. Formation of understanding of theoretical principles, categories, modern concepts and practical methods of managing the operational activities of companies, improving operational strategies, using production management tools as a basis for attaining business goals.

Format of classes

Lectures, workshops, self-study. Final control in the form of control task (individual assignment) and a test. The form of assessment is differentiated grading.

Competencies

GC04. The ability to apply knowledge in practical situations.
GC05. Knowledge and understanding the subject area and understanding the professional activity.
SC05. The ability to manage the organization and its units through the management functions realization

Learning outcomes

LO 05. To describe the content of the functional areas of the organization
LO 06. To show skills of search, collecting, and analysis of information, calculation of indicators to substantiate management decisions.
LO 08. To apply management methods to ensure the effectiveness of the organization.

Student workload

The total volume of the course is 120 hours (4 ECTS credits): lectures - 24 hours, workshops - 24 hours, self-study - 72 hours.

Course prerequisites

To successfully complete the course, it is necessary to have knowledge and practical skills from the following courses: “Theory of Organization”, “Enterprise Economics”, “Fundamentals of Management”

Features of the course, teaching and learning methods, and technologies

Lectures are delivered interactively with the use of multimedia technologies. Practical workshops use a project-based learning approach, and focus on the use of IT in operational management. Learning materials and assignments are available to students via Microsoft Teams and/or OneDrive.

Program of the course

Topics of the lectures

Topic 1. Fundamentals of operational management (Lecture 1)
The concept of operations. Responsibilities of the operations manager.
Topic 2. Operational strategy (Lecture 2).
The concept of operational strategy. Formation of strategic goals. Operational management
Topic 3. Production system (Lectures 3-4).
The concept of a production system. Toyota Production System (TPS) and its impact on management.
Topic 4. Operational management and projects (Lectures 5-6).
The relationship between project and operations management. Key characteristics of projects. Project evaluation and planning, operations research. Using PM tools in operations management.
Topic 5. Decision-making in operations management (Lectures 7-8).
Decision-making methods and their features in operations management.
Topic 6. Managing production processes and quality. (Lecture 9-10).
The concept of quality control and quality assurance. Control of production and service processes.
Topic 7. Performance of operations (Lecture 11).
Assessment of performance. Key performance indicators.
Topic 8: Information technology in operational management (Lecture 12).
Software for production and service management. Opportunities for automation of operations.

Topics of the workshops

Topic 1: Features of modern manufacturing (Workshops 1-2)
Study of cases on the production and innovation activities of modern enterprises. Modeling of production and service processes using BPMN.
Topic 2. Development of strategic goals and operational strategy (Workshops 3-4)
Defining strategic goals for different operational fields and analyzing company strategies.
Topic 3. Toyota Production System (TPS) (Workshops 5-6)
The history of TPS. Exploring the advantages and disadvantages of lean manufacturing. Simulation of the Kanban system.
Topic 4. Project management techniques in operational management (Workshops 7-8)
Gantt charts. PERT. Critical path calculations. Project management software basics.
Topic 5. Quality management (Workshops 9-10)
Quality management tools. Case study “Smartphone factory”.

Topic 6. Information technology in operations management (Workshops 11-12)
Statistical process control (SPC). The use of artificial intelligence in operations management.

Topics of the laboratory classes

No laboratory classes are included in the plan.

Self-study

The course involves learning additional materials regarding the topics of the lectures.
Also, the course includes performing a control task (individual assignment) in the form of report with presentation. It includes practical problem-solving related to modeling and calculating the planned parameters of business processes based on the given description of production / service providing. The result is presented in a written report. Students are also advised to study additional materials (videos, articles) for independent study and analysis.

Course materials and recommended reading

1. Abbas, A., & Goosheh, S. (2024). Fundamentals of Operations Management. Fanshawe College Pressbooks. https://ecampusontario.pressbooks.pub/fundamentalsopsmgmt/
2. Bányai, T., & Márquez, F. P. G. (Eds.). (2024). Operations Management—Recent Advances and New Perspectives. IntechOpen. https://doi.org/10.5772/intechopen.111296
3. Rahman, A. A. A. (2020). Revolution of Production System for the Industry 4.0. In Mass Production Processes. IntechOpen. https://doi.org/10.5772/intechopen.90772
4. Abdullah Oguz (2022). Project Management: Navigating the Complexity with a Systematic Approach. MSL Academic Endeavors. https://pressbooks.ulib.csuohio.edu/project-management-navigating-the-complexity/
5. Moynihan, G. P. (Ed.). (2018). Contemporary Issues and Research in Operations Management. https://doi.org/10.5772/intechopen.71209
6. Bombelli A., Atasoy B., Fazi S. et al. (2024) From theORy to application: learning to optimize with Operations Research in an interactive way. TU Delft OPEN Textbooks. https://textbooks.open.tudelft.nl/textbooks/catalog/book/94
7. Virasak, L. (2019). Manufacturing processes 4–5. Open Oregon Educational Resources. https://open.umn.edu/opentextbooks/textbooks/manufacturing-processes-4-5
8. Балаш, Л.Я., Лисюк, О.В., Саміло, А.В. Ковальчук, О.І. (2023) Навчальний посібник «Операційний менеджмент (частина 1). Львів. Видавництво Репроцентр захід. https://sci.ldubgd.edu.ua/jspui/handle/123456789/12175
9. Маркіна, І.А., Помаз, О.М., Помаз, Ю.В. (2018) Операційний менеджмент: Навчальний посібник. Полтава: ПДАА.

Assessment and grading

Criteria for assessment of student performance, and the final score structure

100% final grade is the result of the final assessment (60%) and continuous assessment (40%).
Final assessment: final test (30%); presentation of the control task (individual assignment) (30%)
Continuous assessment: mid-term test (30%); problem-solving during the workshops (10%)

Grading scale

Total points	National	ECTS
90–100	Excellent	A
82–89	Good	B
75–81	Good	C
64–74	Satisfactory	D
60–63	Satisfactory	E
35–59	Unsatisfactory (requires additional learning)	FX
1–34	Unsatisfactory (requires repetition of the course)	F

Norms of academic integrity and course policy

The student must adhere to the Code of Ethics of Academic Relations and Integrity of NTU "KhPI": to demonstrate discipline, good manners, kindness, honesty, and responsibility. Conflict situations should be openly discussed in academic groups with a lecturer, and if it is impossible to resolve the conflict, they should be brought to the attention of the Institute's management.
Regulatory and legal documents related to the implementation of the principles of academic integrity at NTU "KhPI" are available on the website: http://blogs.kpi.kharkov.ua/v2/nv/akademichna-dobrochesnist/

Approval

Approved by	Date, signature	Head of the department Olena PROKHORENKO
	Date, signature	Guarantors of the educational program Olena CHAIKOVA Olena PROKHORENKO