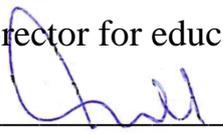


APPROVED BY

Vice-rector for educational activities

 / M.A. Soloviev
«30» 06 2020

Electric Power Generation and Transportation

Degree: Master of Science

Field of study: Electrical power and Electrical engineering

Specialization: Electric power generation and Transportation

Mode of Study: Full time

Language of Instruction: English

Director of Energy and Power

Engineering School

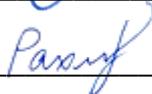
Head of of Electric Power and Electrical

Engineering Department

Program Director

 / Matveev A.S.

 / Ivaschutenko A.S.

 / Rakhmatullin I.A.

2020

Electric Power Generation and Transportation

Program Description

Degree awarded	Master of Science in Electric Power Generation and Transportation
Specialization	Electric Power Generation and Transportation
Mode of Study	Full-Time
Language of Instruction	English
Program Duration	2 years (120 ECTS)
Entry Requirements	<p>Academic Entry Requirements: Bachelor Degree or equivalent degree and qualification.</p> <p>English Language Requirements: English as a native language / IELTS (5.5 or better) or Equivalent Certificate / TPU Entrance Test</p> <p>Selection process: All individuals are selected on their results of TPU Entrance Exams. Additional selection criteria: GPA in Bachelor Program; relative merits and abilities of the applicant, approved by certificates.</p>
Fees and Funding	General TPU policies apply. Please see regulations that apply to this program or make an enquiry to the department.
How to apply	Application via on-line application system is possible, please follow the link: http://iie.tpu.ru/en/2_application.php or by e-mail: iie@tpu.ru . For more details, please go to: http://iie.tpu.ru/en/2_procedure.php

Program webpage: http://iie.tpu.ru/en/3_programs_english_master.php

Introducing Your Degree

Electric power generation and Transportation are one of the main aspects of life in modern world. Climate change, economical reasons and science progress lead to the transformation of the requirements in the field of electric power generation and transportation. Electric energy generation is closely related with location of energy resources such as water (for hydrostations) and fuel while energy consumers are dissipated in wide area faraway from power suppliers. Transportation of electric energy at long distances causes necessity of building large electric networks and accompany with energy losses in them. All of this creates reasons of studying

developing and using of Renewable Energy Sources and developing of parameters and regimes of Electric Energy Transportation from large power suppliers such as classic electric stations. Those kinds of technician experts are need be studied according to this master program.

Program Overview

The Master's program offers students an extensive and detailed education in the key areas pertaining to Renewable Energy Sources and Electric Energy Transportation. The objective of the program is to prepare students for a career as engineers in Electric Power Generation and Transportation that require specialized knowledge and skills. It is expected that graduates of the program will be able to work as engineers in industry, government or continue their education by pursuing a PhD degree. The program provides the depth and breadth of knowledge necessary for practicing professionals in Electric Power Generation and Transportation. Under the guidance of a research supervisor and a multi-disciplinary team of scientific and engineering faculty, each student has the opportunity to engage in an in-depth study of particular problems, such as development of electric networks based on Renewable Energy Sources and finding optimal regimes for transportation of electric energy.

Learning Outcomes

- Apply mathematical, scientific, social and economic knowledge for theoretical and experimental research in the field of Electric Power Generation and Transportation and power installations.
- To be able to develop new and original ideas and design methods for solving engineering problems in leading areas of Electric Power Generation and Transportation, modernization and improvement of its advanced technological chains.
- To be able to plan and carry out analytic, modeling and experimental research in Electric Power Generation and Transportation using the latest achievements of science and technology.
- Preparation of the graduate for production activities in the field of operation, installation and commissioning, service maintenance and testing, diagnostics and monitoring of electric power and electrical equipment in accordance with the specialization of training.
- Preparation of the graduate for independent study and development of new knowledge and skills, continuous self-improvement for the full realization of his

professional career, performing the functions of the teacher in the implementation of educational programs in educational institutions.

Core Modules

- Power Engineering Systems Simulation and Research;
- Power Supply;
- Operative Dispatch Control in Power Systems;
- Software for Electric Power System Operating;
- Emergency Control in Power Systems;
- Protection Relay of Electric Systems;
- Integration of Renewable Energy Plants in Electric Power Supply Systems.

Degree Requirements

To be awarded to Master Degree a student should successfully complete all program courses and modules and defend his/her Master thesis.

See description of a course / module where assessment methods and tools are specified.

Facilities and Equipment

- Laboratory of diesel electrostation;
- Laboratory of wind and solar electrostation;
- Laboratory of electric energy quality;
- Laboratory of electric networks.

Academic Exchanges

Within the framework of this educational program, an academic exchange is carried out jointly with the Czech Technical University, which provides the student with the opportunity to obtain two higher education diplomas - one from each university. Duration of the exchange – one year.

Career Opportunities:

Career fields and types of organizations:

1. JSC "SO UES", Yakutsk;
2. OJSC TomskNIPIneft, Tomsk;
3. ZAO "SVEL Group", Ekaterinburg;
4. LLC "YugEnergoEngineering", Krasnodar;
5. OOO Gazprom dobycha Yamburg, Novy Urengoy;
6. OJSC Surgutneftegaz, Surgut;
7. JSC "Tomsk Distribution Company", Almaty, ul. Tomsk;
8. JSC "Tyvaenergo", Kyzyl city;
9. "Azot" branch of OJSC "URALKHIM" OHCHK ", Berezniki, Perm region;
10. OOO Energoneft Tomsk, Almaty, ul. Strezhevoy;
11. Joint-Stock Company "Information Satellite Systems" named after Academician M.F. Reshetnev, Zheleznogorsk, the Krasnoyarsk Territory;
12. OAO Evraz ZSMK, Novokuznetsk, the Kemerovo Region;
13. OOO NPO SPb EK (St. Petersburg Electrotechnical Company), Saint Petersburg;
14. JSC "Far Eastern Generating Company", Khabarovsk;
15. United dispatch control of Siberia, Kemerovo;
16. TomskRTS, Tomsk;
17. OAO Kuzbassenergo, the city of Kemerovo;
18. OAO Sakhaenergo, Yakutsk.

Positions: engineer

Internships: TPU

Further Studies:

Postgraduate study, postdoctoral study. Post-graduate studies in TPU are available only in Russian.

Program Director: Ilyas A. Rahmatullin, e-mail: Riam@tpu.ru

Faculty and Research Staff:

- Isaev Yu. Niyazbecovich, Sc.D professor
- Shanenkov I.I., PhD, assistant professor
- Nikitin D.S., PhD, assistant professor
- Surkov M. Alexandrovich, PhD, assistant professor
- Ilyas A. Rahmatullin, PhD, assistant professor