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Pharmaceutical engineering

Head: Boris Vladimirovich Paponov,

senior research fellow at the Research Laboratory For Organic Synthesis and NMR spectroscopy, Candidate Sc. in Chemistry.

Various pharmaceutical forms production technology, GMP standardizing of the technological process at pharmaceutical companies, organic synthesis, analytical chemistry, pharmacology, pharmaceutics, certification, quality management, fundamentals of specialized information engineering.

Venue: Research laboratory for Organic Synthesis and NMR Spectroscopy at NRU “BelSU” Engineering Centre, with pharmaceutical producers of Belgorod region participating.

**Subjects. Juniors**

**1st term**

* Pharmacology - 12 acad.hrs
* Introduction in Chemistry - 24 ac.hrs.
* Specialized History - 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (basics) - 12 acad.hrs.

Total - 72 acad.hrs.

**2nd term**

* Pharmacology - 12 acad.hrs
* Introduction in Chemistry- 24 ac.hrs.
* Entrepreneurship (project management) - 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total - 72 acad.hrs.

**Subjects. The middle group**

**1st term**

* Pharmacognosy - 12 acad.hrs.
* Introduction in Organic Chemistry - 24 acad.hrs.
* Specialized History – acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (basics) - 12 acad.hrs.

Total - 72 acad.hrs.

**2nd term**

* Pharmacognosy - 12 acad.hrs.
* Introduction in Organic Biochemistry - 24 acad.hrs.
* Entrepreneurship (project management) - 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total - 72 acad.hrs.

Medical engineering

Head – Belousova Oxana Nikolayevna,

Associate Professor at the Department for Hospital Therapy, Candidate Sc. in Medicine, Chief Physician at NRU “BelSU” Healthcare Centre.

Telehealth, neurotechnologies, robotics, biomedical engineering, basics of therapeutical methods in biotechnology, basics of specialized information engineering. Venue: The University healthcare Centre, Institute of Engineering Technologies And Natural Science, with the healthcare institutions of Belgorod region participating.

**Subjects**

**1st term**

* First Medical Aid - 12 acad.hrs.
* Hygienics and Human Ecology – 12 acad.hrs.
* Biology and Basics of Genetics - 12 acad.hrs.
* Specialized History - 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (Basics) - 12 acad.hrs.

Total - 72 acad.hrs.

**2nd term**

* Basics of Microbiology and Immunology - 12 acad.hrs.
* Nanomaterials in the Theory and Practice of Healthcare - 12 acad.hrs.
* First Medical Aid - 12 acad.hrs.
* Entrepreneurship (project management) - 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total - 72 acad.hrs.

Biological engineering

Head: Dumacheva Elena Vladimirovna, Chairperson of the Biology Department, Doctor of Sc. in Biology

Technologies of production and use of animal food additive enzymes, bacterial probiotic and prebiotic agents for animal and crop husbandry, fungal and bacterial plant protection agents for pests and diseases, Biology, Basics of specialized Information Engineering. Venue: Research Laboratory for Ecological Engineering at NRU “BelSU” Engineering Centre, specialized University departments, with agricultural companies participating.

**Subjects**

**1st term**

* Basics of Microbiology and Immunology - 12 acad.hrs.
* Bacterial Agents Animal And Crop Husbandry – 12 acad.hrs.
* Human Anatomy and Physiology – 12 acad.hrs.
* Specialized History – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (Basics) - 12 acad.hrs.

Total – 72 acad.hrs.

**2nd term**

* Microscopy - 12 acad.hrs.
* Designing Modern Biotechnological Facilities - 12 acad.hrs.
* Biotechnology of Microorganisms And Biological Processes - 12 acad.hrs.
* Entrepreneurship (project management) - 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total - 72 acad.hrs.

Social engineering

Head: Shapovalova Inna Sergeevna, Chairperson of the Department for Sociology and Youth Affairs, Associate Professor, Doctor of Sc. in Sociology, leading research fellow at the Engineering Centre.

Designing social technologies, organization design and reconstruction, opinion surveys, developing projects aimed at social problems, HR marketing, recruitment, staff deployment and promotion, building the company core and efficient management teams, shaping a favourable and investor-attractive company image, developing corporate culture. Venue: NRU “BelSU” Institute of Management, with the enterprises of Belgorod region participating.

**Subjects**

**1st term**

* Basics of Social Science - 12 acad.hrs.
* Information Technologies in Sociology– 12 acad.hrs.
* Welfare Work Technology – 12 acad.hrs.
* Specialized History – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (Basics) - 12 acad.hrs.

Total – 72 acad.hrs.

**2nd term**

* Opinion Surveys - 12 acad.hrs.
* Corporate Culture Development – 12 acad.hrs.
* Social Technologies Design– 12 acad.hrs.
* Entrepreneurship (project management) – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total – 72 acad.hrs.

Economic engineering

Head: Kucheryavenko Svetlana Alexeyevna, Deputy Director of the Institute of Economics for academic activities, Candidate Sc.in Economics.

Basics of economics, technical and economic project justification, marketing, production management, logistics, business processes reengineering, business planning, production technology for various industries, basics of production process design, basics of production and specialized information engineering. Venue: Research Laboratory for Consulting, Management And Marketing at NRU “BelSU” Engineering Centre, Institute of Economics, Institute of IT and Natural Science, with manufacturing works participating.

**Subjects**

**1st term**

* Basics of Economic Theory - 12 acad.hrs.
* Technical And Economic Justification Of Investment Projects – 12 acad.hrs.
* Basics of Advanced Technologies – 12 acad.hrs.
* Specialized History – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (Basics) - 12 acad.hrs.

Total – 72 acad.hrs.

**2nd term**

* Opinion surveys - 12 acad.hrs.
* Economics and Company Management– 12 acad.hrs.
* Basics of Advanced Technologies – 12 acad.hrs.
* Entrepreneurship (project management) – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total – 72 acad.hrs.

Financial engineering

Head: Indutenko Antonina Nikolayevna, Associate Professor, Candidate Sc.in Economics.

## Designing financial tools, financial technologies, financial structuring of transactions, investments in global financial markets, analytical expertise, management, consulting. Venue: NRU “BelSU” Institute of Economics and financial institutions of Belgorod region.

**Subjects**

**1st term**

* Basics of Finance Management - 12 acad.hrs.
* Technical and Economic Justification Of Investment Projects – 12 acad.hrs.
* Investments in Global Financial Markets– 12 acad.hrs.
* Specialized History – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (Basics) - 12 acad.hrs.

Total – 72 acad.hrs.

**2nd term**

* Basics of Economic Theory - 12 acad.hrs.
* Financial Computing Methods– 12 acad.hrs.
* Financial Tool Design– 12 acad.hrs.
* Entrepreneurship (project management) – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total – 72 acad.hrs.

Education engineering

Head: Sitnikova Maria Alexandrovna, Associate Professor at the Psychology Department, Candidate Sc.in Psychology.

## Developing education technologies, competency-based approach, designing the education process, innovative ways of teaching adults, methods of organizing and managing an educational project, basics of pedagogics, developmental psychology. Venue: NRU “BelSU” Pedagogical Institute.

**Subjects**

**1st term**

* Basics of Special Pedagogics And Psychology - 12 acad.hrs.
* Basics of Healthcare And Healthy Mode Of Life – 12 acad.hrs.
* Education Technologies in Lessons - 12 acad.hrs.
* Specialized History – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (Basics) - 12 acad.hrs.

Total – 72 acad.hrs.

**2nd term**

* Psychological Aspects Of Teenage - 12 acad.hrs.
* Design of Education Technologies– 12 acad.hrs.
* Education Process Organization and Management Methods 12 acad.hrs.
* Entrepreneurship (project management) – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total – 72 acad.hrs.

Ecological engineering

Head: Ivashchuk Olga Alexandrovna, Professor of the Information Systems Department, Associate Professor, Doctor of Technical Science, Head of Mathematics and Computer Science research area at the Institute of Information Technologies and Natural Science.

Designing agricultural landscapes and phytosanitary crop rotation, soil fertility management, bioactive integrated crop protection, waste utilization project development, biology, ecology, basics of specialized information engineering. Venue: at NRU “BelSU” Engineering Centre laboratories, Research Laboratory for Automated Management Systems, specialized University departments, agricultural companies, ecological agencies.

**Subjects**

**1st term**

* Basics of Ecology - 12 acad.hrs.
* Rational Natural Resource Management– 12 acad.hrs.
* Sustainable Development And Ecological Safety – 12 acad.hrs.
* Specialized History – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (Basics) - 12 acad.hrs.

Total – 72 acad.hrs.

**2nd term**

* Ecological Safety Assessment - 12 acad.hrs.
* Consumer And Industrial Waste Recycling– 12 acad.hrs.
* Ecological Biotechnology 12 acad.hrs.
* Entrepreneurship (project management) – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total – 72 acad.hrs.

Engineering design

Head: Danilenko Angela Pavlovna, Associate Professor at the Department for Theory, Practice and Methods of Primary Education and Fine Arts, Associate Professor, Candidate Sc. in Pedagogics.

3D design, industrial and graphic design for various industries, basics of production and specialized information engineering. Venue: NRU “BelSU” specialized departments, Engineering Centre, with advertising agencies and manufacturing works participating.

**Subjects**

**1st term**

* Basics of Graphic Art - 12 acad.hrs.
* Basics of Industrial Design and Graphic Design 12 acad.hrs.
* Technical Drawing – 12 acad.hrs.
* Specialized History – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (Basics) - 12 acad.hrs.

Total – 72 acad.hrs.

**2nd term**

* Bionics - 12 acad.hrs.
* Design and Advertising Technologies– 12 acad.hrs.
* 3D Design and Animation Technologies - 12 acad.hrs.
* Entrepreneurship (project management) – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total – 72 acad.hrs.

Mobile applications engineering

Head: Burlutsky Alexey Petrovich, Chief Development Officer at NRU “BelSU” High Technologies Institute”

Software engineering, designing mobile applications, information security, computer science in business, geographical informatics etc. Venue: Institute of Engineering Technologies And Natural Sciences, specialized departments of the University, NRU “BelSU” Engineering Centre.

**Subjects**

**1st term**

* Basics of Software Engineering - 12 acad.hrs.
* Mobile Applications Design 12 acad.hrs.
* Algorithm Construction – 12 acad.hrs.
* Specialized History – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (Basics) - 12 acad.hrs.

Total – 72 acad.hrs.

**2nd term**

* Mobile Games And Applications Design - 12 acad.hrs.
* Internet Software Engineering Technologies – 12 acad.hrs.
* Intelligence Systems And Technologies - 12 acad.hrs.
* Entrepreneurship (project management) – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total – 72 acad.hrs.

Information engineering

Head: Lomakin Vladimir Vasilyevich, Chairperson of the Applied Informatics and IT Department, Associate Professor, Candidate of Technical Science.

Production technology for various industries, design, information technologies, applied computer science, project management, business processes re-engineering, software design and development, Internet-solutions design and implementation.

Venue: Institute of engineering technologies and natural sciences, NRU “BelSU” High Technologies Institute”.

**Subjects**

**1st term**

* Basics Of Software Engineering In High-Level Languages - 12 acad.hrs.
* Business Processes Re-Engineering 12 acad.hrs.
* Software Design and Development– 12 acad.hrs.
* Specialized History – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (Basics) - 12 acad.hrs.

Total – 72 acad.hrs.

**2nd term**

* Basics Of Domain Modelling - 12 acad.hrs.
* Web-site Design and Development– 12 acad.hrs.
* Mathematical Methods In Engineering Calculations - 12 acad.hrs.
* Entrepreneurship (project management) – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total – 72 acad.hrs.

Production engineering

Head: Shamraev Anatoly Anatolyevich, Associate Professor at the Information Systems Department, Candidate of Technical Science.

Production technology for various industries, design; production design, automation and operational excellence; industrial design, prototyping, mechatronics and robotics, basics of specialized information engineering.

Venue: Institute of Engineering Technologies and Natural Sciences, specialized departments of the University, with machine-building works participating.

**Subjects**

**1st term**

* Production Automation And Operational Excellence - 12 acad.hrs.
* Computing Tools And Computer Architecture - 12 acad.hrs.
* Industrial Design – 12 acad.hrs.
* Specialized History – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT (Basics) - 12 acad.hrs.

Total – 72 acad.hrs.

**2nd term**

* Automation Of Production And Technological Processes - 12 acad.hrs.
* Robotics Programming– 12 acad.hrs.
* Mathematical Methods In Engineering Calculations - 12 acad.hrs.
* Entrepreneurship (project management) – 12 acad.hrs.
* Foreign Language - 12 acad.hrs.
* IT - 12 acad.hrs.

Total – 72 acad.hrs.