TECHNOLOGY PROJECT

Course code	*MNG211*
Course title	*Technology Project*
Course type	*Compulsory*
Year of study	*III*
Semester	*Spring*
ECTS	*6 ECTS: 48 class hours, 112 hours of individual work, 2 hours of consultations*
Coordinating lecturer	*Dr Jelena Angelis, Dr Jannis Angelis*
Study form	*Intensive*
Course prerequisites	*None*
Language of instruction	*English*

Course description

This course presents an introduction to the development of a technology based product and turning it into the commercially attractive proposition (either via a company or as a service). It covers various elements such as identification of potentially interesting idea/technology, putting a project plan around that idea, assessing competitive positioning and stakeholders, deciding on the additional services and putting an appealing proposition. The course focuses on what resource allocation and development means to firms in today's competitive environment, and how firms should manage innovation-related activities at the strategic, organisational and managerial levels in order to remain competitive in a fast changing economic and technological scenario.

Aims of the course

At the end of the course students should have a well-described technology-based project in a format ready to submit for funding or present to the interested company.

Learning outcomes

Course learning outcomes (CLO)	Study methods	Assessment methods
CLO1 To be able to recognise and prepare different elements of a project.	Case discussions Reading and discussions	Case discussions evaluation
CLO2 To be able to recognise what constitutes a business model and operations strategy in creating firm's or project's competitiveness	Reading and discussions Case discussions	Case discussions evaluation Reading and discussions evaluation Final exam
CLO3 To be able to recognise and describe the role and place of services in relation to the product	Reading and discussions Case discussions	Case discussions evaluation Reading and discussions evaluation Final exam
CLO4 To be able to recognise and assess the types and involvement of stakeholders	Case discussions	Case discussions evaluation Final exam
CLO5 To be able to understand what constitute strategic performance management and measurement and how it could affect company's innovation strategy	Reading and discussions Case discussions	Case discussions evaluation Reading and discussions evaluation Final exam
CLO6 To be able to understand how to structure processes in the company as a management tool	Reading and discussions Case discussions	Case discussions evaluation Reading and discussions evaluation Final exam
CLO7 To be able to structure and perform a technology audit in a company	Individual study Case discussions	Case discussions evaluation Final exam

CLO8 To be able to recognise the key elements needed to successfully describe and prepare a technology or innovation-based idea	Case discussions	Case discussions evaluation

Teaching and learning methods
This course is very much based on the presentation and discussion of various cases, both the ones suggested by the lecturers as well as the ones in development by students. Each lecture adds an element to the students' projects. By applying the information received during the lectures, the students should be able to build their project throughout the term.
Lectures, case discussions, and group work on projects will be used. Invited speakers from selected companies will share their experiences.

Activities will include participation in application of concepts, giving oral presentations, assessing the work of others.

Topics

Week (and class)	TOPIC	IN-CLASS HOURS	
		Lectures	Seminars
9 (class 1)	**INTRODUCTION** to the theme of Technology Project and information about the structure of the course and the expected outcomes. Introduction to the theme of Technology Project	2	
	Group discussion What constitutes the project? What is the sequence of events needed for successful start and completion of a project? **Group projects** Choosing a project for a group		2
9 (class 2)	**OPERATIONS STRATEGY** **Lecture + Case discussion** (**early reading is *REQUIRED***): "How David Beats Goliath. A non-stop full-court press gives weak basketball teams a chance against far stronger teams. Why have so few adopted it?" The New Yorker, 11 May 2009 **Reading:** Da Silva, C. and Trkman, P. 2014. Business Model: What It Is and What It Is Not Long Range Planning 47: 379–389 Subramaniam, M., Iyer, B. and Venkatraman, V. 2019. Competing in digital ecosystems. *Business Horizons*, (2019), 62:83-94. Angelis, J. and Ribeiro da Silva, E. 2019. Blockchain adoption: a value driver perspective. *Business Horizons*.	2	
	Mini-case competition **Consultations about group projects**		2

9 (class 3)	**SERVICE STRATEGIES** **Lecture + Case discussion** **Reading:** Angelis, J. et al. 2012 Discretion and complexity in customer focused environments, *European Management Journal* Kamp, B. and Parry, G. 2017. Servitization and advanced business services as levers for competitiveness. *Industrial Marketing Management*, 60:11–16	2	
	Mini-case competition **Consultations about group projects**		2
9 (class 4)	**DIGITAL STRATEGIES AND PERFORMANCE** **Lecture + Case discussion** **Reading:** Lee, M. et al. 2016 Working with Machines: Impact of Algorithmic and Data-Driven Management. Working Paper Pinheiro de Lima, E., et al. 2012. Performance measurement systems: A consensual analysis of their roles. *International Journal of Production Economics* Makridakis et al. 2010. Why forecasts fail. *Sloan Management Review*. 51(2)	2	
	Mini-case competition **Consultations about group projects**		2
10 (class 5)	**PERFORMING TECHNOLOGY AUDIT** Part 1: objectives of the audit, elements, key guiding questions	2	
	Part 2: screening new ideas	2	
10 (class 6)	**CHOOSING TECHNOLOGY / INNOVATIVE IDEA** **Exercise:** Choosing between 3 innovative ideas		2
	Case discussion: “Mastmonit” proposal Case study materials provided by the lecturer.		2
15 (class 7)	**IMPORTANCE OF STAKEHOLDERS**	2	
	Case discussion: Changes in the business models in the eco-system: the case of 3DP (guest speaker)		2

15 (class 8)	**MANAGING THE PROCESS** **Lecture + Case discussion** **Reading:** Sadun et al. 2017. Why do we undervalue competent management? *Harvard Business Review*. Sep-Oct. Post S. and Slaughter, J. Lean production: Why Work is Worse Than Ever, and What's the Alternative? Working Paper Ali, A., Mancha R. and Pachamanova, D. 2018. Correcting analytics maturity myopia. *Business Horizons*, 61:211-219.	2	
	Mini-case competition **Consultations about group projects**		2
15 (class 9)	**RISK ASSESSMENT** in developing a new technology or innovation-based idea Case study: Use of big data and analytics to generate new and improved services (guest speaker)	4	
15 (class 10)	**INTERIM presentations of group projects** Feedback from the groups and lecturers		4
15 (class 11)	**ASSESSING PROJECT APPLICATION** (criteria used for assessment of innovativeness and potential of the technology-based project idea)	4	
	Assessment of submitted project application: "Mastmonit" proposal		
15	Final group presentations		4
	Total:	**24**	**24**

Group work and assessment:

	TOTAL HOURS	**EVALUATION, %**
Interim group presentation (Class 1-6) Based on oral presentation	20	10%
Final group presentation (Class 1-11) Based on oral presentation	10	10%
Final group project (Class 1-11) *Based on proposal prepared in writing*	40	30%
Final Exam (Class 1-12) *'Open book' written exam*	42	50%
TOTAL:	**112**	**100%**

Role of the subject in reaching learning outcomes of Industrial Technology Management programme

DESCRIPTION OF LEARNING OUTCOMES OF THE FIRST STUDY CYCLE	INTENDED LEARNING OUTCOMES	CLO
Knowledge and its application Integrated knowledge in professional activity and study field providing versatile theoretical knowledge of study field and professional activity based on the new fundamental and applied scientific research results which can be used in extensive interdisciplinary fields of studies or professional activity.	LO1: Will be able to demonstrate knowledge and understanding of contemporary management theories and their applications in the research field of industrial company management.	CLO2 CLO5
	LO2: Will be able to apply engineering fundamentals (math, statistics, physics, graphics).	
	LO3: Will be able to understand the structure and operation of an industrial enterprise.	
	LO4: Will be able to understand manufacturing materials and processes (molding, cutting, forming, thermal treatment, finishing processes) and be able to develop production planning schedules and identify timelines, materials, equipment, manpower and outside resources required for business practices, processes and workflow.	
	LO5: Will have the knowledge of quality management theories, concepts, techniques, methods, tools and their wide practical application.	
	LO6: Will be able to apply modern information technologies in the data gathering, analysis and communication.	
Research skills Graduate has the ability to gather and analyze data necessary for solving substantial scientific and professional activity issues, and for cultural and artistic creation using scientific evidence and methods of fundamental and applied scientific researches.	LO7: Will be able to select adequate research methods for the company's internal and external analysis and to conduct individually simple research of internal and external environment (to collect, to organize and to interpret data, based on the findings to make managerial decisions).	
	LO8: Will be able to prepare research papers according to proper language, writing style and general bibliographic citation requirements.	
Special Abilities Graduate has the ability to plan, organize, implement and assess activities within the context of professions and studies by choosing complex technological, organizational and methodical means in an autonomous manner.	LO9: Will be able to analyze a company or an organization as an integral unit, which strives for certain goals in a market or social environment by effectively distributing their finite resources among objects and business activities and obtains synergies from coordinated function planning, organization and management.	
	L10: Will have knowledge and skills of Technology Entrepreneurship and main innovation models and structures, related with R&D activities across different organizations and business companies.	CLO 1-8
	LO11: Will be able to conduct general supervision of internal and external business resources, maintenance of inventory and schedules of	

	suppliers.	
	LO12: Demonstrate the fundamental knowledge of strategic and marketing management concepts and techniques and be able make objective strategic & marketing decisions and present well supported recommendations for future action.	CLO5
	LO13: Will have acquired the knowledge of how cognitive, behavioral, and emotional outcomes contribute to and sustain organizations, and have the ability to identify processes and methods that can improve the behavior, attitudes, and effectiveness of organizational members.	
	LO14: Will have developed the insights and skills, necessary to analyze and structure business financial information, to make financial forecasts and apply valuation models, supporting value-adding business decisions.	
Social abilities Graduate has the ability to communicate with specialists and society when solving tasks related to professional activity or study field introducing accomplished work and its results. He/she assumes responsibility for the quality and assessment of his/her and subordinate employees' activity following the principles of professional ethics and citizenship. He/she has the ability to communicate the knowledge and comprehension of study and activity field to specialists and other learners.	LO15: Will be able to communicate well with specialists and non-specialist auditoriums and express thoughts in writing and orally, both in English and native language.	CLO8
	LO16: Will be able communicate and work effectively in an intercultural and interdisciplinary group or team.	
	LO17: Will be able to assume personal responsibility for the quality and assessment of his/her and subordinate employees' activity following the principles of professional ethics and citizenship	
Personal abilities Graduate has the ability to study in an autonomous manner in his/her professional activity and study field and plan the process of learning. He/she perceives moral responsibility for the impact of his/her activity and its results on public, economical and cultural development, wellbeing and environment.	LO18: Will be able to apply a systematic, critical and constructive thinking in problem identification and solving.	CLO7
	LO19: Will have developed leadership skills.	
	LO20: Will be able to explain the corporate social responsibility and to be able to apply its principles in practice for a company operating in local as well as international markets.	
	LO21: Will have developed desire and ability to strive for knowledge and motivation for life-long learning.	