Energy Efficiency and Energy Saving at an Industrial Enterprise

Samara National Research University

Degree or qualification is awarded: **Bachelor's Diploma**

Language of study: **Russian**
Mode of study: **full-time**
Duration: **4 years**
Availability of free education: **yes**
Price: **112 000 RUB per year**

Programme webpage at the university website:
https://ssau.ru/english/education/programs/656/b8874d0f-3f06-11e9-bbc6-005056a7430c#program-desc

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The programme is conducted in partnership with the world expert in energy management and automation, Schneider Electric, and one of the major Russian production centres of this company, GC Electroshield CJSC – TM Samara.

A feature of the programme is the unification of commercial and aviation power engineering. This affords the opportunity for working in commercial companies of the energy, aviation, mechanical engineering, petrochemical and other high-tech sectors of industry.

Due to the high practical orientation of the programme, right after completing training, its graduates can find jobs right at enterprises of key partners or start a professional career in other engineering and production centres throughout the country and the world.

Brief characterisation of the programme

Training in this programme allows one to become a professional who is capable of implementing large-scale projects in aviation, mechanical engineering, energy and petrochemical fields of industry. The programme includes many internships, including at commercial enterprises during real operation of power engineering facilities.

The resulting professional abilities allow the graduates to be achievers on different levels:

- research;
- development;
- industrial-manufacturing;
- managerial.

The programme includes the following discipline units:

- study of innovative technologies of production and design in propulsion engineering;
- study of the regulatory aspects of developing and creating complex engineering items;
- study of commercial thermal power systems and management of projects in this field.

Lectures, practical exercises and laboratory work are taught by candidates and doctors of science with extensive industry and research experience. The specialised equipment and laboratories permit real-time application of the acquired skills in practice.

Features (advantages) of the programme
The advantages of the programme include:

- Practical orientation. The disciplines are taught by specialists with great production experience. The specialised equipment and material base permit reinforcement of the theoretical material directly in practice. The term

papers are aimed at solving relevant engineering problems and are written based on a modern IT-infrastructure.
- Close tie to the leading industrial centres. The students take production internships in major commercial companies with involvement in the implementation of current industrial projects.
- International cooperation with leading foreign universities. The programme participants have the opportunity to share experience by working together with foreign students on engineering projects. Currently there is cooperation with Northwestern Polytechnic University (Xi'an, China).

Academic programme structure (curriculum features)

A feature of the programme is unification of commercial and aviation power engineering.

The programme includes study of:

- the methodology of optimal designing of power units and aviation engines;
- thermal power systems of commercial enterprises and experimental studies of aircraft engines.
- regulatory support of energy-saving projects, metrology and product certification.

The students within the academic programme have the unique opportunity of receiving a final document that permits work in an energy audit of commercial enterprises.
In accordance with the State Educational Standard of Higher Education, the academic programme consists of three units: disciplines (modules), internship and State Final Certification. The first unit consists of 216 course credit units (CCU), which are distributed as follows:

- 30% engineering;
- 25% specialised;
- 25% natural science;
- 20% humanities.

The internship is 15 CCUs.
The State Final Certification is 9 CCUs.

Future profession
Programme graduates may select one of the following career growth paths:

- continue research and schooling for a Master's Degree (including in the specialised Master's programme "Management of Energy-Saving Technologies" within course 24.04.05 Aircraft Engines);
- work in their specialty at one of the leading engineering enterprises (as an engineering designer, design engineer, energy-efficiency improvement specialist, etc.);
- work as a specialist in state agencies and specialised non-engineering organisations such as regional ministries of energy, agency for improving energy efficiency, and others.

The programme graduates possess many abilities and skills, allowing them to: organise research and design, develop programmes for innovative activity, implement projects to create complex engineering items using relevant IT-solutions, including technologies of virtual design and modelling at international standards levels.

Specializations within this programme