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In Game Industry In Ukraine

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Plan of Pilot implementation

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GameHub Consortium

Beneficiary Number	Beneficiary name	Beneficiary short name	Country
P1	University of Deusto	UDEUSTO	Spain
P2	Akademia Gorniczohutnicza im. Stanislawa Staszica w Krakowie	AGH / AGH-UST	Poland
P3	FH JOANNEUM Gesellschaft M.B.H.	FH J	Austria
P4	Quality Austria Trainings, Zertifizierungs und Begutachtungs GmbH	Quality Austria	Austria
P5	Fundacion VIRTUALWARE Labs	VWLABS	Spain
P7	Donetsk National Technical University	DonNTU	Ukraine
P8	Vasyl Stefanyk Precarpathian National University	PNU	Ukraine
P9	Kherson National Technical University	KNTU	Ukraine
P10	Kyiv National University of Construction and Architecture	KNUCA	Ukraine
P11	National Technical University "Kharkiv Polytechnic Institute"	NTU KHPI	Ukraine
P12	Odessa National Polytechnic University	ONPU	Ukraine
P13	Ukrainian Association of IT professionals	UAITP	Ukraine

Executive summary

This Gamehub Report contains general information about project partner's vision of their capabilities to implement developed learning modules into educational process in the field of "Gaming industry and technologies of games creation". This vision was submitted in a form of own Concepts of learning modules implementation in universities.

The complete list of declared training modules to be integrated into the curricula of universities is presented in the consolidation table.

The Report provides a brief description of the Concept structure and general information about online links to them.

Furthermore, the Report contains brief info about Plans of pilot implementation for each Ukrainian project partner and consolidation table of online links.

The Report gives detailed consolidated information about schedule and resources of pilot implementation of learning modules, providing basic understanding of pilot implementation time and existing resources of each university.

Information about defined communication mechanisms and certification policies consistent with university strategies was summarized and presented in correspondent tables.

1. Learning modules in the field of "Gaming industry and technologies of games creation"

Each university and GameHub project participant has assessed own learning resources and their content in the field of "Gaming industry and technologies of games creation" and proposed to develop / modify the following modules for different target groups (see Table 1.1 below).

Table 1.1 List of developed / modified learning modules within GameHub project.

№	HEI	Module name	Target group		
			Master students	Master students	Master students
1.	DonNTU	Methods of game theory in gaming applications	*		
2.	DonNTU	Gaming applications development based on Unity game engine	*		
3.	DonNTU	Gaming applications development for OS Android	*		
4.	DonNTU	3D computer graphics in gaming applications (based on Blender graphic editor)	*		
5.	DonNTU	Place of gaming applications on the software market	*		
6.	DonNTU	Architecture of gaming applications		*	
7.	DonNTU	2D computer in gaming application based on GameMaker		*	*
8.	DonNTU	Development of gaming applications in teams		*	
9.	DonNTU	Features of gaming applications testing		*	*
10.	DonNTU	Basics of gaming applications development			*
11.	DonNTU	Basics of gaming applications development (based on GameMaker)			*
12.	PNU	Basics of computer games development (Cocos 2DX)		*	*
13.	PNU	Technologies of computer games developmen (Cocos 2DX)	*	*	

14.	PNU	Basics of creating sound and musical accompaniment for computer games	*		*
15.	PNU	Project management in gaming industry		*	*
16.	KNTU	Computer games development using Unity 3D	*	*	*
17.	KNTU	Development of network computer games in Java		*	
18.	KNTU	Development of computer games with JavaScript and Python	*	*	*
19.	KNTU	Visual game programming		*	*
20.	KNUCA	Theory of computer games (plot and design, support and advancement)		*	*
21.	KNUCA	Digital Media Development (digital graphics and animation, sound engineering, 3-D modeling)	*	*	
22.	KNUCA	Design of computer games based on Unreal Engine 4	*	*	*
23.	KNUCA	Technologies of multiplayer games creation	*		
24.	NTU "KhPI"	Basics of computer games and game programs		*	*
25.	NTU "KhPI"	Technologies of games development		*	*
26.	NTU "KhPI"	Models and methods of artificial intelligence in computer games	*	*	
27	NTU "KhPI"	Multiagent systems and technologies in gaming applications	*		
28.	ONPU	Basics of computer graphics in computer games design		*	*
29.	ONPU	Development of casual computer games using game designers		*	*
30.	ONPU	Basics of physical processes in computer games		*	
31.	ONPU	Creativization of game content and its advancement		*	*
32.	ONPU	Applied mathematical methods in	*	*	

		computer games development			
33.	ONPU	Computer games marketing		*	*

Thus, GameHub project plans to create/ modify _33_ modules to be implemented in the curricula of universities according to own concepts of implementation of learning modules.

2. Concepts of implementation of learning modules in the universities

Each university has approved the concept in accordance with its own development strategy and resource base.

The Concept describes: objectives / tasks; target groups; mechanisms of target groups involvement; selection criteria for target groups; selection methods for target groups; types of learning; requirements to the teaching staff; communication mechanisms; overview of learning programs for target groups; methodological support; hardware and software support; certification policy.

Concepts of implementation of learning modules in the universities, project partners can be found at the links in the Table 2.1

Table 2.1 Links to the concepts of implementation of learning modules in universities in the field of "Gaming industry and technologies of games creation"

№	HEIs	Web addresses
1.	DonNTU	**https://drive.google.com/drive/u/1/folders/0B_V-rOHPzaluaFA2M2ZEdEVta2c**
2.	PNU	**https://drive.google.com/drive/u/1/folders/0B_V-rOHPzaluaFA2M2ZEdEVta2c**
3.	KNTU	**https://drive.google.com/drive/u/1/folders/0B_V-rOHPzaluaFA2M2ZEdEVta2c**
4.	KNUCA	**https://drive.google.com/drive/u/1/folders/0B_V-rOHPzaluaFA2M2ZEdEVta2c**
5.	NTU "KhPI"	**https://drive.google.com/drive/u/1/folders/0B_V-rOHPzaluaFA2M2ZEdEVta2c**
6.	ONPU	**https://drive.google.com/drive/u/1/folders/0B_V-rOHPzaluaFA2M2ZEdEVta2c**

3. Plans of pilot implementation of learning modules in the universities.

Plans of pilot implementation were approved at the universities. The structure of plan includes several stages, fixed deadlines for each implementation stage and responsible persons at the university.

Plans of pilot implementation of learning modules in the universities can be found at the links in the Table 3.1

Table 3.1 Links to plans of pilot implementation of learning modules in the universities

№	HEI	Web address for document loading
1.	DonNTU	https://drive.google.com/open?id=0B-O9JMWCSnuHZl9pLVRkZlZZdDQ
2.	PNU	https://drive.google.com/drive/u/1/folders/0B_V-rOHPzaluVjRPZmFwSjAtTTQ
3.	KNTU	https://drive.google.com/drive/folders/0B_V-rOHPzaluVjRPZmFwSjAtTTQ
3.	KNUCA	https://drive.google.com/drive/u/1/folders/0B_V-rOHPzaluVjRPZmFwSjAtTTQ
4.	NTU "KhPI"	https://drive.google.com/drive/u/1/folders/0B_V-rOHPzaluVjRPZmFwSjAtTTQ
5.	ONPU	https://drive.google.com/a/ieee.org/file/d/0B4rU0a96itOjNEpkVWtka3hoXzg

4. Schedule and resources of pilot implementation of learning modules

4.1 DonNTU: Schedule and resources of pilot implementation

№	Learning module	Document	Provider	Deadline
1	Methods of game theory in gaming applications	Programme of the module	O. Dmitriieva	30.03.17
		Lecture notes, methodological materials for laboratory works	O. Dmitriieva	31.08.17
		Conduction of training	O. Dmitriieva	Spring semester 2017-2018
2	Gaming applications development based on Unity game engine	Programme of the module	N. Kostiukova	30.03.17
		Lecture notes, methodological materials for laboratory works	N. Kostiukova., O. Zolotukhina	31.08.17
		Conduction of training	N. Kostiukova., O. Zolotukhina	Autumn semester 2017-2018
3	Gaming applications development for OS Android	Programme of the module	S. Tsololo	30.03.17
		Lecture notes, methodological materials for laboratory works	S. Tsololo, Yu. Dikova	31.08.17
		Conduction of training	S. Tsololo, Yu. Dikova	Spring semester 2017-2018
4	3D computer graphics in gaming applications (based on Blender graphic editor)	Programme of the module	N. Kostiukova	30.03.17
		Lecture notes, methodological materials for laboratory works	N. Kostiukova, T. Skrypnik	31.08.17

		Conduction of training	N. Kostiukova, T. Skrypnik	Autumn semester 2017-2018
5	**Place of gaming applications on the software market**	**Programme of the module**	**N. Kostiukova**	**30.03.17**
		Lecture notes, methodological materials for laboratory works	**N. Kostiukova., O. Tykhonova**	**31.08.17**
		Conduction of training	**N. Kostiukova., O. Tykhonova**	**Autumn semester 2017-2018**
6	**Architecture of gaming applications**	**Programme of the module**	**N. Kostiukova**	**30.03.17**
		Lecture notes, methodological materials for laboratory works	**N. Kostiukova., O. Tykhonova**	**31.08.17**
		Conduction of training	**N. Kostiukova., O. Tykhonova**	**Autumn semester 2017-2018**
7	**2D computer in gaming application based on GameMaker**	**Programme of the module**	**Ye. Bashkov**	**30.03.17**
		Lecture notes, methodological materials for laboratory works	**Ye. Bashkov, Ye. Pavlovskyi**	**31.08.17**
		Conduction of training	**Ye. Bashkov, Ye. Pavlovskyi**	**Autumn semester 2017-2018**
8	**Features of gaming applications testing**	**Programme of the module**	**O. Zolotukhina**	**30.03.17**
		Lecture notes, methodological materials for laboratory works	**O. Zolotukhina**	**31.08.17**
		Conduction of training	**O. Zolotukhina**	**Autumn semester 2017-2018**
9	**Development of gaming applications in teams**	**Programme of the module**	**N. Maslova**	**30.03.17**

№	Learning module	Document	Provider	Deadline
		Lecture notes, methodological materials for laboratory works	N. Maslova, T. Skrypnik	31.08.17
		Conduction of training	N. Maslova, T. Skrypnik	Spring semester 2017-2018
10	Basics of gaming applications development	Programme of the module	N. Maslova	30.03.17
		Lecture notes, methodological materials for laboratory works	N. Maslova, Ye. Pavlovskyi	31.08.17
		Conduction of training	N. Maslova, Ye. Pavlovskyi	Spring semester 2017-2018
11	Basics of gaming applications development (based on GameMaker)	Programme of the module	N. Maslova	30.03.17
		Lecture notes, methodological materials for laboratory works	N. Maslova, Ye. Pavlovskyi	31.08.17
		Conduction of training	N. Maslova, Ye. Pavlovskyi	Spring semester 2017-2018

4.2 PNU: Schedule and resources of pilot implementation

№	Learning module	Document	Provider	Deadline
1	Basics of computer games development (Cocos 2DX)	Programme of the module	Vitalii Horielov	
		Lecture notes, methodological materials for laboratory works	Vitalii Horielov	01/03/2017-01/09/2017
		Conduction of training	Vitalii Horielov, Yurii Iliash, Viktor Rovinskyi	7 semester
2	Technologies of computer games developmen (Cocos 2DX)	Programme of the module	Yurii Iliash	

		Lecture notes, methodological materials for laboratory works	Yurii Iliash	01/03/2017- 01/09/2017
		Conduction of training	Yurii Iliash, Vitalii Horielov, Viktor Rovinskyi	8 semester
3	Basics of creating sound and musical accompaniment for computer games	Programme of the module	Viktor Rovinskyi	
		Lecture notes, methodological materials for laboratory works	Viktor Rovinskyi	01/03/2017- 01/09/2017
		Conduction of training	Viktor Rovinskyi, Yurii Iliash, Vitalii Horielov	9 semester
4	Project management in gaming industry	Programme of the module		
		Lecture notes, methodological materials for laboratory works	Valentyna Yakubiv	01/03/2017- 01/09/2017

4.3 KNTU: Schedule and resources of pilot implementation

№	Learning module	Document	Provider	Deadline
1.	Computer games development using Unity 3D	Programme of the module	Olena Liashenko	02/03/2017- 30/03/2017
		Lecture notes, methodological materials for laboratory works and individual tasks completion	Olena Liashenko	02/03/2017- 29/09/2017
		Conduction of training	Olena Liashenko	01/03/18- 25/06/18 (6/10 semester)

2.	Development of network computer games in Java	Programme of the module	Dmytro Kyryichuk	02/03/2017-30/03/2017
		Lecture notes, methodological materials for laboratory works	Dmytro Kyryichuk	02/03/2017-29/09/2017
		Conduction of training	Dmytro Kyryichuk	01/03/18-25/06/18 (4 semester)
3.	Development of computer games with JavaScript and Python	Programme of the module	Maryna Zharikova	02/03/2017-30/03/2017
		Lecture notes, methodological materials for laboratory works and individual tasks completion	Maryna Zharikova	02/03/2017-29/09/2017
		Conduction of training	Maryna Zharikova	01/03/18-25/06/18 (8/10 semester)
4.	Visual game programming	Programme of the module	Volodymyr Sherstiuk	02/03/2017-30/03/2017
		Lecture notes, methodological materials for laboratory works and individual tasks completion	Volodymyr Sherstiuk	02/03/2017-29/09/2017
		Conduction of training	Volodymyr Sherstiuk	01/03/18-25/06/18 (6 semester)

4.4 KNUCA: Schedule and resources of pilot implementation

№	Learning module	Document	Provider	Deadline
1.	Theory of computer games (plot and design, support and advancement)	Programme of the module	O. Kuchanskyi	19.01.17 – 30.03.17
		Developed electronic versions of lecture notes, methodological materials for practical works	O. Kuchanskyi	10.04.17 – 18.09.17
		Preparation and provision of methodological materials for posting on GameHub project web resources and publications	O. Kuchanskyi	15.01.18 – 15.03.18
		Conduction of training of students	O. Kuchanskyi	12.03.18 – 15.06.18
		Conduction of training of unemployed and ATO veterans	O. Kuchanskyi	01.03.18 – 31.05.18
		Knowledge assessment and testing subsequent to the results of conducted training (record)	O. Kuchanskyi	16.06.18 – 25.06.18
2.	Digital Media Development (digital graphics and animation, sound engineering, 3-D modeling)	Programme of the module	A. Biloshchytskyi Ye. Shabala	19.01.17 – 30.03.17
		Developed electronic versions of lecture notes, methodological materials for practical works	A. Biloshchytskyi Ye. Shabala	10.04.17 – 18.09.17
		Preparation and provision of methodological materials for posting on GameHub project web resources and publications	A. Biloshchytskyi Ye Shabala	15.01.18 – 15.03.18
		Conduction of training of students	A. Biloshchytskyi	12.03.18 – 15.06.18

			Ye Shabala	
		Knowledge assessment and testing subsequent to the results of conducted training (record)	**A. Biloshchytskyi** **Ye. Shabala**	**16.06.18 – 25.06.18**
3.	**Design of computer games based on Unreal Engine 4**	**Programme of the module**	**D. Bezmohorychnyi**	**19.01.17 – 30.03.17**
		Developed electronic versions of lecture notes, methodological materials for practical works	**D. Bezmohorychnyi**	**10.04.17 – 18.09.17**
		Preparation and provision of methodological materials for posting on GameHub project web resources and publications	**D. Bezmohorychnyi**	**15.01.18 – 15.03.18**
		Conduction of training of students	**D. Bezmohorychnyi**	**12.03.18 – 15.06.18**
		Conduction of training of unemployed and ATO veterans	**D. Bezmohorychnyi**	**01.03.18 – 31.05.18**
		Knowledge assessment and testing subsequent to the results of conducted training (record)	**D. Bezmohorychnyi**	**16.06.18 – 25.06.18**
4.	**Technologies of multiplayer games creation**	**Programme of the module**	**S. Paliy** **A. Dubnytska**	**19.01.17 – 30.03.17**
		Developed electronic versions of lecture notes, methodological materials for practical works	**S. Paliy** **A. Dubnytska**	**10.04.17 – 18.09.17**
		Preparation and provision of methodological materials for posting on GameHub project web resources and	**S. Paliy** **A. Dubnytska**	**15.01.18 – 15.03.18**

	publications		
	Conduction of training of students	S. Paliy A. Dubnytska	12.03.18 – 15.06.18
	Knowledge assessment and testing subsequent to the results of conducted training (record)	S. Paliy A. Dubnytska	16.06.18 – 25.06.18

4.5 NTU "KhPI": Schedule and resources of pilot implementation

№	Learning module	Document	Provider	Deadline
1.	Basics of computer games and game programs	Programme of the module	Sergiy Nikitin	
		Lecture notes, methodological materials for laboratory works and course projects	Sergiy Nikitin	02/03/2017-14/10/2017
		Conduction of training	Sergiy Nikitin, Liudmyla Nikitina, Oleg Kasilov,	1 semester
2.	Technologies of games development	Programme of the module	Vitaliy Breslavets	
		Lecture notes, methodological materials for laboratory works and course projects	Vitaliy Breslavets	
		Conduction of training	Vitaliy Breslavets	7 semester
3.	Models and methods of artificial intelligence in computer games	Programme of the module	Liudmyla Nikitina	
		Lecture notes, methodological materials for laboratory works and course projects	Liudmyla Nikitina	

№	Learning module	Document	Provider	Deadline
		Conduction of training	Liudmyla Nikitina	7 semester
4.	Multiagent systems and technologies in gaming applications	Programme of the module	Oleg Kasilov	
		Lecture notes, methodological materials for laboratory works and course projects	Oleg Kasilov	
		Conduction of training	Oleg Kasilov	10 semester

4.6 ONPU: Schedule and resources of pilot implementation

№	Learning module	Document	Provider	Deadline
	Creativization of game content and its advancement (promotion)	Programme of the module	Olga Korolkova, Hanna Misiun	
		Lecture notes, methodological materials for laboratory works and course projects	Olga Korolkova, Hanna Misiun	02/03/2017-14/10/2017
		Conduction of training	Olga Korolkova, Hanna Misiun	2 semester
	Basics of computer graphics in computer games design	Programme of the module	Oleksandr Fomin, Oleg Oleshchuk	
		Lecture notes, methodological materials for laboratory works and course projects	Oleksandr Fomin, Oleg Oleshchuk	02/03/2017-14/10/2017
		Conduction of training	Oleksandr Fomin, Oleg Oleshchuk	6 semester
	Basics of physical processes in computer games	Programme of the module	Oleg Maslov, Stanislav Marulin	
		Lecture notes, methodological materials for practical and laboratory works and	Oleg Maslov, Stanislav Marulin	02/03/2017-14/10/2017

		course projects		
		Conduction of training	Oleg Maslov, Stanislav Marulin	2 semester
Development of casual computer games using game designers	Programme of the module	Oleksandr Blazhko, Viktor Antoniuk		
		Lecture notes, methodological materials for practical and laboratory works and course projects	Oleksandr Blazhko, Viktor Antoniuk	02/03/2017- 14/10/2017
		Conduction of training	Oleksandr Blazhko, Viktor Antoniuk	3 semester
Applied mathematical methods in computer games development	Programme of the module	Viktoriia Ruvinska, Nataliia Volkova		
		Lecture notes, methodological materials for practical and laboratory works and course projects	Viktoriia Ruvinska, Nataliia Volkova	02/03/2017- 14/10/2017
		Conduction of training	Viktoriia Ruvinska, Nataliia Volkova	6 semester
Computer games marketing	Programme of the module	Iryna Zlatova		
		Lecture notes, methodological materials for practical and laboratory works and course projects	Iryna Zlatova	02/03/2017- 14/10/2017
		Conduction of training	Iryna Zlatova	2 semester

5. Communication mechanisms and certification policies at universities

Each university has defined communication mechanisms (see Table 5.1) and certification policies (see Table 5.2) in accordance with own strategy.

5.1 Communication mechanisms

Table 5.1 Consolidation table of communication mechanisms for universities

№	HEI	Communication mechanisms
1.	DonNTU	1. Face-to- face. 2. e-Learning.
2.	PNU	– teacher-student cooperation in the process of scientific and educational activities; – direct teacher-student communication not only in the classroom but also out-of-educational process; – regular conduction of individual, group and mass scientific and educational activities; – use of the power of the Internet, particularly in distance learning and formative knowledge assessment (with obligatory intramural form of midpoint and summative assessment)
3.	KNTU	Mechanisms of communication are: - direct communication of a teacher with course participants; - combining of education with practical work; - use of the power of the Internet, particularly in distance learning and formative knowledge assessment (with obligatory intramural form of midpoint and summative assessment) - strong collaboration with enterprises in the field of gaming industry at the regional, national and international level; - strong collaboration with partner universities
4.	KNUCA	1. Face-to- face. 2. e-Learning.
5.	NTU "KhPI"	1. Face-to- face. 2. e-Learning.
6.	ONPU	1. Face-to- face. 2. e-Learning.

5.2 Certification policy

Table 5.2 Consolidation table of certification policies at universities

№	HEI	Certification policy
1.	DonNTU	Subsequent to the results of studying the following documents will be issued: - Master's Degree Diploma - Additional certificates to a Bachelor's Degree Diploma - Certificates of DonNTU (veterans, unemployed)
2.	PNU	SHEI "Vasyl Stefanyk Precarpathian National University" in cooperation with the University of Deusto will issue certificates to course participants based on the implementation of curriculum and final project.
3.	KNTU	Kherson National Technical University together with the University of Deusto will issue certificates to course participants based on completion of training modules and final individual tasks.
4.	KNUCA	Joint certificates of KNUCA and the University of Deusto will be issued subsequent to the results of studying.
5.	NTU "KhPI"	Subsequent to the results of studying and testing joint certificates of GameHub project (NTU "KhPI" ONPU and the University of Deusto) will be issued. The basis for obtaining such a certificate will be successful completion of the training program by target groups, which will end in testing.
6.	ONPU	Subsequent to the results of studying and testing joint certificates of GameHub project (ONPU and the University of Deusto) will be issued.