Bechelor study - graduate profile

Applied Informatics and Automation

Within the Applied Informatics and Automation in Industry study programme the graduates acquire theoretical knowledge in the field of automation and applied informatics as well as they gain practical skills necessary for execution and operation of information and automation systems of industrial processes control. The study programme provides them with excellent prerequisites for master degree study accomplishment.
In the first two years of study the graduate will gain knowledge of basic natural, technical and technological sciences and in 2nd and 3rd year of study s/he enhances the knowledge by studying profile subjects in the field of automation (mathematical and physical basics of automation, development of mathematical models of systems and processes, computer-aided analysis and synthesis methods of system automated control, technical means of automated control systems) as well as by studying applied informatics (algorithmisation, programming techniques, operating systems and computer networks, utilization of methods, techniques and means of information technologies within the design and implementation of information and control systems).
The organic connection of studying natural, technical and technological disciplines is aimed at providing the graduates with knowledge of automated control and information systems, its implementation and operation as well as at knowledge of applied informatics procedures and methodologies. This will equip the graduates with the ability to analyse the application possibilities and implement and operate the automation and information technology in technological and production systems control.
The graduate is prepared for practical implementation in the field of industry and services. S/he is capable to look for creative solutions, implement and operate information technologies systems as well as successfully operate in the analysis of automation and information needs in the jobs connected with the implementation and operation in control systems as an individual or a team member. S/he has basic managerial, economic, law, environmental and ethical awareness and is able to apply it in the job operation.

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Integrated Safety

Integrated Safety study programme offers the acquisition of theoretical knowledge in the field of safety and health protection at work, environmental sciences and production quality as well as the acquisition of practical skills necessary to successfully operate in the field. The quality system of education at STU MTF provides excellent prerequisites for master study.
In the first two years of study the graduate will gain knowledge of basic natural, technical and technological sciences and in 2nd and 3rd year of study s/he enhances the knowledge by studying profile subjects in the field of safety and health protection at work , environmental sciences and production quality (hazardous substances, specific technical devices, integrated managerial systems, risk analysis methods, technical chemistry, inorganic and organic chemistry, basics of safety, environmental and fire engineering, measurement and

monitoring of harmful substances, work environment engineering, work environment safety, standardization and certification). The organic connection of studying natural, technical and technological disciplines with safety and health protection at work is aimed at providing the graduates with knowledge applicable in their future career development in master study or in practice.

The graduate is prepared for practical implementation in the field of industry and services. S/he is capable to operate in the field of safety and health protection at work as well as in the field of environmental sciences particularly in basic documentation processing and assessment of work environment parameters within hazardous substances operation, specific technical devices, fire, safety and environmental engineering. The graduate can measure the basic characteristics of hazardous substances and assess and analyse the risks at work and environment. The graduate can operate as a team member in the field of BOZP (Safety and Health Protection at Work) as well as in related fields and environment protection. S/he is prepared for master study in Integrated Safety study programme.

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Study advisor: doc. Ing. Richard Kuracina, Ph.D. richard.kuracina@stuba.sk

Materials Engineering

The graduate acquires complex bachelor education in Materials Engineering study programme with focus on principal types of engineering materials. S/he will understand the production, testing, technological processing, selection, exploitation and degradation of principal engineering materials´ properties. The graduate gains knowledge of key theoretical concepts and principles related to engineering materials, production technology, materials application and recycling as well as of basics of electronics, construction, informatics and industrial enterprise management.

The graduate will be able to investigate mechanical properties of materials, operate the devices utilized in mechanical and defetoscopic tests of materials, evaluate materials´ structure via standard procedures using related instrumental equipment, s/he will be aware of social, oral, legal and economic impact of the occupation. The graduate can operate modern information-communication Technologies and can utilize them practically. S/he will be prepared either for further study in master degree of Materials Engineering study programme or in similar one, then apply for doctoral study in the field or enter the job market.

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Study advisor: doc. Ing. Roman Moravčík, PhD. roman.moravcik@stuba.sk

Mechatronics in Technological Equipment

Mechatronics in Technological Devices study programme is focused on preparing experts in the field of research, development and utilization of new generation of technological systems. Mechatronics is an interdisciplinary branch integrating knowledge of mechanics, electronics, control, and computer science dynamically developed and very progressive in the field of new approaches to product and technological devices design. The study programme is aimed at preparing experts who with their theoretical knowledge will be able

apply practically the mechatronic principles in designing, developing and operating the modern technological devices as well as new unconventional technological processes.
The graduate can operate in the field of operation, diagnostics, development, design and prototyping of advanced technological devices and systems. Regarding the enhanced theoretical knowledge and practical skills acquired within the study programme, the graduate can operate in machine and electronic enterprises, e.g. in the field of quality control and servicing the mechatronic systems as well as in programming and automation of technological devices and systems. The graduate can solve the tasks related to bachelor study creatively and independently. S/he has basic managerial, economic, legal, environmental and ethical awareness applicable in his/her occupation.
Guarantor: doc. Ing**.** Milan Naď, CSc. milan.nad@stuba.sk
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Personnel Policy in Industrial Plant

Personnel Policy in Industrial Plant study programme is focused on acquiring theoretical and practical knowledge based on current science and on their application in the entire job or in follow-up master study. The study programme provides the students with theoretical knowledge in natural, technical, technological and humane sciences, enhanced in further study by knowledge of industrial engineering and personnel policy in industrial plants with particular emphasis on practical application of acquired knowledge.
In the first three semesters of study the graduate will gain knowledge of basic natural, technical and technological sciences and in 2nd and 3rd year of study s/he enhances the knowledge by studying profile subjects in the field of industrial engineering with focus on personnel management, labour law, statistic methods, accounting and marketing or social policy of the plant specifically applicable in personnel policy, etc.
The organic connection of studying natural, technical and technological disciplines with industrial engineering with focus on personnel policy in industrial plant is to prepare the graduate able to utilize statistical evaluation of personnel data and develop related analyses for middle and top management decision making in the field of planning and human resources recruiting as well as in evaluating the optimization of work positions in relation to workplace ergonomic parameters.
The graduate has the skill to operate the job interviews, develop adaptation programs for employees, recruit and select new employees, process personnel agenda, use sociological methods focused on analysis and survey of employees´ satisfaction and social climate within the enterprise. The graduate can process the plans of employees´ needs as well as plan their education and evaluation.
The graduate can operate independently in individual specialized personnel departments in medium-sized and large companies. S/he can also operate in the departments of financial and economic issues, education and development, employees´ recruitment and selection or in the field of social issues within industrial plants, etc. The graduate can operate as a Junior HR Manager, HR Manager Assistant, or PR Manager as well as s/he can operate in a low management position of personnel policy in small companies.
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Study advisor: Ing. Kristína Koltnerová, PhD. kristina.koltnerova@stuba.sk

Computer-Aided Production Technologies

Computer-Aided Production Technologies study programme is focused on acquiring theoretical and practical knowledge based on current science results and on mastering their application in future occupation or in related master study.
The graduate of Computer-Aided Production Technologies study programme acquire the basic theoretical knowledge of natural sciences, technical and technological disciplines, management as well as basic knowledge of informatics to be able to utilize applicable approach to computer technology.
The knowledge is enhanced by study of profile subjects particularly in the field of production Technologies, computer-aided production Technologies, computer-aided assembly of CAA, CAQ quality with emphasis on practical skills and abilities. Previous knowledge is complemented by new one in the field of mechanics necessary for specific solution of assignments, projects and theses.
The organic connection of studying natural, economic and managerial disciplines with technical, technological and computer sciences is aimed at providing the graduates with knowledge applicable in their future career development in master study or in practice.
The graduates can operate in implementation and operation of production-technological systems as CAD/CAM technologists, CA operators of technological offices, constructors of production tools and fixtures, in the field of technical preparation of production and in programming CNC technology and production systems.
The graduates of the study programme can successfully enter the job market in the field as they are frequently headhunted during their study.
Guarantor: doc. Ing. Peter Pokorný, PhD. peter.pokorny@stuba.sk
Study advisor: Ing. Ivan Buranský, PhD., ivan.buransky@stuba.sk

Industrial Management

Industrial Management study programme focuses on acquiring topical theoretical and practical knowledge as well as on mastering its implementation in graduates´ job performance or in follow-up related master study. The study programme provides the acquisition of knowledge in the field of natural, technical, technological and humane disciplines and subsequently in the field of industrial management with particular emphasis on practical application of gained knowledge.
In the first three semesters of study the graduate will gain knowledge of natural, technical and technological sciences and in 2nd and 3rd year of study s/he enhances the knowledge by studying profile subjects in the field of industrial engineering with focus on business economics, company/enterprise management, industrial engineering methods and tools, production management, logistics, personnel management, accounting, methods of decision making, team work, etc.
The organic connection of studying natural, technical, technological and industrial management is aimed at profiling the graduate with knowledge of social-technical systems integrating human resources, information, materials, devices and processes within the lifecycle of a product or services. The graduate can operate and control the production, logistics, quality, finances and human resources on the first-line and middle management levels.

The graduate can operate, communicate and handle conflicts in work teams. S/he masters topical information-communication technologies and implements them efficiently in practice. The graduate has also managerial, economic, legal, environmental and ethical awareness applicable in his/her job performance.
The graduate can operate mainly as a member of a creative team, or as its leader in organizations of various industrial branches, particularly on first-line and middle management levels of industrial plants; nevertheless, the graduate can also set up and lead a small company or association or enter the management team of individual parts in larger organizations.
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Study advisor: Ing. Viera Bestvinová, PhD. viera.bestvinova@stuba.sk

Production Technologies

Production Technologies study programme focuses on acquiring topical theoretical and practical knowledge as well as on mastering its implementation in graduates´ job performance or in follow-up related master study. The study programme provides the acquisition of theoretical knowledge in the field of production technologies as well as practical skills necessary for the production process implementation. It provides the graduate with excellent prerequisites for master study in related study programme.
In the first two years of study the graduate will gain knowledge of natural, technical and technological sciences and in subsequent study s/he enhances the knowledge by studying profile subjects in the field of production technologies, CAD/CAM systems application, programming, design, and metrology.
The organic connection of studying natural, humane and technical sciences with the study of production technologies is aimed at profiling the graduates with knowledge of technological production processes, production design, computer-aided technological processes, and control and quality of production processes.
The graduate is prepared to operate in all fields of industrial production. S/he can look for creative solutions, implement them into production process. The graduate has also managerial, economic, legal, environmental and ethical awareness applicable in his/her job performance.
The graduate of the study programme can operate as an independent technologist or a team member in various industrial fields as well as in private sector. The graduate has sufficient knowledge applicable in technical preparation of the production, production process control and product quality evaluation.
Guarantor: doc. Ing. Jozef Bílik, PhD. jozef.bilik@stuba.sk
Study advisor: doc. Ing. Jana Šugárová, PhD. jana.sugarova@stuba.sk

Production Technologies and Production Management

After graduation from the bachelor degree of Production Technologies and Production Management study programme, the graduate will be prepared to continue in related master study or enter the job market successfully. Due to the Professional qualifications the graduate can operate as an independent technologist or line manager in the technological

preparation of the production. The graduate can solve the tasks related to bachelor study creatively and independently.

Guarantor: prof. Ing. Alexander Čaus, DrSc. alexander.caus@stuba.sk
Study advisor: doc. Dr. Ing. Pavel Kovačócy pavel.kovacocy@stuba.sk

Production Devices and Systems

The graduate of Production Devices and systems study programme acquire the basic theoretical knowledge of natural sciences, technical and technological disciplines, enterprise management and quality as well as basic knowledge of informatics to be able to utilize applicable approach to computer technology. In 2nd and 3rd year of study the graduate enhances the knowledge by studying profile subjects, particularly in the field of mechanization and automation, industrial robots and manipulators, machine parts and mechanisms, tools and technological equipment of production devices, etc., with emphasis on practical skills.

The organic connection of studying natural, technical and technological disciplines is aimed at providing the graduates with the best prerequisites to implement in the job market.

The graduate can operate as a designer of automated production systems and devices, or as a technologist or independent entrepreneur in engineering services as well as an expert in various production and technological workplaces.

Despite the lacking related statistics on graduates' implementation, we can state that majority of bachelor study graduates continue in related master study. Nevertheless, some graduates enter the job market immediately after graduation and accomplish their master study in part-time form. In general, the graduates of Production devices and systems study programme have no difficulties to find a job; on the contrary, they are often headhunted.

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MASTER´S STUDY - GRADUATE PROFILE

Process Automation and Informatization in Industry

Knowledge gained during the bachelor's studies (science, technology and engineering basics combined with fundamentals in automation and related fields) is deepened by knowledge in natural science and principle subjects. The most essential subjects are oriented on system modelling, simulation and optimization; information security management systems; industrial control systems; designing components for complex control systems; advanced control methods; methods for system diagnosis; integrating information and control systems across all levels of control and methods and techniques of knowledge acquisition for the hierarchical process control.

Graduates are immediately able to enter the labour market as well as to continue education at the doctoral level. They are qualified to analyse, design, implement and maintain

monitoring and dispatching systems used for technology and production processes control. They understand system diagnostics methods and are capable of providing creative solutions for control systems and management decision support systems in various enterprises and organizations. They are able to solve problems related to information and control systems integration and understand methods and techniques of knowledge acquisition for the hierarchical control of processes.
They are equipped with managerial, economic, legal, environmental and ethical awareness and are capable of applying it at professional life.
A graduate is competent to be employed in the field of development, design and use of automated control systems in industrial enterprises, but also in institutions providing design and research of control and information systems, as well as at schools and educational institutions.
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Study advisor: doc. Ing. Pavel Važan, PhD., pavel.vazan@stuba.sk

Integrated safety

The purpose of this master's degree programme integrated safety focuses on the acquisition of theoretical and practical knowledge based on the present state of science and to manage their use in professional or with continued follow-up doctoral studies. The aim of cross connection between science education, technical and engineering disciplines and the study of health and safety at work is to profile graduates with the knowledge that can later be successfully used in further career growth, continuing studies at doctoral degree or in the technical praxis.
Graduate can work in the field of health and safety at work place and the environment, particularly as regards self-management, and assessing the performance of the work environment in working with hazardous substances, reserved technical devices, fire, safety and environmental engineering. Graduates can measure the characteristics of hazardous substances and can assess and analyze the risks contained in the working and living environment.
Graduates could be applied as a manager of the teams in the field of occupational health and safety, fire protection, management systems, safety and the environment.
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Study advisor: prof. Ing. Maroš Soldán, PhD., maros.soldan@stuba.sk

Materials Engineering

The Master degree of study programme Materials Engineering is based on the present state of science and technology in the field of materials (metallic materials, plastics, ceramics, glasses, composites), used in practice. The graduate has the advanced knowledge about influence of chemical composition and structure of materials on mechanical, technological and utility properties of materials of semi-products and final products. He/she has the

knowledge about advanced materials and very special materials as nanomaterials, biomaterials, biodegradable materials, memory-shape materials, metallic foams, superconductors, materials for high-temperature applications, and others. He/she knows the advanced methods of materials production and technological processing of materials to form the semi-products, components and final products (vacuum technology, plasma and laser technologies, electron beam technologies, powder metallurgy, surface modifications, nanotechnologies). He/she is educated in modelling of phase equilibria in materials and simulations of production and processing of materials. He/she is skilled in analysis of structure and phase composition of materials (scanning and transmission electron microscopy, X-ray diffraction, and others) and special techniques of testing of materials properties, as fracture mechanics, fatigue testing, creep properties, corrosion testing, and others. He/she knows the main degradation processes and their influence on the properties of materials.

The graduate is ready to enter the labour market in the field of testing of materials using advanced techniques, cooperation with engineers and technology experts in planning and processing of materials to components, tools and products. High-rated graduates can continue in education in Doctoral study in the study branch Materials or related study branches

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Machining and Forming Technology

The master study focuses on preparation of specialists in the field of machining and forming technology for employment in industry or sector of research and development. Graduate has deep theoretical knowledge in the field of production technologies (machining, welding, forming, foundry and assembly), materials, production machines, tools, process design, metrology and systems of quality assurance supported by the knowledge of CAx technologies. It has predictions for systematic and complex solving of material, technological and managerial problems of production processes with goal to racionalize, modernize and design of new products, processes and systems.

Graduate finds application in the field of product, process and production systems designing, in the technological shop floors, research, development and service as a production technologist, technologist - CNC programmer of machine tools, member or leader of development teams, production coordinator or project manager.

Guarantor: prof. Ing. Peter Šugár, CSc., peter.sugar@stuba.sk

Study advisor: doc. Ing. Augustín Görög, PhD., augustin.gorog@stuba.sk

Personnel Policy in Industrial Plant

The study programme provides the acquisition of knowledge and skills in the field of industrial engineering (particularly analysis and rationalisation of work, ergonomics, technical preparation of production, quality management, operational analysis, innovation, information and project management), and specifically focusing on personnel work in an industrial enterprise (career management and employee development, employee performance management, recruitment services, intercultural management).
The graduate gains knowledge in project management, the economic return on the investment in employees, total quality management in the context of sustainable development and the stabilisation of employees in key positions.
The graduate is able to prepare methodological guidelines for line managers, to provide support for the implementation and adoption of amendments, provide advice on career management and succession, to create systems, tracking and talent management, prepare and organise internal audit personnel, develop competency models and systems, staff evaluation, complex systems for training and the development of employees, and apply the different personnel indicators in the context corporate social responsibility principles. The graduate is able to work in international and interdisciplinary teams.
The graduate can apply the knowledge especially at a middle management level in an industrial plant in HR departments, as a manager of the personnel department, specialised departments in medium and large firms in the area of payroll and financial management, the departments of education and development, career counseling, planning, recruitment and selection of staff or in social work in industrial enterprises. The graduate has a disposition to work as an independent consultant and career coach. The graduate has developed the skills to hold positions at the senior management level in the company, in the position of HR manager or PR manager.
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Study advisor: doc. Ing. Jaromíra Vaňová, PhD., jaromira.vanova@stuba.sk

Computer-Aided Design and Production

The study programme includes the up to date scientific and industrial knowledge, necessary for engineering practice or as preparation for PhD. study. The major subjects are focused on independent work of students on semestral projects. The graduate have skills to be production engineer.
The graduate can be a team leader of teams making engineering computer analysis, simulations of production processes and projects of production lines. The graduates can be also a team leaders of teams for computer technical preparation of production and they can be company managers or enterpreneurs in the area of production application of computers and CA systems. The graduates obtain second stage university education. The companies are interested in students during their study and therefore graduates obtain job in the area of their study programme.
Guarantor: prof. Dr. Ing. Jozef Peterka, jozef.peterka@stuba.sk
Study advisor: doc. Ing. Ladislav Morovič , PhD., ladislav.morovic@stuba.sk

Industrial Management

The study programme provides the acquisition of knowledge and skills in the field of Industrial Engineering (particularly the design of production systems, their modelling and simulation, production management, operational analysis, and rationalisation of work, ergonomics, innovation, investment and project management).
The study also includes social sciences and the development of language competencies.
The graduate is able to solve complex problems in technical as well as in managerial areas at middle and senior management level. The graduate is able to plan, design, implement, coordinate and monitor engineering projects in manufacturing, logistics, process management, ergonomics, quality and so on. The graduate is also able to execute corrective measures to improve the efficiency of working conditions to increase productivity and reduce production costs. The graduate is able to create corporate and business strategies with a focus on sustainable development, and is also able to work in the area of applied industrial research and innovation. The graduate is able to use the methods of project management in the planning and implementation of small and medium-sized projects and work in international and interdisciplinary teams.
The graduate can apply the knowledge in organisations of various industries, especially at middle and senior management levels and wherever it is needed to achieve synergy of managerial, economical, technical, humanitarian and social knowledge and skills in the application of advanced tools, methods and techniques for industrial engineering.
The graduate is able to integrate and optimise processes in an industrial enterprise undertaking techniques to increase the overall efficiency of the organisation activities.
The graduate is prepared to continue with Doctoral Study and to build a scientific perspective in a range of industrial engineering areas.
Guarantor: prof. Ing. Miloš Čambál, CSc., milos.cambal@stuba.sk
Study advisor: doc. Ing. Marta Kučerová, PhD., marta.kucerova@stuba.sk

Production Technologies and Production Management

After completing the second stage of the study the graduates will be able to continue the third stage of the study, or to enter the job market. Due to professional skills, the graduates will find application as a production technologist.

The graduate can works as production engineers for production preparation, members and leaders of development teams. The tasks, which can be solved by the graduate, correspond to master degree and the proposed graduate profile.
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Production Devices and Systems

The master's degree program production devices and systems aims to obtain theoretical and practical knowledge, based on the present state of science. The main idea behind this is that students may be able to apply such knowledge in their professional life and/or in the possible continuance in higher education through a doctoral program.
This program allow students to consolidate and deepen their bachelor's degree in a particular field of study manufacturing Technology. The main subjects in the study program are oriented to applied mechanics, machine, components and modules for the construction of production technology, logistics, automation and programming of production and handling devices, design, operation and maintenance of production equipment and systems, as well as diagnostics, reliability and safety engineering systems. Subjects of the fields of management are included as well
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Welding and Joining of Materials

The graduate of study program is prepared to immediately enter the labour market, study the 3rd degree program as well as further professional education. He/she manages the analytical abilities, is capable to critically evaluate today's knowledge of science and technology, to design and implement required technological processing of engineering materials, to assess quality of weldments according to international standards, to predict a lifetime of weld structures or other joints made by welding, as well as to judge their safety. During the exercise of his/her profession he/she can simultaneously apply acquired managerial, economical, legal, ecological and ethic awareness.
The graduate can be asserted in an industrial production, designing departments, R&D, as well as service, certification and management fields. He/she can work as technologist, designer, member or leader of R&D team, quality control person, production coordinator, project manager, sales representative etc.
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Study advisor: prof. Ing. Roman Koleňák, PhD., IWE. roman.kolenak@stuba.sk

DOCTORAL STUDY - GRADUATE PROFILE

Process Automation and Informatization

Doctoral study programme Process Automation and ICT implementation is intended for the graduates of master's study in the field of Automation or related fields, such as Cybernetics, Applied Informatics, Software Engineering, Artificial Intelligence, Compute Engineering, Information Systems, Mechatronics, Measuring Technology and others, including various combinations. The program will build on the knowledge gained during the master's studies

and deepen theoretical knowledge related to the graduate's scientific work in the field of automated and automatic control, information systems and technology, problem-solving related to complex systems development, experiments preparation and control in the field of systems modelling, simulation and optimization, methods and problems of integrating information and control systems across all levels of control, methods and techniques used for acquiring knowledge needed for the hierarchical control of processes.
The study program will prepare students for independent problem solving in the field of automation (advanced methods of automatic control systems theory, intelligent control methods, rules and methods for designing of automated and automatic systems and information security of such systems).
The programme prepares graduates for applying scientific methods of research and development of selected problems in automation using information technology for data collection, transmission, storage and processing.
In the first and second term, system of compulsorily optional subjects allows students to decide for one of the three core areas (control of complex systems, intelligent control systems, modern methods of production systems control) representing their further study and scientific activity. Graduates are prepared for scientific and research work in the field of new methods and techniques research and development in the complex control systems based on the latest knowledge in the field of control algorithms and control systems at all levels of control.
They are ready to formulate problems and challenges and to lead research team professionally. They are aware of social, moral, legal and economic context of their profession in a position of scientific researcher.
A graduate's future employment is to be seen in research, scientific or training organizations regardless of whether it is a domestic or foreign labour market, as well as in a position of top developer in industry.
PhD graduates are well applied in practice, not only in our country but also in foreign companies and research institutions. All graduates have been applied as creative and researchers in industry e.g. BMW Muchen, Leibniz-Institut für Festkörper- und Werkstoffforschung Dresden, Hewlett-Packard Slovakia, VUJE a.s..
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Study advisor: doc. Ing. Peter Schreiber, CSc**.,** peter.schreiber@stuba.sk

Integrated safety

Doctoral program Integrated safety is focused on the scientific research in the area of integrated safety, safety and health at work, fire safety and environmental engineering. Successful graduates of this programme on the basis of the quality requirements of the quality of teaching and research at the faculty controls scientific and educational work in these areas and can be applied in research of these areas as a valid member or as a manager of research teams. Graduate knows the risks and its analysis, evaluation and management. He knows the issues of environmental and safety risks in the workplace and technologies. He knows chemistry and mechanism of fires, their extinguishing and explosion, he could analyse problems in quality assessment and product safety.

Graduate is a valid member of scientific research teams in the field of health and safety at work and in environmental sciences. He knows to design scientific and engineering solutions in the field of risk assessment and risk analysis and management, environmental engineering, safety engineering, fire engineering.
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Study advisor: prof. Ing. Karol Balog, PhD., karol.balog@stuba.sk

Personnel Policy in Industrial Plant

The study programme focuses on the acquisition of knowledge and skills that will enable the graduate to master research projects in key areas of industrial engineering to create innovative processes and products. The study programme is designed to develop competencies enabling contribution to the knowledge base, innovation and creation of new knowledge and practices. The graduate acquires deep theoretical knowledge and a methodological basis, which will allow the individual to lead independent research based on the principles of sustainable development, with a particular focus on industrial engineering and personnel work in an industrial enterprise. The graduate is able to work on the science-based system, not only in industries but also in other areas of life, independently conduct research and present the results at scientific forums.
The study programme "Personnel policy in industrial plant" focuses on the acquisition of theoretical and practical knowledge based on the present state of science and to manage its use at work. The programme provides the acquisition of knowledge and skills in industrial engineering, management and economics (Management of industrial enterprises, the exact methods in company management, the economy and economics) and specifically focusing on personnel policy in industrial plant (HR tools for sustainable business performance, the management and creativity for its development, etc.).
The graduate can apply the knowledge gained in scientific research, and also teaching in universities or working in research institutes, consulting, advisory companies dealing with this issue, research and development departments and obtaining practical experience in top managerial positions in different types of organisations. The graduate in accordance with the technical topic of the doctoral thesis is predisposed to become an expert in the field.
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Study advisor: doc. Ing. Andrea Chlpeková, PhD., andrea.chlpekova@stuba.sk

Industrial Management

The study programme focuses on the acquisition of knowledge and skills that will enable graduates to master research projects in key areas of industrial engineering to create innovative processes and products. The study programme is designed to develop competencies enabling the contribution to the knowledge base, innovation and the creation of new knowledge and procedures. The graduate acquires deep theoretical knowledge and a methodological basis, which will allow the individual to conduct independent research based on the principles of sustainable development, with a particular focus on industrial engineering, production engineering and economic systems and processes etc.

The graduate is able to work on the basis of systemic science, not only in industries but also in other areas of life, independently conduct research and present the results at scientific forums. The graduate will obtain the ability to work scientifically, formulate and analyse problems, propose solutions by completing Research projects I.-IV. The graduate will achieve the capability to implement projects using the latest formal apparatus, experimental procedures with respect to their professional interests and implement solutions to match the latest trends of science and technology development by completing the Dissertation projects I.-VI. The graduate will learn and understand the social implications of scientific work in humanities study. In the subjects English I.-III. the graduate will learn to handle the principles of writing scientific papers, preparing posters and participation at scientific conferences and seminars in foreign languages.
On this basis, as previously mentioned, the graduate will acquire a comprehensive university third level education in the academic field of "Industrial Engineering".
The graduate can apply the knowledge in science and research, and also pedagogic work at universities, research institutes, consultancy companies, research and development departments and after obtaining practical experience also in top managerial positions in different types of organisations.
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Study advisor: doc. Ing. Jana Šujanová, CSc., jana.sujanova@stuba.sk

Advanced Materials and Materials Design

The doctoral curriculum is aimed at the widening and practical use of knowledge acquired on the master study from natural-scientific and materials-technological subjects. PhD-students are invited to participate in international and/or relevant domestic research projects. In agreement with the scientific orientation of the Institute of Materials Science, CAMBO, and with themes of own theses, the students suggest research concepts, prove them experimentally with unique laboratory equipment, perform modelling and simulations of investigated processes, and analyse inventively obtained results. Outputs are mostly scientific papers in CC and/or impacted journals. The graduates find jobs either in R&D departments of production companies or in research teams established at universities or SAS. They are competitive to reach post-doc positions at famous foreign institutions of materials research.
Guarantor: prof. Ing. Ľubomír Čaplovič, PhD., lubomir.caplovic@stuba.sk
Study advisor: prof. Ing. Ľubomír Čaplovič, PhD., lubomir.caplovic@stuba.sk

Mechanical Engineering Technologies and Materials

The graduate of doctoral study programme Mechanical Engineering Technologies and Materials in the branch 2307 Mechanical Engineering Technologies and Materials has enhanced theoretical knowledge in the field of metallurgy, advanced technologies of cutting and non cutting processing of materials, computer aided (CA) and applications of CA technology systems and simulations of technology processes, automation of technology processes and their applications in industry, with respect to qualitative, technical/economical and ecology aspects of different kinds of production.

The graduate manages scientific methods of research and development of production processes with a primary focus on machining, welding, soldering, forming, foundry, as well as on surface engineering, metrology, assembly, tribology, CA technologies in engineering and machines for metal processing.
The graduates of the study programme Mechanical Engineering Technologies and Materials are expected to be working in research teams or training institutions in domestic or foreign labour market, in position of top-researchers or top-managers in industry, in the management of production departments equipped with advanced production technologies, in institutes of Slovak Academy of Sciences and at technical universities focused to production technologies. The graduates can be also asserted in the institutions providing further professional education.
Guarantor: prof. Dr. Ing. Jozef Peterka, jozef.peterka@stuba.sk
Study advisor: doc. Ing. Mária Kapustová, PhD., maria.kapustova@stuba.sk

Production Devices and Systems

The graduates of the third level of study are expected to more specifically work with educational purposes in the field of science, research and development. They are also expected to in a lesser extent work in practice, especially in research and development centers, companies, or in highly specialized positions in production and management companies. Graduates may find employment as professionals in positions addressing the conceptual technical and organizational tasks of complex automation of manufacturing systems.
Despite the fact that the statistics for graduates are not well maintained and up-to-date, it can be stated that the majority of PhD graduates are now working in the field of his study. Several graduates after graduation work remained in the faculty as well. Many graduates continue to cooperate with the institutes, supervise diploma works and present trends from practice. They also provide lectures on given topics and help to ensure excursions and practical training of students involved in the department while also sometimes giving funding and sponsoring for these activities and others.
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Study advisor: doc. Ing. Peter Košťál, PhD., peter.kostal@stuba.sk