Management and Business in Mechanical Engineering

Samara National Research University

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

Language of study: **Russian**
Mode of study: **full-time**
Duration: **2 years**
Availability of free education: **yes**
Price: **175 000 RUB per year**

Programme webpage at the university website:
https://ssau.ru/english/education/programs/338/9a297ccc-3f07-11e9-bbc6-005056a7430c#program-desc

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The Master's programme "Management and Business in Mechanical Engineering", held within course 24.04.05 "Aircraft Engines" is aimed at preparing high-class specialists who have deep theoretical and practical knowledge in propulsion engineering.
The students pass a cycle of training from design development of an item to its manufacture in series production, receiving theoretical and practical knowledge in organising and managing mechanical engineering enterprises.
Already during their studies, the students in this programme have the unique opportunity of participating in preparing production of complex, modern equipment. Yet another feature of this academic programme is the use in the training process of a broad spectrum of specialised software products, aimed at forming in the student systematic thinking and comprehensive presentation of the studied disciplines.
Right after completion of schooling, the graduates can find jobs and work successfully in leading aerospace centres and high-tech companies in the country.

Brief characterisation of the programme
The programme prepares highly skilled graduates, knowing the tools of "economical production" and with deep theoretical and practical knowledge in organising and managing mechanical engineering and high-tech enterprises in the changing market environment.
The acquired skills ensure for the graduates effective professional performance and allow them to become achievers in their next professional types of activity:

- research;
- development;
- administrative-managerial.

This academic programme is based on general professional disciplines of a specialist and Bachelor's Degree with elements of intensive research and basic research activity within the chosen profession.
Teaching is conducted by a highly skilled professorial-teacher staff that has extensive teaching and production experience, and also has the relevant abilities to allow the students to receive a high-quality education.
The teaching process within this academic programme is based on the use of active and interactive teaching methods: introduction of interactive courses of lectures, use of presentation and didactic materials, holding workshops and brainstorming among the student groups, giving interactive lessons using audio and video materials, and use of a multimedia projector and interactive board.

Features (advantages) of the programme
The primary advantage of this academic programme is its applied nature. Teaching is not conducted on abstract assignments, but under conditions of actually operating plants. Within the framework of close cooperation between the university and leading enterprises of the aerospace cluster Kuznetsov PJSC and Metallist-Samara JSC, the students have unique opportunities to:

- intern with and borrow experience from prominent mechanical engineering specialists;
- use the resulting knowledge and skills during manufacturing internships held at the mechanical engineering

enterprises;
- study modern and progressive technologies of parts production which meet global standards and make an economic assessment of their effectiveness when introduced into series production;
- improve their skill in modern research centres of the university that are equipped with high-tech equipment: additive technologies laboratory, interdepartmental SAM technologies centre, and more;
- carry out real projects, conducted jointly with the mechanical engineering enterprises.

Especially outstanding students in scientific performance have unique opportunities to participate in grant support programmes, in competitions for scholarships, higher and academic grants, innovation competitions and Start-ups.

Academic programme structure (curriculum features)
A feature of this academic programme is the use in the teaching process of a broad spectrum of specialised software products, aimed at forming in the student systematic thinking and comprehensive presentation of the studied disciplines. During the teaching, the students study CAD modelling systems: Adem, NX, SolidWorks, Compass; CAE engineering analysis systems: Ansys, ProCast; design and life cycle management media: Axapta, Anylogic, Vertical, Teamcenter; CAM-systems of manufacturing process verification: Adem, NX, Simatron.
Additionally, this academic programme provides a large number of theoretical courses that promote in the students logical thinking, and capability of independent decision making, which allows them to apply the obtained knowledge, skills and abilities in any industry.
In accordance with the State Academic Standard of Higher Education, the core academic programme consists of three units: Disciplines (modules), Internships and State Final Certification.
The first unit totals 75 course credit units (CCU), which are distributed as follows:

- 35 % general science;
- 65 % specialised disciplines.

The internship totals 37.5 CCUs.
The State Final Certification totals 7.5 CCUs.

Future profession
Upon completion of schooling, the graduates have the opportunity of working in services of computer design and management of production, in positions of specialists in planning and economic production and marketing services in companies; leading economists in major commercial enterprises and holding companies that manufacture mechanical engineering items; managers of operating plants; in services of computer design and management of production.
After receiving a high-quality education within this academic programme, the students can apply their professional abilities in the fields of:

- development of complex, innovative manufacturing processes for fabrication of mechanical engineering parts;
- economic assessment of the efficacy of the applied technology;
- life cycle management of an item from the design phase to the fabrication phase;
- development of business plans and strategies for introducing a manufactured item or applied technology into an actually operating plant;
- organisation and planning of mechanical engineering plants.

Specializations within this programme