

YEARS KHARKIV NATIONAL UNIVERSITY OF RADIO ELECTRONICS

1930-2020

Results of Activities of Kharkiv National University of Radio Electronics in 2020



About 5,000 spectators joined the celebrations online

YEARS

NURE

1930-2020

HARKIV NATIONAL Iniversity of Radio Electronic:





Congratulations were sent by more than 100 partners of NURE. More than 20 employees received the awards of the Ministry of Education and Science on the occasion of the anniversary.



¹⁹³⁰⁻²⁰²⁰ On October 2, 2020 by Decree of the President of Ukraine NURE scientists



O. Avrunin, I. Nevlyudov, V. Semenets and O. Filipenko were awarded the State Prize of Ukraine in the field of education in 2019 in the category "Vocational Education" for the work: "Integrated Information and Educational Environment and Rehabilitation Measures to Ensure Equal Access to Quality Education for People with Special Educational Needs"



According to the Law of Ukraine "On Higher Education" ⁴ by the order of the Ministry of Education and Science of Ukraine as of 09.10.2020 Nº 1249 the Supervisory Board was created in the Kharkiv National University of Radio Electronics

Information on the members of the Supervisory Board is posted on the official website of NURE: https://nure.ua/en/branch/supervisory-board

About University

Management

Supervisory Board

Academic Council

Structure

World Ranking

Sustainable Development Goals

International Activity

IT-space NURE

Charitable Activity

NURE Honorary Professors

For Alumnus

Contacts

Ministry of Education and Science of Ukraine NURE → Other departments → Councils → Supervisory Board

SUPERVISORY BOARD



In accordance with the Law of Ukraine "On Higher Education" in the Kharkiv National University of Radio Electronics by the order of the Ministry of Education and Science of Ukraine from 09.10.2020 Nº 1249 created a Supervisory Board to supervise the management of property of higher education, compliance with the purpose of its creation. The Supervisory Board of the University promotes the solution of promising tasks of its development, attracting financial resources to ensure its activities in the main areas of development and control over their use, effective interaction of higher education institutions with government agencies and local governments, academia, socio-political organizations and business entities in the interests of development and improvement of the quality of educational activities and competitiveness of higher education institutions, exercises public control over its activities, etc.

Ivan D. Gorbenko Chairman of the Supervisory Board



A PANDEMIC IS A NEW REALITY OF THE MODERN WORLD

NURE CONTINUES TO WORK UNDER QUARANTINE

13.04.2020

NURE

1930-2020

FARS

KHARKIV NATIONAL University of Radio Electronics

To prevent the spread of Coronavirus disease, the Kharkiv National University of Radio Electronics has quarantined but continues to work remotely. University staff who carry out their duties in the workplace and maintain the university's livelihoods with personal protective equipment.

Measures have been developed to enable university staff to work remotely. Workers who have been transferred to idle mode receive an average wage. Meetings of the Rectorate, Chairs, Academic Councils and Scientific and Methodological Commissions are also held electronically.

Kharkiv National University of Radio Electronics continues the educational process in quarantine. Students and staff of the university are offered a teaching tool. Namely, the NURE distance learning system was created on the Moodle platform (a modular object-oriented dynamic learning environment. Google G-Suite for Education services are also used to organize the educational process with ClassRoom and HangoutsMeet, as well as Telegram messengers , and Viber.

It should be noted that during the quarantine period, the presence of unauthorized persons in the premises of student dormitories, settlement in the dormitories of students without medical certificates, holding meetings, celebrations and other events by students is prohibited



Поделиться 0

in Share

Distance learning during COVID-19 KHARKIV NATIONAL University of Radio Electronics a worthy answer to the challenge of time

NURE considers quality education a priority and continues the educational process in quarantine conditions. The University has made every effort to establish and support the educational process through distance learning technologies

YEARS

NURE

1930-2020



During 2020, the service was actively used by:

- more than 9000 users:
- 8371 students
- 668 teachers
- **12** curators of categories
- 4 administrators

In the spring semester 1417 modules were created and actively used. As of September 1, 2020, 2,042 discipline modules have been created. As of October 1, 2020, the number of regular users was over 7,500 per day.



Comparison of admission for the 1st year **Bachelor's** degree program in 2016, 2017, 2018, 2019 and 2020



Official University Instagram channel NURE_official was created in 2019

According to UniRank Instagramchannel NURE_official in 2020 got the first place by popularity in Ukraine



KIIIIure_onici	al
227 публикаций	17,9тыс . г
ХНУРЕONURE	
ПТОП-800+ універс	итетів світуl
Перший серед кра	ащих
• T I · · · · ·	

khouro official Om





NURE TV

3,35 thousand subscribers

Media channel «NURE_TV» got the 6th place among 172 media channels of Ukraine's universities

Students' Media

- Facebook «NURE Students TV» (number of subscribers 3697)
- Twitter (1487 twits)
- TicTok (new media project, more than 100 000 views, 12 000 likes, over 500 reposts)
- Telegram (399 subscribers)

8



- 1930-2020 In the Times Higher Education World University Rankings 2021
 NURE ranks in a group 801-1000 including Computer Science subject ranking 301-400 and Engineering and Technologies 601-800;
 - In the Impact Ranking 2020 NURE ranks within the range 601+;

ITY OF RADIO ELECTRONICS

NURE

- In the Regional Ranking Quacquarelli Symonds QS EECA NURE ranks within the range 251-300;
- In Webometrics Ranking of World Universities as of July 2020 NURE occupied 7th place among 320 Ukraine's universities for the first time;
- In Transparent Ranking (Top Universities by Google Scholar Citations) by Webometrics in July 2020 NURE occupied 9th position;
- In the International Comparative Ranking U-Multirank 2020 NURE ranks 3rd in Ukraine as for the number of the best indicators;
 - in «TOP-200 Ukraine» in 2020 the University ranked 9;
 - in the "Consolidated rating of Ukraine's universities" in 2020 the University took 11-12 position among 237 universities;
 - in the rating from "Vstup.osvita.ua" by the number of persons enrolled in training at the expense of the state budget, NURE took 8th place.







Country Rank: 7 World Rank: 2770





ÆARS

Kharkiv National University of Radio Electronics RANKED 301–400 FOR COMPUTER SCIENCE



Kharkiv National University of Radio Electronics RANKED 601–800 FOR ENGINEERING



In the Times Higher Education Computer Science subject rating NURE ranked in the group 301-400 and the 2nd place in Ukraine

In the Times Higher Education for Engineering NURE ranked in the group 601-800 and the 3rd place in Ukraine



Number o international students 823 (full time – 771; extramural form of study – 52)

Enrolled in training : academic year 2019/2020 Bachelors – 170 Masters – 29 Total – 199



academic year 2020/2021 Bachelors – 167 Masters – 43 Total – 210

Number of students of the Preparatory Department – 107



QS EECA Rating Results

SCORES BY INDICATOR : EECA 2020 EDITION



2020 SCORES BY INDICATOR (reputation poll threshold not cleared)



2021 EDITION



2021 SCORES BY INDICATOR (reputation poll threshold cleared)



RESEARCH OUTPUT BY SUBJECT AREA CITATIONS (EXCLUDING SELF-CITATIONS)

2020

The following charts depict the evolution of the number of citations (excluding self-citations) considered for the 2020 edition of the rankings. Since 2018's edition, we have extended the citation window to six years (2013-2018). It should be noted that we still consider papers published in a five vear period (2013-2017).



Engineering & Technology



Life Sciences & Medicine

0

2015



Social Sciences & Management

2016

2017

Natural Sciences



Citations by subject area **Excluding self**citations **Total number of** citations 2016 - 136; 2017 - 215



RESEARCH OUTPUT BY SUBJECT AREA CITATIONS (EXCLUDING SELF-CITATIONS)

2021

The following charts depict the evolution of the number of citations (excluding self-citations) considered for the 2021 edition of the rankings. Since 2018's edition, we have extended the citation window to six years (2014-2019). It should be noted that we still consider papers published in a five year period (2014-2018).



Engineering & Technology



Natural Sciences



Life Sciences & Medicine

2015

Arts & Humanities



3

2016

Social Sciences & Management

2016

2017

2018

21

2015



Citations by subject area **Excluding self**citations **Total number of** citations 2016 - 237; 2017 - 413; 2018 - 163



1930-2020

PAPERS PER FACULTY 2 nd place in Ukraine



Number of International Students ₁₇ 6 th place in Ukraine Україні

# RANK	UNIVERSITY	INTERNATIONAL STUDENTS	
2021 🗸	Uni Search Q	4₹	
21	<u>V. N. Karazin</u> <u>Kharkiv National</u> <u>University</u>	94.3	
35	<u>Sumy State</u> <u>University</u>	83.68	
83	<u>State University</u> <u>"Uzhhorod</u> <u>National</u> <u>University"</u>	53.66	
104	<u>Simon Kuznets</u> <u>Kharkiv National</u> <u>University of</u> <u>Economics</u>	41.75	
130	<u>National Technical</u> <u>University</u> <u>"Kharkiv</u> <u>Polytechnic</u> Institute"	30.46	
132	Kharkiv National Uiversity of Radio Electronics	30.09	



YEARS KHARKIV NATIONAL UNIVERSITY OF RADIO ELECTRONICS



SCIENTIFIC ACTIVITIES RESULTS



SCIENTIFIC METRICSCOPUSINDICATORS



The number of employees with at least 5 publications in Scopus or Web of Science has increased to 224 people compared to 175 in 2019. The number of scientists with a Worse than Scopus index of more than 5 points has risen from 16 in 2020 to 40.

The number of publications in Scopus on 25.12.2020 is **3700**. In 2020, 305 publications have been indexed so far, compared to 448 in 2019. h-index of the University – **33**, compared to 30 in 2019.

Number of publications from the University in the Web of Science on 25.12.2020 – 1830. h-index – 27.

According to the open search engine Google Scholar h-index – 55, compared to 52 in 2019.





Important scientific results of 2020

Development of technology for detection and high-precision tracking of air objects

Responsible party : Department of Applied Mathematics, Department of Info communications, Experimental Plant



Optoelectronic module (without cover)



Optoelectronic module

Methods and algorithms for detection and high precision tracking of air objects have been developed



LASER OPTICS REGISTRATION SYSTEM Research Supervisor *Prof. Yu. Machekhyn*

The experimental sample is presented at the International Exhibition "Weapons and Security – 2019" (Kyiv, October 8 -11)

Purpose: detection and registration of optoelectronic devices (binoculars, video cameras, night vision devices, thermal imaging devices, optical sniper sights), including those with anti-reflective coating.



Responsible party: Department of PFEE, Experimental plant, CENTER FOR THE COLLECTIVE USE OF SCIENTIFIC EQUIPMENT



Scope: In the units of law enforcement agencies of the Ministry of Defense of Ukraine, the National Guard and the Border Guard as well as security services of enterprises and private facilities to identify the facts of unauthorized surveillance.



LM-10 LASER DIODE MODULE (NURE Experimental Plant)

Application of LM-10: Used as a new radiation source for the formation of the missile control field in the laser beam (Device 9C516, sight 1G46, ДОЗ "КРАБ")





Customers : "Photoprylad" Company, "Zolochivsky radio manufacturing plant", Kharkiv Morozov Design Bureau.



Implemented at Ukroboronprom State Enterprise



EARS

NURE

1930-2020

(HARKIV NATIONAL University of Radio Electronics



Nº	Parameter	Value	
1	Operating wavelength	1535 nm	
2	Max. measurement frequency	5 Hz	
3	Eye safety	Class 1	
4	Diameter of transmitting optics	12mm	
5	Diameter of receiving optics	50mm	
6	TDC measurement error	0,5m	
7	Maximum range	20km	
8	Minimum range	32m	
9	Interface	USB, RS422, UART	
10	Operational life	Over 100 mln pulses.	
11	Operating conditions	-40°C/+60°C	



Signal ensemble processing technology and recognition of radio emitting sources and objects in conditions of prior uncertainty № ДР 0119U 001406 *Research Supervisor. M Kalyuzhny (Ph.D)*

Recognition of air objects and identification of their types on the basis of unique methods of processing an ensemble of signals from electronic means with overcoming of a prior uncertainty.

Based on intellectual analysis, using the methods of artificial intelligence, the behavior of individual or groups of radio emitting objects, determining the expected scenarios of their further actions and levels of threats.





Experimental Plant, MST Department

HARKIV NATIONAL Niversity of Radio Electronics

NURE

1930-2020

Purpose: video quality control of marking of plastic products according to the set criteria.

The technology of "technical vision" is used. Quality control is carried out in real time by conveyor technology.



New technologies of electrochemiluminescent detection
 ²⁶
 ⁹³⁰⁻²⁰²⁰ of biologically important fluorescent amines without the use of labels"
 Agreement M / 109-2019 within the framework of the Ukrainian-Chinese cooperation program. Scientific adviser Yu, Zholudov, Assoc. Prof.

R&D Product: "Method of electrochemiluminescent determination of the amino acid tryptophan in biological samples"

Fast, simple and selective method of determination of tryptophan in biological fluids, which is a diagnostically significant compound in the detection of a number of diseases



Electrogenerated chemiluminescence (ECL) is the emission of light during electrochemical reactions in solution. ECL reaction scheme and ECL signal response involving the amino acid tryptophan (TRP). Dependence of the ECL signal on the concentration of tryptophan in solution

Introduction of rapid prototyping for modeling of the upper respiratory tract in normal and typical pathologies

Research project M108 / 2019 in the framework of Ukrainian-German cooperation. Scientific adviser Professor O. Avrunin

EARS

NURE

1930-2020

CHARKIV NATIONAL Iniversity of Radio Electronics

R&D Product: aerodynamic simulator for testing full-scale models of the upper respiratory tract, obtained according to computed tomography, normal and typical pathologies





1930-2020

BIOFUEL PRODUCTION PLANT

Development of design documentation for a research facility for the production of biofuels when disposing biogenic waste

Research Supervisor O. Dokhov.

The experimental sample of the system was developed jointly with STC ANPRE on the order of the Kuolun Era company (China)



Currently a prototype of an improved version of the system is created

Working heat of combustion Q=7000 -9000 Kcal/kg, which is close to M100 fuel oil. Flash point in open crucible is 170 -190 °C



The introduction of development in Ukraine will provide the production sector with relatively cheap alternative fuels from biogenic and hydrocarbon wastes. Two problems are being solved: environmental (waste disposal) and energy, which will save billions of cubic meters of natural gas and fuel oil in the heat industry of Ukraine.



3D PROTOTYPING TECHNOLOGIES DEVELOPMENT Research Supervisor Prof. I. Nevlyudov



3D printer «Вежа» FDM/FFF technology

- 3D prototyping of decorative and structural components;
- 3 plastics printing



3D printer «Промінь» DLP/LCD technology

- 3D components prototyping with the accuracy of 15μm;
- Manufacturing of master models for dental and jewelry purposes



3D printer «Химера», FDM/FFF technology

- 3D prototyping and small volume manufacturing of decorative and structural components;
- 2 plastics printing;
- Simultaneous printing of 2 components



LASER ENGRAVING MACHINE FOR EMBOSSING 31 NIVERSITY OF RADIO ELECTRONIC Finished product which is manufactured by the Experimental Plant

Put into operation at the Ukrainian-Italian enterprise "Guala Closure Systems", Sumy



- Case metal, desktop;
- Laser pulsed ytterbium fiber laser with diode pumping of a new generation;
- Wavelength of laser radiation is **1.06 μm;**
- Max. laser power - 50 W;
- Energy in the pulse is 1.0 mJ;
- Pulse frequency up to 50 kHz;
- Marking area (field) 160 * 160 mm;
- Autonomous air cooling

- Scanning device: digital biaxial scanner connected to F-theta lens and lens protective glass;
- Beam movement speed is set by the user;
- Transition speed 10000 mm / s;

KHARKIV NATIONAL

NURE

1930-2020

Control – using a PC with a licensed Russified software.



LASER TECHNOLOGICAL COMPLEX FOR ENGRAVING 32 WITH HIGH RESOLUTION OF ROTARY CLICHES

The complex was manufactured by the Research Plant and scientists of NURE on order of U-PLAST BEL LLC (Republic of Belarus)





DLM series laser units developed by NURE Research Plant

Purpose: Marking on the surface of plastic products of text and graphic information (drawings, text, barcode, QR-code, promo code)



Decorating plastic products, marking to protect against counterfeiting

Currently, two new contracts for the manufacture and supply of DLM laser systems for Pelliconi Florida (USA) The estimated cost of the research plant operations is UAH5.7 million.

Implementation of DLM-DC PRO-N installation at Alucaps Mexico

The equipment has been supplied to the Baltic countries, Mexico, Kazakhstan, the Czech Republic, Switzerland and Belarus.



LASER TECHNOLOGICAL COMPLEX OF THE DLM SERIES₃₄ (development of the Experimental Plant)



Production of a laser technological complex at NURE experimental plant by order of the firm "Pelliconi" (USA)



LASER ULTRAVIOLET EMITTERS (development of the Experimental Plant and Research Institute of Laser Technologies)



Manufactured at NURE research plant by order of Pelliconi (USA)



YEARS KHARKIV NATIONAL UNIVERSITY OF RADIO ELECTRONICS



RESULTS OF INTERNATIONAL ACTIVITIES

YEARS KHARKIV NATIONAL UNIVERSITY OF RADIO ELECTRONICS NURE 1930-2020	Academic mobility projects Erasmus + won in 2020	37
Sweden	Linnéuniversitetet	
France	Université de Limoges	
France	ECAM-EPMI, Grande Ecole d'ingénieurs généraliste	
Estonia	Tallinn University of Technology	
Portugal	Universidade de Coimbra	
Turkey	Istanbul Zaim University	
Lithuania	Kaunas University of Applied Sciences	
Austria	Carinthia University of Applied Sciences	
Spain	University of Valladolid	
Slovakia	Pavol Jozef Šafárik University in Košice	



1930-2020

NURE

DAAD

Deutscher Akademischer Austausch Dienst German Academic Exchange Service

Two DAAD German-Ukrainian Summer Schools 2021

'EARS



"Lessons in Biomedicine learnt from Nanotechnology and Artificial Intelligence"



"Support for the internationalization of Ukrainian higher education institutions – shaping the digital future together" Prof. O. Kuzyomyn (2020 - 2022)

Two German-Ukrainian DAAD Summer Schools in Kyiv (28.06-03.07.2021) and Kharkiv (05.07-09.07.2021) "Lessons in Biomedicine Learnt from Nanotechnology and Artificial Intelligence" (Prof. I. Grebennyk)

«Integrating the EU cybersecurity framework and policies in Ukraine» (Assoc. Prof M. Yevdokymenko) (2020 - 2023)



«Deep Intelligent Optical and Radio Communication Networks» Marie Skłodowska-Curie Actions MSCA-**RISE-2020 Prof. V. Filatov (2021–2024)**



INTERNATIONAL EDUCATIONAL PROGRAMS³ CONCLUDED IN 2020



International Semester Program for NURE Students at the University of Aalen (Germany)



International Semester Program for NURE Students and the Dual Diploma Program for Masters with the University of Limoges (France)



Dual Diploma Program for Masters of the Department of PI with Pavel Josef Šafárik University in Košice (Slovakia)



Results of the contest "The Best Scientific, KHARKIV NATIONAL University of Radio Electron Scientific and Pedagogical Worker of NURE –2020" (bonus payment in the amount of 2 salaries)

In the category of Doctors. Professors

- Yevgeny Bodyansky 1
- **Oleg Avrunin** 2

/EARS

NURE

1930-2020

- **Oleksandr Lemeshko** 3
- 4 Volodymyr Kartashov
- 5 **Ihor Nevlyudov**
- Volodymyr Gorohovatsky 6

In the category of Candidates of sciences, **Associate Professors, junior research** scientist

- Iryna Tvoroshenko 1
- 2 Maryna Yevdokymenko
- Tamara Radivilova 3
- **Oleg Kobylin** 4
- Yuri Zholudov 5
- Iryna Svid 6



In the category of other employees

- Yana Nosova 1
- Vyacheslav Lyashenko 2
- Karina Selivanova 3
- **Maxim Timkovich** 4
- 5 Polina Zhernova
- **Alexander Gnatenko** 6

In the category of young scientists under the age of 35 (candidates of science), and 40 years (doctors of sciences)

- **Alexander Yeremenko** 1
- **Catherine Music** 2
- 3 Irina Perova
- Vitaliy Martovytsky 4
- 5 Vitaly Tkachev



Average monthly salary (UHR)

1020-2020						
Staff	2018	2019	2020			
Scientific and pedagogical staff	11004,13	12966,14	15707,70			
Scientific and research support staff	8251,53	12900,14	15193,08			
Training and support staff	4134,96	4299,71	5101,85			
Other staff	5165,74	5759,50	5749,14			
University Average	6997,57	8172,04	11288,39			





TASKS FOR 2021

- **1.** Transition of all NURE educational programs to new educational standards considering the requirements of the National Qualifications Framework
- 2. Restructuring the University as per the results of the Final Report of Independent European Audit of the National Research and Innovation System of Ukraine



YEARS KHARKIV NATIONAL UNIVERSITY OF RADIO ELECTRONICS



Thank you for attention!