

Technology management

COURSE SYLLABUS

Code and name of specialty	073 Management	Institute	Institute of Education and Science in Economics, Management and International Business
Program name	Management of Organizations and Administration	Department	Management
Type of program	Educational and Professional	Language of instruction	English, Ukrainian

LECTURER

Valentin Kovshik, valentin.kovshik@kphi.edu.ua



Ph.D. (C.Sc.) in Economic Sciences, Associate Professor, Department of Management, NTU "KhPI". Authored and co-authored over 30 scientific and methodological publications.

Courses: Operations management, Supply chain management, Logistics management, Production logistics, Information systems and technologies in management, SMM management

GENERAL DESCRIPTION OF THE COURSE

Summary	The course "Technology management" is focused on developing the knowledge and skills required for effective management of technological operations and implementation of modern technologies, developing strategies and tactics in this field, organization and control of manufacturing and service business activities. The course can be considered as a more advanced extension to the Operational Management course.
Course objectives	Formation of students' modern managerial thinking and knowledge system in the field of technology management.
Types of classes and control	Lectures, practical classes, consultations. Individual task - essay. End-of-term tests (no exam).
Term	6

Student workload (credits) / Type of course	5 / Elective	Lectures (hours)	24	Workshops (hours)	12	Self-study (hours)	114
---	--------------	------------------	----	-------------------	----	--------------------	-----

Program competences	<p>GC04. The ability to apply knowledge in practical situations.</p> <p>GC09. The ability to learn and to master modern knowledge.</p> <p>GC10. The ability to conduct research at an appropriate level.</p> <p>SC05. The ability to manage the organization and its units through the management functions realization</p> <p>SC08. The ability to plan the organization activity and to manage the time.</p>
---------------------	--

Learning outcomes	Teaching and learning methods	Forms of assessment (Continuous assessment CAS, final assessment FAS)
LO 06. To show skills of search, collecting, and analysis of information, calculation of indicators to substantiate management decisions.	Interactive lectures with presentations, discussions, practical classes, research methods	Assessment of knowledge in practical classes (CAS), testing (FAS)
LO 08. To apply management methods to ensure the effectiveness of the organization.	Interactive lectures with presentations, discussions, practical classes, teamwork	Assessment of knowledge in practical classes (CAS), testing (FAS)
LO 16. To demonstrate skills of independent work, flexible thinking, openness to new knowledge, be critical and self-critical.	Discussions, practical classes	Assessment of knowledge in practical classes (CAS), essay with presentation (FAS), testing (FAS)

ASSESSMENT AND GRADING

Range s of points corres pondi ng to grades	core (points) for all types of learning activities	ECTS grading scale	The national grading scale	Allocation of grade points	100% Final assessment as a result of End- of-term tests (60%) and Continuous assessment (40%). 60% End-of-term tests: test forms in 2 modules 40% Continuous assessment: practical tasks, essay
	90-100	A	excellent		
	82-89	B	good		
	74-81	C			
	64-73	D	satisfactory		
	60-63	E			
	35-59	FX	Unsatisfactory (with the exam retake option)		
	0-34	F	Unsatisfactory (with mandatory repetition of the course)		

Course policy

Students are expected to attend classes regularly, to get to class on time and stay for the duration of the class. In the case of absence, students will be required to submit all assignments to make up for the missed classes. Students are also expected to come to class having read all the required material and being ready to productively participate in the class discussions. Written assignments should be submitted before the specified deadlines.

COURSE STRUCTURE AND CONTENT

Lectures	Content	Workshop	Content	S e l f - s t u d y	
Lectures 1-2	Concept of technology. History of technology.	Workshop 1	Discussing progress in various technologies. Pros and cons of technological development.		Reading articles and watching video materials on historical development of technologies and industrial revolutions
Lectures 3-4	Types of technologies	Workshop 2	Technologies in different industries.		Watching videos on production processes and engineering.
Lecture 5-6	Information technologies and automation	Workshop 3	IT in manufacturing and services		Reading articles and watching video materials on application of IT in industrial operations
Lecture 7-8	Management of innovations	Workshop 4	Innovations in market environment. Cases of SpaceX, Apple, GE, IBM, Ford		Analysis of additional company cases.
Lectures 9-10	R&D management	Workshop 5	Planning of research activities. Organization of commercial scientific studies.		Development of research plan for a company.
Lectures 11-12	Social aspects of technologies	Workshop 6	Legal and economic challenges in technological development.	Reading about patent law in different countries.	

RECOMMENDED READING

Compulsory

1. Agolla, J. E. (2021). Smart Manufacturing: Quality Control Perspectives. In Quality Control—Intelligent Manufacturing, Robust Design and Charts. IntechOpen. <https://doi.org/10.5772/intechopen.95143>
2. 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>
3. Moynihan, G. P. (Ed.). (2018). Contemporary Issues and Research in Operations Management. <https://doi.org/10.5772/intechopen.71209>
4. Technological Transformation. (2022), from World Economic Forum website: <https://www.weforum.org/agenda/emerging-technology/>
5. Гевко, І. Б., Оксентюк, А. О., Галушак, М. П. (2008) Організація виробництва : теорія і практика. Київ : Кондор.

Additional

1. Virasak, L. (2019). Manufacturing processes 4–5. Open Oregon Educational Resources. <https://open.umn.edu/opentextbooks/textbooks/manufacturing-processes-4-5>
2. Bourgeois, D. (2014). Information systems for business and beyond. The Saylor Foundation.
3. Старченко, Г. В., Калінько, І. В., Косач, І. А. (2015) Операційний менеджмент. Київ: Кондор
4. Гевко, І. Б. (2011) Методи прийняття управлінських рішень: підручник. Київ : Кондор.
5. Лепейко Т.І., Шматько Н.М. (2011) Операційний менеджмент. Харків: УІПА, 2011.
6. Li, B., Hou, B., Yu, W., Lu, X., & Yang, C. (2017). Applications of artificial intelligence in intelligent manufacturing: A review. *Frontiers of Information Technology & Electronic Engineering*, 18(1), 86–96. <https://doi.org/10.1631/FITEE.1601885>

Academic integrity

Students are expected to adhere to the Code of Ethics of Academic Relations and Integrity” of NTU “KhPI”.

The content of this syllabus is consistent with the course program.