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Chernihiv Polytechnic National University



Erasmus+ Project 101127683

**Digital transformation of HEIs education process in Ukraine and Moldova for
sustainable engagement with enterprises
D1.3 report**

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<https://stu.cn.ua/en/>

2nd Management meeting and 2nd workshop of WP1
April 11, 2024, NKUA, Athens, Greece



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WP1: Need analysis of DIGITRANS stakeholders 1 -

D1.3 Studies and Report on curricula, needed to the labour market of UA and MD

CPNU D1.3 report contains:

- a) the results studies – survey of stakeholders and conclusions and recommendations on curricula, needed to the labour market of UA;
- b) provide a competence framework needed for the labour market of UA.



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The results studies – survey of stakeholders and conclusions and recommendations on curricula, needed to the labour market of UA

Time of the survey

The survey of the representatives of academic and scientific staff, as well as the representatives of potential employers, was conducted in March 2024

The reason of selection of particular respondents:

The survey involved respondents who are experienced specialists in the fields of science related to digitalization processes, namely: computer engineering, industrial automation, electronics, electrical engineering and electromechanics, robotics.

Among representatives of industry preference was given to employers of enterprises that are interested in training specialists in the above areas, including military organizations. As for academic representatives, the heads of departments of leading UA technical universities and scientists of the National Academy of Sciences of Ukraine took part in the survey. The general principles of the selection of experts for this survey were their high competence and broad representation both from different regions of Ukraine, and professional activity, including military-technical directions.



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Participants in the survey

In total, 6 academic staff representatives and 6 employers (including project partner - SNT Ukraine company) participated in the survey.

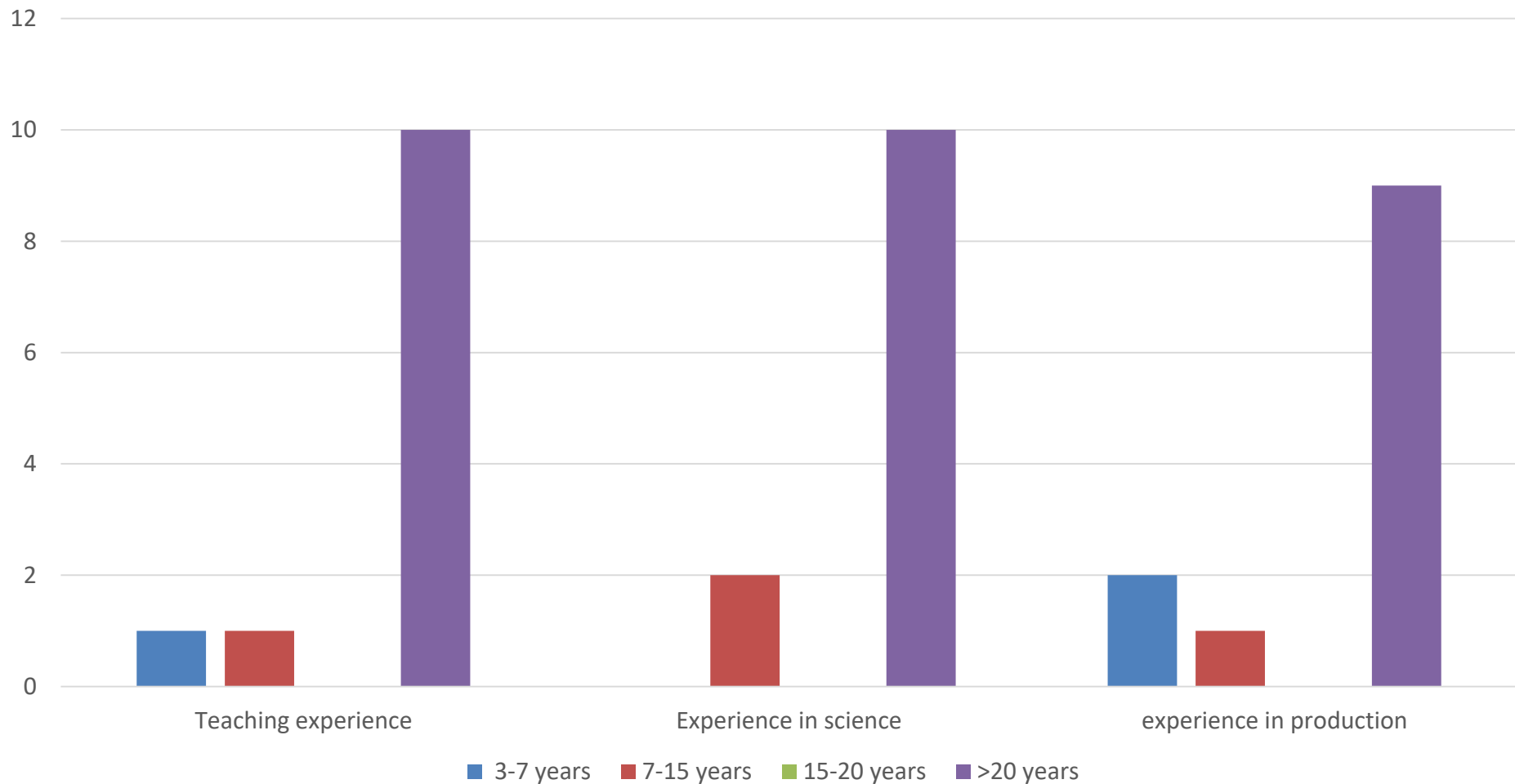
Number	Academic staff	Position
1	Oleh Bisikalo	Head of the Automation and Intelligent Information Technologies department, Vinnytsia National Technical University
2	Yurii Denysov	Head of Electronics, Automation, Robotics and Mechatronics department, Chernihiv Polytechnic National University
3	Volodymyr Opanasenko	leading researcher of Microprocessor Technology department, V/V? Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine
4	Oleksandr Shefer	Head of Automation, Electronics and Telecommunications department, National University "Poltava Polytechnic named after Yury Kondratyuk"
5	Volodymyr Voloschuk	Head of automation of energy processes department, National University "KPI named after Igor Sikorsky"
6	Heorhii Vorobets	Head of Computer Systems and Networks department, Yuriy Fedkovych Chernivtsi National University

Number	Employers	Position
1	Volodymyr Ivanov	Deputy chief designer, PJSC CheZaRa
2	Igor Lapygin	Director of IT department, Joint Stock Company «Chernihvoblenergo»
3	Igor Lysenko	Director, Sid Studio LLC
4	Maxim Solodchuk	Colonel, head of Military Training department, Chernihiv Polytechnic National University
5	Oleg Starovoitenko	Head of the Marketing Department, SNT Ukraine
6	Olena Bursala	Senior researcher of the State Research Institute of Testing and Certification of Weapons and Military Equipment of Ukraine



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Distribution of Experts' experience



Study programs, courses etc. that were evaluated by representatives of academic staff and employers.

Course title	Updated or newly	Level	ECTS credit	Methodical position	Date of accredit.	The status
Study program “Computer Engineering”						
Microcontroller Systems Programming	new	Bachelor	6	Elected	2024	In process
Systems on Chip	new	Bachelor	4	Elected	2024	In process
Design of Digital Devices	new	Bachelor	5	Mandator	2024	
Study program “Telecommunications and Radio Engineering”						
Electrical Circuit Design	updated	Bachelor	12	Mandator	2024	In process
Study program “Telecommunications and Radio Engineering”						
Digital Systems of Telecommunications	updated	Master	5	Mandator	2024	In process
Study program “Electronics of robotic systems and complexes”						
Digital electronics devices	updated	Bachelor	11	Mandator	2024	In process

The link to the university’s website: <https://stu.cn.ua/wp-content/uploads/2024/03/developed-courses.pdf>



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Description of the means and channels used in the survey

The survey was conducted according to a previously prepared and distributed questionnaire, the same for both academic representatives and employers, online by reason of wartime in Ukraine.

The Questionnaire of the peer review of experts by courses of study programs was some changed related to published forms and consisted from 12 questions on base courses' characteristics including:

- **common course estimation (the inclusion in the specified educational program, selected or mandatory, the percentages of theoretical and practical subject training, possibilities of organization in practical training in the course, interesting *in specialists* in the field of course);**
- **detailed course estimation (competencies' distribution between formal knowledge, critical thinking skills, cause-and-effect analysis, practical experience, independent thinking, ability for non-standard approaches or methodical forms of teaching such as testing, control works, writing essays, workshops)**
- **recommendation and suggestions as for course information resources, studied software tools and hardware devices, importance of this course, 3 the most important points for mastering the course, any suggestions for the implementation of this course.**



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Survey analysis results

- **100 percent support of the planned courses, but 1 offered to change the name from "Digital Systems of Telecommunications" to "Telecommunications systems";**
- **75% of experts spoke to change the positioning of the "Microcontroller Systems Programming" course from elected to mandatory and same proposition as for "Systems on Chip" course from 50% of experts, 58% recommend to change "Design of Digital Devices" course from mandatory to elected;**
- **the distribution of theoretical and practical parts should be with a slight advantage over practical training in the ratio of 60/40%;**
- **the vast majority of respondents (from 67 to 92%) agreed to facilitate practical training on the specified courses, and the interest in specialists studying these courses was from 75 to 92%;**
- **proposed information resources include electronic libraries, official websites and Internet resources, special educational literature, manufacturers' documentation and courses of foreign universities in a native languages, corporate documentation and a wide range of integrated design environments, author's practical courses**
- **Suggestions as for software tools and hardware equipment included 33 names;**
- **General proposals concerned practical work, the availability of modern laboratory equipment, the student's free access to the equipment, Tasks will be focused on real projects and the needs of the market and the Ukraine. It is needed to develop a program that covers the main theoretical aspects of programming microcontroller systems, the application of digital telecommunications systems in practice.**



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