DesIRE

TEMPUS-project 544091-TEMPUS-1-2013-1-BE-TEMPUS-JPCR

P04-ZNTU report on activities
from 1.12.2013 till 1.12.2014

Overall achievements

Performed curricula analysis technique

Considered 8 specialties/49 disciplines related to Embedded Systems:

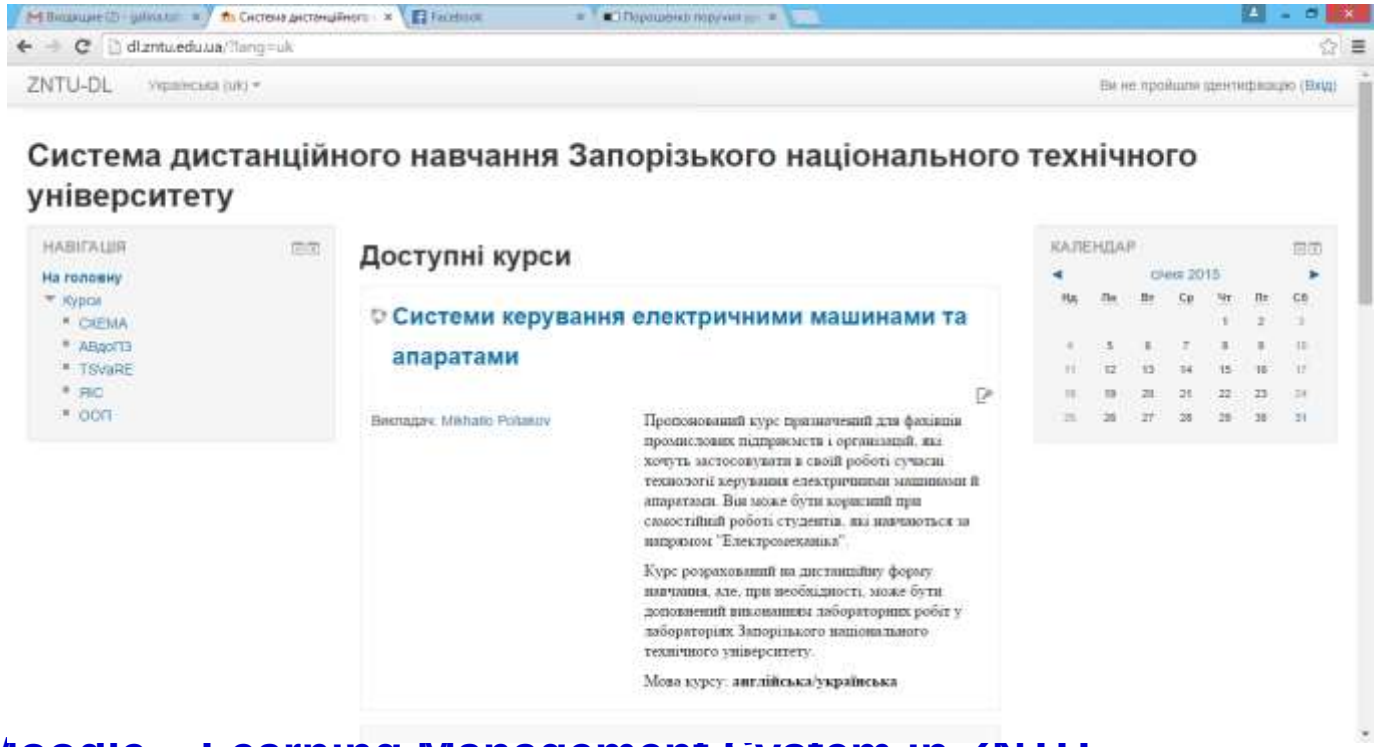
- Electrical machines and apparatus
- Electromechanical automation systems and electric drive
- Radio electronic devices and tools
- Micro-and nanoelectronic devices and equipment
- Computer systems and networks
- Specialized computer systems
- Software Systems
- Information technologies of design

- Performed analysis of the existing E-learning resources

- Developed questionnaires for the survey of employers and students by ZNTU

http://serv-peter.no-ip.org:8000/questions/

- Established LMS platform



Moodle – Learning Management System in ZNTU

http://dl.zntu.edu.ua/

Development of programmes and courses

- Responsible of implementation of Project Modules

Galina Tabunshchyk - ZNTU Project Manager, Ph.D., associate professor of Software Tools Department;
Alexander Andriyenko - Assistant of rector for International Cooperation, Quality Manager, Ph.D, professor of Electrical Apparatus department;
Anatoliy Pritula - Ph.D, Professor of Software Tools Department;
Anzhelika Parkhomenko - Manager of UECG, Ph.D., associate professor of Software tools department;
Andriy Parkhomenko, Engineering Physics Faculty, Deputy Head of Teaching department, PhD, associate professor,
Anna Nelasa, Faculty of Radio Electronics and Telecommunications, Department of Information Protection, PhD, associate professor,
Tatiana Yur, Faculty of Computer Science and Technology, Software Tools Department, PhD, associate professor/

Modules implemented in curricula in 2014/2015

	Discipline	Specialty	Responsible
1	MCAD structural design, Pro Engineer	Software Engineering	Assoc. Prof. Anzhelika Parkhomenko
2	Embedded Software Development	Software Engineering	Galyna Tabunshchyk
3	GUI development	Software Engineering	Sergiy Serduik
4	Remote Labs and Virtualizations	Software Engineering	Anzhelika Parkhomenko
5	Soft Skills for engineers	Software Engineering	Anna Nelasa
6	Quality Engineering	Informational Technology of Design	Galyna Tabunshchyk
7	ES Software Testing	Artificial Intelligence	Galyna Tabunshchyk

Restructuring: university management and governance

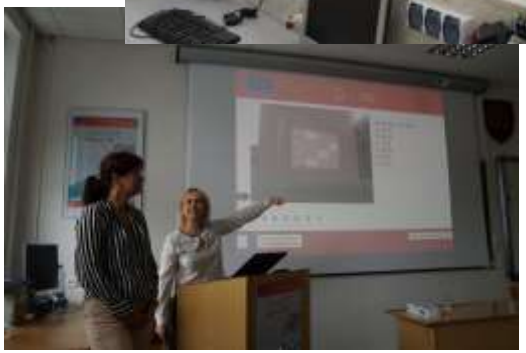
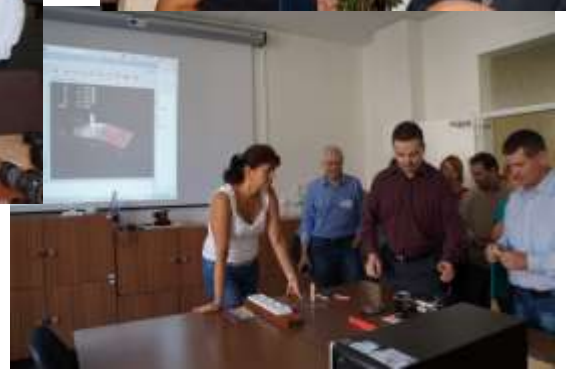
New laboratory of embedded systems and remote engineering was established

Staff training

- Criteria for teachers selection for the re-training

1) English proficiency of "conversational" level
2) Teaching related disciplines
3) Scientific interests in embedded systems field
4) Preliminary study of the materials submitted by partner countries.

- Summer course «New teaching approaches in Engineering» in UKF, Nitra, Slovak Republic (September, 2014)

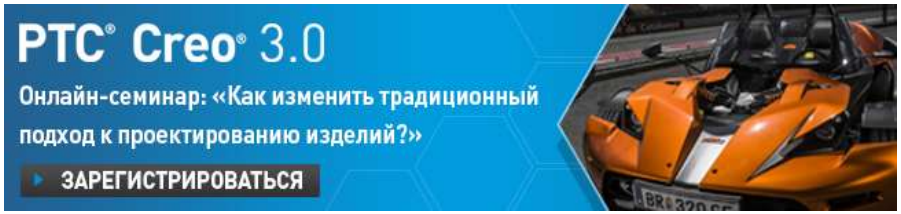



http://www.zntu.edu.ua/?q=node/2464

- Organizing courses for the teachers and researchers in ZNTU

http://zntu.edu.ua/seminar-metody-dystanciynogo-elektronnogo-navchannya-v-osviti

- Participation in the webinars by PTC (October 23, 2014), by Altium Limited (December, 2014) and by the Boris Grinchenko Kyiv University (November, December, 201



PTC® PRODUCT & SERVICE ADVANTAGE®

(http://zntu.edu.ua/do-uvagy-vykladachiv-zntu)

Staff mobility

Kick-off meeting

Representatives:
Assoc. Prof. Galyna Tabunshchyk
Assoc. Prof. Anzhelika Parkhomenko

- Regional meeting (Kiev, May 2014)

Representatives:
Assoc. Prof. Galyna Tabunshchyk
Assoc. Prof. Anzhelika Parkhomenko

http://www.zntu.edu.ua/?q=node/2392,

- Summer course «New teaching approaches in Engineering» in UKF, Nitra, Slovak Republic (September, 2014)

Representatives:
Assoc. Prof. Galyna Tabunshchyk
Assoc. Prof. Anzhelika Parkhomenko

http://www.zntu.edu.ua/?q=node/2464

Academic co-ordination and administrative management

- Expert Panel

Galina Tabunshchyk - ZNTU Project Manager, Ph.D., associate professor of Software tools department.
Alexander Andriyenko - Assistant of rector for International Cooperation, Quality Manager**,** Ph.D**,** professor of Electrical Apparatus department.
Anatoly Pritula – Ph.D, Professor of Software Tools Department
Anzhelika Parkhomenko - Manager of UECG, Ph.D., associate professor of Software tools department
Larisa Duiko - leading specialist of International relations department

- Departments involved in the project

- Software Tools
- Information Technologies of Electronic Devices Design
- Electrical Apparatus
- Electrical Machines
- Computer Systems and Networks
- Electric drive and automation of industrial plants

Equipment

Software, purchased by the project March-May, 2014

PTC Creo 2.0
(500 licenses)

ALTIUM Designer
(20 licenses)

Tempus

Equipment for ESD Laboratory arrived 14.01.2015

Видаткова накладна № ВН-14012015-2
від 14.01.2014

Найменування обладнання	Кількість	Ціна, грн.	Сума, грн.
Сервер на базі шасі DELL T110 II QC E3-1230v2 з програмним забезпеченням Microsoft Windows Server 2012 Std з такими параметрами: • 3.3GHz PERC H200 NHP DVD+I-RW • ОЗУ 16Г5 • НЖМД 2*1000Г5 • Клавіатура • Мишка	1	30710,00	30710,00
ПК Engler модель "Impression" з програмним забезпеченням Microsoft® Windows® Professional такими параметрами: • Процесор Intel Core i3-4150 3.6GHz 3Mb BOX LGA1150 • ОЗУ DDR3 1600MHz 2x2Gb • НЖМД 500GB SATA • DVDRW • Корпус 350W • Клавіатура • Мишка	8	8860,25	70882,00
Монітор LED LCD Samsung S24D300H Black D-Sub	8	2894,25	25958,25
		Всього	127550,25

Всього на суму без ПДВ: 127550,25 Грн.

ЗАТВЕРДЖУЮ
ФОП «Кохан Я.О.»
"Кохан Я.О.
2015 р.

ЗАТВЕРДЖУЮ
Ректор ЗАПОРІЗЬКОГО НАЦІОНАЛЬНОГО ТЕХНІЧНОГО УНІВЕРСИТЕТУ
Батієв С.Б.
2015 р.

АКТ №____

здачі-прийняття обладнання та робіт по монтажу
згідно проекту № 544081-TEMPUS-1-2013-1-BE-TEMPUS-JPCR

м. Запоріжжя «___» ____ 2015 р.

Комісія у складі

Від Отримувача — Дубровін В.І.

Від Виконавця — Кохан Я.О.

Ми, представники Отримувача Запорізького Національного Технічного Університету Дубровіна В.І., з одного боку, та представник Виконавця фізичної особи підприємця Кохан Я.О., з іншого боку, склали цей акт про те, що Виконавцем було передано наступне обладнання та були проведені такі роботи з монтажу локальної мережі для лабораторії вбудованих систем та віддаленої інженерії на загальну суму 26912,75 грн. (двадцять шість тисяч дев'ятсот дванадцять гривень, сімдесят п'ять коп.)

№	Роботи	Од. виміру	Кількість	Ціна, грн.
1	Монтажні та калібрувальні роботи	шт.	1	2500

При виконанні робіт були використано наступне обладнання та витратні матеріали

Найменування обладнання	Кількість	Ціна, грн.	Сума, грн.
Комутатор HP ProCurve 1410-16G (J9660A)	1	3200	3200
Кабель вита пара FTP 1ie ATcom (Вух.305м) 0,50мм жіда	1	2100	2100
Коннектор RJ45 упаковка 100шт	1	205	205
Шкіряний монтаж упак 100шт	1	200	200
Патч-корд литий, UTP, RJ45, Cat.5e, 3m, сірий	16	115	1840
Комплект кріплення гвинт+тайлаг+шайба, дробели, стовпи	1	300	300
Розетка RJ-45 cat 5 1x UTP, Intellinet	16	105	1680

2

бладнання	Кількість	Ціна, грн.	Сума, грн.
енням Shneider	18	89	1602
енням Makel	1	70	70
5 мм², 1м	100	14	1400
2 автомат	1	230	230
автомат	1	140	140
7-29 M-1p-25A	10	226	2260
7-29 M-3p-63A	1	196	196
	5	65,75	328,75
	16	39	624
істиковий з кришкою мм, 1м	7	125	875
істиковий з кришкою мм, 1м	18	155	2790
установки в короб	8	130	1040
для установки в	6	190	1140
вішний	1	78	78
тр 65	1	15	15
ою розеток 1м	2	290	580
а	4	258	1032
	1	325	325
	6	27	162
	Всього матеріалів:		24412,75
	Всього по акту:		26912,75

режа для лабораторії вбудованих систем та віддаленої біт Виконавцем перевірена у присутності представника грамні засоби" Дубровіна В.І. та зав. лаб. каф. ПЗ необхідним вимогам. Виконані Виконавцем роботи м та прийняті повністю. Отримувач ніяких претензій до ння та строкам проведення робіт не має.

Від Отримувача

О. / _____ / Дубровін В.І. /

_____ / Калініна М.В. /

Erevan
02 February, 2015

DesIRE

Dissemination

- Best Job Fair, ZNTU, April, 2014

http://www.zntu.edu.ua/best-job-fair-2014

- Dissemination meeting, Porto, February, 2014

- Dissemination meeting, ZNTU, March, 2014

ICo-op
Industrial Cooperation and Creative Engineering Education based on Remote Engineering and Virtual Instrumentation

CERES

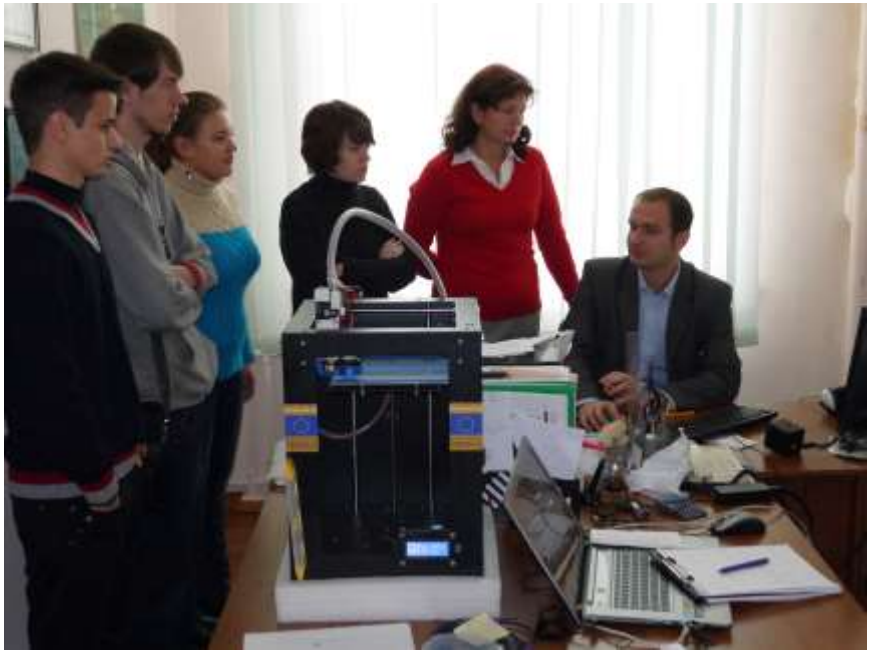
DesIRE

ENGINEERING & TECHNOLOGY ENGITEC

http://zntu.edu.ua/vzaiemodiya-proektiv-tempus-u-zntu

- Dissemination meeting, ZNTU, April, 2014

- Dissemination meeting, December, 2014



http://zntu.edu.ua/synergiya-proektiv-desire-ta-engitec

Signed agreements on cooperation ZNTU-Enterprises in the framework of the project

http://www.zntu.edu.ua/zustrich-studentiv-z-robotodavcyami-predstavnikami-grupi-kompaniy-aktiv

- Dissemination through web resources

http://www.zntu.edu.ua/?q=node/2198

http://www.zntu.edu.ua/?q=node/2280

- Dissemination through posters and flyers

Tempus

Informational bulletin prepared

Tempus DesIRE

First Informational Bulletin

1.12.2013-31.05.14

Development of Embedded Systems Courses with implementation of Innovative Virtual approaches for integration of Research, Education and Production in UA, GE, AM

Tempus DesIRE

CONSORTIUM

Development of Embedded Systems Courses with implementation of Innovative Virtual approaches for integration of Research, Education and Production in UA, GE, AM

Tempus DesIRE

Development of Embedded Systems Courses with implementation of Innovative Virtual approaches for integration of Research, Education and Production in UA, GE, AM

- Publications of project results

1) XI International Conference on Remote Engineering and Virtual Instrumentation (REV2014), Porto, Portugal, February, 2014

2) XII International Conference “Modern Problems of Radio Engineering, Telecommunications and Computer Science” (TCSET’2014), Lviv, Ukraine, February- March, 2014

- Publications of project results

3) The 18th International Youth Forum «Radio electronics and youth in the XXIst century» (Kharkiv, Ukraine, April, 2014)

4) Annual scientific conference «Science Week ZNTU-2014», (Zaporizhzhya, Ukraine, April, 2014)

5) Xth International Conference «PERSPECTIVE TECHNOLOGIES AND METHODS IN MEMS DESIGN", (Lviv, Ukraine, June, 2014)

- Publications of project results

6) Scientific-practical conference «Modern Problems and Achievements of Radio Engineering, Telecommunications and Information Tecnology», (Zaporizhzhya, Ukraine, September, 2014)

7) International scientific-practical Conference «Internet-Education-Science-2014», (Vinnitsa, Ukraine, October, 2014)

Sustainability

- University-Enterprise Contact Group

Mykola Iefymenko	Manager of research-and-production enterprise “Khartron-Yukom”
Andrii Spakhy	Manager of Automation Department of public joint-stock company “Zaporozhtransformator”
Olexii Basov	Manager of technical documentation division of public joint-stock company “Motor Sich”
Mykola Artem’yev	General director of “Sterling Group Ukraine” Ltd
Olexandr Kuznetsov	Manager of bureau of Internet technology and industrial design of automated production control system department of research-and-production trust “Iskra”
Oleg Pozdnyakov	Consulting director, "Brig-Retail" Ltd.
Olena Zhytova	Head of the Department of professional orientation of Zaporizhzhya region placement service

- Sustainability: MSc and Specialist Diploma works by ZNTU students

•Iegor Borodai (supervisor G. Tabunshchyk) «Investigation and development of real-time multimedia tools for iOS»
•Olexandr Drin (supervisor G. Tabunshchyk) «Development of web-oriented context of on-line course»
•Olga Kahytyna (supervisor A. Parkhomenko) «Automated system for radiators structural optimization for cooling radioelectronic devices»
•Jaroslav Zalyubovskiy (supervisor A. Parkhomenko) «Information system for distance learning and support of staff knowledge»
•Olga Gladkova (supervisor A. Parkhomenko) «Methods and tools of embedded systems computer-aided design»

- Sustainability: Bachelor Diploma by ZNTU students, spring 2014

•Oleksiy Smirnov (supervisor G. Tabunshchyk) «Development services for interaction of web-oriented systems»
•Sergiy Kurson (supervisor G. Tabunshchyk) «Simulator of industrial robot»
•Rodion Byelka (supervisor G. Tabunshchyk) «iOS GUI development for remote laboratory
•Arthur Perepelytsya (supervisor A. Parkhomenko) «Software of mathematical models formation for the tasks of tolerances design»
•Maxim Shilo (supervisor A. Parkhomenko) «Development of information environment for business processes optimize project»

Quality control and monitoring

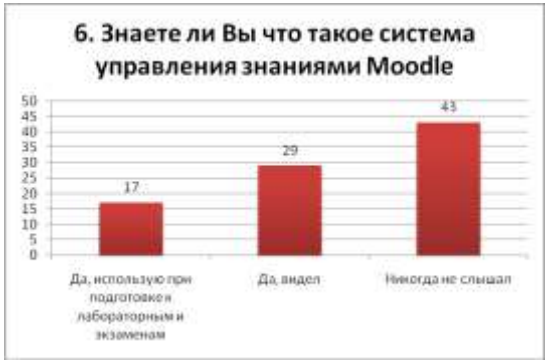
- Students opinion analysis

Participated in the survey 90 students of following directions of training:

- **Software Engineering**
- **Computer Science**
- **Electromechanics**
- **Electrical engineering and electrotechnology**
- **Computer Engineering**
- **Radio-electronic devices**

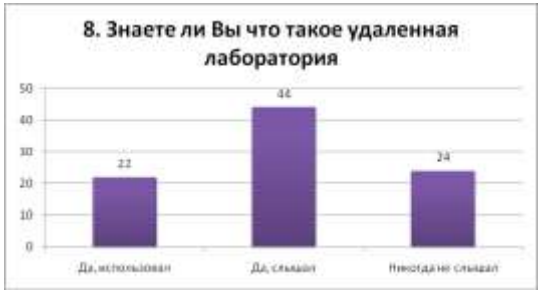
- Students opinion analysis

What is embedded systems



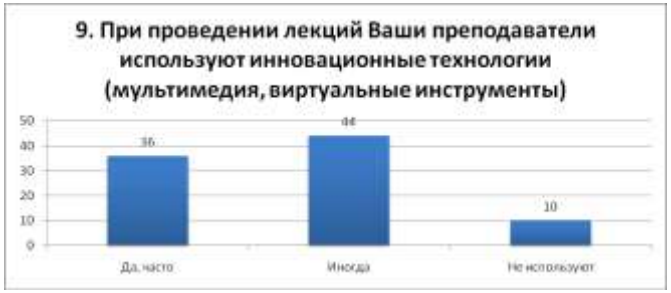
What is LMS Moodle

What is a Virtual Laboratory

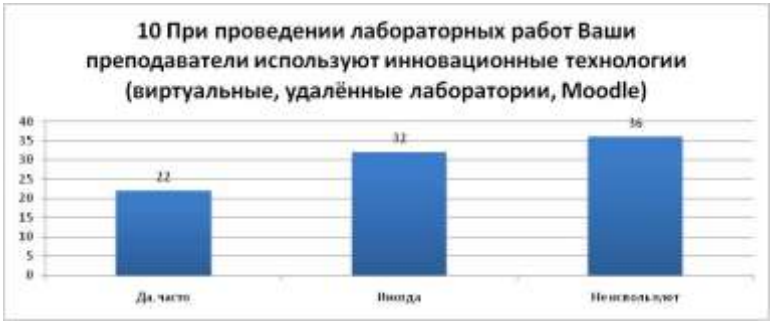


What is a Remote laboratory

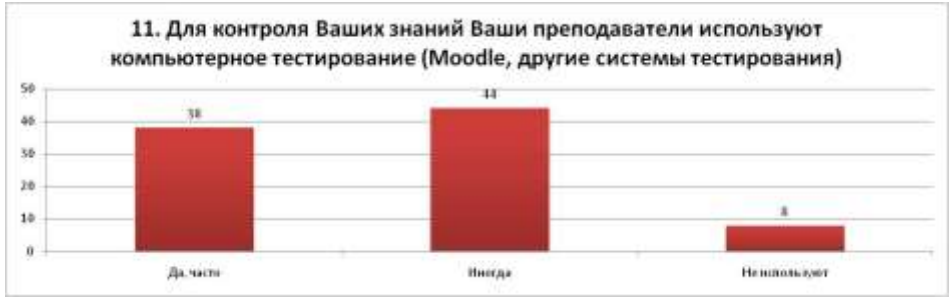
- Students opinion analysis



The use of innovative technologies in the lectures



The use of innovative technologies in the labs



Using computer-based testing

- Students opinion analysis

The most important disciplines in the opinion of students

- GUI development
- New teaching approaches in Engineering
- Multicore Programming
- Soft Skills for engineers
- Digital Electronics
- Digital System Design

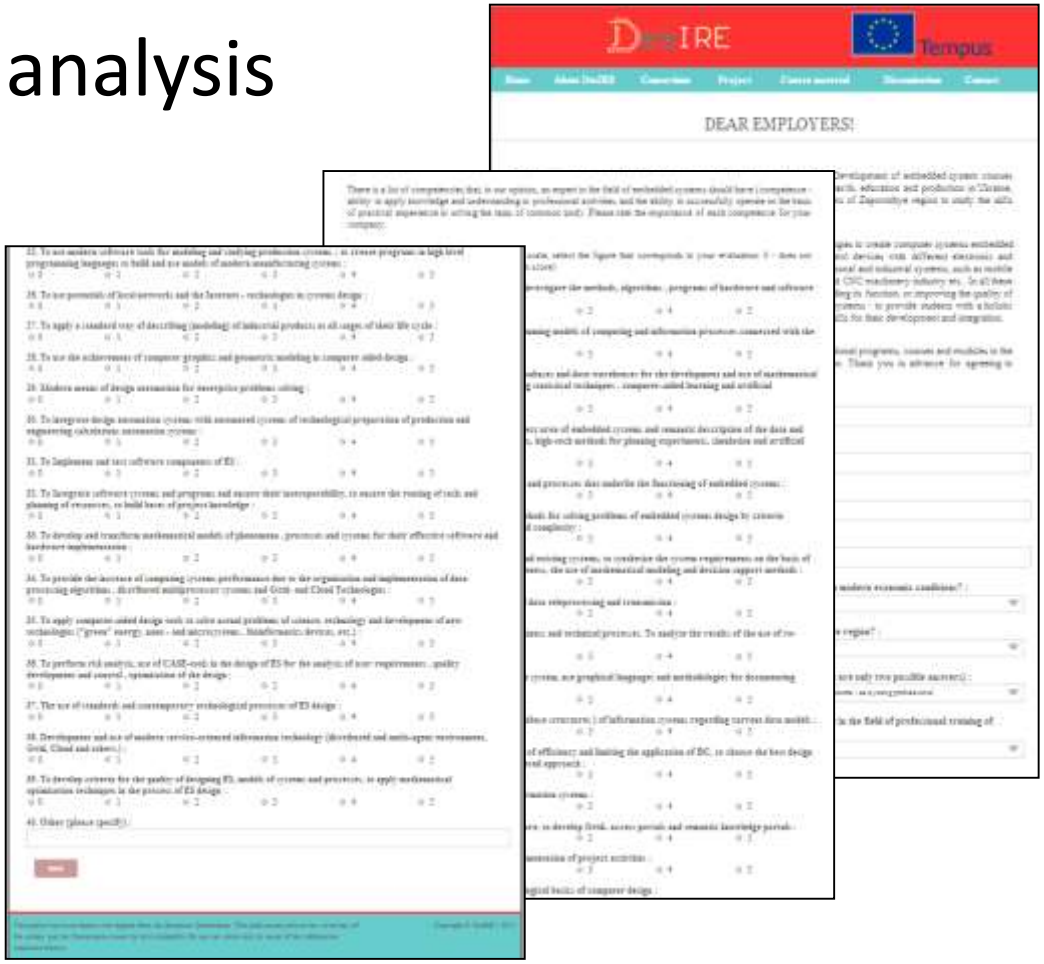
- Labor Market Analysis

- Employers opinion analysis

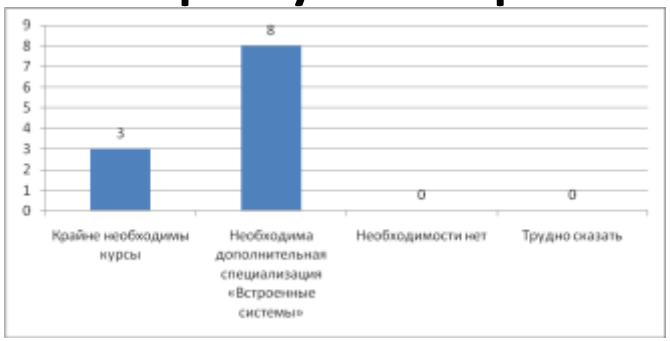
Participated in the survey:

11 companies – employers:

- NPP Hartron-Yukom,
- JSC ZTR,
- KP NPK Iskra,
- "Brig-Retail" Ltd,
- Bmuse,
- Cupid
- LLC "Prohservys",
- Energoavtomatizatsia,
- LynxInnovation and others.

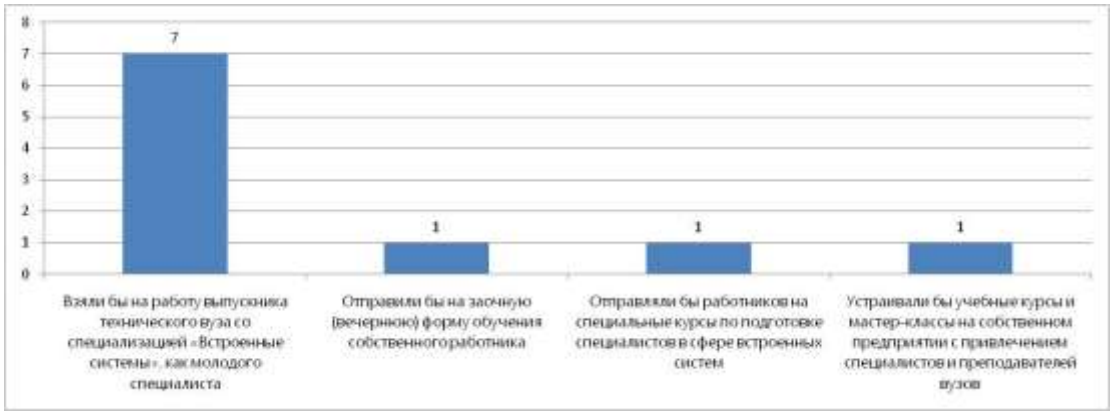


- Employers opinion analysis



Necessity of specialists in the field of embedded systems

Necessity of additional specialization "Embedded Systems"



- Employers opinion analysis

Key competencies:

- «Using of opportunities of local networks and the Internet - technologies in systems design»
- The implementation and testing of ES software components»

Gender balance

Thank You for Your Attention