

DECISION MAKING IN IT BUSINESS

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

LECTURER

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PhD in Physics & Mathematics, Master's degree in Management, associate professor, associate professor of the Management department (NTU "KhPI")
 Authored and co-authored over 100 scientific publications. Teaches courses: «Organization theory», «Decision making in business», «Managerial decisions», «Marketing management», «Business ethics and social responsibility», «Basics of scientific research»

GENERAL DESCRIPTION OF THE COURSE

Summary	The purpose of this course is to provide students with knowledge and develop their practical skills related to making and implementation of organizational decisions. The course introduces students to decision theory: models and approaches to decision making, mathematical tools that can be applied in the process of formal assessment and selection of decision alternatives. The course also addresses specific issues related to decision making in IT-sphere.
Course objectives	<ul style="list-style-type: none"> • to familiarize students with qualitative and quantitative decision making tools; • to help students develop the ability to assess the decision situation and choose appropriate approaches to decision making and implementation; • to show the role of data analysis in decision making; • to help students build on skills in using software for data analysis and project management; • to familiarize students with the types of decisions in IT-sphere and approaches to making them
Types of classes and control	Lectures, practical classes, course work (term paper). The course ends with a final exam
Term	6

Student workload (credits) / Type of course	5/ Elective	Lectures (hours)	24	Practical classes (hours)	24	Self-study (hours)	102
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Program competences	GC08. The ability to use information and communication technology GC11. The ability to adjust to a new situation and take action GC12. The ability to generate new ideas (creativity). SC03. The ability to identify prospects for organizational development.
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SC08. The ability to plan an organization's activities and manage time.
 SC09. The ability to work in a team and establish interpersonal interaction when solving professional tasks.
 SC10. The ability to assess how work is performed, ensure work quality and motivate the organization's personnel.
 SC12. The ability to analyze and structure organizational problems, make informed and justified decisions
 SC2.1. The ability to collect and process primary accounting and managerial information in the service sector
 SC2.2. The ability to formulate the main tasks related to teamwork in IT organizations
 SC2.3. The understanding of the principles of professional activity of a manager in the IT sphere

Learning outcomes	Teaching and learning methods	Forms of assessment (continuous assessment CAS, final assessment FAS)
LO 04. To demonstrate the ability to identify problems and justify managerial decisions	Interactive lectures with presentations, discussion-based learning, case-based learning, problem solving	Written individual assignments (CAS), assessment of the meaningful contribution to in-class discussions (CAS), mid-term control (CAS), defense of the term paper (FAS), final exam (FAS)
LO 06. To show the ability for searching for, collecting and analyzing information, calculating metrics for justifying managerial decisions	Interactive lectures with presentations, discussion-based learning, case-based learning, problem solving, project-based learning (term paper)	Written individual assignments (CAS), assessment of the meaningful contribution to in-class discussions (CAS), mid-term control (CAS), defense of the term paper (FAS)
LO 07. To show the ability to design an organization	Interactive lectures with presentations, discussion-based learning, case-based learning,	Written individual assignments (CAS), assessment of the meaningful contribution to in-class discussions (CAS), mid-term control (CAS), final exam (FAS)
LO 09. To demonstrate interaction, leadership, and teamwork skills	Interactive lectures with presentations, discussion-based learning, case-based learning, collaborative-learning, student-peer feedback	A written group assignment with subsequent in-class presentation (CAS), assessment of the meaningful contribution to in-class discussions (CAS)
LO 12. To assess the legal, social, and economic effects of an organization's activities	Interactive lectures with presentations, discussion-based learning, case-based learning	Written individual assignments (CAS), assessment of the meaningful contribution to in-class discussions (CAS), mid-term control (CAS), final exam (FAS)
LO 16. To demonstrate the ability for independent work, flexible thinking, openness to new knowledge, criticism and self-criticism	Project-based learning (term paper), case-based learning, discussion-based learning, student-peer feedback	Written individual assignments (CAS), assessment of the meaningful contribution to in-class discussions (CAS), defense of the term paper (FAS)
LO 2.2. To demonstrate the ability to justify managerial decisions using information technology and information systems	Interactive lectures with presentations, discussion-based learning, case-based learning, project-based learning (term paper), work with databases using Excel spreadsheet, with project management software (Bitrix24)	Written individual assignments on data analysis (CAS), assessment of the meaningful contribution to in-class discussions (CAS), defense of the term paper (FAS)

ASSESSMENT AND GRADING

Ranges of points corresponding to grades	core (points) for all types of learning activities	ECTS grading scale	The national grading scale	Allocation of grade points
	90-100	A	excellent	
	82-89	B	good	
	74-81	C		
	64-73	D	satisfactory	

100% Final grade is the result of the Final assessment (50%) and Continuous assessment (50%).
50% Final assessment: the final exam (25 %); the defense of the term paper (25 %)

	60-63	E		50% Continuous assessment: <ul style="list-style-type: none"> • 20% individual and group written assignments; • 20% mid-term control (an open-question test); • 10% participation in class discussions
	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

Lecture 1	Introduction to decision making	Practical 1	Types of organizational decisions. Decision effectiveness	Self-study	Watching a video on effective decision making and writing an essay on the main takeaways; decomposing a complex decision into a number (hierarchy) of sub-decisions and presenting this hierarchy using diagramming tools (MS Word's Smart Art, Miro, Lucidchart, etc)
Lecture 2	Methodological approaches to decision making. Decision-making models	Practical 2	Normative, descriptive and integrative approaches to decision making. Deviations from the rational decision making model. Ethical decision making		Comparing rational decision making model and bounded rationality model; providing examples of cognitive distortions and their effect on decision making in organizations; preparing for discussing the political model of decision making and sources of power in organizations; showing the role of a systems approach in decision making. Case study on ethical decision making.
Lecture 3	Decision making under certainty. Decision making under uncertainty.	Practical 3	The use of decision tables and linear programming Practicing the use of different criteria for decision making under uncertainty.		Solving problems on resource allocation with the help of linear programming using a graphical method and MS Excel spreadsheets. Solving problems on decision making under uncertainty using different criteria.
Lecture 4	Decision making under risk conditions	Practical 4	Practicing the use of payoff matrices and decision trees. Types of risks and risk management systems		Solving problems with the use of payoff matrices and decision trees. Case study on risk identification and management.
Lecture 5	Multiple criteria decision making	Practical 5	The use of compensatory and non-compensatory models in decision making. Analytic hierarchy process.		Solving problems using Analytic Hierarchy Process using MS Excel spreadsheet; making choice using non-compensatory models; working on the term paper.
Lecture 6	Individual and group decision making.	Practical 6	Advantages and disadvantages of individual and group decision making.		Applying the Fishbone diagram for root cause analysis (collaborative project); case study on decision making: suggesting an appropriate decision making method for a given decision situation.

Lecture 7	Agile project management and its effect on decision making	Practical 7	Distributed decision making. Decision making in agile project teams.	Doing comparative analysis of scrum and kanban methodologies; case study; identifying roles; using capterra.com reviews, identifying criteria for selecting project management software.
Lecture 8	Marketing decisions in IT-business	Practical 8	Marketing software as a service (SaaS): key decisions and key metrics. Marketing communication strategies.	Watching a video on key performance indicators (KPI) for a SaaS business, writing a summary and suggesting possible strategies on maximizing (minimizing) KPI; watching a video on estimating total addressable market size and writing down seven major takeaways.
Lecture 9-10	Infrastructure cost optimization decisions. Cybersecurity.	Practical 9-10	Decisions on IT outsourcing. Cloud vs on premise vs hybrid solutions.	Practicing the use of outsourcing matrices; mini-case studies on selecting optimal solutions (cloud, on premise, hybrid) with cost-benefit analysis; case study on cybersecurity
Lecture 11	Decisions regarding the web accessibility	Practical 11	The role of web accessibility in modern world. Social responsibility and economic benefits	Evaluating the accessibility of websites using the Wave evaluation tool and the accessibility simulator Funkify, writing a summary of the evaluation results and making suggestions regarding the improvements
Lecture 12	The role of data analysis in decision making	Practical 12	Sources of data and tools for data analysis.	Summarizing trends and the latest developments in the IT industry based on at least three different sources of data (e.g. Gartner data analytics), indicating the most promising business avenues in the IT sphere; preparing and making a 10 minute presentation in class.

RECOMMENDED READING

Required	<ol style="list-style-type: none"> 1. Bonanno G. Decision Making, 2017. http://faculty.econ.ucdavis.edu/faculty/bonanno/PDF/DM_book.pdf 2. Pownall I. Effective Management Decision Making: An Introduction / Ian Pownall & bookboon.com, 2012. - 236 p. 3. Albright C.S., Winston W. L. Data Analysis and Decision Making. 5th Ed. / Cengage Learning, 2015. – 990 p. 4. Turban E., Meredith J. R. Fundamentals of Management Science / McGraw-Hill, 1998. – 914 p. 5. Mu E., Pereyra-Rojas M. Practical Decision Making: An Introduction to the Analytic Hierarchy Process / Springer Briefs in Operations Research. / Springer, 2017. URL: https://link.springer.com/content/pdf/bbm%3A978-3-319-33861-3%2F1.pdf 6. A Guide to the Project Management Body of Knowledge. 6th Ed. / Newtown Square, PA: Project Management Institute, 2017. – 579 p. 7. eMarketing: the essential guide to marketing in a digital world. 6th Ed./ Rob Stokes and the Creative Minds of Red & Yellow, 2018. – 318 p. 8. White A., Rollings M. 5 Key Actions for IT Leaders for Better Decisions / Gartner Inc., 2021. URL: https://www.gartner.com/en 9. Top Strategic Technology Trends for 2021 / Ed. Burke B. Gartner Inc., 2021. URL: https://www.gartner.com/en 	Additional	<ol style="list-style-type: none"> 1. Прийняття управлінських рішень : навчальний посібник / [Ю.Є.Петруня, Б. В. Літовченко, Т. О. Пасічник та ін.] ; за ред. Ю.Є. Петруні. – [3-тє вид., переробл. і доп.]. – Дніпропетровськ : Університет митної справи та фінансів, 2015. – 209 с. 2. Гевко І.Б. Методи прийняття управлінських рішень: підручник. – К.: Кондор, 2009. – 187 с. 3. Файнзільберг О.А. Теорія прийняття рішень : підручник / Л.С. Файнзільберг, О.А. Жуковська, В.С. Якимчук. – Київ : Освіта України, 2018. – 246 с. 4. Madden J. A Practical Guide For Consensus-Based Decision Making. London, Ontario, 2017. https://www.tamarackcommunity.ca/hubfs/Resources/Tools/Practical%20Guide%20or%20Consensus-Based%20Decision%20Making.pdf 5. Martin M. Top 10 BEST Decision Making Tools for Business in 2021 / August 27, 2021. URL: https://www.guru99.com/decision-making-tools.html 6. Dagher K. 10 of the Most Effective Group Decision Making Techniques June 21, 2021. URL: https://fellow.app/blog/productivity/group-decision-making-techniques/ 7. Brethenoux E. What Is Artificial Intelligence? Seeing Through the Hype and Focusing on Business Value / Gartner Inc., 2020. URL: https://www.gartner.com/en
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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 Decision Making in IT Business course program.