Business Risk in Changing Dynamics of Global Village *BRCDGV-2020*

PRADEEP KUMAR MAHAMMAD SHARIF



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Contents

Tables	5	viii
Figure	es	ix
Abbre	viations	xi
Ackno	wledgement	xiv
Introd	uction	1
	Part I: Economy and Development:	
	Domestic and International Dimensions	
1.	Economics, Business and Security: Review of Relations	24
	Nataliya Zagorodna	
	Iryna Kramar	
2.	The Dynamic Structure of India's Foreign Trade	
	with SAARC and ASEAN	40
	Benoy Kumar Lal	
	Amit Ranjan	
3.	Basic Approaches in the Financial Management	
	of Domestic Enterprises	56
	Tetiana Vynnyk	
	Nataliia Konstantiuk	
4.	Conceptual Model of Innovation-Economic Activity	
	Improvement of Goods and Services Delivery	
	Enterprises	66
	Harmatiy Nataliya	

Iryna Fedyshyn

	Tatiana Matsievcka	
5.	A Pragmatic Approach to the Dynamics of Indo-	
	Polish Economic Cooperation Through Foreign	
	Direct Investments	77
	Mahammad Sharif	
6.	Influence of Emotional Intelligence, Job Stress and	
	Motivation Towards the Employees Performance in	
	Private Banking Sector	102
	Homan Memon	
	Sadia Anwar	
	Javed Ahmed Chandio	
7.	Risks of Project Initiation and Implementation	
	Public-Private Partnership in Ukraine	129
	Tatiana Pakhomova	
	Anastasiia Rokotianska	
8.	Digital Marketing: Position, Prospects and	
	Problemsin Rural Areas with Reference to	
	Patna District	140
	Nagendra Kumar Jha	
	Avinash Kumar	
9.	The Ukrainian Investment Market: Reality and	
	Prospects	164

	Iryna Khymych	
	Nataliia Tymoshyk	
	Tetiana Podvirna	
	Part II: Globalisation, Society and Challenges	
10.	Humankind At One More Crossroads and	
	Beyond: Strategic and Change Management	203
	Ecaterina Daniela Zeca	
11.	Globalisation of Village: A Boon or Curse for	
	Environment	204
	Mihir Kumar	
12.	The Needof "Y" and "Z" Generations Soft	
	Skills Development in Higher Education as a	
	Requirement of the Modern Job Market	217
	Hanna Malynych	
	Oksana Slyvka	
	Mariana Sokol	
13.	Additional Thematization in Zuko Džumhur's	
	Travelogues and Potential Risks in the Interpretation	
	of Travel Literature	230
	Mirzana Pašić Kodrić	
14.	Innovative Approach to Curricula Modernisation	
	for Master's Deg. on the Fablab Platform	239
	Tetiana Vitenko	

	Nataliia Marynenko	
	Valeriy Lazaryuk	
	Volodymyr Shanaida	
15.	The risk of equating and transforming the motif of	
	a warrior into a motif of a victim in Bosnian	
	literature	251
	Vildana Pečenković	
	Nermina Delić	
	Part III: Law and contemporary legal Issues	
16.	Tourism and the Environment: A Global Village	
	for Humanity	266
	Vishrut Jain	
17.	Constitutional Provisions of Economic Welfare and	
	its Reality in India	278
	Mangal Kumar Raj	
18.	Risk and Effects of Foreign Direct Investment	
	in India	295
	Siddhartha Krishna	
	Dipshi Swara	
19.	Bank Fraud: Critical Analysis of Emerging	
	Trends	313
	Navneet Govindam	
	Deepali Sinha	

20.	Democracy Vs Mobocracy: An Analysis in the	
	Indian Perspective of Global Village	326
	Shiv Shankar Singh	
21.	Global Concern Towards Safeguarding of	
	Children's Right	342
	Upendra Nath	
22.	Issues in Retail Investor Participation in Mutual	
	Fund in India	360
	Gaurav Sinha	
	Shivani	
23.	The Role of Globalisation in Adjudication of	
	Environmental Issues	374
	Suraj Kumar	
24.	Disability and Development Factor	389
	Rakesh Kumar	
25.	Balancing State's Obligation with Special	
	Reference to Prohibition Laws in Bihar	404
	Pratyush Kumar	
Bibliography		420
About the Editors		440
Notes on Contributors		442

Tables

Financial indicators of JSC "Ukrposhta" for the neriod 2015 – 2018	ne 68
Financial indicators of JSC "Ukrposhta" for th	ne
period 2015 – 2018	70
Demographic Characteristics of Participants	114
Descriptive Statistics and Cronbach's alpha	115
Pearson's Correlation (N=247)	116
Multiple Regression Analysis (N=247)	116
Questionare	145-146
Results and discussion	156-159
FDI inflow dynamics in Ukrainian economy	
by the country of origin in 2010-2018	
(US\$ millions)	170-177
FDI inflows dynamics in Ukrainian economy	
by the EU member states in 2010-2018	
(US\$ millions)	179-181
Dynamics of FDI inflows in Ukrainian	
economy by the types of economic activity	
in 2010-201 (US\$ millions)	182-185
FDI distribution in Ukraine by country's	
regions in 2010-2018	186-188
The matrix of soft skills in educational	
programs of higher education in Ukraine	
according to Wagner	224-225
The matrix of soft skills in educational	
programs of higher education in Ukraine	
according to Wagner	226
	Financial indicators of JSC "Ukrposhta" for the period 2015 – 2018 Financial indicators of JSC "Ukrposhta" for the period 2015 – 2018 Demographic Characteristics of Participants Descriptive Statistics and Cronbach's alpha Pearson's Correlation (N=247) Multiple Regression Analysis (N=247) Questionare Results and discussion FDI inflow dynamics in Ukrainian economy by the country of origin in 2010-2018 (US\$ millions) FDI inflows dynamics in Ukrainian economy by the EU member states in 2010-2018 (US\$ millions) Dynamics of FDI inflows in Ukrainian economy by the types of economic activity in 2010-201 (US\$ millions) FDI distribution in Ukraine by country's regions in 2010-2018 The matrix of soft skills in educational programs of higher education in Ukraine according to Wagner The matrix of soft skills in educational programs of higher education in Ukraine according to Wagner

[viii]

Figures

Figure 1.1	The risk alignment problem	27
Figure 1.2	The greatest security risks to business	28
Figure 2.1	Trade balance with SAARC and AESAN	46
Figure 2.2	Percentage Share of SAARC and ASEAN in	
	India's Export	47
Figure 2.3	Percentage Share of SAARC and ASEAN in	
	India's Import	47
Figure 2.4	GR Export SAARC and ASEAN	48
Figure 2.5	GR Exports and Imports comparison SAARC	
	and ASEAN	49
Figure 2.6	CV Analysis in US \$ Terms	50
Figure 3.1.	Directions of enterprise financial management	58
Figure 3.2.	Structure of Finance of Ukrainian Enterprises in	
	2015-2019, %	59
Figure 3.3	Shares of Profitable and Loss-Making Enterprises in	
	2015-2019, %	60
Figure 4.1.	Visualisation of the performed calculations of the	
	impact measure of indicators "money and their	
	equivalents" and "cash"	69
Figure 4.2.	Visualisation of the calculations of the influence of	
	the "stocks" and "goods" ind.	70
Figure 4.3.	Conceptual model of innovative and economic	
	activity impvt. of JSC "Ukrposhta"	71

Figure 6.1.	Conceptual Framework	111
Figure 9.1.	The total amount of FDI in Ukrainian economy in	
	2019 (US\$ millions)	166
Figure 9.2.	FDI inflow dynamics in Ukrainian economy in	
	2005-2019(US\$ millions)	167
Figure 10.1.	OECD Report : Economic Policy Reforms 2019	:
	Going for Growth	195
Figure 10.2	Universities knowledge unfold by spin off,	
	pillars for the third decade of the twenty one	
	century	200
Figure 10.3	Get-go relationshipmodel	201
Figure14.1.	Structure of the educational process for	
	the Master's training (education-scientific	
	programme for 133 "Industrial machinery	
	engineering" specialty)	242
Figure 14.2.	Fablab training courses at the TNTU	
	Fablab web-site	243

Abbreviations

- ADB Asian Development Bank
- ALE Annual Loss Exposure
- AMC Asset Management Company
- ARO Annual Rate of Occurrence
- ASEAN Association of SouthEast Asian Nations
- BSS Business Service Centres
- CCM Curriculum Content Mapping
- CRC Convention on the Rights of the Child
- CSIR The Council of Scientific and Industrial Research
- CSIS Center for Strategic and International Studies
- DIPP Department of Industrial Policy & Promotion
- DM Digital Marketing
- ECPAT End Child Prostitution in Asian Tourism
- EFTA Economic Free Trade Agreement
- FDI Foreign Direct Investment
- FEMA Foreign Exchange Management Act
- GDP Gross Domestic Product
- GR Growth Rate
- GST Goods and Services Tax
- GVA Gross Value Added

ICT -Information and Communication TechnologiesILO -International Labour OrganizationINSA -Indian National Science AcademyISWA -International Solid Waste AssociationKIG -Polish Chamber of CommerceLFEA -Law on Freedom of Economic ActivityMFA -Foreign Affairs MinistryMOOC -Massive Open Online CoursesNACD -National Association of Corporate DirectorsNAV -Net Asset ValueNHFDC -National Handicapped and Finance Development CorporationOECD -Organization for Economic Cooperation and DevelopmentPAIH -Polish Investment and Trade AgencyPAN -Polish Information and Foreign Investment AgencyPAN -Polish Academy of SciencesPLV -Para Legal VolunteersPOC -Programmes of CooperationPPC -Paly Per ClickPQC -Policy Questionnaire on Curriculum	HE -	Higher Education
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DevelopmentPAIH -Polish Investment and Trade AgencyPAIiIZ -Polish Information and Foreign Investment AgencyPAN -Polish Academy of SciencesPLV -Para Legal VolunteersPOC -Programmes of CooperationPPC -Pay Per ClickPQC -Policy Questionnaire on Curriculum	OECD -	Organization for Economic Cooperation and
 PAIH - Polish Investment and Trade Agency PAIIIZ - Polish Information and Foreign Investment Agency PAN - Polish Academy of Sciences PLV - Para Legal Volunteers POC - Programmes of Cooperation PPC - Pay Per Click PQC - Policy Questionnaire on Curriculum 		Development
 PAIiIZ - Polish Information and Foreign Investment Agency PAN - Polish Academy of Sciences PLV - Para Legal Volunteers POC - Programmes of Cooperation PPC - Pay Per Click PQC - Policy Questionnaire on Curriculum 	PAIH -	Polish Investment and Trade Agency
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PLV -Para Legal VolunteersPOC -Programmes of CooperationPPC -Pay Per ClickPQC -Policy Questionnaire on Curriculum	PAN -	Polish Academy of Sciences
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PQC - Policy Questionnaire on Curriculum	PPC -	Pay Per Click
	PQC -	Policy Questionnaire on Curriculum

ROSI - Return On Security Investment

SAARC -	South Asian Association for Regional Cooperation
SEBI -	Securities Exchange Board of India
SIA -	Secretariat for Industrial Assistance
SLE -	Single Loss Exposure
SOP -	Standard Operating Procedure
SSC -	Shared Services Centres
UNCTAD-	United Nations Conference on Trade and
	Development
UNCRC -	United Nations Convention on the Rights of the
	Child
UNWTO -	United Nations World Tourism Organization
UT -	Union Territory
VAR -	Vector Auto Regressive
VLE -	Village Level Entrepreneurs
WCCSEC -	World Congress against the Commercial Sexual
	Exploitation of Children
WHO -	World Health Organization
WOM -	Word Of Mouth
WTO -	World Trade Organization

Acknowledgements

Business Risk in Changing Dynamics of Global Village (BRCDGV) is an international conference platform launched in 2017, at the university of Applied Sciences in Nysa (Państwowa Wyższa Szkoła Zawodowa w Nysie), Poland. The platform has been introduced in cooperation with the university of Applied Sciences in Nysa, Poland; Savitribai Phule Pune University, Pune, India; Galati university, Galati, Romania; Indo-European Education Foundation, Warsaw, Poland.

The objective of the conference *Business Risk in Changing Dynamics of Global Village* is to provide a most effective & efficient platform for the development of business and academic collaborations in order to find solutions for sustainable growth of their business strategies and economic policies, by identifying the challenges and opportunities in their prospective areas.

By leveraging the talents and know-how of its people, combined with industry leading technology, Indo-European Education Foundation (IEEF) helps universities throughout Poland, India and Europe, enhancing academia-industry interlink model of business cooperation, improving efficiencies, ensuring duties & responsibilities for companies and academic institutions, and improve their quality business models by providing an international platform of BRCDGV.

After successfully launching of the platform in 2017, at the University of Applied Sciences in Nysa, Poland, we decided to organise an International conferences (BRCDGV) at least once in a year at different locations in the world by analysing the world contemporary issues and perspective for that country. In 2019, Ternopil Ivan Puluj National Technical University, Ukraine; Patna University, Patna, India; MIT World Peace University, Pune, India; Chanakya National Law University, Patna, India; Dharmashastra National Law University (DNLU), Jabalpur, Madhya Pradesh, India; Bharati Vidyapeeth Deemed University's New Law College, Pune, India, also joined the platform.

By analysing economic and political challenges and changes, we decided to organise our 2nd edition of BRCDGV-2019 in Ukraine at one of our academic partners "Ternopil Ivan Puluj National Technical University (TNTU)," Ternopil, Ukraine. The Second edition of the conference (BRCDGV-2019) were organised and hosted by Ternopil Ivan Puluj National Technical University, Ternopil, Ukraine, on 7-8 November 2019. The conference BRCDGV-2019 at TNTU Ukraine became very historic and identical where many academic institutions, industries, law makers, diplomats, experts and scientists from all over the world contributed with their objectives, and business strategies were discussed. Business partners, government administrations and local governments presented the possibilities for new cooperation to be developed between Ukraine and the world communities, and initiated many projects through IEEF.

We acknowledge the success of our partnership with TNTU in Ukraine and express our congratulations to *Honorable Professor* Petro Yasniv, Rector of the Ternopil Ivan Pului National Technical University; Professor Vitenko Tetiana Mykolayivna, Vice-Rector International Cooperation, TNTU: Professor for Irvna Kramar, Faculty of Economics and Management, and Director of IEC, TNTU Ukraine; and entire team of organising and nonorganising committees of TNTU Ukraine; Mrs. Renata Żukowska, CEO of Indo-European Education Foundation, Warsaw, Poland. The event was also graced by Mr. Volodymyr Gevko, Member of Parliament, Chairman of Regional Entrepreneurs 'Council in Ternopil region, Ukraine; Shri K.C. Tyagi, Ex-Member of Parliament, Chief GC & Spokesperson for JDU, India; Mrs. Justina Mutale, Ambassador for Peace, Philanthropist and Honorary Ambassador for Gender Equality, Zambia & UK; Mrs.

Olena Shapovalova, Director of SE "Ukrainian State Center for International Education", Ministry of Education and Science of Ukraine, Ukraine; *Mr. Rash Bihari Pd. Singh*, Vice Chancellor, Patna University, India; *Prof Mahammad Sharif*, Principal & Dean, Faculty of Law, Patna Law College, Patna University, India; *Mr. Ihor Sopel*, Head of the Ternopil Regional State Administration, *Mr. Serhiy Nadal*, Ternopil City Mayor, UKRAINE, *Ms. Tetyana Chubak*, Honorary Consulate of Hungary in Ternopil Region.

The conference was conducted jointly by the BRCDGV initiator, *Dr Pradeep Kumar*, President of Indo – European Education Foundation, and the honourable Rector of the host university, *Professor Petro Yasniy*, Rector of the Ternopil Ivan Puluj National Technical University, Ternopil, Ukraine.

As increasing socio-political changes and economic scenarios lead us to the decision to organise the 2nd International Conference "Business Risk in Changing Dynamics of Global Village (BRCDGV-2019)in Ternopil, Ukraine, the shown openness and increasing interest form Ukraine to develop new trade ties with India gave us another reason to organise our next edition of BRCDGV-2020 in India. The 3rd edition of BRCDGV-2020 is going to be held in India at Patna University on November 24, 2020.

The event BRCDGV-2020 has also very significant importance because it is going to take place during the pandemic time. When most of the European countries are again facing challenges of 2nd wave of pandemic or 3rd wave of Pandemic, India is getting lower infected cases but predicted to increase numbers in next in coming months. Despite the pandemic affects, our all partners are united and expressed their interest to go ahead for our future cooperation.

BRCDGV-2020, is also significant, because under the same platform we've extended our cooperation with the department of modern languages, University of Applied Sciences in Nysa, Poland, is organising an International Seminar "Risk in Global Communication" by providing and an opportunity to national and international scholars to participate in an interdisciplinary discussionson how to identify and manage risk in global communication! The aim of this seminar is to host one-day seminar/webinar (*on site and online*). The said webinar is organised under a global platform of an International Conference "Business Risk in Changing Dynamics of Global Village (BRCDGV-2020)" with possibilities to publish selected research papers separately (dedicated to language/philology) with publishing house in Poland.

This volume is the result of all selected research papers submitted to the BRCDGV-2020 conference, under Indo-European Education Foundation and It's international research consortium. This included the following renowned universities and research institutions from Poland, India, and Ukraine:

- 1. University of Applied Sciences in Nysa, Poland
- 2. Ternopil Ivan Puluj National Technical University (TNTU), Ternopil, Ukraine
- 3. Patna University, Patna, India
- 4. Savitribai Phule Pune University, Pune, India
- 5. "Dunarea de Jos" University of Galati, Galati, Romania
- 6. MIT-World Peace University, Pune, India
- 7. Chanakya National Law University, Patna, India
- 8. Dharmashastra National Law University (DNLU), Jabalpur, Madhya Pradesh, India
- 9. Bharati Vidyapeeth Deemed University's New Law College, Pune, India

This volume would not have been possible without the initiatives and support form Patna University as host of the conference BRCDGV-2020, and without the involvement of our all partners specially University of Applied Sciences in Nysa; TNTU, Ukraine; and University of Patna, India

The editors of this volume, thank all the contributors, associate members, institutions and involved in the project BRCDGV (specifically with BRCDGV-2020) and the publication of this work.

14

Innovative Approaches to Curricula Modernisation for Master's Degree on the Fablab Platform

Tetiana Vitenko Nataliia Marynenko Valeriy Lazaryuk Volodymyr Shanaida

The dynamic development of the economy in a post-industrial society poses new challenges to higher education, such as the market demand for highly skilled personnel, ensuring a high level of focus on innovation in education, rapid adaptation of curricula to the pace of industrial technology, automation and information networksdevelopment.

The education system must respond foremost to the challenges posed by technological factors and information technology. Only strong and coherent education-scienceindustry cooperation will make it possible to realise an innovative model of the modern economy development. One of the important problems of modernising higher technical education in a dynamic environment is the improvement of innovative infrastructure and activities of higher educational institutions (HEIs).

Research Results and Discussion

Among the major academic challenges facing higher education in Ukraine at present are the inadequacy of educational programs with current requirements and outdated pedagogical approaches of instructors [1].

Important challenges of the dynamic changes in the economy and industry are the rapid aging of the higher education material and technical support, the lack of resources for sufficient support of the educational process, which immediately affects the educational servicesquality, especially for technical and natural sciences [1; 2].

Incorporating innovative approaches into the educational process involves not only the use of innovative technologies in education, but also the collaboration between the educational institutions and industry. This means adapting new technologies and equipment to the educational process in accordance with a set of professional competencies demanded by the employer. Another important source of innovation is the continuing training of teachers. engineering and maintenancepersonnel in key professional areas, along with a major upgrade of the educational content, including e-learning platforms.

Higher technical education is closely related to the world of work, it should anticipate labor market trends and respond to them, modernise specialties, offer students the mastering of new competences and qualifications for their successful career growth under the market economy. Due to the introduction of the National Qualifications Framework in Ukraine, such updated specialties and qualifications should become more relevant to the labor market demand [3].

Innovative Approaches to Curricula Degree on the Fablab Platform

An important element of the curriculum is its adaptability and compliance [3]. These featuresentail the adaptation of curricula to students' particular requests, possibility of choosing an individual educational trajectory, obtaining of basic knowledge in entrepreneurship via inclusion into the curricula those disciplines that provide the development of entrepreneurial competencies; the use of flexible learning technologies that allow individualisation of the learning process.

Curricula and pedagogics should incorporate the latest technologies. FabLabs (fabrication laboratories) and similar models of low-cost, high-tech, easy-to-use laboratories are increasingly being linked to institutions that provide technical and vocational education at both the secondary and tertiary levels, particularly in the United States. These labs often are integrated into technical education curriculums, and teachers build lab time into their lesson plans [4].

Such training courses have been developed within the project of the Erasmus+ programme of the European Union «Development of a network infrastructure for youth innovation entrepreneurship support on Fablab platforms»(561536-EPP-1-2015-1-UK-EPPKA2-CBHE-JP, http://fablab-erasmus.eu/). The project is coordinated by the Buckinghamshire New University (United Kingdom, UK) and its aim iscreation of conditions for the development of engineering creativity, involvement of young people in entrepreneurial activity and promotion of employment through the creation and development of a network infrastructure of interaction between universities, business and industry on the platforms of production laboratories.

The information about FabLab platforms as determinant of the Ukraine's economy innovative development has been published in the previous edition (monograph) of the II International Conference "Business Risk in Changing Dynamics of Global Village" (BRCDGV 2019) [5].

Studying of the developed courses will increase the graduate's competitiveness by providing them with an opportunity to master necessary competences and skills such as an ability to

241

242 Business Risk in Changing Dynamics of Global Village BRCDGV-2020

generate new ideas and projects, implement and commercialise them on the basis of acquired and natural leadership qualities, intelligence, professional experience; the ability to organise the development of creative initiative, invention activities; work effectively as a team member etc.

The project aims at piloting the courses on at least 20 students in each of the FabLabs established in the Ternopil Ivan Puluj National Technical University (TNTU) [6], Simon Kuznets Kharkiv National University of Economics[7], Integrated Manufacturing Engineering Department and the Educational and Scientific Complex "Institute of Applied Systems Analysis" (IASA) of National Technical University of Ukraine "Kyiv Polytechnic University" [8], Belorussian National Technical University and Belorussian State University which were its participants.

The Master's degree training (90 ECTS credits for education-professional programme and 120 ECTS credits for education-scientific programme which is the matter of discussion) is carried out on the basis of the Bachelor's degree.

The focus is on professional training which includes both theoretical and practical training in general academic disciplines and professional oriented ones. Such a structure is presented in Figure 14.1.



Figure 14.1. Structure of the educational process for the Master's training (education-scientific programme for 133 "Industrial machinery engineering" specialty)

Innovative Approaches to Curricula Degree on the Fablab Platform

After dissemination events in September of 2019 two separate simultaneous pilot trainings were organised at the TNTU: the first – for 20 Master students majoring in "Industrial machinery engineering", the second one – for 20 lifelong learning students of other specialties (generally these were students majoring in "Mechanical Engineering", "Civil Engineering", "Automobile Transport", "Entrepreneurship, Trade and Stock-exchange activities", "Finance, Banking and Insurance").

All five courses developed within the project (Theory of Rapid Prototyping Inventive Problem Solving. and and Manufacturing, 3D Design Modelling, Project Management, Market Diffusion) were included to the curriculum of the 133 "Industrial machinery engineering" specialty as optional courses for the cycle of professional training. Every course was awarded 3 ECTS credits.

Simultaneously,e-component of the "Fablab training course" wasoffered at the e-learning platform of TNTUATutor(http://dl.tntu.edu.ua/)and is available to all students (ID 4806). Piloting versions of teaching materials were placed at the TNTU FabLab web-site as well (https://fablab.tntu.edu.ua/training/, Figure 14.2).



Figure 14.2. Fablab training courses at the TNTU Fablab web-site

243

244 Business Risk in Changing Dynamics of Global Village BRCDGV-2020

Each training package includes course description, learning outcomes, course content, recommended reading, planned learning activities and teaching methods, assessment methods, criteria and procedure in its structure.

The content of the courses is as follows:

1) "Theory of Inventive Problem Solving":

1. General information about the Theory of inventive problem solving.

2. Methods of contradiction resolution.

3. Laws of technical system evolution.

4. Substance-fields analysis.

5. Algorithm of inventive problem solving.

After successful completion of this course, students will able to: use the laws of creative thinking, the basic methods of activating trial-and-error method, methods for overcoming the the psychological inertia of thinking; understand the methodology of modern methods of finding the engineering solutions and be able to use the algorithm for inventive problem solving in practice; understand the typical methods of engineering contradiction resolution; physical, chemical, geometric effects used in physical contradiction resolution; standards of inventive problem solving; know the principles of technical systems development and the main problems accompanying each of the system development stages and the ways of solving these problems; use the methods of system analysis and synthesis for practical design tasks; use the methods of substance-fields analysis, to be able to study the structure of a technical system; understand the main types of information tools to support the process of inventive problems solving, the principles of using the bases of methods for contradiction elimination, standard solutions, indexes of effects; understand the method of using the algorithm for inventive problems solving for the development of new innovative technical objects.

2) "Rapid Prototyping and Manufacturing":

1. Technologies of milling and laser cutting.

Innovative Approaches to Curricula Degree on the Fablab Platform

2. Technologies of additive manufacturing.

3. Distinctions between an additive manufacturing and CNC machining.

4. Examples of wares of additive production.

5. Materials for an additive production.

6. Chart of processes of additive production.

7. Application of additive manufacturing.

8. Advantages of additive manufacturing.

9. Structural elements of fused deposition modeling 3D-printers.

10. Quality of 3D-printing.

After successful completion of this course, students will able to: use the basic technologies of rapid manufacturing of models and their elements; use technical devices and equipment for rapid prototyping; understand materials and diagram of additive manufacturing processes, application areas and advantages of additive manufacturing; know the main components of 3D printers using FDM technology; analyse factors that affect the quality of 3D printing.

3) "3D Design and Modelling":

1. 2 D-modeling.

1.1. Software review for creation 2D-models.

1.2. Creation of simple 2D-models.

1.3. Creation of complex 2D-models.

1.4. Features of modeling objects for engraving and cutting.

1.5. Transition from 2D-models to 3D-models.

2.3 D-modeling.

2.1. Software review for creating 3D models.

2.2. Creation of simple 3D-models.

2.3. Creation of complex 3D-models.

246 Business Risk in Changing Dynamics of Global Village BRCDGV-2020

2.4. Recommendations for improving the quality of 3D-printing.

- 3. 3 D scanning and recognition.
- 3.1. Principles of 3D Scanners.
- 3.2. Scanning of 3D-objects.

After successful completion of this course, students will able to: create two-dimensional models; create essentially threedimensional objects with the help of subtractive production technologies, to be able to represent an object in the form of an ensemble of its faces with various connections; construct threedimensional models in modern CAD systems; work with slicers; eliminate the discrepancy between the geometry of three-dimensional virtual and material models in additive production, and also the features of building spatial connections; scan 3D objects.

- 4) "FABLAB Project Management":
- 1. Project management methodologies.
- 2. The traditional, sequential methodologies:
- 2.1. Waterfall.
- 2.2. Critical Chain / Path Method.
- 3. The Agile Family:
- 3.1. Agile Methodology.
- 3.2. Scrum methodology.
- 3.3. Kanban.
- 4. The Change Management Methodologies:
- 4.1. Event Chain Methodology (ECM).
- 4.2. Extreme Project Management (XPM).
- 5. The Process-Based Methodologies:
- 5.1. Lean.
- 5.2. Six Sigma.
- 5.3. Lean Six Sigma.

Innovative Approaches to Curricula Degree on the Fablab Platform

247

- 6. Other Methodologies:
- 6.1. PRiSM.
- 6.2. Benefits Realisation.

After successful completion of this course, students will able to:critically evaluate approaches to the problem solving from the problem definition, through selection of a solution method up to the evaluation of the final product; employ co-operative and synergistic approaches to team work, problem solving and opportunity development; employ critical judgment, select tools, methodologies, key theories and critical discourses that are appropriate to particular innovative ideas; utilise creative risk taking and experimentation, learn from failure and understand the implications of the actions.

- 5) "Market Diffusion":
- 1. The new product diffusion.
- 1.1. Diffusion of innovation and product life cycle.
- 1.2. Factors affecting diffusion of innovation.
- 1.3. Marketing research of consumer behaviour.
- 2. Business model and Marketing-Mix.
- 2.1. Business Model Canvas.
- 2.2. Marketing-Mix.
- 2.3. Extended Marketing-Mix models.
- 2.4. Marketing-Mix analysis example.
- 3. Digital marketing of Innovations.
- 3.1. Marketing analytics.
- 3.2. Digital marketing channels.
- 3.3. Social Media Marketing and Public Relations.

After successful completion of this course, students will able to: explain the concepts, definitions, models of market diffusion and to understand the theories on diffusion of technology and innovation; analyse the consumer's behaviour for product innovation and to

248 Business Risk in Changing Dynamics of Global Village BRCDGV-2020

define target groups of buyers; develop a business model for an innovative product; develop the main elements of marketing mix and to plan marketing strategy; use of the digital marketing tools and services to analyse current and future trends in the application of technology to business.

In order to enhance the content, structure and mode of delivery of the FABLAB courses the following recommendations should be considered:

1) to use e-learning activities which are available at the e-learning platform;

2) to organise open access to best examples of students projects;

3) to conduct lectures with industrial engineers and successful entrepreneurs;

4) to provide students with the opportunity to master version of 3D CAD software.

Conclusion

The introduced Fablab courses cover the theoretical and practical basis, which provide students with the opportunity to create an idea, describe it according to the algorithm for inventive problems solving, develop a 3D model and prototype and commercialise it. 3D Technologies Center "FabLab"in TNTU is able to deliver academic disciplines with 15 ECTS credits in total.

TNTU's FabLab Center and its courses provide necessary competences required for the Master's degree. In addition, the projects implementation in the TNTU Fablab Center will make it possible to increase the competitiveness of the TNTU's graduates in the labor market.

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250 Business Risk in Changing Dynamics of Global Village BRCDGV-2020

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