Politechnika Warszawska

COURSE CHARTER OFFERED AT THE DOCTORAL SCHOOL

Subject code	4606-EW-0000000-0247	Subject name	in Polish	**PRZEDSIĘBIORCZOŚĆ TECHNOLOGICZNA**	
			in English	**TECHNOLOGY ENTREPRENEURSHIP**	
Subject group membership	researcher's workshop / ~~specialty subjects~~				
Subject coordinator	Dr hab. Agnieszka Skala-Gosk	Course teacher	Dr hab. Agnieszka Skala-Gosk		
Implementing entity	Faculty of Management	Scientific discipline(s)*			
Level of education	Training of doctoral students	Semester	~~winter~~/summer		
Language of classes	~~Polish/~~English				
Form of credit:	credit	Total number of hours in the semester	20	Total number of ECTS	2
Minimum number of participants	10	Maximum number of participants	20	Accessibility for students	~~Yes/~~No

Type of activity		Lecture	Auditing exercises	Design exercises	Lab	Seminar
Number of class hours	weekly	1		2		1
	total for the semester	5		10		5

* does not apply to the researcher's workshop

1. Prerequisites

Credit for the first year of SD.

2. Objectives of the subject

The goal of the course is to gain knowledge of technology entrepreneurship (innovative, dynamic, ambitious) and to be ready to set up a technology-based startup and validate the business hypothesis using the relevant management tools.

3. Program content (for each type of classes separately)

Lecture

Gain knowledge of the specifics of technology entrepreneurship and its management toolset. Selection of startup ideas based of PhD thesis.

W1: Technology entrepreneurship vs. other forms of entrepreneurship. Spin-off as a form of the commercialization of scientific research results; Knowledge and technology transfer in the economic, social, for-profit and non-profit types, entrepreneurship following the Sustainable Development Goals (SDGs);

W2: Managing a technology startup: the customer-problem-solution (CPS) triad; customer discovery, customer development and business modeling;

W3: Business modeling based on Business Model Canvas and Value Proposition Canvas according to Osterwalder / Lean Canvas; model structure and business hypothesis formulation;

W4: Verifying business hypotheses in the business modeling process; customer discovery - principles of designing and interviewing project stakeholders; prototyping, MVP concept;

W5: Business model as a tool for implementing change and innovation in an organization; knowledge and technology transfer processes at universities in Poland and abroad. Case studies. Best practices.

Design exercises

Project: working on a technology startup project - at least completing the Customer Discovery stage – project-base learning in teams,

P1: PhD thesis and its commercialization potential, elements of debate; Formulating business hypotheses: CPS and customer archetype (persona creation),

P1: Value proposition canvass and business model canvass - design workshops,

P2-P3:, Methods of verification of business hypotheses, validation of hypotheses - practical exercises,

P4: Market and competitive analysis, sources of financing, foundations of financial analysis,

P5: Principles of "pitching" a project, DemoDay: presentation of a technology startup and work on its verification and development

Seminar

Workshops/integrated activities: Mentoring and DemoDay.

S1: Mentoring classes, guest lectures and/or the innovation incubator and accelerator visitation,

S2: Final presentation of the project (guests from outside the university - investors, entrepreneurs, experts) in the DemoDay formula, online.

4. Learning outcomes

Type of effect	Description of the learning outcome	Reference to learning outcomes in SD PW	Method of verification of learning outcomes*
Knowledge			
W01	The doctoral student knows and understands the principles of knowledge transfer to the economic and social sphere and commercialization of the results of scientific activity.	SD_W5	Project assessment, activity assessment
Skills			
U01	The doctoral student is able to evaluate the applicability of the results of the theoretical work in practice.	SD_U2	Project assessment, activity assessment
U02	A doctoral student is able to transfer the results of research work to the economic and social sphere.	SD_U3	Project assessment, activity assessment presentation assessment
U03	A doctoral student is able to independently plan and act for his or her own development and inspire and organize the development of others, including by planning or participating in commercialization projects.	SD_U8	Project assessment, activity assessment, presentation assessment
Social competencies			
K01	The doctoral student is ready to think and act in a creative and entrepreneurial way.	SD_K4	Project assessment, Activity assessment,

* allowed ways to verify learning outcomes: exam; oral exam; written colloquium; oral colloquium; project assessment; report assessment; report assessment; presentation assessment; class activity assessment; homework; test.

5. Assessment criteria

Activity assessment, Qualitative assessment of individual elements of the project, Assessment of the final presentation.

6. Literature

Primary Literature:

[1] Blank, S., (2013). Why the Lean Startup Changes Everything, Harvard Business Review, Vol 91(5), pp. 63-72 [available online].

[2] Osterwalder, A., (2010). Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers, Willey [available from BG PW].

Supplementary literature:

[1] Osterwalder, A., Pigneur, Y., Bernarda, G., Smith, A. Value proposition design: How to create products and services customers want. John Wiley & Sons. [available from BG PW].

[2] Aulet, B. (2017) Disciplined Entrepreneurship: Workbook, John Wiley & Sons [available from BG PW].

[3] Scale A. (2019) Digital Startups in Transition Economies, Palgrave-Macmillan [available from BG PW].

[4] Materials indicated in the course as mandatory reading: e.g., online course, blog post, video presentation, etc.

7. The workload of the doctoral student necessary to achieve the learning outcomes**		
Lp.	Description	Number of hours
1	Contact hours with an academic teacher resulting from the plan	20
2	Contact hours with an academic teacher for consultations, exams, tests, etc.	5
3	Hours of independent work of a doctoral student in preparation for classes and development of reports, projects, presentations, reports, homework	20
4	hours of independent work of a doctoral student in preparation for an exam, test, credit	15
	Total workload of the doctoral student	**60**
	Number of ECTS credits	**2**

** 1 ECTS of work = 25-30 hours of doctoral student effort (e.g., 2 ECTS = 60 hours; 4 ECTS = 110 hours.