

Head of Department:

## Candidate of Technical Sciences, Associate Professor Eshmuradov D.E.

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Since February 15, 2023, Candidate of Technical Sciences, Associate Professor Eshmuradov Dilshod Elmuradovich has been appointed head of the Department of Energy Supply Systems. Currently, the department has 1 professor, 3 associate professors, 6 senior teachers, 4 assistants and 1 engineer-technician.

The Department of Energy Supply Systems began to function in 1958 under the name of the Department of Power Supply of Communication Devices as part of the Faculty of Radio Communications and Broadcasting.

Classes in the disciplines taught at the Department of Power Supply of Communication Devices were originally conducted by professors and teachers of the Department of Telecommunications.

When creating the department, the head of the department was appointed candidate of technical sciences V.E. Korotkevich. Then A.P. Golovin (1966-1975), candidate of technical sciences, associate professor Yu.I. Kopnin (1975-1986), candidate of technical sciences, associate professor I.A. Keldeev (1986-2002), Candidate of Technical Sciences, Associate Professor B.M. Makhkamdzhanov (2002-2008), Ph.D., Associate Professor M.S. Sapaev (2008-2011), F.M. Kadyrov (2012- 2014), Doctor of Technical Sciences, Professor I.Kh. Siddikovlar (2014-2021), Phd, Associate Professor Mallaev O.U. (2021-2023). From 15.02.2023 the head of the department is Ph.D., associate professor Eshmuradov Dilshod Elmuradovich.

In the 2021-2022 academic year, under the guidance of the head of the department, Ph.D., Associate Professor Mallaev O.U. the educational center "Electric power engineering" was opened.

## BACHELOR

60710600 - Power industry ("Information technologies and communications")

## MASTER

70710601 - Power supply (telecommunication networks and systems)

## SUBJECTS TEACHED AT THE DEPARTMENT:

### Undergraduate:

- Power supply of information communication systems ([Download syllabus](#))
- Life safety ([Download syllabus](#))
- Metrology, standardization and certification ([Download syllabus](#))
- Ecology ([Download syllabus](#))

### Master's degree:

- Renewable energy sources ([Download syllabus](#))

- Power quality indicators of telecommunication networks and systems ([Download syllabus](#))
- Electrical part of stations and substations ([Download syllabus](#))
- Relay protection and automation of power supply of telecommunication equipment and systems ([Download syllabus](#))

## TEACHERS OF THE DEPARTMENT:

- Eshmuradov D.E. - candidate of technical sciences, associate professor, head of department;
- Sapaev M.S. - candidate of technical sciences, associate professor;
- Abdullaeva S.M. - Senior Lecturer;
- Amurova N.Yu. - Senior Lecturer;
- Borisova E.A. - Senior Lecturer;
- Kadyrov F.M. - Senior Lecturer;
- Khaidarbekova M.M. - Senior Lecturer;
- Rakhmonova G.S. - Senior Lecturer;
- Agzamova M.R. - assistant;
- Saidova G.E. - assistant;
- Saidova G.A. - assistant;
- Sobirjanova G.K. - assistant;

## SCIENTIFIC ACTIVITY OF THE DEPARTMENT

In order to organize the quality of practical training of disciplines taught at the department, at the required level, physical stands and a virtual computer class work in laboratory work.

In order to further increase the interest of students in the subjects taught at the department, circles "Designer" and "Ecology" were created at the department. Members of the circle and talented students of the department participate in scientific conferences with their scientific articles. Professors and teachers of the department conduct their pedagogical and scientific activities together with the educational work of young people.

As a result of the scientific activity of professors and teachers of the department, patents were issued for the inventions "Three-phase symmetrical current-voltage converter", "Three-phase symmetrical electromagnetic current-voltage converter" and "Device for recording and monitoring the operation of moving objects", "Hybrid power sources dependent on load control ", "Study of the static description of the electromagnetic current-voltage converter", "Choice of the nominal value of reactive sources of electrical energy", "Calculation of the distributed parameter and the value of the circuits for converting electromagnetic current-voltage converters", "Analysis of the hierarchical complex control system for continuous technological objects and complexes and algorithmic software systems for solving synthesis problems" and "Corporate intelligent test system for knowledge assessment", as well as "Automation of train speed". Inductive Angular Acceleration Sensors for Vertical Control and Adjustment Systems" and published many articles in several international and domestic prestigious journals.

## LIST OF STATE AND FOREIGN GRANTS (FUNDAMENTAL, PRACTICAL AND INNOVATIVE PROJECTS) CARRIED OUT AT THE DEPARTMENT

- ERASMUS+ ES PROJECT: 574049-EPP-1-2016-1-IT-EPPKA2-CBHE-JP "Modernization of curricula in the field of smart building - Green Building (GREB)" (2016-2019)

- "Development of highly efficient methods for managing reactive power generation sources" (2017-2020)
- "Creation of energy-efficient SMART houses based on renewable energy sources" (2017-2019)

## STUDY WORKS PUBLISHED AT THE DEPARTMENT:

- "Guidelines for practical work on the subject "Ecology" for all specialties of the correspondence department". 2021, TUIT "Communicator";
- Workshop on "Life Safety" 2022, PE "Graphics Spectrum";
- A methodological guide for practical exercises on the topic "Life Safety". 2021, TATU Communicator;
- Teaching aid for practical work on the science of "Ecology". (for students receiving correspondence courses on the basis of correspondence, second and subsequent higher education). 2021, TATU Communicator;
- Methodological guide to practical exercises for students of distance learning "MS and C". 2021, TATU Communicator;
- A set of practical exercises on "Life Safety" (Part 1). (For students studying by correspondence (special correspondence form), second and subsequent higher education on the basis of distance learning). 2022, TATU Communicator;
- Relay protection and automation: Methodological guide, printing house TDTU Tashkent, 2015 48b.
- Electrical part of stations and substations (1st and 2nd edition), Textbook, Cholpon NMU, Tashkent, 2015 and 2016, 303 pages.
- Electricity consumption control, (1st and 2nd edition), Tutorial, ILM ZIYO NMU, Tashkent, 2012 and 2016, 96 p.
- Collection of problems on the theoretical foundations of electrical engineering, a textbook for students of higher educational institutions (Grift No. 484-049), "Literary sparks", Tashkent-2015
- Inductive sensors of angular accelerations for automatic control of train speed. Monograph. "Sparks of Literature", Tashkent-2016.
- "Metrology, standardization and certification" TATU printing house, Tashkent, 2017, 110b.
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## PATENTS (PATENTS; PETENTS)

- Patent of the Republic of Uzbekistan. No. 04185. Three-phase symmetrical current-to-voltage converter. // Agency of Uzbekistan for Intellectual Property. blvd. – 2010.- №6.
- Patent of Uzbekistan. No. 04475. City voltage converter. Intellectual Property Agency of Uzbekistan // . blvd. - 2012. No. 2.
- Patent RU. 04562. Current to voltage converter no. Intellectual Property Agency of Uzbekistan //. Bull. - No. 8 of 2012
- Patent RU. 04907 Current to voltage converter no. Intellectual Property Agency of Uzbekistan //. Bull. - 2014 №6.
- Decision to grant a patent in Uzbekistan. Voltage in No. IAP 2013 0164. Three-phase current asymmetry converter. Intellectual Property Agency of Uzbekistan //. 04/29/2013.
- Algorithm for calculating auxiliary Uzbekistan Excess of intellectual property Technological energy costs // Agency. 12/18/2014 certificate No. DGU 02926, 12/18/2014.
- Electromagnetic converter of asymmetric three-phase current and voltage, Patent RUz IAP 2014 0463 B.I. No. 4, 2016
- Electromagnetic converter of asymmetric three-phase current and voltage, Patent RUz IAP 2014 0509 B.I. No. 6, 2016
- Electromagnetic converter of asymmetry of three-phase current into voltage. Patent RUz IAP 2014

0540 B.I. No. 6, 2016

- Electromagnetic converter of asymmetric three-phase current and voltage. IAP 05383 dated 03/22/2017

## LIST OF ARTICLES PUBLISHED BY PROFESSORS AND RESEARCHERS OF THE DEPARTMENT:

- Parallel algorithm for calculating the learning processes of an artificial neural network. Materials Science and Engineering, link disabled, 2021, 537(3), 032002. (Scopus);
- Development of current converters in the power supply control and management system using renewable energy sources based on artificial intelligence in the field of telecommunications. INTERNATIONAL INFORMATION AND COMMUNICATION TECHNOLOGY CONFERENCE: APPLICATIONS, TRENDS AND OPPORTUNITIES <http://www.icisct2021.org/> ICISCT 2021 CONFERENCE November 3-5, 2021 <https://www.scopus.com/authid/detail.uri?authorId=57462564800>;
- Mathematical model for calculating the transient modes of the valve converter. Cite as: Proceedings of AIP Conference 2402, 060012 (2021); <https://doi.org/10.1063/5.0071554> Published online: November 15, 2021;
- "Improvement of the theory of seismic resistance of dams as hydroelastic systems". "International Journal of Mechanical Engineering Vol. 7. No. January 1, 2022. ISSN: 0974-5823.
- Use of draft flights and monitoring systems in agriculture in pest control. Texas Journal of Agricultural and Biological Sciences. 2022. No. ISSN: 2771-8840.
- Analysis of transport layer protocols for video data transmission in the network. Research work. Uz.International technical journal. TECHNICAL SCIENCE.2021-Volume 4. ISSUE 1.-P.18-23.
- ELECTRICAL ENGINEERING. UNIVERSUM: TECHNICAL SCIENCES Scientific journal Issue: 2(95) Part 7. February 2022. doi - 10.32743/unitech. 2022.95.2.13134 Modeling and study of the harmonic components of current and voltage in electrical networks.
- Electromagnetic converters of asymmetry of three-phase electric currents to voltage Universal Journal of Electrical and Electronic Engineering 3(5): 146-148, 2015 DOI: 10.13189/ujeee.2015.030502 <http://www.hrpub.org>
- Mode of operation of devices of electrical networks, communications and telecommunications, asymmetrical electrical loads. journal "Bulletin of TUIT" No. 4 (36), Tashkent, 2015, pp. 140-143
- Method of reduction and symmetry in three-phase electrical networks. Journal "Bulletin of TUIT" No. 1 (33), Tashkent, 2015, pp. 114-117
- Methods for assessing the quality of education and improving educational programs. 9th All-Russian scientific and practical conference "Management of the quality of education, products and the environment", Russia, Biysk, 2015
- Evaluation of the quality of educational programs. 9th All-Russian scientific-practical conference "Management of the quality of education, products and the environment", Russia, Biysk, 2015, p. 10-12
- Study of the influence of non-linear primary magnetization curves of magnetic circuits of three-phase current electromagnetic converters / Universal Journal of Electrical and Electronic Engineering. Horizon Research Publishing Corporation, USA. 2016, V.4, No.1, - p.29 - 32, <http://www.hrpub.org>
- Converters of primary current into secondary voltage with flat measuring windings for reactive power control. Austrian Journal of Engineering and Natural Sciences, East-West, Vienna, Austria, 2016, No. 9-10 (September - November), pp. 72-75, <http://www.ew-a.org>

## PARTNERSHIP IN DEVELOPMENT

- L'Aquila University (Italy)
- Royal Institute of Technology (Sweden)
- Polytechnic University of Madrid (Spain)
- Slovenian Construction Cluster (Slovenia)
- Salzburg University of Applied Sciences (Austria)
- Moscow State University of Civil Engineering (Russia)
- Astrakhan Civil Engineering University (Russia)
- National Research Nuclear University (Moscow Engineering Physics Institute MEPhI, Russia)
- Kazan State University of Architecture and Civil Engineering (Russia)
- Mordovia State University named after N.P. Ogaryov (Russia)
- Association of Educational Organizations of Civil Engineering (Russia)
- Russian Technical Society (Russia)
- Mongolian National University (Mongolia)
- Mongolian University of Science and Technology (Mongolia)

### UZBEKISTAN

- Tashkent State Technical University (TDTU)
- Tashkent Institute of Railway Engineers (TTMI)
- Karakalpak State University (KSGU)
- Urgench State University (URDU)
- Jizzakh Polytechnic Institute (TPI)
- Established innovative cooperation with the scientific and technical center of JSC "UZBEKYERGO" LLC

## TRAINING TOOLS PREPARED ON THE BASIS OF THE EUROPEAN UNION ERASMUS+ GREB PROJECT:

METROLOGY, STANDARDIZATION AND CERTIFICATION

SAFETY OF LIFE. ECOLOGY