



DISSEMINATION REPORT

586114-EPP-1-2017-1-ES-EPPKA2-CBHE-JP

**Innovative Multidisciplinary Curriculum in Artificial Implants for Bio-Engineering BSc/MSc
Degrees**

NAME OF PARTNER: P03 NATIONAL UNIVERSITY ZAPORIZHZHIA POLYTECHNIC

CONTACT PERSON FOR DISSEMINATION:

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1. Dissemination activities

Table 1. DISSEMINATION ACTIVITIES

Dissemination	YES / NO	Details
Project web-site and information on the university web-site	YES	<ol style="list-style-type: none"> 1. General information about BIOART project on the university web-site https://zp.edu.ua/?q=node/6985 2. Disciplines for the educational/professional program "Telemedical and biomedical systems" (2nd level - master): https://zp.edu.ua/?q=node/327 3. Engineering education focused on human well-being https://zp.edu.ua/inzhenerna-osvita-spryamovana-na-dobrobut-lyudyny 4. ZNTU employees took part in the training on the "BIOART" project at the Krakow Technical University (Poland) https://zp.edu.ua/spivrobotnyky-zntu-pryynyaly-uchast-u-treningu-za-proektom-bioart-v-krakivskomu-tehnicnomu 5. New specialties for modern students with the support of the European Union https://zp.edu.ua/novi-specialnosti-suchasnym-studentam-za-pidtrymky-yevropeyskogo-soyuzu 6. Workshop on the BIOART project at the Polytechnic University of Madrid https://zp.edu.ua/?q=node/7537 7. Synergy of science and industry within the international project ERASMUS + BIOART https://zp.edu.ua/?q=node/7630 8. Internship of teachers of NU "Zaporizhzhia Polytechnic" at the Danube University Krems (Austria) https://zp.edu.ua/?q=node/7650 9. Internship of teachers of National University Zaporizhzhia Polytechnic at the Catholic University of Leuven (Belgium) https://zp.edu.ua/?q=node/6306 10. Visit to Israel https://zp.edu.ua/?q=node/7711 11. The integration of National University Zaporizhzhia Polytechnic into the European educational space continues https://zp.edu.ua/?q=node/7852 12. With the ERASMUS + KA1 program to the implementation of double diplomas for students of Zaporizhzhia Polytechnic https://zp.edu.ua/?q=node/8736

		<p>13. New equipment for equipping laboratories https://zp.edu.ua/nove-obladnannya-dlya-osnashchennya-laboratoriy</p> <p>14. Successes in the implementation of an international educational project BIOART https://zp.edu.ua/uspihy-v-realizaciyi-mizhnarodnogo-osvitnogo-proyektu-bioart</p>
Web-site of National Erasmus+ Offices or other related activities	YES	https://erasmusplus.org.ua/
Social media		https://t.me/pz_zntu
Press releases	YES	<p>1. Vizit to Izrael https://zp.edu.ua/projects/newspaper/uploads/2019/me-05-16122019.pdf</p> <p>2. TRAINING OF TEACHERS OF NU ZAPORIZHZHIA POLYTECHNIC AT THE CATHOLIC UNIVERSITY OF LEUVEN (BELGIUM) https://zp.edu.ua/projects/newspaper/uploads/2019/me-04-29102019.pdf</p>
Flyers /brochures / other	YES	Roll-ups
Conference presentations / posters	YES	<p>Participation in 10 conferences (more details in Table 3):</p> <p>1. I International Science and Technology Conference on Prospects for the development of mechanical engineering and transport, May 13 - 15, 2019, Vinnytsia, Ukraine</p> <p>2. II International Science and Technology Conference on Prospects for the development of mechanical engineering and transport", 13-15 May 2021, Vinnytsia, Ukraine</p> <p>3. 10th IEEE International Conference on Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications (IDAACS), September 18-21, 2019, Metz, France.</p> <p>4. Second International Workshop on Computer Modeling and Intelligent Systems (CMIS-2019), 15-19 April 2019, Zaporizhzhia, Ukraine</p> <p>5. Third International Workshop on Computer Modeling and Intelligent Systems (CMIS-2020), Zaporizhzhia, ZNTU, 27 April- 1 May, 2020, Zaporizhzhia, Ukraine</p>

		<p>6. IX International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology, October 03-05, 2018, Zaporizhzhia, Ukraine</p> <p>7. X International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology, October 07-09, 2020, Zaporizhzhia, Ukraine</p> <p>8. XV International Conference on The Experience of Designing and Application of CAD Systems in Microelectronics, 26 February – 2 March 2019, Lviv-Polyana, Ukraine</p> <p>9. 16th International Conference on The Experience of Designing and Application of CAD Systems, 22–26 February 2021, Lviv, Ukraine</p> <p>10. IEEE International Conference on Smart Information Systems and Technologies (SIST), 28-30 April 2021, Nursultan, Kazakhstan</p>
<p>Conference /seminary - organization</p>	<p>YES</p>	<p>Organization of 6 conferences and seminars:</p> <p>1. Special section BIOART at X International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology (October 07-09, 2020, Zaporizhzhia) (28 participants) http://rtt.zntu.edu.ua/konf2020.html</p> <p>2. Special section BIOART at IX International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology (October 03-05, 2018, Zaporizhzhia) (27 participants) http://rtt.zntu.edu.ua/konf2018.html</p> <p>3. Online seminar "Modern additive production technologies", November 14, 2020 (10 students + 2 teachers) https://zp.edu.ua/uspivyv-realizaciyi-mizhnarodnogo-osvitnogo-proyektu-bioart</p> <p>4. International Workshop Computer Modeling and Intelligent Systems (CMIS 2019) Zaporizhzhia, Ukraine, April 15-19, 2019. http://ceur-ws.org/Vol-2353/</p>



		<p>5. International Workshop Computer Modeling and Intelligent Systems (CMIS 2020) Zaporizhzhia, Ukraine, April 27-May 1, 2020. http://ceur-ws.org/Vol-2608/</p> <p>6. International Workshop Computer Modeling and Intelligent Systems (CMIS 2021) Zaporizhzhia, Ukraine, April 27, 2021. http://ceur-ws.org/Vol-2864/</p>
Events, including lectures, demonstration and workshops, internal information meetings	YES	<p>More details about dissemination events are in Table 2.</p> <p>Video recording of lectures that were organized:</p> <p>https://youtu.be/tdDnPXm8ir0</p> <p>https://youtu.be/6MxbxtbxeQc</p> <p>https://youtu.be/XSvXxalrOVM</p> <p>https://youtu.be/-ixZu93M2xA</p>
Reports and other documents	YES	<p>1. New curriculum "Telemedical and biomedical systems" (2nd level - master) https://zp.edu.ua/sites/default/files/konf/navchalyyy_plan_biomed_2019_2020.pdf</p> <p>2. Program of the International Days 18-20 November 2020 https://zp.edu.ua/uploads/news/20201116/NUZP_ID_Programm_16_11_2020.pdf</p>
Other activities, including on-line promotion	YES	<p>1. Internationalization at home to build the potential of polytechnic education in Ukraine https://zp.edu.ua/internacionalizaciya-vdomadlya-rozbudovy-potencialu-politehnicnoyi-osvity-v-ukrayini</p> <p>2. National student contest (7 April, 2021, https://youtu.be/pelwHiE0gPk)</p> <p>3. Remote participation of representatives of the software department in international events https://zp.edu.ua/dystanciyna-uchastpredstavnykiv-kafedry-programnyh-zasobiv-umizhnarodnyh-zahodah</p>

2. Dissemination events - details

Table 2. DISSEMINATION EVENTS

No	Date	Title	Target Audience	Number of participants	Is there a press-release of the event (YES/NO). If YES, provide it.
1	1/10/2018	Artificial implants in bioengineering	Staff members	16	

2	13/11/ 2018	Biomaterials	Students, Staff members	15+8	Photo reports, lists of participants
3	16/03/ 2019	Smart House Systems development for invalids and people with special needs	Staff members	17	
4	07/10/ 2019	Entrepreneurship in the universities	Students, Staff members	20+10	
5	11/10/ 2019	The need for methods for predicting properties and corrosion for modern medical implants	Students, Staff members	12+5	
6	19/10/ 2019	Design of implantable devices	Students, Staff members	12+6	

Table 3. CONFERENCE PRESENTATIONS / POSTERS

N	Title of publication	Publication data	Authors
1	The reduced structure of the power of magnetic alloys of medical significance.	Proceedings of the II International Science and Technology Conference on Prospects for the development of mechanical engineering and transport, May 13-15, 2021, Vinnytsya, VNTU, p. 52-53.	Shalomeev V.A., Luk'yanenko O.S.
2	Improving the structure and properties of medical magnesium alloys.	Proceedings of the II International Scientific and Technical Conference on Prospects for the development of mechanical engineering and transport, May 13-15, 2021, Vinnytsia, VNTU, p. 52-53.	Shalomeev VA. Lukyanenko O.S.
3	Remote Monitoring of the Hospital Cardiac Patients Heart Rate	Proceedings of the 2019 10th IEEE International Conference on Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications (IDAACS), September 18- 21, 2019, Metz, France, p. 991-996	Parkhomenko A., Presaizen Y., Gladkova O., Tulenkov A., Kalinina M.
4	Method of Monitoring of Young Athletes' Physical State Indicators Based on Wearable Devices Usage	Proceedings of the Third International Workshop on Computer Modeling and Intelligent Systems CMIS-2020, 27 April- 1 May, 2020, Zaporizhzhia, ZNTU, p. 436-449	Parkhomenko A., Volynska A., Zalyubovskiy Y., Parkhomenko A., Kalinina M.
5	Recommendation system for improving the living standards of the elderly	Proceedings of the X International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information	Hunko E.V., Gladkova O.M., Parkhomenko A.V.

		technology, October 07-09, 2020, Zaporizhzhia, NUZP, p.248-249	
6	QUALITY ASSESSMENT OF MEDICAL TRAINING VIDEO CONTENT ON YOUTUBE PLATFORM	Proceedings of the X International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology, October 07-09, 2020, Zaporizhzhia, NUZP, p.250-251	Kushch A.V., Gladkova O.M., Parkhomenko A.V.
7	INFORMATION TECHNOLOGY OF DESIGNING A VIRTUAL PROTOTYPE OF A ROBOTIC PROSTHESIS	Proceedings of the X International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information , October 07-09, 2020, Zaporizhzhia, NUZP, p. 260-261	Frolova A.Yu., Parkhomenko A.V., Gladkova O.M.
8	RESEARCH AND SOFTWARE IMPLEMENTATION OF A BOT-CONSULTANT FOR THE MEDICAL FIELD	Proceedings of the X International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information , October 07-09, 2020, Zaporizhzhia, NUZP, p. 258-260	Soberzhanska S.Yu., Parkhomenko A.V., Zalyubovskiy Ya.I.
9	Monitoring System for Tests of the Mg Implants	Proceedings of the Third International Workshop on Computer Modeling and Intelligent Systems CMIS-2020, 27 April- 1 May, 2020, Zaporizhzhia, ZNTU, p. 70-78	Tabunshchik G., Shalomeev V., Arras P.
10	Swelling cataract diagnosing using neural network	Proceedings of the X International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology , October 07-09, 2020, Zaporizhzhia, NUZP, p. 237-239	Diachuk T.S., Skrupsky S.Yu., Diachuk I.V., Kylukovska N.A.
11	Optimization of the chemical composition of magnesium alloy for biodegradable implants	Proceedings of the X International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology , October 07-09, 2020, Zaporizhzhia, NUZP, p. 240-241	Shalomeev V.A., Lukyanenko O.S., Aikin M.D.
12	Simplifying peak detection algorithms for finite biomedical signals	Proceedings of the X International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information	Sumariuk S., Morshchavka S., Luengo D.

		technology , October 07-09, 2020, Zaporizhzhia, NUZP, p.241-243	
13	Possibilities of telemedicine involvement in the diagnostic process	Proceedings of the X International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology , October 07-09, 2020, Zaporizhzhia, NUZP, p.256-258	Samoilyk S.S., Samoilyk K.V.
14	Electronic service "Medical reform for people"	Proceedings of the X International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology , October 07-09, 2020, Zaporizhzhia, NUZP, p.243-245	Bakurova A.V., Tereshchenko E.V., Shirokorad D.V.
15	Risk control model in medical systems	Proceedings of the X International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology , October 07-09, 2020, Zaporizhzhia, NUZP, p. 262-263	Shitikova O.V., Tabunshchik G.V.
16	Adaptation of CAD-system Creo for Development of Individual Spinal Implant	Proceedings of the 16th International Conference on The Experience of Designing and Application of CAD Systems, February 22–26, 2021, Lviv, Ukraine, Los Alamitos: IEEE, p.1-5	Gladkova O., Parkhomenko A., Myronenko N., Parkhomenko A., Zalyubovskiy Ya., Andreiev M.
17	Intelligent Data Analysis for Individual Hypertensia Patient's State Monitoring and Prediction	Proceedings of the IEEE International Conference on Smart Information Systems and Technologies (SIST), April 28-30, 2021, Nursultan, Kazakhstan, p. 1-4	Subbotin S., Tabunshchik G., Arras P., Tabunshchik D., Trotsenko E.
18	Implementation of Audio Navigation for Smart Campus	Proceedings of the Second International Workshop on Computer Modeling and Intelligent Systems, 15-April 19, 2019 Zaporizhzhia, Ukraine, vol. 2353, p. 267-276	Petrova O., Tabunshchik G., Arras P.
19	THE FRACTAL ANALYSIS OF SAMPLE AND DECISION TREE MODEL	Radio Electronics, Computer Science, Control. 2020. № 1 http://ric.zntu.edu.ua/article/download/201691/201609	Subbotin S. A., Gofman Ye. A.
20	Radial-Basis Function Neural Network Synthesis on the Basis of Decision Tree	Optical Memory and Neural Networks 2020, volume 29, p. 7–18 https://link.springer.com/article/10.3103/S1060992X20010051	Subbotin S.

21	Mathematical and software tools for decision making, pattern recognition and intelligent diagnosis	monograph / under the general. ed. S.O. Subbotin. - Zaporozhye: NU "Zaporizhzhia Polytechnic", 2020, 271 p.	Subbotin S., Oliynyk A., Fedorchenko E. et al.
22	Investigation and Realization of Prototyping Technologies for Robotic-Prostheses Computer Aided Design	Proceedings of XV International Conference on The Experience of Designing and Application of CAD Systems in Microelectronics, 26 February – 2 March, 2019, Lviv-Polyana, Ukraine, Los Alamitos: IEEE, 2019. - p. 7/5-7/8.	Parkhomenko A. , Gladkova O. , Zalyubovskiy Y.
23	Research and Development of the API for Personal Health Record	Proceedings of Second International Workshop on Computer Modeling and Intelligent Systems, April 15-19, 2019 Zaporizhzhia, Ukraine, vol. 2353, p. 303-312	Parkhomenko A., Tyshchenko I.
24	Innovative training for the introduction of innovative technologies in the field of artificial implants	Proceedings of the I International Science and Technology Conference on Prospects for the development of mechanical engineering and transport: int. scientific-practical conf., May 13 - 15, 2019, Vinnytsia, VNTU, p.150-152	Tabunshchik G., Parkhomenko A., Subbotin S. et.al
25	Parametric modeling in the computer aided design of an individual spinal implant	Proceedings of III All-Ukrainian scientific-technical. conf. on Modern information technologies, automation tools and electric drive, April 23-24, 2021, Kramatorsk, DSEA, 2021, p. 172-175	Myronenko N.V., Gladkova O. M., Parkhomenko A.V.
26	INFLUENCE OF PLASTIC DEFORMATION ON MECHANICAL PROPERTIES OF MAGNESIUM-BASED ALLOY OF MEDICAL PURPOSE	Proceedings of the IX International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology, October 03-05, 2018, Zaporizhzhia, NUZP, p. 281-282	Abdulov O.R., Tarasov O.F., Shalomeev V.A. , Gribkov E.P.
27	DEVELOPMENT OF A SYSTEM FOR 3D HUMAN SCANNING	Proceedings of the IX International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology, October 03-05, 2018, Zaporizhzhia, NUZP, p. 285-286	Gladkova O.M., Khorzeev I.O.
28	RESEARCH AND DEVELOPMENT OF INTERNET of THINGS	Proceedings of the IX International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering,	Zalyubovskiy Y.I. , Parkhomenko A.V.

	SERVICES FOR HEALTHCARE	telecommunications and information technology, October 03-05, 2018, Zaporizhzhia, NUZP, p. 291	
29	RECOMMENDATION SYSTEM FOR SELECTION OF MEDICAL EQUIPMENT	Proceedings of the IX International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology, October 03-05, 2018, Zaporizhzhia, NUZP, p. 296-297	Kushch A.V., Frolova A.Yu., Parkhomenko A.V.
30	EMBEDDED BIOMEDICAL SYSTEMS AND WIRELESS SENSOR NETWORKS	Proceedings of the IX International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology, October 03-05, 2018, Zaporizhzhia, NUZP, p. 300-301	Parkhomenko A.V., Tulenkov A.V.
31	SOFTWARE AND HARDWARE COMPLEX for CARDIO DATA MONITORING	Proceedings of the IX International Scientific and Practical Conference on Current issues and achievements in the field of radio engineering, telecommunications and information technology, October 03-05, 2018, Zaporizhzhia, NUZP, p. 304	Presaizen E.R., Tulenkov A.V., Parkhomenko A.V.