60 YEARS

UNIVERSITY OF CHEMICAL TECHNOLOGY AND METALLURGY

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OF CHEMICAL TECHNOLOGY

AND METALLURGY

Sofia, 2013

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For the sixty years of its existence, our University has developed as a center of scientists, teachers and their followers, imposing high academic standards of education. During these years, the University has gradually conquered an international prestige, thus becoming part of the European educational and research area. For the time being, we have to be proud of the thousands of experts who left our lecture halls and laboratories in order to become the driving force of national economy, especially of chemical and metallurgical industry, and to transfer their experience in enterprises and universities all over the world.

Now we are looking forward, to the future, trying to face new challenges and new prospects. Key objectives of our development strategy are science and technologies, innovations, science–business partnership and competitiveness, effective management, together with the acquisition of new competencies and lifelong learning. All these objectives can be achieved by increasing the quality of education and of scientific research.

In the next few years, our priorities will match the common processes and tendencies in European University education, as described in the strategic frame of "Education and Training 2020". For us, it would mean to continue our mission in providing the high expertise of our graduates and, together with them, to ensure the sustainable development of a knowledge-based society.

The decades elapsed make us proud of our past and responsible for our future. To them we owe the most precious heritage – the genuine academic spirit, which is the guarantee of our success.

Prof. Dr. Eng. Mitko Georgiev
Rector of UCTM

EDUCATION ACTIVITIES

The main mission of UCTM has always been the training of high-skill experts in the field of Chemical Technologies, Metallurgy, Materials and Material Science, Biotechnologies, Automation and Information Technologies, Environmental Engineering, Industrial Management and Business Administration. In an attempt to intensify the training activities and to raise the prestige of UCTM as educational center, as well as quickly and adequately to react to the interests of young people, a series of new interdisciplinary bachelor and master specialties have been organized, like Nanotechnologies and Nanomaterials, Renewable Energy Systems, Materials and Management, Energy and Environmental Effectiveness in Metallurgy, Bioenergy Technologies and Bioproducts, Computer Design in Chemical Technologies, Biomedical Engineering. In this connection, a continuous updating of curricula is carried out.

In spite of the existing demographic problems, the admission of students has been increased in the last years, attaining more than 900 students for the academic year 2012/2013, with a total number of about 3700 students trained in UCTM. The renewal of the laboratories and the equipment is an integral part of the training activities.

The basic long-term strategic task of the University, in compliance with the European cooperation frame program "Education and Training 2020", consists in its development to a leading, high-rated and competitive educational and research institution in the area of chemical and metallurgical innovative technologies. The knowledge, skills and competencies acquired by the graduates would then allow their successful realization at the national and world labour market.

Prof. D.Sc. Eng. Nikolay Dishovski
Vice Rector for Education Activities

The Department for **Education Activities** organizes the admission of students and the whole education process, it plans and controls the teaching activities, as well as the publishing of textbooks and teaching aids. The department controls the implementation and actualization of the operating system "Student".

SCIENTIFIC ACTIVITIES

The University successfully develops research and applied research activities in all the professional fields of education. According to its scientific achievements, the University ranks among the leading Bulgarian universities and, at the same time, intensively cooperates with notorious research centers in Europe and in the world. In the last years the traditionally good relations between the University and several industrial enerprises in Bulgaria have made substantial progress.

Important elements of the research policy of the University are the scientific promotion of the academic staff, as well as the involving of students in research and applied research projects. For a period of already ten years, the University has organized annual scientific poster sessions for young scientists, Ph.D., master and bachelor students. There is a steady increase in the number of trained bulgarian and foreign Ph.D. students, a constantly increasing part of them succeed in completing their studies in time. The University is meeting the challenge to provide the competent and skilled experts needed both by our industry and the research institutions.

Assoc. Prof. Dr. Eduard Klein
Vice Rector for Scientific Activities

The Department for Doctorates and Scientific Juries organizes the procedures connected with the scientific promotion of the academic staff and the presentation of Ph.D. theses.

SCIENTIFIC RESEARCH CENTRE (SRC) AT UCTM

UCTM today is not only a modern university, but also a large research center on the issues of chemical and metallurgical science and technology. It focuses highly qualified scientific potential in a wide range of scientific fields and extensive practical experience, capable of solving high-level complex chemical, chemical physics, technological, metallurgical, thermotechnical, engineering, economic, automatic control, environmental, related to nanotechnology, energy efficiency and other problems. In our country there is no other educational and scientific centre with such a complex profile for staff training and conducting research concerning the development and implementation of new technologies, research, optimization and intensification and management of existing productions.

In 1962 by a decree of the Council of Ministers on 1st April Scientific Research Sectors (SRC) were established at higher education institutions in Bulgaria. The High-

er Institute of Chemistry and Metallurgy created its SRC in the same year. In 1964 the activity of SRC at UCTM went entirely to a business account. For a number of years, SRC held one of the first places concerning the organization, and results compared with the other SRCs at the universities in the country.

The first head of the SRC was Professor Mihail Gerasimov, and the first contract was the contract of a team led by Professor Diko Ivanov on the issue of "Enhancing and improving the production of mineral nitrogen-phosphorus fertilizers" concluded in 1962. According to the 18th decree of the Council of Ministers in 1964, from the 1st July of the same year, SRC was formed as a research unit of VHTI (then an abbreviation of Chemical Technology and Metallurgy) with independent business account and full self-sufficiency. Professor Todor Nikolov was appointed Head of the SRC of the same date. Later heads of SRC were successively Prof. D.Sc. Milcho Natov – July 1970, Prof. D.Sc. Ivan Bozhov - June 1976. In November 1981 Prof. D.Sc. Nikola Lingorski was appointed head of SRC and in 1987 - Prof. D.Sc. Lyubomir Yankov, in 1990 – Assoc. Prof. Dr. Arseny Arsov, in 1994 - Prof. D.Sc. Nedialko Lyakov, in 2004 – Assoc. Prof. Dr. Boris Stefanov, in 2007 - Prof. Dr. Mitko Georgiev, and since October 2011 up to now Assoc. Prof. Dr. Boris Stefanov has been head of SRC.

SRC is a structural subdivision of UCTM with independent business account and full self-sufficiency. The main task of SRC is to organize and manage the overall research, development and implementation activity, to co-ordinate it better with the student scientific and technical work in order to convert the learning process into a teaching and research process, to integrate on the basis of contracts the activity of UCTM with the activities of other universities, BAS, ministries, departments and business organizations, as well as to organize the UCTM participation in national research and implementation programmes.

The research tasks are performed by groups that form the organizational and economic strength of SRC and they are temporary structural units that are designed to meet a particular goal and deadlines required to perform the tasks.

The SRC covers the following activities: contract subject-matter with business organizations, contracts subject-matter with the National Fund "Scientific Research" contracts financed by the state budget, contracts under national and international programs; applied learning activities; promotion of scientific achievements of University of Chemical Technology and Metallurgy; development of joint projects with business organizations and companies. The following business organizations and companies have the largest contribution to the University: "Aurubis Bulgaria" JV, "Sofia Med" JV, Sofia Municipality, "KCM" JV, "Nikrom tubular furniture" JV, "Chelopech Mining" JSC "Glavbulgarstroy infrastructures construction" JV, "Konkredo", Municipality Pernik, "Ecometal Engineering" Ltd., "Zebra" JV, as well as projects funded by the National Innovation Fund "Small and medium-sized enterprises".

The main objectives of the research activities at UCTM are:

- introduction of priorities for research;
- creation of a favorable environment for research;
- optimal usage of all opportunities for obtaining funds provided by different sources;
- integration of Bulgarian science in the European Research Area;
- development of scientific potential; development of research infrastructure and creation of integrated research teams and units;
- improving efficiency and effectiveness

of research for the benefit of the economy, society and the university through the implementation of the research product;

- introduction of international criteria for evaluating research;

- administrative capacity building to support the scientific research;

- improvement of the information system;

- further integration of higher education and research;

- international cooperation.

SRC at UCTM solves the following main tasks:

- Increasing the relative and absolute share of projects, ending with direct economic and social impact;

- Building relationships between the scientific potential of UCTM and agencies and large plants to ensure their scientific service in a broader sense, including methodical guidance of their units;

- Topical guidance of fundamental and applied research on strategic issues of scientific and technical progress;

- More efficient use of existing resources to improve effectiveness of scientific work in all its forms and varieties;

- Linking research more closely to the teaching process with a view to its conversion into applied learning activity;

- Organization of the applied learning activity by actively attracting undergraduate and graduate students.

The team of UCTM boasts deserved titles awarded to members of the University for excellence in research, implementation and educational work, corresponding members of the Academy of Sciences, the Dimitrov Prize Laureates, etc.

ACCREDITATION AND QUALITY OF EDUCATION

UCTM has three institutional accreditations with maximum scores, which serve as proof for our leading role in the higher education in engineering in Bulgaria. The national rating of higher education institutions affirms and the fact that the university is a leader in four professional directions and second in two. This success is a result of traditions, innovation and competitive power. We join the new environment of the European realm of higher education like a partner institution on the base of established contacts and academic mechanisms for integration in the new three leveled structure of education. The successful implementation of the system for building up and transferring ECTS credits helps the mutual acknowledgement of education and mobility.

Simultaneously the system has become an imperative fundament of student centered learning and each year we improve the education environment with regards to the needs of the students and the industry.

Providing a high quality of education, according to the national, European and institutional standards is a priority to the university.

Assoc. Prof. Dr. Eng. Senia Terzieva
Vice Rector

BOARD OF TRUSTEES

The Board of Trustees at UCTM has been created with the decision of the Academical Council on 19 December 2007 according to the requirements of the Low for the university education in Bulgaria. The President of the Board has been appointed Assoc. Prof. Dr. Kiril Stanulov (Rector of UCTM in the period 2003-2007). The Board consists of seven persons representing the business, state institutions and the students, as follows: Mrs. Sonia Krastanova from the Ministry of Education, Youth and Science, Director of the Department "Finance"; Mr. Nickolas Trean – Executive Director of "Aurubis Bulgaria"; Mr. Plamen Bobokov – President of the Board of Managers of "Prista Oil Holding"; Dr. Ivan Zlatinov – Manager of "Makmetal Holding"; Prof. D.Sc. Milcho Natov (Rector of UCTM in the period 1976-1981); eng. Aneta Boteva Dimitrova – representing the Student's Council at UCTM. Secretary of the Board of Trustees is eng. Galia Gancheva.

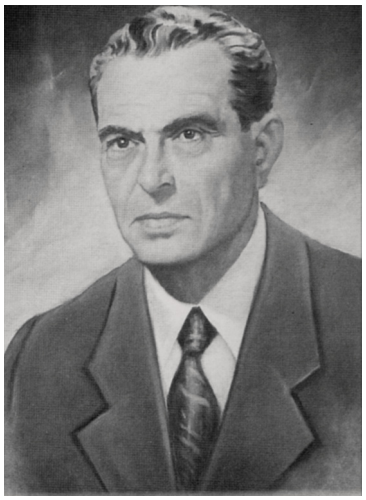
During the regular meetings the Board of Trustees expresses attitudes on the main problems of the academical, financial and other politics of UCTM and suggests offers to the Rector and the university guidance. It assists in the accreditation procedures and other representing activities.

Substantial part of the work of the Board of Trustees is strengthening of the

Eng. Galia Gancheva
Secretary of the Rector's office and of The Board of Trustees

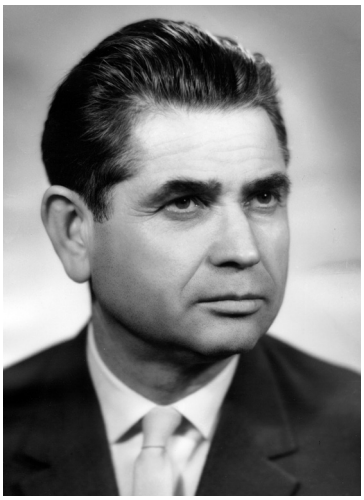
partnership of UCTM with the business and the development of the donations. The financial and material contribution of these activities are more than 500 000 BG leva, used for the development of the university infrastructure, Library and Information Centre, donation of scientific conferences, stimulation of students, Ph.D. students and other activities.

RECTORS OF UCTM



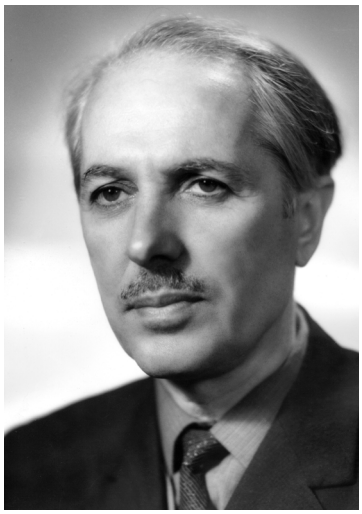
Prof. Dr. Boris Zagorchev
Rector 1953-1958

Corresponding Member Prof. Dr. Chavdar Ivanov
Rector 1958-1962



Prof. Dr. Kiril Dimov
Rector 1962-1963; 1966-1968

Prof. Dr. Krum Kaishev
Rector 1963-1964

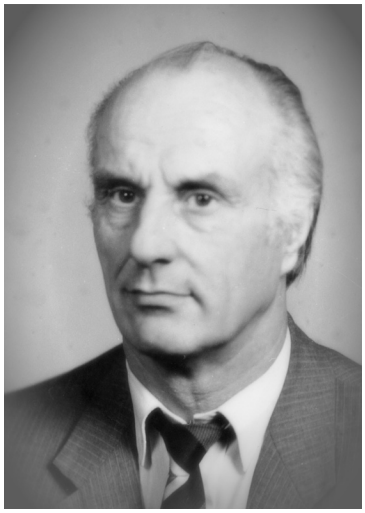


Academician Prof. D.Sc. Stefan Christov
Rector 1964-1966

Prof. Dr. Mihail Gerassimov
Rector 1968-1970

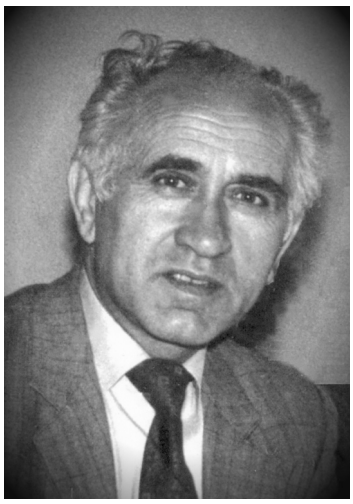
Prof. D.Sc. Dimcho Dimitrov
Rector 1970-1976

Prof. D.Sc. Milcho Natov
Rector 1976-1981



Prof. D.Sc. Alexander Assenov
Rector 1981-1986

Prof. Dr. Svetla Raicheva
Rector 1986-1989



Prof. D.Sc. Ivan Bozhov
Rector 1989-1993

Prof. D.Sc. Kamen Velev
Rector 1993-2003

Assoc. Prof. Dr. Kiril Stanulov
Rector 2003-2007

Assoc. Prof. Dr. Boris Stefanov
Rector 2007-2011

THE SCIENTISTS CONFERRED „DOCTOR HONORIS CAUSA“ OF UCTM

Prof. Dr. Ing. Ivan Sekulov
Hamburg
Germany
20 October 1994

Prof. Henri Angelino
Toulouse
France
17 October
1995

Prof. Dr. Nikolas – Chris Markatos
National Technical
University of Athens
Greece, 25 June 1996

Prof. Dr. Frerich Keil
Technical University
of Hamburg-Harburg
Germany
14 April, 2000

Prof. Dr. Ing. habil. Lothar Morl
Otto von Guericke
University, Magdeburg
Germany
13 May 2000

Prof. Dr. Bhaskar Nath
European Centre for
Pollution Research,
London,
United Kingdom
13 May 2001

Prof. Michele Gendreau-Massaloux
University Paris VIII,
France
5 December 2002

Academician Ivan Uhnovski
Bulgarian Academy
of Sciences
21 December 2005

Prof. Gilbert Casamatta
National Polytechnical
Institute, Toulouse
France
2 February 2007

Prof. Dr. - Ing. Dieter Mewes
University of Hannover
Germany
April 2007

Prof. Dr. Stephen Allen
Queen's University Belfast
Belfast
Northern Ireland, U.K.
5 December 2008

Prof. Dr. Luc Hens
Free University
of Brussels
Belgium
5 December 2008

Prof. Dr. Gerhard Behrendt
Technical University
Wildau Germany
22 October 2008

Prof. Dr. Ing. Gerd Brunner
Technical University of
Hamburg-Harburg Germany
15 March 2008

Dr. John P.Robinson
University Quin Mery,
London, U.K.
22 May 2009

Prof. Alfred Kolbe
University Martin Luter
Kaltenmark Germany
4 February 2010

Prof. Gilles Muratet
University Paris 13
France
16 April 2010

Prof. Henri Delmas
National Polytechnical
Institute, France
25 May 2011

Academician Prof. D.Sc.
Dechko Pavlov
Bulgarian Academy
of Sciences
29 May 2012

PROFESSOR KLIMENT BLAGOEV HADJOV DOCTOR HONORIS CAUSA OF THE UNIVERSITY OF REIMS

Prof. Kliment Hadjov has been awarded this honorary degree in 2006 for his joint researches in the field of Mechanics of Composite Materials (MCM) and Modeling of the thermal conductivities of nanofluids (composites with liquid matrix and inclusions of very small size). The results of the researches on MCM are being practically implemented in Reims in recovery (renovation) of reinforced concrete structures by bonding of composites.

The honorary degree has been awarded to Prof. Hadjov upon proposal by Prof. Yves Delmas - Director of the University Institute of Technology of the University of Reims.

Staff from the Department of Applied Mechanics of the Bulgarian University of Chemical Technology and Metallurgy (UCTM) directed by Prof. Hadjov has won a series of competitions for "RILA" projects and contracts with the Agency of the Francophone Universities (AFU) and the Bulgarian Ministry of Education, Youth and Science. It is worth mentioning that the cooperation with the French Centre at the UCTM has lead to the establishment of the initial contacts with the French team.

The University of Reims was founded 450 years ago by Cardinal de Lorraine with a bull of Pope Paul 3rd. The University has a turbulent history, especially during the regime of Robespierre, when it was temporarily shut down. Nowadays the University has about 22,000 students, grouped in 5 "poles" (Human Sciences; Mathematical Sciences; Mechanics, Materials and Automation; Agronomy; Biology and Biomaterials) and two doctoral faculties (Technologies and Health; Management and Political Sciences). The University Institute of Technology was created 40 years ago. It is related with the faculties and the poles, but develops applied research topics. The Institute is a strong academic unit, led by a Director who is directly subordinated to the President.

FACULTY OF CHEMICAL TECHNOLOGIES

Prof. D.Sc. Eng. Sanchi Nenkova
Dean

The Faculty of Chemical Technologies (FCT) is founded in 2000 and is the successor of the Engineering Chemical Faculty of 1953. The FCT provides training of personnel for the chemical industry in wide range of specialties. The Faculty trains students in the professional area of Chemical technologies that is leader in the rating of the universities training in the same line. The following departments are differentiated in the Faculty: Cellulose, Paper and Polygraphy, Polymer Engineering, Organic Synthesis and Fuels, Textile and Leathers, Inorganic and Electrochemical Production, Fundamental Chemical Technology.

Today the Faculty of Chemical Technologies is a recognized scientific and technological center. The lecturers work in international and national projects as well as in scientific projects jointly with industry. In the last years this allows renovating and modernizing the educational basis of the departments.

Zornitsa Georgieva
Secretary

The Faculty has a very good collaboration with the Branch chamber of the chemical industry and with their help ensures trainees programs for the students in more than 30 companies and elaboration of diploma works on actual production problems. Graduates of the Faculty of Chemical Technologies are managers of leading companies in the chemical industry.

FCT has leading role in the process of collaboration and mobility with foreign universities expressed in joint scientific developments, training of students under the ERASMUS program, issue of dual diplomas together with Moscow State University of printing in Moscow.

Currently the FCT basic academic personnel consists of 61 lecturers, the ratio of habilitated to non-habilitated being 1:1. The auxiliary personnel consist of 18 chemists, laboratory assistants and technicians.

The specialties for students' education in the Faculty are as follows: for Bachelor 11 and for Master – 16.

Since 2000 Deans and Vice-Deans have been: Dean Assoc. Prof. Dr. Dimitar Pishev (2000 – 2008) and Vice-Deans Prof. D.Sc. Sanchi Nenkova (2000 – 2003), Assoc. Prof. Dr. Evda Petkova (2003 – 2008); Dean Prof. D.Sc. Vladimir Bojinov (2008-2012) and Vice-Dean Prof. D.Sc. Nikolay Dishovski (2008 – 2011), Assoc. Prof. Dr. Stoyan Miloshev (2011 – 2012); Dean Prof. D.Sc. Sanchi Nenkova (2012 -) and Vice-Dean Assoc. Prof. Dr. Radostin Nikolov (2012 -).

DEPARTMENT OF ORGANIC SYNTHESIS AND FUELS

The university education in Organic Synthesis in Bulgaria begins in the year 1953. During the following years it has been done in different departments: "Technology of Organic Synthesis and High Molecular Mass Compounds" from 1953 to 1962, and then "Technology of Organic Synthesis and Rubber" – from 1962 to 1974. From 1974 to 1984 and from 1993 to 2000 there is an independent department of "Technology of Organic Synthesis".

The Department "Organic Synthesis and Fuels" educates students towards all academic degrees: Bachelor of Science; Master of Science and Philosophy Doctor, in two chemical engineering fields – "Organic Synthesis" and "Fuels".

In the last ten years, in the field of Organic Synthesis more than 250 students have graduated, 8 theses for the Ph.D. degree have been defended and 3 scientists have been awarded the degree of "Doctor of Chemical Sciences".

Having majored in **"Organic Synthesis",** the students become experts in the field of the synthesis of organic compounds, finding application as biologically active substances (drugs, antibiotics, pesticides, vitamins, etc.), color and luminescent compounds, photostabilizers, antioxidants, aroma and surface active substances, as organic products in high technologies (molecular machines and devices, sensors, biomarkers, LCD displays, etc.).

The university education in Technology of Fuels in Bulgaria begins in 1954, but as early as in 1956 an independent department of Technology of Fuels has been established. The name of the department during the years changes, but its essence remains – education of students and carrying out scientific and research studies in the field of the chemistry and processing of petroleum, hydrocarbon gases and coal into fuels, lubricants and individual chemicals. Since an increasing amount of the graduates work in the application of petroleum, gas and coal products, academic disciplines devoted to the chemistry of combustion and ecology, coke and coke chemicals, lubrication and lubricants, fuel and lubricant additives, alternative fuels and engines, etc, become more and more available. In the last ten years more than 180 students have graduated with this specialization, 4 Ph.D. theses have been defended, and one scientist has been awarded the "Doctor of Technical Sciences" degree.

The Joint Department **"Organic Synthesis and Fuels"** exists for the first time in the period between 1984 and 1993, and is established again in the year 2000 as a response to the new challenges for the modern chemical industry in Bulgaria and the world. Its two scientific directions are in the beginning and the end of the remarkable

transformation of the main raw materials of the chemical industry (petroleum, natural gas and coal) into the useful products that lie in the foundations of modern civilization. These products create electricity and heat us, move our vehicles and machines, and protect them from wear, heel us, clean, create our esthetic perceptions, protect us from UV radiation, and - encourage us to rediscover the world in its modern dimensions with the help of the so called "high" technologies.

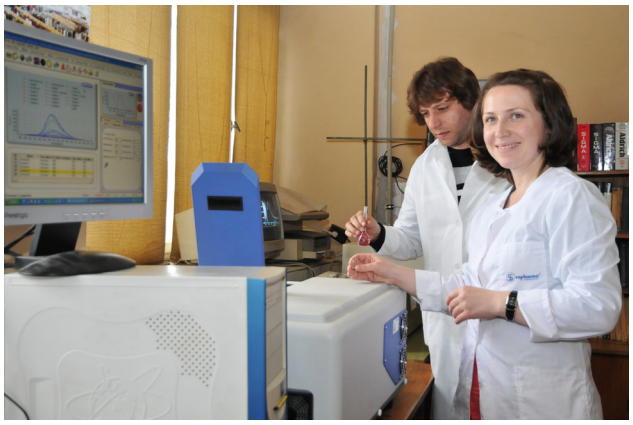
The educational and research division **"Organic Syntheses"** has research and educational activities in two general areas:

"Design and synthesis of light sensitive organic compounds" – monomeric, poly-

meric and dendritic fluorescent compounds with high photostability, possessing sensory, energy cascade, antennae and focusing properties capable of performing a number of logic functions at the molecular level (molecular computers). It has been created new systems with high sensing potential, high energy transfer and molecules capable of performing the logic functions INH, XNOR, XOR, AND, NAND, OR and practically to work as a molecular pH meter, a digital comparator and half-Adder.

"Design and synthesis of new biologically active compounds" – thienopyrimidine, thiophene, pyrrole and benzimidazole derivatives having sympathomimetic, analgesic, antitrichinellosis, antipyretic and anti-inflammatory properties. It has been generated and tested a series of triazoles, thiadiazoles and 2-aminobenzimidazoles showing cytotoxic activity against HT-29, MDA-MB-231, HeLa, HepG2 cancer cell lines and proliferating effect on normal spleen cells and diploid cell lines Lep-3.

The division of **"Fuels"** has its mission in "Natural and alternative liquid fuels, and lubricants" and "Natural and alternative sol-



id fuels, and novel carbon materials". The two divisions are thus devoted to studies and education in energy resources and high technologies, which are among the research and educational priorities of Bulgaria, the EU and overseas. The division has research and educational activities in the leading scientific directions as follows:

"Natural and alternative fuels and technologies for their production" – Contributions to new technologies for the production of gasoline and diesel fuel with ultra-low content of the sulfur (dearomatization desulfurization of gas oil fractions by extraction and/or oxidation, new materials and technologies for use in the production of unleaded gasoline etc.).

"Supplements and additives for fuels and lubricants, and their production technologies" – New sulfur-containing ester

and boron-containing additives, alternative technologies for biodiesel additives, technology for the production of plastic lubricants for connectors of high-speed trains etc.

"New carbon materials" – Technologies for lubricants with clean nanodiamonds and nanodiamond blends with amorphous carbon, carbon carriers of catalysts, sorbents based on rice husks to purify water contaminated by petroleum and others.

"New computational methods to use in the design of processes and products of oil-processing" – New dependencies "property - property" for predicting the properties of petroleum fractions with data from routine analyzes (with "Lukoil" Bourgas), new dependencies" chemical structure - property "for predicting the critical and other properties of the pure compounds (together with "Imperial College" and IChE-BAS), New Methods (Quantitative Structure-Structure-Property Relationships, QSSPR) to output dependencies "chemical structure – property" (together with the scientists from Israel).

B.Sc. students enter The Department in the 6 th semester and are educated either in the subject "Fine Organic Synthesis" or in the subject "Natural and Alternative Fuels".

Masters are educated, by the respective division, in "Fine Organic Synthesis", or "Natural and Synthetic Fuels". From 2009/10, The "Fuel Technologies" division participates in the training of masters from the new specialization "Biofuels". Ph.D. students are trained in the fields in which the academic staff of The Department has scientific competence – "Technology of Fine Organic and Biochemical Synthesis", "Pharmaceutical Chemistry" and "Technology of Natural and Synthetic Fuels". All B.Sc., M.Sc. and Ph.D. programs are accredited at the national level by the highest score.

Lecturers, Ph.D., B.Sc. and M.Sc. students from the department have participated in 20 international, 29 national and 57

RDS projects (including internal university projects) as well as in 4 current analytical projects.

All the above projects of the department have successfully completed and accepted by the contracting authorities, which is testimony for the correct implementation of the work programs and the achievement of the objectives and desired results. Depending on the type of the project, the results are scientific and practical achievements, involvement of students in scientific work, check out the ideas, some of which are developed in funded projects, etc.

Department of "Organic Synthesis and Fuels" maintain connections with the leading Bulgarian companies, including through joint training (internships and practices) and research (theses, dissertations and publications) work.

Division of "Organic Synthesis" maintain connections with "Unipharm", "Sopharma", "Adipharm", "Actavis", "Aroma", "Astera", etc., while the division of "Fuels" with – "Lukoil Bourgas", "Prista Oil", "Verila Lubricants", "Insa Oil", "Evrikom", "Overgaz", "Petrol", "Shell", "Valvolin", "Total", NEC , Energy system Operator (ESO), "Atomenergoremont", CERB, "DIT M", Sofia Airport, MO (with MA "GS Rakovsky"), "State Reserve and War-Time Stocks", "Evrotest Control", Laboratories of Agency "Customs", the General Directorate for the quality control of liquid fuels etc.

In the field of organic synthesis the department maintain research contacts with the University "Claude Bernard" (Lyon, France), Institute of Polymers (Madrid, Spain), University of Patras (Greece), Slovak Academy of Sciences (Bratislava, Slovakia), Polytechnic University (Lausanne, Switzerland), Queen's University (Belfast, Ireland), Faculty of Medicine, University of Nish (Serbia), Institute of Chemical Engineering and High Temperature Processes at the Hellenic Foundation for research and Technology (Patras, Greece), Research Sector TAACF, Southern Research Institute (USA), Research sector and the Foundation for Education in Science and Technology (Tokio, Japan). With the partners from these institutions are developed fruitful research collaborations, including active participation of students.

Lecturers and outstanding students from the division of "Fuels" work together with colleagues from the Royal Society (UK), Imperial College (London, UK); Teesside university (Midlsbaro, UK), University "Ben-Gurion" (Israel), Tel-Aviv University (Israel), University of Patras (Greece); ISEL (Lisbon, Portugal), Arab Academy for Science, Technology and Maritime Transport (Alexandria, Egypt), Karagandiyski State University (Kazakhstan).

DEPARTMENT OF POLYMER ENGINEERING

The Department of Polymer Engineering has an opulent long history and a de-

served place amongst the leading departments of UCTM-Sofia. It is a successor of one of the oldest departments at the University - Technologies of Organic Synthesis and Macromolecular Compounds. That depart-

ment was established in 1953. The Department Head was Prof. Petko Nikolinski who had graduated from the Technische Hochschule in Munich, Germany (now the Technical University Munich). After his graduation he had worked as an assistant to the Nobel Prize winner Hans Fischer. In the course of five decades many generations of scientists – professors, associate professors, assistant professors had their merit to the progress of polymer science, to the qualification of engineers for the Bulgarian industry and to the research and development in service to the national economy.

The present department was instituted in 2000 when two independent then departments of Rubber Technology and of Technology of Plastics merged into a new department with two divisions Rubber and Plastics. The first Head of the united department became Prof. D.Sc. Stefanka Vassileva. Since 2003 Prof. D.Sc. Nikolay Dishovski has been the Department Head.

The Bachelor degree programme of the Department has two modules Natural Synthetic Elastomers (Rubber Division) and Engineering Design and Synthesis of Polymers (Plastics Division).

The Master degree program of the Department has three majors: Polymer Engineering, Elastomeric Crosslinked Polymers and Polymer Materials.

The Bachelor students in Materials Science also benefit from the unique knowledge provided at the Department. They have Polymer Materials as a selective module in their curriculum.

The selective module Natural and Synthetic Elastomers of the educational and research Rubber Division is the only one in Bulgaria for acquiring a Bachelor of Science degree and qualification of a rubber industry engineer.

This division has also two Doctor of Philosophy programmes: Rubber Technology and Macromolecular Chemistry.

The selective module Engineering Design and Polymers Synthesis of the educational and research Plastics division is also the only one in Bulgaria for acquiring a Bachelor of Science degree in plastics technology and processing as well as in technology of film-forming substances. The graduates obtain qualification of a plastics industry engineer.

This division has four Doctor of Philosophy programmes: Macromolecular Chemistry; Technology and Processing of Plastics and Fibreglass; Chemical Technology of

Coating and Varnishing Materials and Adhesives, and Technology of Composite Materials.

Regularly young people join the academic staff of the Polymer Engineering department. Its members work hard on building their scientific careers. All of them have at least a Ph.D. In the recent decade two of the tutors were promoted to full professors,

four to associate professors and four to assistant professors.

As of 2013 the tuition at the two divisions of the Department is realized by 11 lecturers – 1 professor, 5 associate professors with habillitations in different fields and 5 assistant professors.

For the last ten years the staff members of the Polymer Engineering Department have published 10 textbooks and manuals used in the education of 253 students in the Bachelor of Science Programme, 152 students in the Master of Science Programme and 58 Ph.D. students. 28 of the latter have defended their Ph.D. theses.

The team of the department has been carrying out intensive research in two priority fields:

Elastomers – modification and rheology of elastomer and rubber composites; enforcement of elastomers; materials and rubber based coatings for special applications; nanofilled elastomer composites.

Polymers – modification, aging, stabilization and plasma-chemical treatment of polymers; development of hybrid composite and nanocomposite materials for special applications; technological specifics of processing special polymer composites; biodegradable composites; synthesis of novel calixarene-comprising polymers; studies on the regularities and specifics in heterocycles polymerization; synthesis of oligomers for composite materials for special applications as well as for film-forming substances; water based coatings and varnishes; synthesis of polymers with tailored properties for medical applications and colloid drug carrier polymers.

Publishing the research results achieved by the scientists at the Department is of particular importance for the quality and actuality of the tuition.

Members of the Polymer Engineering Department have participated in 8 international research projects, 14 national research projects, 29 projects funded by companies and over 80 projects funded by UCTM grants. Some of the projects have been realized with the participation of undergraduates, graduates and Ph.D. students.

The realization of the research projects contributes to the improvement of the educational infrastructure. In the last decade the Department has acquired some new equipment and machines – several of those are unique ones: a laboratory hydraulic press; an Ilik vacuum forming machine; DMTA,

DETA, DSC apparatuses; a Monsanto tester for determining vulcanization characteristics; a polarized light microscope; a plastics milling machine; an accelerated aging cabinet; a Nano ZS zetasizer; a centrifuge; a lyophilizer; a UV-spectrometer; a HPLC system, etc. The available equipment for plastics processing has been repaired and upgraded; a new computer classroom has been furnished; the Department has been equipped with adequate number of modern PCs, multimedia and office machines.

The Department of Polymer Engineer-

ing has been fostering a fruitful cooperation with related departments of a number of European universities from Germany, France, Portugal, Spain, Denmark, etc. The students are those who benefit most from the cooperation - the mobility programmes enable them to study at the partnering universities and to have prominent visiting lecturers at their home Alma Mater.

The Department has close contacts with many institutes at the Bulgarian Academy of Sciences, with the Porto University – Portugal, Dublin University – Ireland, Tabuk University and King Abdulasis University in Jeddah - Saudi Arabia, University of Liege – Belgium.

Being a provider of technological education the Department has collaborations with many Bulgarian and foreign industrial companies – e.g. Asenova Krepost JSC in Asenovgrad, Lackrpom Ltd in Svetovrachane, Weiss Profil, Laplast Ltd, PANHIM, Ltd, in Stara Zagora, ZEBRA AD, KRAIBURG Bulgaria. At some of those companies the students have their practical training as well as do the experimental work for their B.Sc., M.Sc. and Ph.D. theses. Some of the publications resulted from the experiments performed on the industrial sets.

The graduates from the Department of Polymer Engineering with applied specialties find successful realization in research units, trade and industrial polymer enterprises both in Bulgarian and abroad.

DEPARTMENT OF PULP, PAPER AND POLYGRAPHY

The Department of Pulp, paper and polygraphy was founded in 1954, soon after the establishment of the Institute of Chemical Technology in Sofia. During the past years, the Department has developed itself and strengthened its positions as the only comprehensive educational center in the country for teaching and scientific research activities, where are prepared highly educated engineers for the needs of the pulp, paper and printing industries. The Department provides Bachelor's and Master's degrees programs within the following 2 specialties: „Pulp, Paper and Packaging" and „Technology of the Polygraphy". In 2009 were admitted the first-year students, majoring in the new opened and promising Master's degree specialty – "Biofuels" that meets the latest international trends and gives a new direction in the development of the department

- specific hydrolysis education.

The Department aims to have highly qualified teachers and specialists, who successfully solve their tasks in teaching, research and practice. The rejuvenation of the team in recent years provides good continuity and is a basis for future development. Currently, in the Department are employed one professor, three associate professors, one lecturer in a process of habilitation, five Assistant Professors and nine Ph.D. students. The accreditation of specialties was completed successfully and with highest evaluation. Over the past 10 years were elaborated and defended 9 Ph.D. theses and one D.Sc. theses. In the Department were elaborated 20 themes, some of them put into production. For these elaborations, the Department has relied on the collaboration with experts from industry and the traditionally good relations between the Department and the Institute for pulp and paper.

The main research fields, which the department carries out, are: obtaining of LMW phenolic compounds from lignin with

antioxidant properties; investigation of the sorption properties of lignin; modification of lignocellulosic materials and obtaining of wood-polymer composite materials with specific properties; producing and bleaching of wood-pulp, high yield and secondary fibrous materials; researches in kinetic regularities of processes and aging of paper and fibrous materials; enzymatic treatment and bioconversion of lignocellulosic materials; producing of sugars for bio-ethanol and other energy products; researches in interdependencies between chemical substances, types of fibrous materials and the properties of the resulting papers and paper slurries; optimizing the composition of the resulting papers and paperboards; environmental protection. Purification of working- and wastewater in pulp and paper productions; finishing technologies and processes for the production of books and magazines;

finishing of printing production, paper and cardboard and their behavior during printing processes; optimization of conventional and digital printing and prepress processes; systems for color management in print industry; digital workflows; colourization, preparation processes in polygraphy; flexo printing technologies; prepress processes.

Department "Pulp, Paper and Polygraphy" has a unique system for explosive defibration of wood and biomass, which is used to simulate the cooking process; HPLC system Dionex for sugars, organic acids and alcohols analyses; Rapid Kothen System for obtaining of high-quality papers in labor conditions; equipment for determining the physical-mechanical, optical and surface properties of the paper; sophisticated laboratory press for obtaining of wood-fiber plates and composite materials; multifunctional equipment for physical-mechanical testing of different materials – Zwick; GretagMacbeth equipment - SpectroEye, Spectrolino and Spectroscan for determining the spectral characteristics of materials and printed images by measuring the intensity of reflected, passed and emitted light; GretagMacbeth D19C for determining the absorption of reflected light from printed materials and images, as well as controlling the quality and technological requirements during the printing processes.

The Department collaborates closely with companies from the pulp, paper and graphic industry. Teachers and students actively participate in science conferences and seminars.

Very useful for vocational education and for strengthening the mutual cooperation are traditional meetings among representatives of companies from the pulp and paper industry, students from the Department and students from different vocational schools.

The Department has earned its positions and authority among the scientific and research society in many countries. A lot of cooperation agreements have been signed with the relevant departments in KTN – Stockholm, TU – Dresden, State Forest-Technical Academy – Sankt Petersburg, Shandong – China, High school – Berlin and State University of Polygraphy – Moskow.

There is a successful collaboration and good team working in diploma projects with

the department units in Dresden, Magdeburg, Berlin, Darmstadt and Moskow. An excellent relationship was build with the colleagues from Yash – Romania and Serbia. The members of the Department participate in numerous international events under the COST programmes.

DEPARTMENT OF TEXTILE AND LEATHERS

Department of Textiles and Leather headed by Prof.Dr. Kiril Dimov was established in 1953 offering two degrees : Technology of Textile Finishing and Technology of Leathers. From 1967 till 1999 the Department was devided into 2 uniits; Department of Technology of Chemical Fibers and Department of Technology of Leathers and Leather Products. In 1999 these Departments merged again in a Department of Textiles and Leathers that exists at present. The acdemic staff consists of: 1 Professor, 6 Associate Professors and 3 Assistant Pro-

fessors. Additionally a technical staff of 5 people works for supporting the laboratory exercises, diploma thesis preparation and research carried out by students and staff. After the structural changes of curricula and degrees at UCTM 2 Bachelor, 2 Master and 2 Ph.D. degrees were introduced covering technoligies in Textile and Leather Industries. For the last 10 years academic degrees have been awarded to 228 bachelors, 35 Masters and 12 Ph.D. degrees.. Totally

10 books and manuals have been issued covering different lecture courses.

Research at the Department is focussed on:

Advanced methods and auxiliaries for textile finishing, including chemical and structural modification of fibers;

Photodestruction and UV protection of textiles and dyes;

Smart textile materials for medical application and environmental protection;

Silk based composite biomaterilas ;

Enzymatic technology for textile and leather processing;

Utilization of polyuretane and polyesther wastes;

Purification of effluents from textile and leather production;

Application of CAD-CAM sytems in shoe design and production of leather goods.

The staff of the Department works actively on some national and international projects under the programmes COST, ERASMUS , EU fund for Regional development.

Laboratory certified by БДС EN ISO 17025 for Textiles and Dyestuffs testing is an integral part of the Department and offers different kind of services for Textile industry and business.

Department of Textile and Leather has longlasting connections with different industrial companies located in all major Bulgarian cities. The academic staff keeps profesional contacts with similar Departments at Universities in Germany, Portugal,

Spain, France, Greece, Poland, Czech, UK, Finland, Danemark, Romania and Turkey.

DEPARTMENT OF INORGANIC AND ELECTROCHEMICAL PRODUCTIONS

Department „Technology of Inorganic Substances" is established in 1953 and educates students as independent department till 1999. After structural changes in UCTM in 2000 it has statute of division in the new formed department „Inorganic and Electrochemical Productions".

Department „Technology of Inorganic Substances" is established by Prof. Diko Ivanov, who is the first head of the department. The next heads of the department are: Prof. Nikola Videnov, Prof. D.Sc. Dimitar Shishkov, Assoc. Prof. Dr. Fanka Tudjarova and Prof. D.Sc. Ivan Gruncharov.

Now the teaching staff consists of 1 professor, 3 associate professors and 1 assistant professor.

In the **division „Technology of Inorganic Substances"** are educating students in three qualification degrees: Bachelors in the speciality „Inorganic Chemical Technologies", Masters in the speciality „Inorganic Substances" and Ph.D. degree in the speciality „Tecnology of Inorganic Substances". The subjects of the new syllabus ensure good basic and applied background of the students, giving them the possibility for realization in broad spectrum of enterprises, firms and institutions.

Except the base technological subjects, concerning the production of mineral acids, fertilizers, soda, ammonia, catalysts and sorbents in the syllabus are included new disciplines that expand the student's training according contemporary necessities of the developing science. The gained knowledge and skills of the students during the teaching give them the possibility to solve problems of scientific and thechnological character.

For the period of 60 years are graduated above 2200 students, including 26 foreign students. For the same period 5 persons obtained the scientific degree "Doctor of Sciences" and 56 - the scientific degree Ph.D. (including 13 foreigners). There are published 30 textbooks and manuals.

Lecturers of this division took part in the bachelor's and master's degree students trainings of the speciality "Environmental Engineering".

Division "Electrochemical Production"

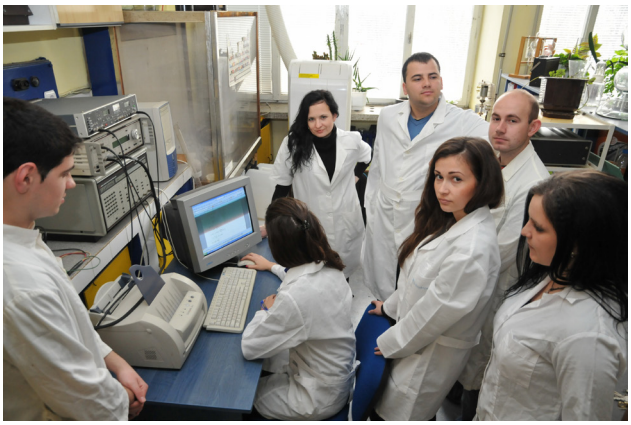
Training in specialization "Electrochemistry and Protection of Metals from Corrosion" began in 1952 within the Department of "Physical Chemistry" at the State Polytechnic – Sofia. The need for specialists in the field of Electroplating, Corrosion of metals, Chemical and Power Sources, Electrochemical Synthesis etc., leads to the establishment of an independent department "Electrochemical production" in 1965 by Prof. Tsvyatko Mutafchiev who is also the first Head. From 1999 until today it is the division at the Department of "Inorganic and Electrochemical Production". Over the years the department was managed by: Prof. D.Sc. Hristo Noninski, Assoc. Prof.

Dr. Ivan Nenov, Assoc. Prof. Dr. N. Nankov, Prof. D.Sc. Raicho Raychev, Assoc. Prof. Dr. Lyudmil Fachikov.

The teaching staff of the division consists currently of 3 Associate Professors, 1 Assistant Professor, two part-time teachers (all with a degree of "Ph.D.") and 1 assistant.

The renovated educational plan ensures qualitative theoretical and practical training of the students that allow successful realization in many domestic and foreign chemical enterprises and companies.

During the last 10 years 96 students obtained bachelor's degree and 55 – master's degree. Three Ph.D. theses were defended and 5 textbooks were edited. For the same period the research work of the students and teachers reflected in many publications and in more than 110 participations in national and international projects, by resources of which were bought 12 sets – computers and instrumentation. Several



students developed their diploma projects in the frame of the international educational programmes in France and England.

DEPARTMENT OF FUNDAMENTAL CHEMICAL TECHNOLOGY

Department of Fundamental Chemical Technology was founded in 1953. Its leaders were Prof. D. Sc. Dimcho Dimitrov, Prof. D.Sc. Rumen Dimitrov, Assoc. Prof. Zdravko Zdravchev, Prof. D.Sc. Sanchi Nenkova, Currently, the Department is headed by Assoc. Prof. Dr. Lachezar Radev.

The Department of Fundamental Chemical Technology have created two new programs: "Safety procedures" - Masters in 2003 and "Industrial safety procedures and protection disasters" – Bachelors in 2007

The scientific work in the Department "Fundamental Chemical Technology" is primarily in three areas:

Scientific field "Bioactive sol-gel glass and ceramics" headed by Assoc. Prof. Dr. Lachezar Radev, investigate obtaining, structure and in vitro bioactivity of glass and glass-ceramics in the system CaO-SiO_2-P_2O_5 and CaO-SiO_2-P_2O_5-MgO. Some of them are synthesized composite materials containing natural biodegradable polymers - gelatin, collagen, silk, etc. with proven bioactivity.

In the field of "Hybrid Materials", headed by Dr. Nadezhda Rangelova, were synthesized and characterized hybrid materials involving different silica dioxide precursors and biopolymers with sol-gel method. The resulting samples were used as matrices for immobilization of microorganisms to extract heavy metals from solutions. An interesting point in this direction is research related to obtaining antibacterial nanomaterials.

The third field of research is guided by Assis. Prof. Mariana Hristova. It is linked to the development of theoretical models for predicting the performance of some fire hazard of substances and mixtures thereof. There were developed mathematical models to calculate the flash point of binary and triple mixtures. Ongoing studies are aimed to small and medium-sized businesses in the implementation of EU directives in this area.

Academic work in the Department is

carried out with equipment purchased in the line of scientific research, as well as donations from companies, enabling development, project research work (KNIR) in two semesters for all the students studying Master-degree in concordance with all operative studying plans. The Department has innovative laboratories and lecture halls, which is a basis of modern academic work.

Experts from the Department participated in three international projects involving

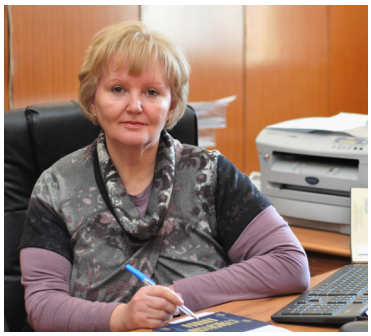
MEW Austrian Federal Agency of Environmental Protection and the Danish Technical University, which are financed by FAR and nine national projects aimed an introducing Directive Sevezo II in Bulgaria and introduction of new products related to the problem. Moreover, the team of the Department participated in over 17 projects, financed by the Scientific Sector of UCTM, whose results were published in international journals.

In the Department "Fundamental Chemical Technology" were established many contacts with Bulgarian companies, which includes "Neochim" AD, "Petrol", "Sofia water", "Sofia- Med" AD, "3M", etc. Internationally, the Department implemented a continuous exchange of scientific information with the University of Aveiro, Portugal, Istanbul Technical University, and the University of Okayama, Japan, in relation with bioactive ceramics, glass and hybrid materials.

FACULTY OF CHEMICAL AND SYSTEM ENGINEERING

Assoc. Prof. Dr. Eng. Peshko Djambov
Dean

The Faculty of Chemical and system engineering is created in 2000. It includes 5 departments: Chemical Engineering; Environmental Engineering; Industrial Automation; Biotechnology; Economics and Management. The Faculty administrates also the activities of two centers for education in French and German languages. During the years the Faculty was directed by the following Deans and Vice-Deans, as follows: Dean Prof. D.Sc. Andrei Mintchev (2000-2002), Vice-Dean Prof. D.Sc. Milka Krasteva; Dean Assoc. Prof. Dr. Sasho Danev (2002-2004), Vice-Dean Assoc. Prof. Dr. Ljubov Yotova; Dean Prof. Dr. Bogdana Koumanova (2004-2008), Vice-Dean Assoc. Prof. Dr. Peshko Djambov; Dean Assoc. Prof. Dr. Peshko Djambov (2008-2012), Vice-Dean Assoc. Prof. Dr. Maria Karsheva; Dean Assoc. Prof. Dr. Peshko Djambov (2012 -), Vice-Dean Assoc.Prof. Dr. Nelli Georgieva. In the faculty now are studying 1542 students, regular and part-time forms of education, to obtain Bachelor's and Master's degrees as well as 25 Ph.D. students. In the Faculty are united all up-to-date parts of knowledge and science. The courses are given by 6 professors, 31 associate professors and 39 assistant professors. They are giving courses not only in our university, but also in many universities in Europe, Canada and USA as invited lecturers. In foreign language specialties the studies are carried out fully in foreign language (French or German). In these specialties courses are given by Bulgarian and also by foreign invited lecturers. The graduated students in these specialties obtain double diplomas, legal in Bulgaria and Germany for the German language specialty or diploma with French certificate, legal for all countries - members of French Universities Agency (AUF).



Sevdelina Georgieva
Secretary

DEPARTMENT OF CHEMICAL ENGINEERING

The department of Unit Operations in Chemical Industry is created the 13 September 1963 in the former Higher Institute of Chemical Technology by Prof. Dimitar Elenkov, corresponding member of Bulgarian Academy of Sciences. The professors of the specialty assure the education in the fundamental subject "Unit operations in chemical industry". In 1982 the department is renamed in "Chemical Engineering". At the same time the education in chemical engineering is adopted in the higher educational plan in Bulgaria as a specialty. Since 1992 two specialties with teaching in

foreign languages are created: Chemical Engineering taught in German and Industrial Chemistry taught in French. The education in these specialties after the second year is assured mainly by professors of the Department of Chemical Engineering. All students of foreign language specialties have the possibility to pass training in the universities in Germany or France. Most of them develope their B.Sc. or M.Sc. theses in Germany or France. The students graduated in these specialties obtain double diplomas, legal in Bulgaria and Germany for the German language specialty or diploma with French certificate, acknowledged in all countries - members of French Universities Agency (AUF).

During the time, the heads of the department were, as follows: Prof. D.Sc. Dimitar Elenkov (1963-1974); Prof. D.Sc. Alexander Assenov (1974-1993) and (1995-2000); Assoc. Prof. Dr. Peter Petrov (1993-1995); Prof. Dr. Ivan Pentchev (2000-2012); Assoc. Prof. Dr. Stilian Tchaoushev (2012 – till now).

Specialty Chemical Engineering gives fundamental knowledge concerning the transfer phenomena (transfer of quantity of movement; heat and mass); the modeling and scaling up of basic technological processes, the creating and the optimization of technological flowsheeting; as well as the control and simulation of chemical and biotechnological processes. This wide range of knowledge gives the students of this specialty the possibility to work in different branches of chemical, biotechnological and the metallurgical industries.

In the Department there are 9 laboratories:

Laboratory of Hydrodynamics;

Laboratory of heat and mass transfer;

Laboratory of Mass transfer operations;

Laboratory of "Macrokinetics and chemical reactors", "Multicomponent system separation" and "Utilization of industrial materials and energy";

Laboratory of Environmental Engineering (Processes and equipment for purification of wastewaters and gases and utilization of industrial solid wastes);

Analytical laboratory;

Two laboratories for Ph.D. students.

The engineers graduated in Chemical engineering find their vocation in industry, in design and building of new industrial equipment; in optimization of operational conditions of working ones; in investigations concerning the industrial practice; they can also exercise consulting, trading or marketing activities.

Our graduated engineers are working in governmental structures, in technical administration, in universities and research institutes and laboratories. They can exercise free engineering practice, working as experts, advisors in industrial enterprises or in patent activities. Many of them continue their studies in third degree of education, developing their PhD thesis. In the Department are defended more than 40 Ph.D. theses and 5 D.Sc. ones. Nowadays in the department are being developed ten PhD works.

The department of Chemical engineering was a coordinator in problem 4 "Clean-

ing of waste gazes from sulfur dioxide" in the frame of Comecon, as well as a founder of the post-graduate School for environmental

protection in Higher Institute of Chemical Technology.

There is a variety of scientific fields in Chemical Engineering department: Transport phenomena in rheologically complex systems; Mathematical modeling of complex multiphase objects; Processes in magnetically stabilized beds; Fluidization in gaseous and liquid systems; Adsorption processes under normal and high pressure; Nanotechnologies; Transport phenomena in supercritical fluids; Extraction from plants of valuable products for food, cosmetic and pharmaceutical industries; Formulation and study of properties of phytocosmetical compositions; Separation of multicomponent compositions; Risk assessment, Environmental protection and purification of wastewaters and gazes; Utilization of industrial wastes; etc.

The teaching in the department is assured by highly qualified lecturers: 1 professor; 9 associated professors; 6 chief assistants; 3 assistants and 7 part-time lecturers. Up to now the staff of the department is, as follows: Prof. Dr. Ivan Pentchev; Prof. Dr. Bogdana Koumanova; Prof. D.Sc. Tzveti Tzvetkov; Assoc. Prof. Dr. Agnessa Nikolova; Assoc. Prof. Dr. Emilia Ivanova; Assoc. Prof. Dr. Evgeni Simeonov; Assoc. Prof. Dr. Ilonka Saikova; Assoc. Prof. Dr. Iren Tsibranska; Assoc. Prof. Dr. Jordan Hristov; Assoc. Prof. Dr. Miriana Kostova; Assoc. Prof. Dr. Maria Karsheva; Assoc. Prof. Dr. Stilian Tchaoushev; Chief Assistant Dessislava Moutafchieva; Chief Assistant Dr. Dimitar Peshev; Chief Assistant Dr.Ivailo Hinkov; Chief Assistant Dr. Svetlomir Diankov; Chief Assistant Dr. Haralampi Hadjipopov; Chief Assistant Dr. Tchavdar Chilev; Assist. Eng. Georgi Stephanov;

Assist. Eng. Dimitrinka Popova; Assist. (part-time) Eng. Tania Ivanova; technician Jordan Kaitazov. The lecturers of the Department are giving lectures not only in our University. They are invited in various prestigious universities in France, Germany, Spain, Portugal, Italy, Moldova, etc. They are not only lecturers but also researchers, and many publications in scientific journals, wide cited are written by them.

Our lecturers are members of prestigious international organisations: Prof. Dr. Bogdana Koumanova is a member of the working party on education of the European Federation of Chemical Engineering and Editor-in-Chief of the Journal of Chemical Technology and Metallurgy; Prof. D.Sc. Tzveti Tzvetkov is an executive Director of Bulgarian Hydrogen Society; Assoc. Prof. Dr. Ilona Seikova holds a high position in the Agency of Francophone Universities and is a vice editor of the electronic journal Revue de Génie Industriel, the editor–in-chief of the same journal is Prof. Dr. Ivan Pentchev; Assoc. Prof. Dr. Miriana Kostova is being for long time Director of the German language Center; Assoc. Prof. Dr. Jordan Hristov is editor–in-chief of the scientific journals International Review of Chemical Engineering and International Journal on Advanced Materials and Technologies.

The Department maintains close rela-

tionship with University Paris-13, The Polytechnics in Toulouse, Pau, Lille, Marseille, Rhennes, Nancy, Limoge, Montpelier, with Hambourg-Harbourg University, with Universities in Bochum, Magdebourg, Drezden, etc. Our students are graduated or defended their Ph.D. theses in Polytechnic of Barcelona, in Imperial College – UK, in Portugal, etc. The Department accepts also students from France, Germany, Moldova, Egypt, Tunisia, Morocco, Congo, Turkey, etc.

The Department of Chemical Engineering has always maintained close relations with industry, developing applied scientific projects in large enterprises in Dimitrovgrad, Plovdiv, Razgrad, Devnia, Vratza, Pleven, etc.

The members of the Department are taking part in different European programs and projects, as TEMPUS, ERASMUS, ERASMUS-MUNDUS, Seventh Frame program (Implementation of Membrane Technology to Industry – 218068); operative program "Development of Human Resources", CHEMEPASS project for creating a test system for examination and equilibration the level of knowledge in Chemical engineering in European countries.

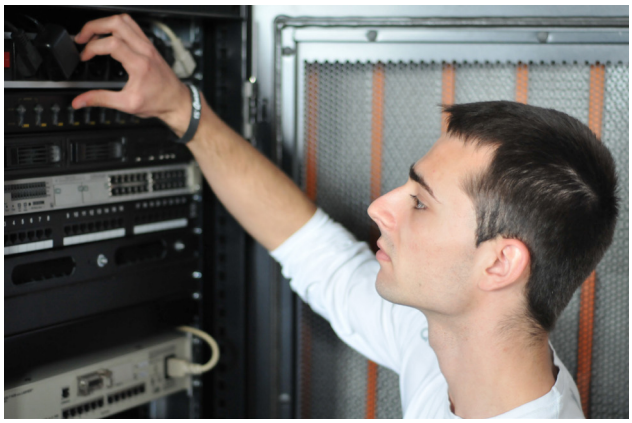
DEPARTMENT OF INDUSTRIAL AUTOMATION

The department was founded on 29 December, 1970. Its academic staff varied over the course of the years from seven people in 1970 to a maximum number of fifty four. The department academic staff includes one correspondent member of the Bulgarian Academy of Sciences (M. Hadjiski), eight professors (I. Bozhov, S. Stoyanov, K. Velev, I. Vuchkov, H. Yonchev, L. Golemanov, I. Bachkova, T. Stoilov) and twenty three associate professors. Over the course of the years, heads of the department were, as follows: Prof. D.Sc. Ivan Bozhov, 1970-1991; Prof. D.Sc. Kamen Velev, 1991-1993; Prof. D.Sc. Ivan Vuchkov, 1993-2004; Assoc. Prof. Dr. Ventzislav Tzochev, from 2004 until now. The total number of the trained students is one thousand four hundred and eighty graduate engineers. Fifty seven Ph.D. students have successfully defended their theses. More than one hundred and thirty textbooks and training aids have been published.

There are several research fields within the department:

"Automation and Automated Systems for Control of Technological Processes and Systems"

Research team: M. Hadjiski, G. Nikolov, K. Boshnakov, G. Elenkov, N. Hristova, A.



Manolov, A. Tzanev, P. Dimitrov, G. Gerdzhikov, P. Yordanov, D. Boycheva, S. Yurukov, K. Spasov, S. Damyanova, D. Penev.

The main educational and research activity is in the field of automation of technological objects and systems, as well as in chemical and metallurgical industries. More than twenty monographs and textbooks have been published, as well as more than five hundred scientific publications and reports, in Bulgaria and abroad, fourteen patent and inventors' certificates.

The most significant scientific results of the team are: creation of efficient dynamic models of process units in chemical industry (chemical reactors, rectification columns, crystallizers), purification of wastewaters

(biological treatment) and in metallurgy (heaters and electric arc furnaces, aggregates for out-of-furnace steel processing, a continuous casting machine). Development of modern structures and algorithms for control of multi-connected objects, objects with distributed and variable parameters, indirect indicator management and by prediction, development of modules from Computer-Aided Design Systems (CADS) for designing control systems.

The applied activity in the field of chemical productions includes the carbon disulphide production of "Vratza" Chemical Plant, the production of DMT at "D. Dimov" Chemical Plant in the town of Yambol, the production of fertilizers at "Devnya" Chemical Plant,

the production of ceramic insulators in the town of Nikolaevo, etc. A series of developments have been implemented in metallurgical industry, at "Stomana" State-Owned Company and "Kremikovtzi" State-Owned Company. Within its scientific and applied activity, the division takes part in joint projects with foreign companies, such as "Siemens", "Honeywell", "ASEA", "Rosemount", as well as basic Bulgarian engineering associations in the field of technological automation.

"Experimental Design, Identification and Quality Control"

Research team: I. Vuchkov, K. Velev, H. Yonchev, D. Damgaliev, V. Tzochev, L. Boyadzhieva, P. Popov, N. Manolov, E. Solakov, A. Donev, Z. Iliev, T. Dimov, E. Koleva.

The main educational and research activity of the team is in the fields of: design and analysis of experiments; identification of control systems; quality control; automation of analytical experiment. More than forty monographs and textbooks have been published and more than four hundred scientific publications have been written, in the above-mentioned spheres, in Bulgaria and abroad, by the members of the team and in joint authorship.

The most significant scientific results are: development of methods and algorithms for optimal design of experimental research activity, methods and algorithms for experiments with mixtures and alloys, development of recursive algorithms for parameter estimation of objects for control, modeling of non-linear and parameter-dependent objects, development of statistical methods for quality control, robust engineering methods, development of methods of robust parameter estimation, development of methods for design and analysis of experiments in X-ray diffractometry.

In 1973, a Scientific and Research Laboratory in "Organization and Automation of Experimental Research Activity" was created at the "Industrial Automation" Department, performing scientific, applied and organizational activity in the field of optimal design of experimental research. A series of talented specialists developed there who set the pace of the research activity in the field of experiment theory. Some of them are still members of the "Industrial Automation" Department staff. The activity of the above-mentioned laboratory was oriented towards scientific and applied developments, as well as towards developments of statistical software.

The applied activity of the staff covers the majority of the rubber enterprises in the country: the Chemical Plant in Vidin, "K. Rusinov" Technical Plant for Rubber Products in Pazardzhik, "G. Dimitrov" Tyre Factory in Sofia, etc., as well as other enterprises, such as the Pharmaceutical Plant in

Sofia, "Kremikovtzi" Metallurgical Plant, the Institute of Metalloceramics, the Plant for Magnetic Floppy Disks in Pazardzhik.

"Mathematical Modeling, Optimization, Control and Diagnostics of Technological Objects and Systems"

Research team: I. Bozhov, S. Stoyanov, L. Golemanov, P. Dzhambov, S. Danev, G. Vachkov, D. Chavdarov, G. Toneva, N. Kozarev, A. Georgieva, T. Dzhubrailov, T. Ivanov, S. Ranev, I. Bachkova, N. Hristova, Zh. Tellalyan, R. Pavlova, R. Valova, Tz. Buyuklieva.

The main fields of the educational and research activity of the team are mathematical modeling and control of technological objects and systems; optimization; analysis of industrial technological systems; diagnostics of technological systems; expert systems. More than thirty monographs and textbooks, as well as more than four hundred and fifty publications, have been written and published in Bulgaria and abroad, by the members of the scientific division and in joint authorship with other specialists, in the field of modeling, optimization, control and system analysis.

The team has developed and implemented a lot of large-scale scientific and research developments, dedicated to the optimization, intensification and control of the production of DMT (the Chemical Plant in Yambol), carbon disulphide and carbamide (the Chemical Plant in Vratza), the primary processing of crude oil and the production of low-density polyethylene ("Heftochim" Plant in Bourgas), the production of nitric acid ("Agropolychim" in Devnya and "Neochim" in Dimitrovgrad), non-woven fabrics (Gabrovo), etc. One of the considerable achievements of the team is the development and implementation of an automated systems for process control for the production of high-pressure polyethylene at "Heftochim" in Bourgas, with the use of the Bulgarian microprocessor system "MIC-2000C". The rich collection of computer software products, developed at the division, has been acknowledged in Bulgaria and abroad.

"Information Systems and Technologies"

Research team: P. Bayrov, T. Dimov, T. Ivanov, T. Dzhubrailov, A. Georgieva, I. Bachkova, G. Elenkov, T. Stoilov, D. Boycheva, V. Metodiev, P. Vasilev, I. Antonova, I. Gerdzhikov, D. Ivanova.

Educational and research activities at the department have been closely related to the development of computer sciences and information technologies, since the very beginning of the department existence.

The main educational and research activity of the team is in the field of information modeling, object-oriented and multi-agent approaches to modeling and control of production and/or information systems (in the field of chemistry, metallurgy and machine building); development of distributed information and/or control systems; use of formal approaches and models for the purposes of building reliable and safe software systems, based on various approaches and means of formal verification; knowledge-based systems; use of modern software engineering approaches, methods and means for the purposes of reducing software development (UML, MDA, MDE, ECLIPSE) time and costs, development and implementation of reference frameworks, architectures and models for the purposes of building information and/or control systems in different spheres of economy and social life; standardization in the field of information and communication technologies and automation.

The developments in these fields are a part of scientific and research projects, funded by the European Union framework programmes, the National Science Fund and the "Scientific Activities" Sector of the UCTM in Sofia, the results only for the last ten years having been presented and published in more than two hundred publica-

tions and reports, in Bulgaria and abroad.

A considerable achievement of the team is the development and implementation of automated systems for process control for atmospheric and vacuum crude oil distillation at "Heftochim" in Bourgas, with the use of the Bulgarian microprocessor system "MIC-2000C". In this research area, a team from the department actively participated in two Fifth Framework Programme projects, related to the development of AP236 ISO 10303 (STEP) – Applied Protocol, for achieving interoperability in the field of furniture industry – COFURN (IST-2000-25183) and creating a platform for electronic business support in this sphere – SmartFm (IST-2001-52224).

In the beginning, just after its foundation in 1970, Industrial Automation Department functioned, maintaining close cooperation with top universities in the Union of the Soviet Socialist Republics (USSR), such as Moscow "D. Mendeleev" Institute of Chemical Technology, Moscow Power Engineering Institute, Moscow Institute of Steel and Alloys. Later on, relations were established with Lodz Polytechnical University in Poland, the technical universities in Leipzig and Dresden, "Carl Schorlemer" Technical College of Merseburg, the Technical University in Budapest, etc.

At a later stage, serious relations were established as well with universities in Western Europe, the United States and Japan. We should mention here the relations with Imperial College in London, Helsinki Technological University, Tampere University of Technology, Ruhr University in Bochum, the Technical University of Hamburg – Harburg, the University of Mons, Kyoto University, etc. Later on, beneficial relations were established with the following universities: the Welsh University in Swansea, the University of Warwick in Coventry, the University of Strathclyde and Glasgow Caledonian University in Glasgow, the University of Reading, the Technical University of Denmark in Copenhagen, the University of Kassel, Eindhoven University, the Universities Paris South, Paris 7 and Paris 13, the Polytechnical University of Turin, the National Technical University in Athens, Athens University of Economics and Business, the University of Gimarães in Portugal, Joseph Stephen Institute and the University of Nova Goritza in Slovenia, the University of Ljubljana, the University of Marne-la-Vallée in Paris, Shenyang University of Chemical Technology in China, Kaiserslautern University of Technology, Saarland University in Saarbrücken, the University of Patras, the University of Valencia, "Saints Cyril and Methodius" University of Skopje, the Danube University Krems, Austria.

DEPARTMENT OF BIOTECHNOLOGY

The Department of Biotechnology was established in 1984 in the University of Chemical Technology and Metallurgy. Since 2000 the Department is a part of the Faculty of Chemical and System Engineering. One of the most important scopes of the Department is to create innovative processes in traditional chemistry industries as pulp and paper, textile and leather, polymer and material productions, based on biocatalysts and biotransformation phenomena, including bioengineering and bioautomation design. Biotechnology in food processing and safety, pharmaceutical and biomedical ap-

plication are developed, simultaneously.

Recently, the main purpose of the Biotechnology Department is to provide a high quality education for Bachelor's and Master's degree as well as for Ph.D. students by improved learning programs and interuniversity exchange. Additionally, an important aim is to develop scientific and applied projects, concerning technologies improving life quality.

Graduated students in Biotechnology with the qualification „Engineer" can participate in the processes of manufacturing and biotechnology management activities in all branches of the national economy where biotechnological transformations of substances are engaged, including biotechnology, chemical, pharmaceutical, metallurgical and food industries as well as in agriculture. Based on their wide engineering, chemical and biological training and taking into account the new economic development of the country, these specialists are in high demand both in large companies and smaller private ones.

Specialized laboratories of the Institutes of Molecular Biology, of Biophysics, of Immunology to the Bulgarian Academy of Sciences, and others specialized laboratories of microbiology, biochemistry, biosensors and other techniques, are used for the students' education. Students can continue their education in the next stages.

The purpose of the „Master" degree education in „Biotechnology" at UCTM is to realize deeper and more specialized trainings in accordance with previously acquired degree. Additionally, an aim is to carry out a broad-based and interdisciplinary training for acquisition of the degree „Master" for students educated in other technical or natural-scientific specialties. During the education in this degree students improve their scientific, theoretical and specialized knowledge. Moreover, they participate in research and applied projects during two semesters and final education thesis for 20 weeks.

Through the introduction of the European Credits Transfer System (ECTS) in the curricula for both education degrees in „Biotechnology" specialty, international comparability and mobility of acquired knowledge is ensured.

Currently, Biotechnology Department participates in a lot of research, national and international projects, including 12 bilateral ERASMUS agreements with universities in Greece, Germany, Czech Republic, Portugal, France, Romania, Italy, Spain and UK. These agreements provide a number of opportunities for bachelor, master and Ph.D. students to prepare their thesis as ERASMUS students.

Additionally, „Biotechnology" specialty participates in ERASMUS MUNDUS projects. During the last four years thanks to financial support of this education program a lot of students from Egypt, Palestine, Uzbekistan, Bhutan and Indonesia passed their MSc courses in English language.

Recently, the equipment at the Department of Biotechnology is quite new. There is a well equipped laboratory for for fermentation processes (fermenter with computer control) and analytical systems (fiber optic spectrophotometer, gas chromatograph,

spectrofluorimeter sensors for measuring parameters of wastewater, immunoelectrophoresis, and light microscope with digital camera „Olimpus „). The apparatuses in the laboratories are involved in the research and teaching processes for all students.

DEPARTMENT OF ECONOMICS AND MANAGEMENT

The department has been established on September 5 1963 as Department of Economics of the Chemical and Metallurgical Production. Later it has been renamed to Economics and Management. The Industrial Management specialty has been created. Bachelor's and Master's degree students are educated there.

The department was established by three enthusiasts: Prof. Yordan Cholakov, assistant professor - Rusi Gurov and Volya Kasatkina. Later more lecturers joined the team - Stefan Gazenov, Nikola Iliev, Todor Valchanov. The staff number reached 11 people in 1965, in the middle of 80's it was already 23 persons.

From 2002 to 2012 the academic staff was as follows: Prof. D.Sc. Rusy Gurov, Assoc. Prof. Dr. Iliya Milchev, Assoc. Prof. Dr. Ivan Dosev, Assoc. Prof. Eng. Dr. Dimitar Tenchev, Assoc. Prof. Eng. Dr. Petar Getchev, Assoc. Prof. Dr. Temenujka Halacheva, Assoc. Prof. Dr. Vasil Hristov, Assoc. Prof. Dr. Ivan Grozev, Assoc. Prof. Eng. Dr. Dinka Milcheva, Assoc. Prof. Dr. Liliya Damyanova, Assist. Prof. Eng. Nikolay Karev, Eng. Vaska Dimitrova, Dr. Maria Simova. The office coordinator is Eng. Venetka Vasileva. During this period many new persons has been attached to the staff – Assist. Prof. Georgi Kondev, Dr. Diana Velichkova, Dr. Eng. Radislava Koseva, and Dr. Eng. Stela Baltova.

In 2011 the Head of the Department Assoc. Prof. Eng. Dr. Petar Gechev, a great friend and colleague passed away. God bless him!

2012 was a successful year for the department's development. A new Assistant Professor joined the team - Vesselin Stefanov; Nikolay Karev got an Assoc. Professor title, Georgi Kondev defended his PhD thesis.

Currently in the department work 5 Assoc. Professors, 5 Assistant Professors and one co-ordinator - office manager.

During this 50 years period the persons being the Heads of the Department are: 1963 – 1974 - Prof. Yordan Cholakov; 1975 - 1991, 1995 - 2000 - Prof. Rusy Gurov; 1991 – 1993 - Assoc.Prof. Ivan Mladenov; 1993 - 1994, 2001 - 2004 - Assoc. Prof. Iliya Milchev; 2004 - 2011 - Assoc. Prof. Petar Gechev; since 2012 - Assoc. Prof. Dimitar Tenchev.

From 2002 to 2012, 986 students graduated. In this academic year about 330 students in Bachelor's and Master's and 11 – in Ph.D. degree are being taught in the Department.

The professors of the Department wrote 32 textbooks and manuals. In research and scientific field about 210 articles are published; the staff of the Department participated in 19 international and local projects.

The main scientific fields being developed are: Strategy planning, Business planning, Quality Management, Innovation Management (Open Innovation Model Adaptation), Equipment Risk Management (risk factors in Pears Smith convertor) , Entrepreneurship Management (Starting Small and Middle business), Human Resource Management (Measuring and Performance Assessment), Environmental Management (Energy efficiency, Energy

Management, Waste Management).

There are modern and functional classrooms, equipped with laptops and multimedia projectors.

The department maintains external business relationships with different companies from various branches - Makmetal Holding JSC, Montel JSC, Splav commerce JSC, Danik JSC, Actavis JSC, Leda Manufacturing JSC, Stroy consult Ltd, Vinprom Peshtera Jsc, Kavalier Union JSC, Sofia plast JSC, VRZ Karlovo JSC, Pirimpex JSC, Fantastico Market Chain, Oriflame Ltd., UBB JSC, Selveks Ltd., General Broker JSC, CEZ Elektro JSC, EVN Bulgaria JSC, State Patent Agency, etc.

Many foreign universities are partners in the department's relationships - Marne La Valle, Paris, France; Technical University Piraeus, Greece; MISIS - Moscow, MHTI - Moskow, Lodz Polytechnic, Poland; TUE Eindhoven, The Netherlands, Technical Institute Arhus, Denmark; Glasgow Caledonia University, Scotland; Technical university Serres, Greece; Bocconi university, Milano; E-flag International, Delaware University USA.

DEPARTMENT OF ENVIRONMENTAL ENGINEERING

The Department of Environmental Engineering was established on March 30th 2011 with a decision of the UCTM Academic Board. It succeeded the Centre of Ecology, successfully managed for many years by Prof. D.Sc. Stoyan Stoyanov. Currently the Centre exists as a separate structure. Head of both the Department of Environmental Engineering and the Centre of Ecology is Assoc. Prof. Dr. Nikolay Kozarev.

Members of the Department are: chief assist. prof. Dr. Evgeni Sokolovski, chief as-

sist. prof. Dr. Nina Ilieva, chief assist. prof. Dr. Sylvia Lavrova, chief assist. prof. Dr. Vanya Kyoseva, assist. prof. Dr. Ekaterina Serafimova, assist. prof. Dr. Metodi Mladenov, and eng. Veneta Traikova. Since the problems concerning pollution are complex and demand vast knowledge and competence, lecturing in the Department is sup-

ported by eminent experts from other departments. The Department of Environmental Engineering offers full- and part-time bachelor's and master's degree courses, an European master's degree course and a postgraduate course in Environmental engineering and Environmental Protection. The courses concern the environmental issues in specific sectors such as the petrochemical industry, organic and inorganic chemicals

industries, pharmaceutical industry, silica industry, pulp and paper industry, production of polymers, ferrous and non-ferrous metals industries, etc.

Students in the Department have at their disposal modern equipment for training and research of the main environmental components – water, air, soil and solid waste.

The subject Solid Waste Management focuses on waste sources, properties and composition of different waste streams, generated in households or in industrial plants. It deals with the characteristics, theoretical basis of treatment, processing and recycling methods for specific types of solid waste such as municipal solid waste and large volume industrial wastes from the chemical, petrochemical, pulp and paper, mining, ferrous and non-ferrous metal industries, from power plants, etc.

During the course in Air Pollution and Waste Gazes Treatment the most significant primary sources of air pollutants are classified and compared, paying greater attention to sources directly related to the chemical and energy production industries. The discipline considers the options for monitoring, control and management of air pollution – via improvement of technological and combustion processes, reduction of the energy consumed, implementation of new constructions in power plants. Particular attention is paid to modern waste gas treatment technologies.

Through the discipline Water Pollution and Wastewater Treatment the students become aware of the main groups of substances deteriorating the quality of the hydrosphere, the resulting processes and possible solutions for wastewater treatment. The subject covers in details the stages of treatment as well as the necessary processes and facilities. Since construction of wastewater treatment plants is crucial to dealing with the pollution of water ecosystems, during the laboratory classes the students are taught to design the main equipment and to calculate some important parameters allowing assessment of the quality of the purified water.

The discipline Soil Pollution and Soil Remediation concerns the substance of soil and soil solution formation, various processes and reactions taking place in the soil and their main characteristics, cycles of the nutrients, types and levels of soil pollution, the main reclamation substances and approaches as well as some new substances applied for remediation of polluted soils.

The course in Simulation of Pollutants Dispersion in the Environment gives fundamental competencies of the most frequent-

ly used mathematical models and software applied for air quality assessment, simulation of dispersion of pollutants in water, etc. Students attain knowledge in working with the software products PLUME, Traffic ORACLE, BREEZE Aermod, PHOENICS as well as in using utility software as Golden Software Surfer, Adobe Photoshop etc.

Research in the Department is focused on expert analyses, auditing and optimal decision making, environmental impact assessment, development of non-waste technologies, waste recycling, environmental monitoring, solid waste management, simulation of the dispersion of pollutants in waters, air, etc.

Currently there are 4 full- and part-time doctoral candidates in the Department as well as one self-studied doctoral candidate from the UACEG.

Advantages of the courses in Environmental Engineering and Environmental protection, compared to similar courses in other universities, include engineering focus, gaining thorough practical and theoretical competencies in the fundamental subjects, forming a chemical and metallurgical industries oriented basis. The Department has long-standing relationships with significant Bulgarian industrial enterprises such as KCM Plovdiv, Sofia Med, Titan Zlatna Panega Cement, Aurubis Bulgaria, etc.

The Department of Environmental Engineering maintains contacts with The Queen's University of Belfast, UK, Free University of Brussels, Belgium, The International Technological University, UNESCO, Paris, France and many others.

FACULTY OF METALLURGY AND MATERIALS SCIENCE

Assoc. Prof. Eng. Dr. Emil Mihailov
Dean

Within the higher education system in this country, following a 60-year tradition, the Faculty of Metallurgy and Materials Science at UCTM is the only one that trains highly qualified engineering, scientific and teaching staff in the field of metallurgy and technologies (production, casting, plastic deformation and thermal treatment of ferrous and non-ferrous metals, their conversion into end products, improvement of the existing and development of new processing furnaces for metal production and processing, improvement of energy and ecological efficiency of industrial production), as well as in the field of new materials and technologies. This makes the Faculty of Metallurgy and Materials Science unique for the country.

Snejhanka Tsvetanova
Secretary

Higher metallurgical education in Bulgaria dates back to establishment of the Higher School of Engineering in Sofia in 1941. The Faculty of Metallurgy and Materials Science exists since 1953 when, by Decree No. 230/10.04.1953 of the National Assembly Presidium (Izvestia No.47/1953) the then existing Public Polytechnic School split in four independent higher engineering schools, one of which was the Institute of Chemical Technology and Metallurgy. It consisted of two faculties – in Chemical Engineering and in Metallurgy.

In the course of time, a number of restructurings occurred in the Faculty of Metallurgy. New departments and scientific chairs were set up. Since 2000 the Faculty was renamed to Faculty of Metallurgy and Materials Science (FMM) and its structure included four departments and two educational centers.

FMM provides training to students in vocational subdivisions 5.9 Metallurgy and 5.6 Materials and materials science at the three degrees of training. At present, students are trained at FMM in six bachelor's and fourteen master's specialities. From 2000 on, more than 80 Ph.D. students study and work at FMM, over 40 of which have been awarded the educational and scientific Doctor's degree. Some foreign students, Ph.D. students and graduates from Germany, Spain, Greece, Romania, Israel, China, Uzbekistan, Egypt and Nigeria study and carry out research at the Faculty under the ERASMUS Program.

At FMM, bachelors are trained in the specialities: Metallurgy with four optional modules (ferrous metallurgy; non-ferrous metallurgy and alloys; metal casting; plastic deformation and thermal treatment of metals), Metallurgy and Management and Metallurgy taught in English. The development of today's society in conditions of depletion of natural resources and growing environmental problems necessitat-

ed stricter requirements with respect to materials. For that reason the specialities: Energy and Ecological Efficiency in Metallurgy, Engineering Materials and Materials Science with four modules (metal-based materials; silicate materials; semi-conductor materials and technologies; polymer materials) and Materials and Management were also introduced at FMM. FMM is an associated member of the Bulgarian Association of Metallurgical Industriy. The long-standing partnership and cooperation established by the Faculty with firms in the metallurgical business is a prerequisite for improvement of engineer training at the Faculty in conformity with the business requirements, procures practical training of the students in real production environment in the form of probation, development of research course papers, graduation papers and Ph.D. students' themes, and supports the professional realization of engineers graduating from FMM. FMM is a Faculty of old traditions and European level of training. The lecturers are highly qualified and train engineering specialists in fields with actuality and significance that do not have to be proven.

DEPARTMENT OF FERROUS METALLURGY AND METAL CASTING

The Ferrous Metallurgy and Metal Casting (FMMC) Department is a successor of the Metallurgy and Mechanical Technologies Chair created in 1953 and headed by Prof. Dr. Eng. Asen Azmanov. In 1960 the Department split in three separate chairs – "Ferrous Metallurgy, Non-ferrous Metallurgy and Founding and General Metallurgy. Prof. Azmanov was Head of the "Ferrous Metallurgy Department till 1962, Prof. Dr. Eng. Hristo Erinin in the period 1962-1980, and Prof. Dr Eng. Nikola Rashkov– in 1980-1984.

In 1984, after integration of the Ferrous Metal Group into the Ferrous Metallurgy Department together with the groups Theory of Metallurgical Processes and Metal Casting under the Founding and General Metallurgy Department, the Ferrous Metal Production Department has been created. It was headed by Prof. Dr. Eng. Avram Avramov. The Department existed under that title up to 1994 when it was renamed into Ferrous Metallurgy and Metal Casting. It was headed by Assoc. Prof. Dr. Eng. Sorin Atanasov, and in 2000-2010 Assoc. Prof. Dr. Eng. Mihail Mihovsky, was Head of the Department. In 2010 Assoc. Prof. Dr. Eng. Rumen Petkov

was elected Head of the Department.

Over the years, two laboratories operated under the Ferrous Metallurgy and Metal Casting Department – Problem-oriented Research Laboratory on Magnetic Materials, headed by Sen. Res. Associate Dipl. Eng. Malina Yordanova and Problem-oriented Research Laboratory on Plasma Metallurgy, PLASMALAB, headed by Prof. Dr. Avramov, and from 1998 on – by Assoc. Prof. Dr. Mihovsky.

The academic staff of the department kept changing since its establishment. Over the years, 8 professors, 16 associate professors, 7 senior assistants were members of the department. Nowadays, the academic staff of the department consists of Assoc.Prof. Dr. Eng. R. Petkov, Assoc.Prof. Dr. Eng. R. Paunova, Assoc. Prof. Dr. Eng. M. Marinov, Chief assistant Eng. D. Grigorova, Assistant Dr. Eng. P. Petrov and Assistant Eng. M. Krusteva. The Ferrous Metallurgy and Metal Casting Department trains students in educational degree Bachelor in two specialization modules, Ferrous Metallurgy and Metal Casting of specialty Metallurgy and students educational degree Master in specialities with the same title. The lecturers of the department conduct lectures and exercises in curriculum subjects of all specialities in the Faculty of Metallurgy and

Material science in the two vocational subdivisions – Metallurgy and Materials and Material Science.

More than 2000 students graduated the department and over 120 Ph.D. students successfully defended theses for award of the educational and scientific degree Doctor. 56 textbooks and 65 handbooks were published in the department.

The Ferrous Metallurgy and Metal Casting Department works jointly with many Bulgarian and foreign universities and metallurgical research institutes: Institute of

Metal Casting, Moscow Institute of Steel and Alloys in Russia, Institute of Metallurgy-Dnepropetrovsk in the Ukraine,

Institute of Metallurgy-Chelyabinsk, Russia, the Polytechnic Institute in Kosice, Slovakia, Freiberg Polytechnical Institute-Germany, Paton Institut - Ukraine, Technical University- Chenstochowa, Poland, Aachen Technical University, Germany, Royal Polytechnical Institute - Stockholm, Sweden, the Polytechnical School in Skopije, Macedonia, etc.

DEPARTMENT OF NON-FERROUS METALLURGY AND SEMICONDUCTOR TECHNOLOGY

The Non-ferrous Metallurgy and Semiconductor Technology Chair (NFMST) was created in 2000 by merging of the two so far independent departments – the Department on Metallurgy of Non-ferrous and Rare Metals and the Department on Chemical Technologies and Materials for Microelectronics and Electronic Components (CTMMEC).

After the merging its Heads are: Assoc. Prof. Dr. Eng. Ivan Gruev, Prof. Dr. Eng. Ivanya Markova-Deneva and Assoc. Prof. Dr. Eng. Vladislava Phzebinda Stefanova.

The department has two Groups: Non-ferrous Metallurgy and Alloys (NFMA) for the speciality of Metallurgy, and Semicon-

ductor Technologies (ScT) for the speciality Materials Science.

Non-ferrous Metallurgy and Alloys Division

The Non-ferrous Metallurgy and Alloys Department was established in 1960 with the title Metallurgy of Non-ferrous and Rare Metals and Head Assoc. Prof. Dr. Eng. Tsvetan Tsvetkov.

The first class was enrolled in 1960. The

students' training was conducted by Bulgarian lecturers: Assoc. Prof. Dr. Eng. Ts. Tsvetkov, Prof. D.Sc. Eng. H. Vassilev, Prof. Dr. Eng. P. Bakardjiev, Prof. D.Sc. Eng. R. Dimitrov, Eng. Mechenov, etc. with active participation of specialists from Russia (USSR) (Assoc. Prof. Dr. Eng. I. Tsaregorodtsev, Assoc. Prof. Dr. Eng. N. Kuznetsov).

Since its establishment till 2000 the NFMA department was led by: Assoc. Prof. Dr. Eng. Tsvetan Tsvetkov, Prof. D.Sc. Eng. Hristo Vassilev, Assoc. Prof. Dr. Eng. D. Chavdarova, Prof. Dr. Eng. Violeta Karoleva and Assoc. Prof. Dr. Eng. Ivan Gruev. The tuition and research process was conducted with the active participation of: Assoc. Prof. Dr. Eng. I. Grozdanov, Prof. Dr. Eng. P. Bakardjiev, Prof. D.Sc. Eng. G. Haralampiev, Assoc. Prof. Dr. Eng. I. Gruev, Assoc. Prof. Dr. Eng. V. Stefanova, Assoc. Prof. Dr. Eng. D. Kunev, Assoc. Prof. Dr. Eng. P. Lesidrenski, Assoc. Prof. Dr. Eng. M. Chimbulev, Sen. Res. Associate Dr. E. Petkova, etc. During the last decade the department was joined by the assistants: Chief assist. Dr. Eng. V. Petkov, Chief assist. Eng. Y.Trifonov, Dr. Eng. B. Lucheva and Dr. Eng. P. Iliev.

The NFMA division tutors specialists for the educational degrees: Bachelor, Master and Doctor in vocational Division 5.9 Metallurgy (Non-ferrous Metallurgy and Alloys). Graduates and Ph.D. students from the department develop their graduation papers and Ph.D. theses at the Department, at metallurgical works, research centers and under international educational projects SOCRATES and ERAZMUS at universities in Greece and Belgium. Students from Guinea, Panama, Greece, Poland, Vietnam, etc., obtained engineer's qualification at the department. The graduates from that division find appropriate realization in Bulgaria and abroad as process engineers, research scientists and lecturers in the field of extractive Non-ferrous Metallurgy, processing of scrap containing precious and heavy non-ferrous metals, at governmental and non-governmental environmental organizations and in other spheres of the public and private sectors.

From the time the department was established till present day, more than 1100 students graduated the division of Non-ferrous Metallurgy and Alloys.

The main research scopes at the NFMA division are related to the development of highly efficient and environment-friendly technologies for extraction of copper, nickel, cobalt, etc. from ground and deep-sea sources; extraction of precious metals from intermediate products, metallurgical and mining scrap; development of innovative, new electrode materials for alternative energy sources, etc.

Just over the recent decade, the staff of

the division participated actively in 5 international contracts, 52 national projects financed by the metallurgical, mining, chemical, etc. industries, projects financed from the Fund of Science Research of the Ministry of Education, Youth and Science (MEYS) and 32 projects financed by the Science Research Sector in UCTM-Sofia.

The recent years are characterized by intensive renovation of the division's equipment. The cost of equipment purchased with a view to the contract subjects by the Found of Science Research Fund of MEYS is more than 120 000 BGN (electrochemical Doctor Bob's cell with potentiostat/galvanostat/ZRA Series 300 and RDE710 system operating with rotating disc made by Gamry, metalographic microscopes Leica DM2500M and stereo-microscope Leica M80, equipped with a color digital camera Leica EC3 and Leica LAS software, LaboForce-1 grinding machine made by Struers A/S, etc. The modernization process was joined by the KCM Non-Ferrous Metal Works in Plovdiv who donated a laboratory induction furnace; the Sofia-MED S.A. etc.

The division NFMA maintains professional contacts with metallurgical and mining and ore dressing enterprises: Aurubis Bulgaria AD Pirdop, KCM AD Plovdiv, ALCOMET Shumen, SOFIA-MED S.A., a subsidiary of XALCOR - Greece, DUNDEE PRECIOUS METALS INC Chelopech; the companies SGS, DITEEX LTD, RINTEX etc., as well as with international educational establishments such as the Catholic University in Leuven, Belgium, MISiS in Moscow, Russia, AGH University of Science and Technology, Poland, the Interoceanmetall Consortium in Poland, etc.

Semiconductor Technology Division

Initially the CTMMEC Chair was named "Chemistry and Technology of Semiconductors and Electronic Components" and was established in 1961 in order to meet the needs of the industry for highly qualified specialists in the technology of semiconductors and electronic components. Currently it is a specialization module in semiconductor materials and technologies within the Material Science speciality.

The first class of students of the independent Chair CTMMEC was admitted in 1961 and is trained after curricula developed by Prof. D.Sc. Eng. Zorka Boncheva-Mladenova and Prof. D.Sc. Hristo Vodenicharov who read lectures in Semiconductor Chemistry and Semiconductor Physics, respectively.

The first Head of the department elected was Prof. Dimiter Djoglev who reads lectures in Semiconductor Technology. The staff of the Department includes specialists the majority of which have graduated the department and were transferred to the Science Research Sector (SRS). At different times, the Department was headed by Prof. D.Sc. Eng. Zorka Boncheva-Mladenova, Prof. D.Sc. Eng. Georgy Peev, Assoc. Prof. Dr. Eng. Stoyan Karbanov, Assoc. Prof. Dr. Eng. Todora Racheva-Stambolieva, Prof. D.Sc. Eng.Ventseslav Vassilev and Prof. Dr. Eng. Ivanya Markova-Deneva. In 2002-2008 the academic staff of SCT Division consisted of 9 associate professors with Doctor's degrees (Assoc. Prof. Dr. Eng. T.

Racheva, Assoc. Prof. Dr. Eng. I. Iliev, Assoc. Prof. Dr. Eng. G. Georgiev, Assoc. Prof. V. Shanov, Assoc. Prof. L. Ilkov, Assoc. Prof. V. Vassilev, Assoc. Prof. Dr. Eng. Iv. Markova-Deneva, Assoc. Prof. Dr. Eng. L. Zambov, Assoc. Prof. Dr. Eng. B. Ivanov) and 2 assistants (Dr. Eng. L. Algihamani and Eng. L. Slavov).

The ST Division trains specialists in the educational degrees «Bachelor» and «Master» in «Semiconductor materials and technologies» and Metrology. The graduates can work in the field of deep refining and semiconductor material technology for the electronics and micro-electronics, production of electronic and microelectronic products in the machine building, chemical and metallurgical industry, electronics, electrical engineering, etc., and at science-research centers in Bulgaria and abroad. ST Division also trains Ph.D. students in the scientific speciality of Semiconductor and Electronic Component Technology. Over the recent decade 47 masters of science and 80 bachelors from the full-time and part-time form of training have successfully defended their theses.

The science-research subjects covered by the division are: Materials and technologies for production of electronic components; pure and extra-pure materials for electronics, electrical engineering, optoelectronics; synthesis and characterization of nanomaterials (metal nanoparticles, hybrid nanoparticles, porous nanocomposites based on porous silicon and optically active polymers, carbon foam and inter-metal nanoparticles) for catalysts, functionalized nanomaterials for medicine, nanocomposites for the electronics, opto- electronics and high-vacuum technology, for electrodes in galvanic current sources. In 2002-2012 five projects were financed in Division ST by the Science Research Fund of MEYS, 26 projects were financed by SCS at UCTM-Sofia and 2 participations in international projects. The equipment is continuously renovated, resulting in higher quality of training of the undergraduates and Ph.D. students.

The ST Division maintains contacts with the electronics business, such as EPIQ Electronic Assembly- Botevgrad, Sensata-Botevgrad, AMG Technology-Botevgrad, Curtis Balkan- Sofia, Micron20-Sofia, Sammuel 90-Samokov. The academic staff maintains scientific contacts with the University of Cincinaty and the National University of Kansas in the Processing United States, the National Polytechnical University of Toulouse - France, Institute of Materials of Nantes - France, University of Science and Technologies in Montpellier - France, University of Cardiff - Wells, Processing United Kingdom, University of Birmingham - Processing United Kingdom, Univesrity of Scopije - Macedonia, MISiS in Moscow, Rus-

sia, Russian University of Chemical Technology D. I. Mendeleev in Moscow, Russia.

DEPARTMENT OF PHYSICAL METALLURGY AND HEAT PROCESSING FURNACE

Historically, the lecturers and the research groups of the department are successors of two departments - Casting and Metallurgy and Ferrous Metallurgy (1960) - as a result of restructurings that occurred in the Faculty of Metallurgy established in 1953.

On the grounds of increasing interest in the disciplines at the Faculty of Metallurgy, the extended lecturer staff, development and expansion of the scientific interests and directions, there was another restructuring in 1983. Two new departments were established – Metal Forming and Metallurgical Equipment, renamed in 1991 into Plastic Deformation and Heat Treatment of Metals, and Metallurgical Furnaces. In 2000, the two departments merged into new one, Physical Metallurgy and Metallurgical Equipment.

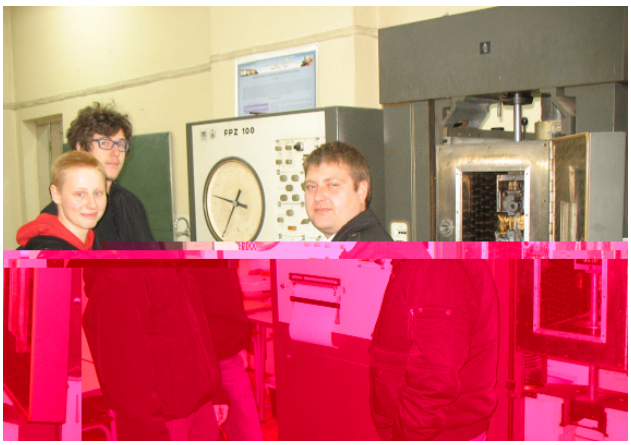
As it is now, the Department Physical Metallurgy and Metallurgical Equipment naturally encompasses three groups: Metal Forming, Metal Science and Heat Treatment and Energy and Ecological Efficiency in Metallurgy. Assoc. Prof. Dr. Eng. Boris Stefanov was elected the Head of the Department and headed it untill 2003. In 2003 - 2012, Prof. D.Sc. Donka Angelova, was the Head of the Department, and at the end of 2012 Assoc. Prof. Dr. Eng. Dimitar Krastev, was elected the Head of the Department.

Metal Forming Group

The founder of the Division was our eminent scientist, Professor D.Sc. Josif Kuotchukov, who acted as well at the administrative posts as Dean of the Faculty of Metallurgy, Head of Department, he worked in UNESCO in the field of science and education; he was the first director of the Steel Works in Pernik; leader of numerous projects at metallurgical enterprises in Bulgaria. He established a research group in Metal Forming, Metal Fracture and Metal Testing with numerous graduates, Ph.D. students and research associates.

Since establishment of the Department, the academic staff of the Group has been developing and growing. Currently, Prof. D.Sc. D. Angelova, Assoc. Prof. Dr. T. Koynov, Assoc. Prof. Dr. R. Yordanova, and Assist. Prof. Dr. S. Yankova, and ten Ph.D. students are working there. The lecturers are authors of 18 textbooks, monographs, handbooks, guidebooks supporting the teaching process and ensuring high quality of training.

The Group is responsible for teaching Bachelors, Masters and Doctors in the fields of Metal Forming, Metal Fracture and Fatigue, and Metal Testing in two specialisations: Metallurgy and Materials and Material Science. The students acquire knowledge and develop skills in different traditional and non-traditional methods of Metal Forming; in Metal Fracture and Fatigue, and Metal Properties Selection and Testing; in Metal Utilization under particular operational conditions; in development, production, quality and application of different metals and alloys and their final products.



The Group has established contacts with some universities in Germany, France, Greece, United Kingdom, Serbia, Macedonia, Russia and Japan. Graduates and Ph.D. students in Metal Forming, Metal Fracture and Fatigue, Metal Testing conduct part of their graduation and dissertation research on the international educational program ERASMUS in the partner-universities in Germany (Clausthal University of Technology), France (Paul Verlaine University-Metz, Lille University of Science and Technology, University of Maine-Le Mans) and Greece (Democritus University of Thrace, Xanthi).

Since 2000 the graduates in Metal Forming, Metal Fracture and Fatigue, and Metal Testing have been acting as highly qualified engineering and management staff in different spheres of the private and state sector of industry; in metal testing and quality control laboratories; as experts and consultants in metal forming technologies; in research for improving some technological processes and developing of new materials, in commercial management and consultancy firms.

Twelve Ph.D. students are part of the Group, two of which have already been awarded Ph.D. degree. Ph.D. theses are in the field of fracture, fatigue and testing of ferrous and non-ferrous metals, and some are also related to improvement of metal forming technologies. Five of the theses address concrete industrial problems. Consultants of these theses are leading specialists from Sofia Med S.A. - Sofia, Stomana Industry S.A. – Pernik, Radomir Metal Industries JSC - Radomir.

The lecturers of the Group participated in national contracts financed by the Bulgarian Science Fund of Ministry of Education, Youth and Science, UCTM and Bulgarian Academy of Science, and in two international projects – with General Motors of Canada, Oshawa, Ontario, Canada and Aleris Aluminum Duffel B.V.B.A., Duffel, Belgium.

The scientific activities of the staff are as follows: plastic deformation mechanics – process modeling; metal forming methods; improvement of metal forming technologies, products and quality; mechanical and technological metal tests; metal susceptibility to crack formation; metal fracture and fatigue - assessment of failure risk for structural integrity, modeling.

Laboratories of Metal Forming, Metal Physics and Mechanical Metal Testing are established. They are equipped with an universal machine for tension, compression, bending and cyclic loading; a rotation bending fatigue machine for tests in air and aggressive environments; a hydraulic machine for mechanical tests; a hydraulic press; a device for hardness Brinell and Rockwell tests; heating furnaces; Neophot, Carl Zeiss Jena microscopes used for microstructure analysis, crack tracking, fractographic analysis, etc.

The Group has established close contacts with leading metallurgical companies – Sofia Med S.A., Stomana Industry S.A. – Pernik, Radomir Metal Industries JSC, Alcomet AD – Shumen, ETEM Bulgaria S.A. – Sofia. The collaboration is in expertise, consulting, research (finding solutions for production problems) and teaching (train-

ing of employees), working out joint graduation papers and dissertations, training students over industrial practices, participation of company specialists in examination committees.

The Group have worked out and taken part in projects related to research applications in higher education: international program «EU Programme on Human Capital and Mobility; Establishing of Materials Science Education Network; an international project for organization of traditional summer schools "Fracture Mechanics, Fatigue and Structural Integrity of Engineering Materials and Nanomaterials (IFMASS) for young scientists, experts, engineers and Ph.D. students from the countries of South-East Europe; an international network for research and education "Online Materials Databases and Materials Project-Documents Network; science-educational projects with Sheffield and Manchester Universities under the auspices of the Program "British Council's Academic Frame", as well as with Kyushu University, Fukuoka, Japan.

On the basis of international contacts established by the Group, UCTM signed research and training agreements with the University of Maine, Le Mans, France, for foundation of an Academic Forum in Material science, Energy and Ecological Efficiency; with the Faculty of Technology & Metallurgy, University of Belgrade, Serbia, as well as with the Moscow State Open University, Russia, in the field of metallurgy and technologies.

Metal Science and Heat Treatment Group

The Metal Science and Heat Treatment Group (MSHT) is both fundamental and specialized in the field of metallurgy and materials science. Faculty lectures read lectures, lead seminars and conduct exercises in disciplines and of specialities from all three faculties of UCTM.

The founder of the Group is Professor D.Sc. Nikola Rashkov. The academic staff of the MSHT Group has been changing throughout its existence. One professor, Doctor of engineering sciences; four associate professors, Doctors and six senior assistants have worked at the Group.

Nowadays the academic staff of MSHT Group consists of Assoc. Prof. Dr. Eng. D. Krastev, Assoc. Prof. Dr. Eng. B. Yordanov,

Assist. Prof. Dr. Eng. R. Gavrilova, Assist. Prof. Eng. K. Klyavkov, Eng. V. Lazarova, and three Ph.D. students. Since 2000 over 950 students, 22 bachelors and 43 masters were educated and graduated in the Group. The lecturers are authors of 9 monographs and 15 textbooks.

In the recent years, the members of MSHT Group participated in four national projects funded by Bulgarian Science Fund of Ministry of Education, Youth and Science in the field of nanotechnologies and in more than 10 contracts with local enterprises in the field of metallurgy and machine building. There are developed two unique methods at the world practice in electrical discharge processes of metals and alloys treatment, so-called „Electrothermal rotary bed" and „Electrical discharge surface treatment of metals and alloys".

The laboratories, established and oper-

ating in the Group are for "X-ray Structural analysis" and "Scanning Electron Microscopy", "Metalography" and "Heat Treatment". The Group is equipped to make a research and analysis in the field of metallography and heat treatment of metals - digital camera model DCM-500; nine metallographic microscopes - Neophot, Ephityp, Reichert

and MMR; X-ray diffractometer TUR, modified in 2006, scanning electron microscope „SS-40", apparatus for differential thermal analysis; furnace type „Salt bath", chamber furnaces, equipment for hardness testing, polishing machine „LECO"; machines „Metasinex" and sample-preparatory machine „Metasecar".

The team of Group carries out the expertise, teaching and research activities in AURUBIS Bulgaria JSC, Sofia Med JSC, Promet JSC and EPIC EA Ltd.

Teachers of direction MTOM collaborate ERASMUS project with Institut für Werkstoff-und Fügetechnik, Otto-von-Guericke-Universität in Magdeburg, Germany. The MSHT Group has links, maintains relations and professional contacts with universities in Germany, Romania and Macedonia.

Division of Energy and Ecological Efficiency in Metallurgy

At the time of its establishment, the structural unit of PMHPF Chair was the division of Metallurgical furnaces and Processing Furnaces, renamed in 2009 to Energy and Environmental Efficiency in Metallurgy.

In the recent years, members of the division at different times occupied managerial positions in UCTM – Rector, four Vice Rectors, three Deans of the Faculty of Metallurgy and Material science, two directors of structural entities of the university. Currently, Assoc. Prof. Dr. Eng. V. Petkov, Assoc. Prof. Dr. Eng. B. Stefanov, Assoc. Prof. Dr. Eng. Em. Mihaylov, Assoc. Prof. Dr. Eng. R. Stanev, Chief assist. Dr. Eng. D. Choshnova and 6 Ph.D. students work at the division. The lecturers participate in 11 contracts under the ERASMUS program with universities in Austria, Germany, Greece, Italy, Portugal, Romania and France, and maintain partnerships with universities in the United Kingdom, Macedonia, Russia and Poland. They are authors of 17 textbooks and training aids in the disciplines taught in the division.

The graduated engineers work as managers and employees of companies for mining and trading of raw materials, metals and energy sources, in the business and administrative departments of public institutions, as heat engineers, process engineers, etc.

More than 150 science-research projects were developed in the division, some of them with realized economic effect. In the field of Energy Efficiency, training courses were conducted, methodologies were developed and investigations were carried out for assessment of buildings and industrial facilities at the level of processing furnaces, process lines and production. In the field of Environmental Efficiency, research on transport of emissions in the air to the ground-layer concentrations of noxious substances was carried out. Environmental Impact Assessments and comparisons with the best available techniques, of investment intentions and actual operating industries were made.

The research work of the staff develops

along the following scientific lines: metallurgical heat engineering – research, optimization, physical and mathematical modeling of transport processes in metallurgical furnaces and processing furnaces, improvement of their design principles, research in the characteristics of materials for construction of these facilities and of the products treated in them; Energy and Environmental Efficiency - the efficient management of energy resources, requires a combination of different approaches and technical solutions directed to finding and utilization of the energy potential of systems, their environmental support, mastering and implementation of energy-saving and ecologically relevant technological and design solutions; methodologies and software were developed for assessment and optimization of the mode parameters of the processing furnaces and facilities; diagnostics and preventive maintenance of production plants - a methodology was developed for integrated approach to diagnostic and assessment of the condition of high-temperature equipment using the results from thermographic measurements in combination with the outputs of mathematical models and expert knowledge; application of renewable energy sources in metallurgy – the opportunities for additional preheating by solar heat of the air fed to the combustion systems of furnaces is studied; creation of efficient systems for synergy of various secondary energy sources by combining of their advantages; biomass gasification for energy purposes; mathematical models were developed for determining the gasification products and their energy potential, permitting assessment of the operation efficiency of a plant depending on the raw materials and mode parameters of the gasification process.

The following laboratories were created in the division: Metallurgical Heat Engineering and Intelligent Diagnostics, equipped with up-to-date instruments for heat measurements and conducting research - hydrogen cell; infrared (thermographic) camera; infrared combined thermometer for contactless temperature measurement; a calorimeter; contact thermocouples; instruments for measurement of gas pressure, velocity, temperature and humidity.

Special-purpose, standard and in-house software was developed for conducting of numeric analyses and diagnostics of thermal objects and vibration analysis of mechanical facilities. Multi-functional and interdisciplinary benches were developed for training and science research in the field of heat engineering and hydrodynamic measurements; infrared thermography; diagnostics

of high-temperature objects; non-destructive inspection; vibrational analysis; diagnostics of mechanical facilities; research in the gas flame parameters, of cooling water and cooling air jets; operation of heat-exchangers.

The division maintains contacts with the firms: Aurubis Bulgaria AD, GFF AD, Enersys AD, KCM AD, Radomir Metal Industries AD, Refran Ltd, Rua Bulgaria EOOD, SOFENA, Sofia Copper AD, Stomana Industry AD, Helios-Metalurg Ltd, etc. Cooperation is realized in the form of training of the employees in the field of technologies, consulting services, development of joint grad-

uation papers and dissertations, conducting of probations, solution of production issues, application for structural and international projects, implementation of joint publications, delivery of lectures by leading specialists from the firms and their participation in state examination boards.

DEPARTMENT OF SILICATE TECHNOLOGY

The Silicate Technology Department detached 60 years ago as an independent training unit. Initially it trained students in the speciality Silicate Technology, and subsequently bachelors and masters in the specialities: Technology of glass, ceramics and binding agents, Engineering materials and material science, Materials and management, Glass, ceramics and binding agents, Silicate materials and Nanomaterials and nanotechnologies.

The first Head of the Chair was Prof. Eng. Stoyan Gutsov. Over the last decade, Heads of the Chair were Prof. Dr. Yordanka Ivanova (2002-2004), Assoc. Prof. Dr. Eng. Liliana Pavlova (2004 - 2008), Prof. Dr. Eng. Stoyan Djambazov (from 2008 till the present date).

The training and science-research activity in the department over the years was carried out by highly qualified scientific and tuition staff: Prof. Eng. Stoyan Gutsov, Prof. Eng. Encho Gerasimov, Prof. D.Sc. Eng. Svetlan Bachvarov, Prof. D.Sc. Eng. Marin Marinov, Prof. Dr. Eng. Vasil Valkov, Prof. Dr. Eng. Biserka Samuneva, Prof. Doctor of Mining and Geology Eng. Dobrinka Stavrakeva, Prof. Dr. Ivan Kasabov, Prof. D.Sc. Eng. Yanko Dimitriev, Prof. D.Sc. Eng. Vladimir Kozhuharov, Prof. Dr. Yordanka Ivanova, Prof. D.Sc. Eng. Liliana Zashkova, Prof. D.Sc. Eng. Veselin Dimitrov, Prof. Dr. Eng. Stoyan Djambazov, Assoc. Prof. Dr. Eng. Dobrinka Lepkova, Assoc. Prof. Dr. Eng. Hristina Boyadjieva, Assoc. Prof. Dr. Eng. Angel Atanasov, Assoc. Prof. Dr. Eng. Liliana Pavlova, Assoc. Prof. Dr. Ivan Ivanov, Assoc. Prof. Dr. Eng. Peter Djambazki, Assoc.Prof. Dr. Eng. Albena Yoleva, Assoc. Prof. Dr. Eng. Anna Staneva, Assoc. Prof. Dr. Eng. Nina Penkova, Assoc.Prof. Dr. Eng. Irena Mihaylova, Assoc.Prof. Dr. Eng. Georgy Chernev.

Since establishment of the Chair till the present date, more than 1000 students graduated as bachelors and masters in the vocational divisions “Chemical technologies“ and “Materials and Materials science“. The total number of Ph.D. students trained in these vocational domains just over the recent few years is 27, of which 22 successfully defended their theses and were awarded Doctor’s degree.

The main scientific lines and achievements of Silicate Technology Chair are related to improvement of the classical silicate technologies, development of new technologies for synthesis of special-purpose materials (nanomaterials, nanocomposites, nano-

coatings, ultra-disperse ceramic powders), modification of the structure and properties of vitreous, ceramic and construction materials, utilization of by-products and modeling of the thermal processes in processing furnaces in the silicate workshops.

In the recent 10 years the staff has been actively participating in the development of 6 International projects under the

5th , 6th and 7th Working Program of the EC, Brussels, in 2 International projects under COST programs, 7 International projects for training under the ERASMUS program – MUNDUS, 8 National projects for Science Research at MEYS and 35 Scientific projects financed by the Science Research Sector at UCTM. Besides, a large part of the full-time Ph.D. students at the Chair whose professional experience allowed them to participate in the development of new scientific projects at international scientific centers in Portugal, the United Kingdom, Spain, Germany, Belgium, etc. have taken part in

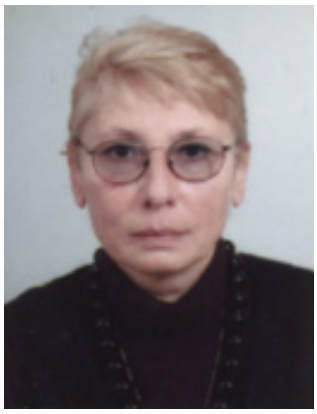
the development of international projects. Under educational projects and student exchange programs in the Chair, 17 foreign students from Egypt, Iraq and Spain were trained. Now some of them continue their training as full-time Ph.D. students at the department.

Financing under international projects allowed renovation of the equipment of the department. The equipment in the training laboratories was replaced by new furnaces, dryers, high-speed crusher, crusher, equipment for homogenizaton and mechanical activation of materials, thermodynamic analyzer TG-DSC and TG-DTA up to 1600°C - Linseis- Germany, optical microscope BO-ECO-Germany with digital camera, atomic power Microscope ACM- Nanosurf – Switzerland, device for color characteristics of solid bodies, surfaces and solutions (coloristic) through LOVIBOND, UK, thickness meter for thin films, layers and coatings

through Positector 6010- DeFelsko, USA, a plant for testing the operating characteristics of SOFC, електрochemical measurements apparatus – Auto Lab, Holland.

The Silicate Technology Chair maintains professional contacts with leading firms in the silicate industry: Khan Asparuh AD, Isperih; Khan Omurtag AD, Shumen; Ideal Standard AD, Sevlievo; Roka Bulgaria AD, Kaspichan; Caolin AD, Techkeramik AD, Mezdra, Wienerberger EOOD, Lukovit; Druzhba EAD, Sofia; Thracia Glass EAD, Targovishte; Titan AD, Zlatna Panega, etc. Many of the graduates find professional realization at these firms. The Chair maintains a long-standing science cooperation with the universities in Aveyro, Portugal; Castelon, Spain; Pattra, Greece; Jena, Germany, etc.

DEPARTMENT OF CHEMICAL SCIENCES



Assoc. Prof. Dr. Maria Machkova

The Department of Chemical Sciences was founded in June 2000. It includes the Departments of Analytical Chemistry, of General and Inorganic Chemistry, of Organic Chemistry and of Physical Chemistry. Until 2007 it was headed by Prof. D.Sc. Assen Girginov, while since 2007 – by Assoc. Prof. Dr. Maria Machkova. It focuses the efforts of the faculty members at providing high-quality fundamental education in Chemistry to the students of all qualification degrees. Complementary chapters are added to the lecture courses updating the information included, new educational programs and courses are developed, extra laboratory and computational exercises are introduced. The educational equipment as well as the lectures presentation is continuously updated. A number of textbooks and training materials have been published. A large amount of the information required for the educational process is provided electronically. High level research studies are carried out in collaboration with many institutions from the country and abroad. The faculty members of the Department of Chemical Sciences have authored 700 papers, reports and presentations during the last 10 years. A very large number of these have been published in international research journals. More than 3000 citations by foreign authors have been found during this period of time.

ANALYTICAL CHEMISTRY DEPARTMENT

The Department of Analytical Chemistry celebrates its 65-th Anniversary as an independent research and teaching university unit during the jubilee year of 2013. The faculty members of the Department continue their work aimed at the application of the best practices in the field of chemical engineers education. This was the position claimed by Assoc. Prof. Dr. Tcvetanka Nedeltcheva and Assoc. Prof. Dr. Latinka Costadinova, the former and the present Head of the Department.

The B.Sc. students of UCTM follow lecture courses in Analytical Chemistry, Instrumental Methods in Analytical Chemistry and Analytical Chemistry and Instrumental Methods depending on their specialization. The master students follow two compulsory courses of Spectral Methods for Materials Analysis and Chemical Composition of Compounds and Materials and two optional courses on Analysis of Pure Substances and Instrumental Methods. The course of Modern Instrumental Methods in the Scientific Research is developed for Ph.D. students.

Specialized analytical chemistry courses in English, German and French are provided for foreign and Bulgarian students. These are: Chemistry II (Analytical Chemistry), Analytical Chemistry, Instrumental Methods in Analytical Chemistry and Analytical Chemistry and Instrumental Methods. Lab experiments, manuals and books are written to assist the teaching in these foreign languages. A new course on Analysis of Water and Air is developed for the master students who follow their education in French.

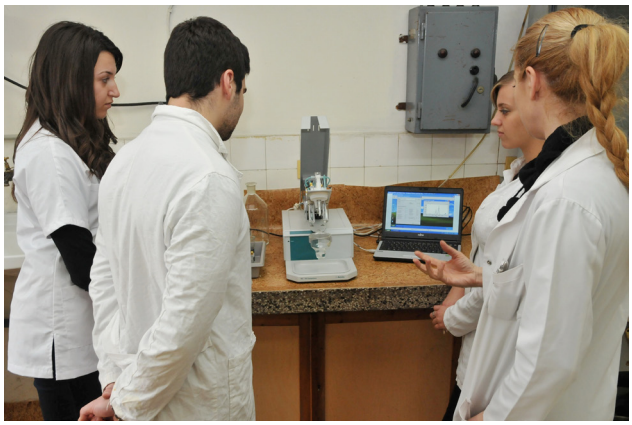
A number of books and manuals are

published: "Analytical Chemistry – A Short Course" (Abagar, V. Tarnovo, 2004) by T. Nedeltcheva ; "Instrumental Methods of Analytical Chemistry" (UCTM, 2010) by T. Nedeltcheva; "Analytical Chemistry with

Instrumental Methods" (UCTM, 2011) by T. Nedeltcheva; "Laboratory Notebook in Analytical Chemistry" (Novi Znania, Sofia, 2003) by R. Borissova, T. Nedeltcheva, L. Kostadinova, T. Kolusheva, L. Vladimirova, A. Marinova, L. Nikolova; "Laboratory Manual in Analytical Chemistry" (Novi Znania, Sofia, 2003) by R. Borissova, T. Nedeltcheva, L. Kostadinova, S. Popova, R. Chavdarova, L. Ilcheva, T. Kolusheva, L. Vladimirova, A. Marinova, L. Nikolova, A. Surleva; "Calculations in Analytical Chemistry – Part I, Chemical Equilibrium" (UCTM, 2007) by T. Nedeltcheva, L. Costadinova, T. Kolusheva, L. Vladimirova,

A. Marinova, L. Nikolova, A. Surleva ; "Calculations in Analytical Chemistry – Part II, Qualitative Analysis" (UCTM, 2013) by L. Costadinova; T. Nedeltcheva, T. Kolusheva, L. Vladimirova, A. Surleva, S. Georgieva, M. Hristova.

The main goal of the staff of the Department of Analytical Chemistry is to provide high quality education focused on gaining good theoretical knowledge and practical skills. A specific system to estimate the latter is designed and successfully applied. The students' laboratory practice is additionally improved by the specialization and renovation of the laboratories on spectrophotometry, atomic absorption spectrometry, potentiometry and voltammetry. A renovated room is available for the seminars in mass- and NMR- spectrometry, as well as for gaschromatography. The potentiometry laboratory is recently equipped with modern instruments using European funding through a project for improving the quality of the fundamental education in UCTM. The laboratory experiments in voltammetry are performed using a modern polarograph delivered with the support of the Bulgarian Ministry of Education, Youth and Science. Some of the experiments connected with the application of atomic absorption spectrometry and gas chromatography are performed in the Central Research Labora-



tory of UCTM. Two additional laboratories are equipped for doctoral and post-doctoral studies. The Agency of Francophone Universities supported financially one of these. The optional course "Analytica" at the Department of Continuing and Distance Education has been organized 16 years ago for students interested in Analytical chemistry and at least 10 students graduate each year as "analysts".

The research activity at the Department of Analytical Chemistry is directed to the challenging fields of environmental sciences, new materials and technology studies. The collaboration with other research institutes is successfully established. The in-

vestigations carried out are focused on the analytical control of superconducting materials oxygen content, the study and applica-

tion of equilibrium systems, the determination of composition and stability constants of complexes by spectrophotometry and voltammetry. Studies are also proceeding in the area of bioorganic analysis and the analytical control in ecology, food and beer processing. The spectral molecular sensor developed in collaboration between the Departments of Analytical Chemistry and Organic Synthesis is awarded by a golden medal at Euroinvent 2012, Iasi, Romania. The experimental results obtained by the staff of the Department are presented at 45 scientific conferences in Macedonia, Belgium, Portugal, Morocco, Romania, and Greece. More than 80 papers are published in highly ranked scientific journals, One Bulgarian patent is issued.

DEPARTMENT OF GENERAL AND INORGANIC CHEMISTRY

The Department of General and Inorganic Chemistry is established in 1945 by Prof. Dr. Nikola Kolarov as a main scientific unit of the Department of Industrial Chemistry at the former State Polytechnics. All students of UCTM are educated at the Department since the theoretical foundations of their general chemistry training are laid there. Prof. D.Sc. Eng. Ivan Lyubomirov Dukov (2000-2004), Prof. Dr. Eng. Mitko Petrov Georgiev (2004-2008) and Assoc. Prof. Dr. Eng. Veneta Dimitrova Parvanova (2008-) headed the Department during the last ten years.

Around 1400 B.Sc. students are taught annually at the Department of General and Inorganic Chemistry. They follow the lecture courses “Inorganic Chemistry-Part I”, “Inorganic Chemistry-Part II”, “General Chemistry”. The curriculum includes also stoichiometric calculations and laboratory exercises. The lecture course “Inorganic chemistry” is provided also in German and French. All study programs are revised with the aim to meet the contemporary educational requirements in correspondence with the European standards. New programs are designed for the M.Sc. students: “Chemistry of d- and f-Elements” by Prof. D.Sc. I. Dukov, “Preparative Inorganic Chemistry” by Prof. Dr. M. Georgiev and Assoc. Prof. Dr. D. Nikolova, “Obtaining of Chemically Clean Substances” by Assoc. Prof. Dr. V. Parvanova. New lecture courses are offered to the Ph.D. students. These are “The chemical Bond Nature”, “Structural Inorganic Chemistry” and “Chemistry of Complex Compounds”. It is worth noting that the teaching at the Department of General and Inorganic Chemistry is based on the wave mechanical concepts of the substances structure as well as on the kinetic and thermodynamic characteristics of the chemical processes. This approach enables to outline the regularities and the interconnections among the properties exhibited and which is why is of great significance in presenting the enormous amount of facts and data in the field of inorganic chemistry. All laboratories of the Department are renovated. New laboratory equipment is accessible due to funding provided by a project aimed at the Improvement of the Fundamental Training Quality at UCTM and a number of donations

connected with the 60-th Anniversary of the Department.

The experience of the academic staff provided the publishing of several textbooks and manuals. These are "Chemistry – an

Entry Course" by I. Dukov and M. Georgiev, "General and Inorganic Chemistry: Atomic Structure, Chemical Bond and Stereochemical Theories" by I. Dukov, "Manual in Inorganic Chemistry" by A. Zahariev, V. Yordanov, V. Parvanova, V. Karadzhova, D. Nikolova, M. Atanasova, R. Popova, "Oxiadtion-Reduction Processes" by D. Nikolova, V. Yordanov, M. Georgiev.

The research activities of the Department are focused to the following areas:

Synthesis, structure and properties of inorganic compounds. Prof. Dr. N. Kolarov and Prof. Dr. M. Maneva were the first to start working in this field. They were followed by Prof. Dr. M. Georgiev, Assoc. Prof. Dr. D. Nikolova, Assist. Prof. Dr. V. Karadzhova. They carry out thermal, calorimetric, radiographic and X-ray diffraction analyses in the course of their studies on the dehydration processes of different salts. Their research papers are published in Journal of Molecular Structure, Vibrational Spectroscopy, Journal of Solid State Chemistry, Crystal Research and Technology, Journal of Thermal Analysis and Calorimetry, Journal of Materials Science, Thermochimica Acta;

Synthesis and electrophysical properties of materials for electronics. Assoc. Prof. Dr. V. Parvanova, Prof. D.Sc. V. Vasilev and Honorary Assoc. Prof. Dr. I. Iliev from MCMPT have worked in this field during the last ten years. More than 140 compositions of ceramic materials and glasses are obtained on the basis of the synthesized titanates, chalcogenide, oxohalide and chalcohalide semiconductor materials. The areas of their application are determined. It is found that they can be used as capacitors, piezoelectric sensors, resonators for satellite dishes, hybrid integrated circuits. The research papers written in this area are published in Journal of Materials Science: Materials in Electronics, Journal of Non-Crystalline Solids, Journal of Alloys and Compounds, Journal of Optoelectronics and Advanced Materials, Materials Chemistry and Physics;

Chemistry of extraction processes and coordination compounds. The studies in this field were begun by Prof. D.Sc. L. Genov. Later Prof. D.Sc. I. Dukov, Assoc. Prof. Dr. M. Zaharieva, Assoc. Prof. Dr. G. Georgiev, Assoc. Prof. Dr. V. Yordanov and Assist. Prof. Dr. M. Atanasova continued his work. Their studies refer mainly to the interphase distribution of lanthanoids in case of solvent extraction by binary mixtures. Some of the latter showed synergistic effect. The results obtained are published in Solvent Extraction and Ion Exchange, Separation Science and Technology, Hydrometallurgy, Separation and Purification Technology.

The investigations carried out at the Department proceed in correspondence with the programs of 33 research projects financed by the Department of Scientific Research of UCTM and 16 projects sponsored by the Ministry of Education, Youth and Science, EnerSys JSC and Chimproduct JSC. The contributions made refer mainly to the synthesis of substances with reagent purity, with the study of the possibilities of obtain-

ing and defining the structure of new salts in the form of hydrates. Technologies for solving ecological problems and for obtaining ultra-pure chemical reagents for the needs of Chimproduct JSC are developed. Electrode materials for peroxide fuel cells are tested and optimized. The technological parameters of the industrial wastewater treatment plant at EnerSys JSC are optimized. Members of the academic staff of the Department work on the introduction of ecological control units at the Central Research Laboratory of UCTM. New dielectric materials are produced aiming their application as piezoelectric and ion-selective sensors, microwave resonators, etc. The properties of new thermoresistant and thermoelectric materials are synthesized and studied. The synergistic solvent extraction of lanthanoids is successfully carried out in a mixture of two chelating agents, 8-hydroxyquinoline and crown ethers. The compound 4,4,4-trifluoro-1-(biphenyl-4-il)-butane-1,3-dione is synthesized and its application to separa-

tion of light lanthanoids in combination with phopsphide oxides is studied.

Five Ph.D. dissertations are defended during these ten years. Members of the academic staff have specialized at the Universities in Montpellier, Magdeburg, at Chemical University of Prague and Technical University of München.

Forty one papers are published within the period between 2004 and 2013 in Bulgarian and international research journals with an impact factor. The members of the academic staff of the Department have 96 participations at Bulgarian and international conferences (Sofia, Varna, Gabrovo, Blagoevgrad, München, Budapest, Tokyo, Oslo, Barcelona, Stuttgart, Ohrid, etc.).One Bulgarian patent is issued. More than 280 citations are found during this ten years period.

It is worth noting that the 60th anniversary (2005) of the Department of General and Inorganic Chemistry was marked by a scientific conference with international participation. Its successful proceeding verified the prestige of the University and the Department.

DEPARTMET OF ORGANIC CHEMISTRY

The Department of Organic Chemistry was initially started in 1945 within the Sofia State Polytechnic University by the Corresponding Member Prof. Chavdar Ivanov, its first lecturer and head. Since the establishment of the Institute of Chemical Technology students studying chemical engineers in almost all professional modules in UCTM have been educated in the fundamental subject “Organic Chemistry” in the same Department. The Department of Organic Chemistry has developed and affirmed itself as a powerful educational and research centre. It has been headed by Corresponding Member Prof. Chavdar Ivanov, Prof. D.Sc. Boris Alexiev, Prof. Dr. Luben Yankov, Assoc Prof. Dr. Stefan Yordanov, Prof. Dr. Diana M. Mondeshka, Prof. Dr. Lyubomir Todorov Vezenkov (2000-2006) and Prof. Dr. Emilia Dimitrova Naiydenova (2006-).

Students studying in almost all specialties in UCTM have lectures, seminars and practical exercises in the Department of Organic Chemistry, which are carried out in accordance with modern syllabi for the educational degrees Bachelor, Master and Doc-

tor obtaining. Bachelor programs include teaching of Organic Chemistry to the students from the following modules: Organic Chemical Technologies; Inorganic Chemical Technologies; Biotechnology; Chemical Engineering (ChE); Environmental Engineering; Technology of Materials and Materials Science. Masters programs include tutorial in the optional subjects: Chemistry of heterocyclic compounds, Structural studies of natural bioactive compounds, Gas chromatography and High performance liquid chromatography (GC&HPLC) - application for analysis of bioactive organic compounds.

Readers of the Department teach Organic Chemistry to students studying chemical specialties in foreign languages. Assoc. Prof. Dr. I Karamencheva gives lectures in Organic chemistry in German language to the students studying Chemical engineering in German, which tutorial corresponds to the programs from Technical University Hamburg - Hamburg, Germany. Through the line of cooperation with DAAD tutorial handbooks are provided, so studies and tests are entirely in accordance to the requirements of the professional module "Verfahrenstechnik".

Prof. Dr. E. Naydenova and Assoc. Prof. Dr. N Kaloyanov teach to the students studying "Chemical and Biochemical Engineering" in French. Education and training is in accordance to the programs of the High Schools of Chemistry in France. Through the line of cooperation with Francophones' Association, tutorial handbooks are provided, so classes and tests are fully consistent with the requirements of the academic recognition of diplomas by the French government.

Master's program in Biomaterials presented in English, for the professional module «Material Science» has been developed and taught by Assistant Professor Dr. D. Tsekova.

Doctoral tutorial programs include courses in "HPLC - application for analysis of biologically active organic compounds" and "Structural studies of natural bioactive compounds" but also the course "Synthesis and structure of biologically active peptides" – a field, in which the Department has extensive experience and traditions.

To support the implementation of these programs the following textbooks have been issued in the Department: S. Yordanov, G. Dimitrov, I. Mancheva, R. Stoyanova "Fundamentals of Organic Chemistry" (1998), S. Yrdanov, I. Karamancheva, M. Bozhilova, M. Darzhalieva, D. Mondeshka and B. Alexiev

"Organic chemistry in questions and problems" (1999), L. Vezenkov "Fundamentals of peptide synthesis" (2008), D. Danalev, N. Kaloianov, L. Vezenkov, E. Naydenova "Organic chemistry laboratory experiments " (2008), P. Todorov, "Notes on Organic Chemistry" (2011), I Karamancheva „Grundlagen der Organishen Chemie", E. Naydenova „ Cours de chimie organique".

The Department has developed over the years and established itself as a powerful centre for higher education and research in all areas of organic chemistry. The advent of new technologies and theoretical knowledge development has required the expansion of applied research aspects of education. Research in the Department is directed to the development and training of experienced young faculty. One of the major research directions in the Department

is obtaining of new biologically active peptides with potential applications in pharmaceuticals. New peptides with secretase, monoamine oxidase and anti-aggregation inhibitory activity were synthesized. Peptide analogs of galantamine, which are expected to have a therapy effect on Alzheimer's disease, were obtained. In a collaboration with colleagues from the Institute of Polymers, Bulgarian Academy of Sciences, Institute of Zoology and Pharmacy Faculty of Medical University, new aminophosphonic acids have been synthesized and tested. Some of the resulting compounds showed very good anticancer activity. Novel nociception analogs as potential nociceptive drugs also have been synthesized and tested.

A new scientific field in the Department is the synthesis of new peptidomimetics possessing the self-assembly properties. Quantity spectral methods for pharmaceutical products, oil products, materials for photonics and optoelectronics have been developed. These methods have found applications in the international standards and ensure high punctuality, precision, repeatability and low cost price. In collaboration with colleagues from TU Braunschweig, Germany our undergraduate students have synthesized supramolecular biological products that possess second order hyperpolarizability. Chemical and spectral properties of these highly organized systems and the influence of the supramolecular structure on the nonlinear-optical property have been studied.

A new research direction in the Department of Organic Chemistry is the early diagnosis of tumours by means of FTIR spectroscopy. Other research activities in the Department are: „Synthesis and characterisation of metal and molecular complexes of 1,10-phenantroline and 5-amino-1,10-phenantrpline. Study of their biological activity"; „Synthesis, characterisation and study of biological active compounds (antibiotics, antidepressants, herbicides". Investigations have been performed also in the lipids dynamic changes and chemical composition of nutrients (lyophilized egg mélange durable salami, pastrami, ham, chicken dishes and machine deboned poultry meat) during a long store in different packaging, thermal regimes and decontamination by low doses of gamma rays treatment.

Members of the Department maintain broad international collaborations with research teams and labs from abroad: France, ENSCM – Montpellier; Greece, University of Ioannina; Department of Chemistry, Section of Organic Chemistry and Biochemistry, Ioannina; France, Université Montpellier 2 Institut des Biomolécules Max Mousseron IBMM; Germany, Laser-Laboratorium Gottingen, Dr J. Ihlemann; Ecole Normale Superieure de Cachan, Laboratoire de Photonique Quanntique Prof. E. Delaporte; Germany, Universitat Potsdam, Fachbereich "Biochemie"; Germany, TU Magdeburg, Fachbereich "Organische Chemie' Spain, Universitat Jaume I, 12071-Castellon; France, Laboratory SOSCO (Synthèse Organique Sélective et Chimie Organométallique), Université de Cergy-Pontoise France,

Laboratory SATIE (Systèmes et Applications des Technologies de l'Information et de l'Energie) , Université de Cergy-Pontoise.

Research results are published in 200 papers and 4 patents are issued.

In order to perform educational and experience gaining Department of Organic Chemistry offers 3 very well equipped laboratories for practical exercises and also a new workshop hall, lab for structural analysis of organic compounds, research labs and a Department Library.

DEPARTMENT OF PHYSICAL CHEMISTRY

The Department was founded in 1947 at the Industrial Chemistry Section of the State's Polytechnics in Sofia. Professor Stefan Christov, a full member of the Bulgarian Academy of Sciences, a world-famous, brilliant researcher and lecturer was appointed Head of the Department, a position he was to retain for the next 30 years. He strived to provide an inspiring environment with the aim to enable the best education and research in the field of Physical Chemistry. This in turn provided the fundamentals of many engineering disciplines connected with mass- and heat-transfer, chemical processes and reactors in all fields of chemical and metallurgical production. During the last ten years the Department was headed by Prof. Dr. Stefka Veleva (2000 -2004), Assoc. Prof. Dr. Mihai Christov (2004-2012) and Assoc. Prof. Dr. Maria Machkova (since 2012).

The educational process at the Department is basically aimed at providing fundamental knowledge in physical and colloid chemistry required by the specializing disciplines where the methods of physical chemistry find wide application as well as at developing students' analytical capabilities and their attitude towards natural sciences. Problem-solving workshops providing theoretical knowledge application and laboratory exercises each of which presents a specific research problem are carried out in thematically differentiated laboratories. Thermochemistry, phase and chemical equilibria, reaction kinetics, electrochemistry, surface phenomena and colloid chemistry are the basic fields included. B.Sc. Students of all UCTM specializations follow the basic courses in Physical Chemistry. Four elective courses are among those which are very often chosen by the University M.Sc. students. The course on Contemporary Methods in Theoretical Chemistry is very popular among the Ph.D. Students.

The staff of the Department has actively participated in organizing and carrying out the education of Bulgarian and foreign students in German, French and English. Assoc. Prof. Dr. Eduard Klein is one of the founders of the first university specialization in Bulgaria taught in French. Assoc. Prof. Dr. Mihai Christov has worked for many years as Director of German Language Educational Centre whose seniors get joint diplomas from UCTM and the Technical University Hamburg - Harburg. The course on Physical Chemistry of Materials has been read in English for 5 years to M.Sc. students in Materials Science and Engineering. Physical Chemistry is taught in English to B.Sc. students in Metallurgy.

Six textbooks and different teaching materials have been published during the last 10 years: "Thermodynamik" (2003) by M. Christov; "Travaux dirigés pour le cours "Chimie théorique" (2004) by S. Raicheva, A. Zwetanova; "Manual in Physical and Col-

loid Chemistry" (2005) by A. Zwetanova, S. Kalcheva, M. Machkova, A. Popova, I. Kanazirski; "Cinétique chimique" (2006) by M. Christov; lecture notes on "Chimie III" in French (at http://else.uctm.edu , 2008) by M. Bojinov; "Chimie Théorique" (2009) by M. Bojinov, "Physical Chemistry of Materials" (2011) by S. Kalcheva, "Manual in

Physical Chemistry in German" (2012) by E. Klein, G. Radeva, "Colloid Chemistry" (2013) by M. Machkova, A. Girginov.

The research activities at the Department of Physical Chemistry are mainly in the field of electrochemistry, heterogeneous kinetics and thermodynamics. The basic trends are:

Electrochemistry of anodic oxide films on metals and alloys (Prof. D.Sc. Assen Girginov, Prof. D.Sc. Martin Bojinov, Assoc. Prof. Dr. Eduard Klein, Assoc. Prof. Dr. Maria Machkova, Sen. Res. D.Sc. Tzveti Tzvetkov, Assoc. Prof. Dr. Ivan Kanazirski, Assist. Prof. Dr. Bogdan Tzvetkov, Assist. Prof. Christian Girginov and Ph.D. Student Mina Stancheva). The investigations are aimed at studying the kinetics and mechanism of anodic oxide films formation and dissolution, of passivity and transpassivity phenomena, of films corrosion stability. The mechanism of ionic and electronic conductivity of Al, Ta, Nb, Zr, Ti, Bi, Sb and W is thoroughly investigated. The mechanism of metals anodic oxidation and oxide films formation is described by mathematical models, which show excellent correlation with the experimental data. A number of alloys are studied as well focusing on their passive and trans-passive state. The practical aspects of the investigations in this field refer to the formulation of effective electrocatalysts, high sensitivity sensors, and functional coverages.

Electrocatalytic oxidation processes (Assoc. Prof. Dr. Sasha Kalcheva, Assoc. Prof. Dr. Alexandrina Zwetanova, Assoc. Prof. Dr. Mihai Christov, Assist. Prof. Antonina Djambova). The aims of the investigations carried out refer to the study of the electrooxidation behavior of organic and inorganic compounds at electrocatalysts containing Pt, Au, Pt/Au and Pt/Ru alloy systems in aqueous and non-aqueous media. Mathematical models well describing the kinetic data are advanced. The mechanism of the anodic process studied is elucidated, while the electrocatalytic effect observed and the accompanying synergism are explained. The results obtained are of importance for developing anode materials to be used in direct methanol and borohydride fuel cells.

Corrosion protection of metals (Assoc. Prof. Dr. Mihai Christov, Assoc. Prof. Dr. Angelina Popova, Assoc. Prof. Dr. Alexandrina Zwetanova, Assoc. Prof. Dr. Emilia Lazarova, Prof. Dr. Stefka Veleva , Assoc. Prof. Dr. Maria Machkova). The basic trend refers to corrosion protection of steel and

Al-containing alloys in acidic media through inhibitors introduction. The types of corrosion, the adsorption of the inhibitors at the metal surface as well as the potential of zero charge are investigated. A correlation between the inhibiting properties and the chemical structure of the compounds studied is followed.

New materials for the energetics and multifunctional coverages based on nanomaterials and nanotechnologies (Assoc. Prof. Dr. Maria Machkova, Assoc. Prof. Dr. Alexandrina Zwetanova). The basic results obtained refer to the determination of the conditions required for the electrophoretic method application. The studies refer to layers formation in high temperature fuel cells based on yttrium stabilized zirconium ceramics.

Kinetics and thermodynamics of heterogeneous processes (Prof. Dr. Stefka Veleva, Assoc. Prof. Dr. Eva Vulcheva, Assoc. Prof. Dr. Greta Radeva). Various forms of the power and exponential kinetic equations are suggested on the ground of different surface models. Their applicability is verified in the area of whitening and dying of fibrous materials as well as in the field of enzyme, hydrolysis and corrosion processes. The thermodynamic characteristics of the chemisorption processes are thoroughly investigated and an entropy correction term is introduced to the models of inhomogeneous surfaces. New correlations between the kinetic and the thermodynamic parameters of the processes investigated are found.

The Central laboratory "NATO – Defense Technologies" was associated to the Department till 2007. Investigations following the program of a number of research projects supported by the Ministry of Defense were carried out.

Faculty members of the Department have contributed to the work of the Specialized Research Councils (SRC) of the Higher Testimonial Commission. Prof. D.Sc. Assen Girginov and Assoc. Prof. Dr. Eduard Klein were members of the Physical Chemistry SRC, Prof. D.Sc. Assen Girginov, Prof. Dr. Stefka Veleva and Assoc. Prof. Dr. Mihai Christov worked for Inorganic Chemical Technologies and Metallurgy SRC. Present (Prof. D.Sc. Assen Girginov, Prof. D.Sc. Marin Bojinov) and former (Prof. D.Sc. Tzveti Tzvetkov) members of the academic staff founded the Bulgarian Hydrogen Society. Nowadays they are members of the Managing Council of this Society. Work on a number of problems connected with the hydrogen technologies development and application is proceeding there. Assoc. Prof. Dr. Maria Machkova is Vice-Director of LAMAR

Laboratory at the University. Research activities in the field of solid-oxide fuel cells, nanomaterials and nanotechnologies are concentrated there. They proceed in correspondence with projects within the III, V and VI Framework Programs for Research of EU.

The investigations carried out during the last ten years at the Department of Physical Chemistry have been reported in 287 research papers and presentations at various conferences. Some of the publications (137 in number) are in international journals. The results obtained by the academic staff have been cited more than 2300 times by foreign authors in well known specialized editions.

This 10-years period was marked by a

very important jubilee – 100 years of the birth of Professor Stefan Christov, the founder of the Department of Physical Chemistry, the brilliant lecturer and researcher who started and developed the education in Physical Chemistry at the University. All faculty members of the Department were inspired by his beautiful mind and fine character. Prof. Christov gained a world-wide reputation for expertise in the field of quantum chemistry. He was among the very first researchers working on the theory of potential energy barriers. He derived the tunneling probability expression and introduced the characteristic temperature at which the rate of transition over the barrier top equals that of under-barrier-tunneling. It is known in the literature as the "Characteristic Temperature of Christov". His contributions to the theory of electron transfer in thin solid films, to the theory of the kinetics of reactions in gaseous and liquid media are significant. Prof. Stefan Christov is the author of "Collision and Statistical Theory of Chemical Reactions", which summarizes the fundamentals results of his investigations. He is among the founders of Electrochimica Acta, one of the most prestigious journals in the field of electrochemistry and of Bulgarian Chemical Communications, standing out among the research journals published in Bulgaria. Internationally, Professor Christov will be always known with the "Characteristic Temperature of Christov". For the academic staff of the Department of Physical Chemistry and UCTM he will forever remain an extraordinary man whose work will live on for years to come.

DEPARTMENT OF PHYSICO-MATHEMATICAL AND TECHNICAL SCIENCES

Assoc. Prof. Dr. Alexander Alexandrov

The Department for Physico-mathematical and technical sciences (DPMTS) provides the engineering fundament for UCTM chemical and metallurgical engineering students, enlisted for any of the undergraduate and postgraduate degree programs. It offers high quality studies with basic and advanced disciplines in Mathematics, Physics, Fundamentals of Design and CAD, Technical mechanics, Theoretical mechanics, Informatics, Computer technologies, Electrical engineering and Electronics, etc.

The specialized laboratories of DPMTS are equipped with modern apparatuses and measuring devices, a huge amount of standard and specifically designed machines, installations and small scale models, computerized systems, etc.

The Department carries out scientific studies and research in different fields and supports actively the scientific upbringing of undergraduate, postgraduate students and young university teachers.

DPMTS maintains active cooperation with many Bulgarian and European universities, as well as with research centers and production companies from other countries. It develops numerous research projects funded by national, international and university programs for scientific studies. The main activities of the Department are realized by its constituting academic units.

DEPARTMENT OF PHYSICS

The Department of Physics was established in 1958, when Professor Lubomir Christov was nominated to be the Head of the newly created unit. The next Head of the Department was Professor Velko Zayachki (1983-1993), who was succeeded by Professor Hristo Vodenicharov (1993-1995), Professor Hristo Kanazirski (1995 - 2000), Assoc. Prof. Elena Kastchieva (2000-2010). Since 2010 the Head of the Department is Professor Plamen Petkov. Currently, the academic staff of the Department includes 1 full professor, 4 associate professors, 5 Chief assistant professors and 1 assistant professor.

The Department has developed 28 undergraduate and postgraduate programs for training students from all faculties of the University. They cover classical and modern physics, with an emphasis on the particular requirements of the engineering education. Lectures, seminars and a huge spectrum of laboratory exercises, delivered in Bulgarian, German, French and English, are part of the educational activities of the Department. Five textbooks (three in the last 10 years), three books with physical problems (2 in the last 10 years) and 14 laboratory manuals (7 in the last 10 years) have been published to guarantee the quality of the teaching process. Five innovative and well equipped laboratories are included in the students' education.

Intensive research at the Department

is performed in the scientific areas of: Condensed Matter Physics, High Energy and Elementary particles, Physics and Relativistic high-frequency electronics.

The research activity of the academic staff of the Department has been presented in more than 1200 publications (350 in the last 10 years) and more than 450 reports at national and international scientific forums (140 in the last 10 years). Several D.Sc. and 18 Ph.D. theses have been prepared and successfully defended at the Department (8 in the last 10 years) and new 13 Ph.D. Bulgarian and foreigner students are working currently for their Ph.D. degrees. More than 120 B.Sc. and M.Sc. diploma theses have been partially developed in the Department of Physics and successfully defended in other Departments of UCTM (55 in the last 10 years). The lecturers of the Department are involved in numerous scientific and educational national and European research projects as project leaders and team members (32 in the last 10 years).

DEPARTMENT OF MATHEMATICS

The Department of Mathematics was founded in 1953, immediately after splitting of the former State Polytechnic into individual specialized institutes. The first Head of the Department was Professor D.Sc. Evtim Bozhorov. He is the author of the first textbook on higher mathematics for students of our university. The next Heads of the Department were: from 1976 to 1991 – Assoc. Prof. Dr. Dimitar Pirgov; from 1991 to 1992 – Assoc. Prof. Dimitar Tokarev. From 1992 to 2005, the Head of the Department of Mathematics was Assoc. Prof. Dr. Angel Dishliev, followed from 2005 to 2008 by Assoc. Prof. Dr. Dimitar Kolev. From 2008 until now the Department is headed by Professor Dr. Angel Dishliev.

Currently, there are 12 lecturers in the Department: one full professor, three associate professors and eight assistant professors. Six lecturers have Ph.D. degrees. The Department is accredited and authorized to train Ph.D. students in „Differential Equations“ and „Mathematical modeling and application of mathematics“. In total, 27 Doctors have obtained their degrees from the Department, 16 of which - during the last 10 years. The scientific and research studies of the members of the Department are in the following areas: Fundamental and qualitative theory of differential equations; Impulsive differential equations; Differential equations with variable structure; Outbreak of the solutions; Mathematical physics; Regression analysis; Statistical modeling; Zeros of polynomials; Mathematical modeling in population dynamics, pharmacokinetics, hydrodynamics, etc. Several monographs and more than 500 research articles are

published, about 200 of which - over the last 10 years.

The fundamental education in mathematics for all the students of UCTM includes main parts of the following mathematical branches: Linear algebra; Analytical geometry; Mathematical analysis; Differential equations; Theory of Probability; Mathematical statistics; Numerical analysis, etc. The courses that are taught for the Master degree study programs are „Queuing Theory" and „Mathematical Economics". Many teaching materials (12 in the last 10 years, including electronic media) needed for students' self-studying and extra curricula activities have been issued.

DEPARTMENT OF APPLIED MECHANICS

The Department of Applied Mechanics was established in 1953. The founder and a long standing Head of Department until 1975 was Professor Boris Popov. After him the leadership position was taken by Professor Kancho Popov (1975-1990), Professor Dimitar Panchovski (1990-1992) and Professor Mariana Popova (1992-2000). From 2000 till present, the Head of Department is Assoc. Prof. Alexander Alexandrov. The Department employs two full Professors, eight Associate Professors, one Chief Assistant Professor, three Assistant Professors and two technical staff. Two of the academic staff members have the degree of „Doctor of Science" and nine are „Philosophy Doctors". Professor D.Sc. Kliment Hadjov, was awarded the honorary title of Doctor Honoris Causa of the Reims University, France.

The department teaches students from all specialties of UCTM in Bulgarian, German, French and English in the following engineering disciplines:

Fundamentals of Design and CAD;

Technical Mechanics, Theoretical Mechanics, Strength of Materials;

Elements of constructions and apparatuses;

Machinery and Machine design;

Mechanics of materials;

Continuum Mechanics;

Variational methods for control of technological processes;

Application of the Finite Elements Method at simulation of processes.

Students, interested in the general engineering focus of their professional training, remain as graduate and Ph.D. students at the Department.

Textbooks, manuals for tutorials and lab exercises (solved problems, course works, methodical instructions) and numerous

other learning aids, available on-line, have been issued for all taught subjects.

The Department has specialized laboratories for Applied Mechanics and Mechanics of Materials, in which both student lab exercises and research work, related to the study of the mechanical properties of materials at different structural levels, take place. A significant part of the laboratory equipment is original and constructed in the Department. Furthermore, the computer laboratories of the department are specialized for teaching students and postgraduates in computer graphics and simulation of processes, as well as for scientific investigations.

The Department works systematically on several research topics:

Mechanical behavior of rheonomic materials in aggressive liquid and gaseous

media, at high temperatures and variable loads;

Mechanics and failure of composite materials;

Mechanics of load-bearing membrane materials and structures;

Control in robotics, optimization, identification and synthesis;

Machine design;

Tribology, contact problems, hydrodynamic lubrication.

In these areas 25 patents have been obtained. The most significant and implemented into practice results of the Departmental research are:

Scientific equipment for strength testing of brittle materials;

Polymer membrane structures for small rivers and channels and for emergency situations (developed in collaboration with technological departments of UCTM);

An universal installation for testing of materials under conditions of aggressive liquid and gaseous media, high temperatures and variable loads.

Four D.Sc. dissertations and thirty-one Ph.D. dissertations have been worked out and defended at the Department (two "Doctor of Science" and four "PhD" in the last 10 years). Members of the Department have contributed to numerous national and international scientific conferences. For the past decade more than 420 papers in prestigious Bulgarian and foreign specialized journals, proceedings of international scientific forums, etc. have been published. Numerous research projects, supported by the Research and Development Sector of UCTM, public or private, national or international funds have been completed, and new ones are currently developed. Researchers from Bulgarian and foreign universities have specialized at the Department.

During the last years the staff of the Department has been actively involved in scientific and academic exchanges with different countries, supported by international research and educational programs. Long-lasting and fruitful collaboration has been developed with universities and research centers in Germany, France, Russia, Kazakhstan, Egypt, Serbia, Macedonia, Romania, Belgium, Italy, the Czech Republic, Poland, Slovakia and others.

SECTION "ELECTRICAL ENGINEERING AND ELECTRONICS"

The Section has functioned as part of different UCTM departments - "Machine Science", "Power Engineering" and "Metallurgical Equipment", during different periods of its history. After 1991 the unit has been an independent Department - "Electrical Engineering", but in 2001 it was transformed into the Section of "Electrical Engineering and Electronics" of the Department of Physico-Mathematical and Technical Sciences. Since its creation the unit has been headed by the following academics: Assoc. Prof. Ilya Tonev, Assoc. Prof. Asen Gadavelov and Assoc. Prof. Andrew Mirev. The present Head of the Section is Assoc. Prof. Anton Andonov.

The Section educates the UCTM students in fundamental subjects of Electrical Engineering and Electronics:

"Electrotechnics and Electronics"

"Electrical Equipment"

"Energy Science"

"Theoretical Electrotechnics" (1st and 2nd part)

"Electrical Measurement"

"Electrical Machines"

"Electronics"

"Digital Techniques"

"Measurement and Testing of Materials I (electrical quantities)"

"Electrical Safety and Mechanical Risks"

The Section has four specialized laboratories for educational and research work.

In the recent years they are renovated with advanced devices for digital electrical measurements and new laboratory scale models of electrical and electronic installations, based on modern elements, are developed. All laboratories and offices are equipped with computers. In the last 10 years, members of the Section have produced 10 textbooks, laboratory manuals and manuals for solving problems in electrical engineering, covering

all disciplines taught in the Section.

The Section teaches the UCTM students for all study programs given in a foreign language (French, German and English). It is also accredited to educate students in Ph.D. degree programs in "Electrical Technology" and "Industrial Electronics".

The teaching staff in the last ten years includes: Assoc. Prof. Asen Gadavelov, Professor Nikola Shoilev, Assoc. Prof. Anton Andonov, Assoc. Prof. Andrew Mirev, Chief Assistant Prof. Valery Todorov and Chief Assistant Prof. Emilia Evlogieva, and the Assistant Professors Rumen Bachvarski, Lyubomir Antonov, Todor Stanchev, and Yovko Rakanov.

The research activities of the Section are in relevant scientific fields: Electrical Methods and Devices, Automatic Control of Electric Drives and Processes, Control Measuring Instruments, Theoretical Electrotechnics, Power Engineering, Renewable Energy Sources, Energy Efficiency, etc. In these fields the members of the Section have 25 author's certificates for inventions, about 300 publications and reports at conferences and congresses at home and abroad. About 160 of them are produced in the last 10 years.

The Section prepares a team of students and for ten years regularly participates in the traditional Republican Student Olympiads in Theoretical Electrotechnics. In this competition in 2012, the UCTM's team (see the Photo) won first place among the teams of all technical universities in Bulgaria.

DEPARTMENT OF COMPUTER SCIENCE

The Department of Computer Science (CS) of the UCTM was established in 1985 by professors from the Department of Automation. The first Head of the CS department was Assoc. Prof. Dr. Petar Bayrov (1985 - 1989). Next heads of the department were Assoc. Prof. Dr. Todor Dimov (1989 - 1993, and 1996 - 2000) and Assoc. Prof. Dr. Todor Ivanov (1993 - 1996). In the last 12 years the Department was headed by Assoc. Prof. Dr. Aneta Georgieva (2000 - 2012). Assoc. Prof. Dr. Atanas Atanassov is the current Head of the CS Department.

Over the years the Department has employed up to 18 people. However, at the moment it works with 15 people - 2 associate professors, 9 chief assistant professors, 3 assistant professors and one organizer of educational activities.

The main task of the CS department is educating students in the field of information technology, structural and object programming, operating systems, databases, microprocessors, and expert systems.

The lectures on "Informatics" (parts 1 and 2) are taught to all first-year students enrolled in „Bachelor" programs at UCTM, and depending on their specialty they are given in Bulgarian, German or English.

The Department also provides courses on "Microprocessors" for 3rd year bachelor's

degree courses on “Visual and Object-oriented Programming in Java”, “Web information systems, Databases”, “Expert Systems” and “Informatics” (in French) for M.Sc. students. The Department also offers training for all doctoral students at UCTM. Over the last 10 years more than 10 textbooks and on-line courses on the listed above subjects, have been issued. The members of the CS department are involved in projects with the companies from the Chemical Industry. In the last 10 years they have worked on projects, funded by the Bulgarian National Science Fund, Siemens, Swiss Post, FedEx, Continental Automotive, etc.

Most of the professors in the department have specialized and worked in universities, leading in the field of Information Technology and Automation, in Germany, The Netherlands, France, Sweden, Denmark, Great Britain, Russia and the United States.

The research activity of the Department in the last 10 years is presented by more than 150 publications and papers in international conferences and in professional journals, more than 30 of which have been cited.

DEPARTMENT OF HUMANITARIAN SCIENCES

Assoc. Prof. Dr. Ventzislav Gavrilov

The Department was established in 2000 in order to provide for the training in humanitarian subjects and to monitor the quality of education within the operative internal System of Evaluation and Maintaining Quality of Education of the University. The academic staff of the Department presently involves 3 Associate Professors, 10 Senior lecturers, 1 Lecturer and 2 teaching assistants.The Department of Humanities consists of 3 units: Section "Humanitaristics and Ensuring the Quality of Education", Section "Foreign Languages" and the Department of Physical Education and Sport.

SECTION "HUMANITARISTICS AND QUALITY ASSURANCE OF TRAINING (HQAT SECTION)

It was established in 1985 as department „Engineering Pedagogy". In 2000, it was transformed into section „Humanitaristics and Quality Assurance of Training", taking also the responsibility for developing of the system for assessing and maintaining the quality of teaching and of the academic staff.

In recent years, one full professor and an associate professor have been elected in the HQAT section. Five graduate students have prepared their Ph.D. dissertations.

The educational efforts in the section are devoted to general education courses in undergraduate programs. A comprehensive training course for students, wishing to get a certificate for the profession "Teacher of Chemistry and Environmental Protection, general technical and specific subjects" has been also provided. For the past ten years 195 students have been awarded this certificate.

Teachers from the Section give courses for the study programs of "Production Safety and Protection from Industrial Accidents" and "Damages, Industrial Management and Business Administration". The emphasis in the academic work is on the development of new educational materials and the introduction of modern educational technologies. Six relevant textbooks and four teaching aids, as well as an e-learning course for the above purposes have been published.

The main research areas of the Section are: Quality of Training, University Pedagogy, Methodological Problems of Teaching and Learning, Educational Technology, Ergonomic Research of academic and industrial environment, Human factor and technical usability. Their development serves best the monitoring and improvement of the Academic quality system of UCTM. The results of the last 10 years are summarized in 4 monographs, 7 publications in journals with impact factor, and publications in other specialized journals.

Along with its educational and research activities, the Section is also the main part of the Quality Monitoring Unit. The plans, methodologies and the principles for the quality training and monitoring are developed here. The practical monitoring is performed together with the quality experts, working within the main units of UCTM. HQAT teams analyze the System and propose corrective actions. A pedagogical training course is provided for university teachers, who introduce the new higher education principles, stemming up from the Bologna process, the contemporary and fundamental issues of teaching, learning, assessment, etc. in university environment.

Scientific and research achievements are implemented through 20 projects funded by UCTM, the World Bank, TEMPUS, and the Bulgarian Chamber of Commerce. All projects are aimed at testing and improving the quality of teaching and of the learning environment ergonomics. The TEMPUS programs are used to transfer the experience at UCTM in applying the Bologna process, to educational systems of Central Asia countries. The information database of UCTM has been improved by project funding for acquiring the Oracle database system, digital printing facilities, development of electronic educational products and computer systems for a computerized class room.

In recent years, much of the research is oriented towards the problems of the quality of education and the relationship university-business, as well as maintenance of the relationship university - secondary education. Lecturers carry out expert and consulting assignments for national and international programs, as well as for state institutions (e.g., BIS).

SECTION "FOREIGN LANGUAGES"

The section of Foreign Languages teaches students in English, German, French, Bulgarian and Russian. At UCTM, all full-time and extramural students, preparing for Bachelor, Master or Ph.D. degrees, undergo language training. The training is carried out differentiating among degrees, as shown hereunder:

For all study programs (except those taught entirely in a foreign language) learning foreign languages is mandatory and covers two terms, each term containing 30 classes;

For the study programs taught in foreign languages: in German - „Chemical engineering" for a Bachelor degree, in French - "Industrial Chemistry" for a Master degree, and in English: „Metallurgy" for a Bachelor degree and „Material Science" for a Master degree, the foreign language is maintained and improved both by teaching all subjects in the corresponding foreign language and by intensive language training for at least 4 terms.

For Ph.D. degrees foreign language courses are mandatory as part of the doctoral training;

The foreign students have foreign language courses organized by the Department of international academic mobility and education;

The Department for Continuing and Distance Education, organizes yearly foreign language courses. For the current year, the Headway English course is topical.

Foreign language training at UCTM is provided by lecturers having permanent la-

bor contracts, and part-time lecturers. The academic staff of the Foreign Languages section presently involves 3 Senior lecturers and 1 Lecturer with permanent labor contracts.

The scientific and research work of the lecturers from the section of Foreign Languages is concentrated on methodical problems of foreign language teaching and more particularly: translation as a methodical instrument for studying English; chemical technology training in a bilingual environment; improvement of the foreign language training of Ph. D. students, etc.

DEPARTMENT OF PHYSICAL EDUCATION AND SPORT

The physical education at UCTM has health, educational, professional - applied and social importance. It maintains the in-

tellectual and physical activity of students and develops habits for individual practicing of preferred sports in students' free time.

All students for a Bachelor degree at UCTM have 240 mandatory classes of sport in Football; Volleyball; Basketball; Tennis; Table tennis; Swimming; Fitness; Badminton; Aerobics; Callanetics; Karate; Tourism; Chess; Ski; Zumba; Fencing.

Excelling in sports is part of the mandatory elective training of students. It is realized through participation in the representative teams of UCTM for different sports

forums.

The Department of Physical Education and Sport organizes and carries out internal championships in different sports. The rep-

resentative teams take part in the competitions organized by the University Sports Association „Academic". Competitions for students from secondary schools are organized for the „UCTM Rector's Cup". They provide for mutually useful interaction with secondary education.

The academic staff of the Department presently consists of 6 Senior lecturers and 1 Associate Professor. The scientific direc-

tions into which they realize their research activities are in the areas of sports management; quality of sports education, referee training and selection, etc.

DEPARTMENT OF INTERNATIONAL ACADEMIC MOBILITY AND EDUCATION

Prof. Dr. Eng. Rossica Betcheva
Dean

Department was established in 2008 and replaced the existed Department of International Students and Foreign Language Education. Prof. Dr. Eng. Rossica Betcheva is functioning as Dean of this Department. The above structural change aimed at creating conditions for an appropriate management, administration and financial support of the international academic exchange within European and International Educational programmes as well as to manage and administrate UCTM curricula taught in foreign languages.

UCTM was one of the first four BG Universities that entered Erasmus programme in 1999. Active contacts with more than 70 European Universities provided conditions for obtaining a considerable amount of EU funds. UCTM has always had a leading position in Bulgaria regarding the relative number of students (~5%), spending periods of study or practical placement under Erasmus programme. As a result an amount of 1 364 920 EUR has been invested for the education of 585 students at different universities abroad.

The activities under EU educational programmes have covered not only the academic exchange but an active participation in centralized European joint projects as well. These projects included development of 3 joint curricula and partnerships in Thematical Erasmus Networks (11 projects for the last 10 years).

Eng. Stanka Yotzova
Head of the office

UCTM has built up a strong reputation of a reliable and desired partner for interuniversity collaboration. UCTM participation in a granted University consortium at the start of Erasmus Mundus programme in 2007 is a solid proof for that. Under this programme that gives a financial support for academic exchange with countries outside EU, UCTM has been participating in 10 projects for EU University consortia and accepted students and academic staff from Egypt, Palestine, Israel, Kazakhstan, Uzbekistan, Tajikistan, Indonesia, China, Bhutan and Pakistan.

Successful participation in EU educational programme has stimulated open-

Academic year	Budget of students' scholarships			
	Bulgatian students – proframme ERASMUS		Foreign students	
	Scholarships (EUR)	Number of UCTM students	number	countries
2002/03	169 445	66	37	8
2003/04	113 225	49	34	8
2004/05	116 750	56	38	9
2005/06	112 000	42	42	12
2006/07	88 000	50	53	12
2007/08	130 178	50	40	14
2008/09	150 164	67	58	17
2009/10	166 853	69	54	16
2010/11	164 267	84	47	16
2011/12	154 038	52	47	14
2002-2012	1 364 920	585	450	

ing of new degree courses taught in foreign languages for example Metallurgy for Bachelors in English and Materials Science for Masters in English. The academic staff of UCTM has had an adequate reaction to the increased number of EU projects through development and implementation of tailor-made Master curricula taught in English.

In 2011 UCTM was admitted to a full membership in Compostela Group of Universities (CGU) which is one of the largest European University clusters. This is a proof of UCTM academic capacity and the quality of its activity in the field of the academic exchange and cooperation.

CENTRE FOR EDUCATION IN GERMAN

Novelty and tradition

Since more than 20 years, in 1991, the tradition of UCTM in teaching chemical engineering was enriched by the introduction for the first time of "Chemical Engineering", taught in German, which still now remains unique in Bulgaria. More than 300 graduates from Bulgaria and other Balkan countries like Macedonia, Serbia, Albania, Bosnia and Herzegovina, have found successful professional realisation and keep on confirming its excellent reputation all over the world – from Australia to the USA.

The curricula have been elaborated on the basis of the education in chemical engineering in Germany, following the example of the specialty "Verfahrenstechnik" of the Technical University Hamburg-Harburg (TUHH). It is officially recognised in Germany since 1998 after the introduction of the "double diplomas" issued together with the universities TUHH and Otto-von-Guericke University in Magdeburg, thus becoming the first specialty in Bulgaria with such high international acceptance.

Professionalism and quality

Since its existence all accreditations of the specialty received highest evaluation. The curricula meet the very strong requirements of the German Chamber of chemical engineers. The specialty has accreditation and is included in the European register of engineering FEANI. The education is fully

DAAD
Deutscher Akademischer Austausch Dienst
German Academic Exchange Service

Deutschsprachiger Studiengang
„Chemische Verfahrenstechnik"

integrated with German universities and assures a high level of education, equivalent to the education in Germany, but at a much lower price. It enables the access to the European labour market and in the same time prepares best educated specialists for the development of Bulgarian chemical engineering. The teaching staffs in UCTM and in Germany have excellent qualification and the restricted number of students makes it possible to achieve individual work and control of the students. Important is the possibility of using the modern technical equipment of the German partner universities. At least once during the study every student prepares a practical investigation in different industrial enterprises or research institutions in Germany in the field of chemical or biochemical technology, environment protection, metallurgy and others, like Bayer, BASF, Aurubis, Lurgi, Max-Planck institute, Fraunhofer institute.

Choice of education

Apart from the main German partner universities – TUHH and the University of Magdeburg, the Centre has created a large network with other German universities (University of Hannover, Ruhr-university Bochum, TU – Kaiserslautern, University of Kassel and others), which have an important contribution in giving the students the opportunity to spent part of the education there (practical work, diploma thesis for both bachelor and master degrees).

In the programme participate over 30 professors and university chairs of German universities. Six German professors, which have contributed considerably to the establishment and development of the specialty, became "Doctor Honoris Causa" of UCTM, and two of them, Prof. Frerich Keil (TUHH) and Prof. Lothar Mörl (OvG – University Magdeburg) were conferred the highest Bulgarian decoration "Cyril and Methodius" for substantial contribution in the field of culture.

Financing and control of the education quality

The specialty is supported by the German Service for academic exchange (DAAD) in the frame of the programme "Specialties taught in German". There are very good contacts with the embassy of the Federal Republic in Bulgaria, as well with the Goethe-institute which organises language courses for the educational staff. Almost every year about 50 students spend different periods of time (from 1 to 6 months) in German universities, research institutes or enterprises, financed by DAAD, European educational programmes like ERASMUS, scholarships from German universities and others.

Successful professional and social realisation

Chemical engineering gives a large scale of opportunities for realisation – projects, planning and construction of industrial equipment and technologies, research work, expertise, consulting in different fields of industry – chemical, pharmaceutical, food industry, energy production and many others. Over 90 % of the graduates with master degree begin their professional career in Bulgaria, Germany or elsewhere in the world, and a substantial part of them continue their education as Ph. D. students in universities or research institutes in Germany, Austria, England, Denmark, Bulgaria and other countries. Some of them have achieved leading positions in German firms in Germany or in Bulgaria.

CENTRE FOR EDUCATION IN FRENCH

The Center for French language training organizes and conducts the training for obtaining Master Degree in the specialty "Industrial chemistry", taught in French. The specialty (the first in Bulgaria) was established in 1992 by a decision of the Academic Council of UCTM and Agreement for joint training between UCTM and University Agency of the Francophonie (AUF), a worldwide network of over 700 universities, in which UCTM has been a full member since 1992. For over 20 years the specialty has been developing and establishing with the active cooperation with universities in France, Canada, Belgium and thanks to the permanent contacts between faculty of these Universities and UCTM.

The training lasts 5 years and it is consistent with the model of preparation of engineers who attend the reputable Grandes Ecoles in France. The curricula were drawn up on the basis of „Chemical Engineering„ at the National Politechnical Institute in Toulouse. Since 2011/2012, the curricula have been updated and the new name of the specialty is „Chemical and Biochemical Engineering," which is offered in the Master programs after the completion of a Bachelor degree in „Chemical Engineering and Sustainable Development" in French and English.

Since the beginning of the specialty over 300 students, of which a significant number of foreigners, have successfully completed the specialty and already occupy responsible positions. Over 25 % have obtained Ph.D. degree at universities and research institutes in Bulgaria, France, Canada, England, Portugal, Germany, Czech Republic.

The center, as a full member of AUF, actively participates in all programs funded by it:

- Educational programs: exchange of students to study and practice, faculty exchange, improvment of linguistic and professional qualification;

- Collaborative research: Ph.D. and post-doctoral research, research projects and scientific publications;

- Building effective relationships with centers for technology transfer in Francophone countries.

In 2009, the discipline was accredited by the Commission for engineering ranks in France (Commission des titre d'ingénieurs). The graduates-acquire the prestigious title „Engineer" accepted at state level in France

as well as a certificate EURACE (European Accredited Engineer) of the European Network for Accreditation of engineering education ENAEE. This is a very important recognition of the discipline since a small number of university structures outside France have received this prestigious accreditation.

Directors of CFLT were successively Prof. D.Sc. Kancho Popov, Associate Prof. Dr. Alexander Todorov, Associate Prof. Dr. Ylonka Saikova. Over 60 lecturers from 15 departments have been actively involved in teaching the course. The teaching staff is renewed by young staff, most of whom are graduates in the specialty and who have written theses at prestigeous universities and research centers. The highest international recognition of UCTM is the membership of Prof. D. Sc. Kamen Velev and Associate Prof. Dr. Ylonka Saikova in the Scientific Board of the University Agency of the Francophonie.


EUR ACE®
European Accreditation of Engineering Programmes

This is to certify that the Master programme
Chimie industrielle
Chemical engineering
provided by
Université technologique de chimie et métallurgie de Sofia
has been ascertained by
Commission des Titres d'Ingénieur (CTI – France)
to satisfy the outcomes of **Second Cycle programmes** specified in the **EUR-ACE Framework Standards for the Accreditation of Engineering Programmes**
and therefore is designated as a
SECOND CYCLE EUROPEAN-ACCREDITED ENGINEERING PROGRAMME
for the period from **1 September 2009** to **31 August 2014**

For the European Network for Accreditation of Engineering Education (ENAEE)
The President
Prof. Ing. Giuliano Augusti, Sc.D.
Brussels, 23 September 2009

For Commission des Titres d'Ingénieur (CTI)
The President
Prof. Bernard Remaud
Neuilly-sur-Seine, 23 September 2009

ECOLOGY CENTRE

The Ecology Centre was established in 1990 with a decision of the UCTM Academic Council. It organises education in Ecology and Environmental Protection, provided by lecturers from the UCTM and 7 foreign universities. Research and expert activity are also carried out in the Centre. Students in the Centre have at their disposal a vast collection of books on environmental protection, well equipped laboratories, computers and specialised software for pollutant dispersion simulation.

The Centre has been managed by Prof. D.Sc. Stoyan Stoyanov, (1992-2005), As-

soc. Prof. Dr. Asen Petkov (2005-2006), Prof. Dr. Yoncho Pelovski (2006-2010) and Assoc. Prof. Dr. Nikolay Kozarev (2010 – until now). Since 2011 Assoc. Prof. Dr. Nikolay Kozarev is also head of the Department of Environmental Engineering, which employs 9 lecturers.

Eleven professors, 4 of which from foreign universities and 4 from other Bulgarian universities, 12 associate professors and 8 assistant professors with a Ph. D. degree have been associated with the Ecology Centre.

178 students have graduated from 2003 to 2012 with a bachelor's degree, 123 with a master's degree and 22 with a specialist degree. Since 1991 the Centre offers an European master's degree course in Environmental Protection and Sustainable Development. 327 students have graduated the course.

In addition to educational activities the Ecology Centre carries out research in the fields of expert analyses, environmental auditing, environmental impact assessment, management of wastewater, polluted soil, waste gases, solid waste management, simulation of pollutants dispersion in air and water, operating permits, environmental risk assessment, renewable energy sources, technical and economic aspects of sustainable development.

Between 2003 and 2012 scientific panels from the Ecology Centre have developed 96 international and national projects. Over 260 publications and 22 books and textbooks have been published throughout the same period.

The Ecology Centre is licensed by the Bulgarian Ministry of Environment and Waters to conduct training courses for experts on Environmental Impact Assessment and employs 15 licensed experts on environmental issues.

EUROPEAN MASTERS DEGREE COURSE IN ECOLOGY

The European master's degree course in Environmental Protection and Sustainable Development is created at UCTM under European TEMPUS project in 1991 and continues up to now (2013). The course is organized in collaboration with universities from the United Kingdom, Belgium, Italy, Greece and "D. A. Tcenov" Economic University, Svishtov, Bulgaria. All European requirements for master's degree are fulfilled. The course is accredited by the National Evaluation and Accreditation Agency and also obtained the high mark during the four years audit by the external auditor Prof. Dr. M. B. Pescod OBE, University Newcastle-Upon-Tyne (UK).

In the course are studied the interactions between the social-economic system and environment, the environmental management in water, air, soil pollution and waste management in order to fulfil the requirements of sustainable development. Many of the graduated students are working as experts in the European Commissions, Bulgarian Ministry of Environment and Waters and other ministries, National Environmental Agency, Regional Environmental Inspectorates, industry, companies, universities, etc. More than 60 graduated in the course are working in European countries, Canada,

USA, Australia and other countries.

The Director of the course is Prof. D.Sc. Stoyan Stoyanov and the European Director is Prof. D.Sc. Bhaskar Nath, (UK).

The graduated M.Sc. course obtains European and Bulgarian Diploma for Master's Degree. In the course are educated 327 M.Sc., including foreign students from Japan, Kenya, Rwanda, Fiji, Bhutan, Russian Federation, Macedonia and others. Sixteen of graduated students obtained Ph.D. in Bulgaria: Ryunosuke Kikuchi (now Professor in Japan), Maria Stefanova, Anatolij Asenov, Ani Shumkova, Atanas Atanasov, Jordan Dimitrov, Gergana Cheshmedzieva, Chavdar Dobrev, Evgeni Sokolovski, Nina Ilieva, Vanya Kyoseva and abroad: Ivan Vouchkov, Ralitza Nikolova, Lyudmila Ivanova, Konstantina Velkushanova (University of Southampton, UK), Kiril Kirov (Oxford University, UK). Some of graduates have habilitation: Assoc. Prof. Dr. Kosta Boshnakov (UCTM, Sofia), Assoc. Prof. Dr. Nikolinka Hristova (UCTM, Sofia) Assoc. Prof. Dr. Anatolij Asenov ("D. Tcenov" EU, Svishtov).

For many years the teachers in the course are: Prof. S. Stoyanov, Prof. B. Koumanova, Prof. Y. Pelovski, Prof. I. Dombalov, Prof. I. Vouchkov, Prof. G. Cholakov, Prof. I. Grantcharov, Assoc. Prof. N. Kozarev, Assoc. Prof. E. Terlemesian, Assoc. Prof. R. Gabrovski (EU "D. Tcenov", Svishtov), Assoc. Prof. G. Shopov, Assoc. Prof. V. Petkov, M.Sc. V. Jordanov and graduated from the course Dr. E. Sokolovski, Dr. N. Ilieva, Dr. V. Kyoseva and others.

Five of the foreign lecturers have been awarded by the UCTM with a honorary degree "Doctor Honoris Causa" for their exceptional contribution to the collaboration between the universities: Prof. Dr. Nicholaos Markatos from the National Technical Uni-

versity of Athens, Greece (1996); Prof. D. Sc. Bhaskar Nath, from Queen Mary University of London and the European Centre for Pollution Research, UK (2001); Prof. Dr. Stephen Allen from the Queen's University of Belfast, UK (2008); Prof. Dr. Luc Hens from the Free University of Brussels, Belgium (2008) and Prof. Dr. John Robinson from Queen Mary University of London, UK (2009).

The other foreign lecturers with significant contribution for the high level of the course are: Prof. Dr. A. Stamou (Greece); Prof. Dr. G. Barbiroli (Itali); Prof. A. Raggi (Italy) Prof. Dr. A. Buekens (Belgium); Prof. Dr. P. Compton (UK); Prof. Dr. K. Garrett (UK) and others.

CENTRE FOR EUROPEAN QUALITY

The European quality centre at the University of Chemical Technology and Metallurgy provides training on an extra-mural master's program in Quality Management, and short-term courses in the field of Quality Management.

The programme of the Master course in Quality Management was established in accordance with the European Project TEMPUS JEP 09300 together with specialists from the UK, Italy, the Netherlands, Portugal and Greece in 1996. The following subjects are studied: Fundamentals of Information Technology, Statistics, Quality Management, Statistical methods for process control, Reliability and maintenance of systems, Design of experiments, Quality by Design, Optimization Methods, International quality standards.

Training is by correspondence and it is rendered in 4 trimesters, the last of which is for a thesis. Classes are always held on Friday, Saturday and Sunday, which allows for the training of many professionals from industry and the service sector to

enhance their qualifications. The training is conducted by highly qualified professors, associate professors and assistant professors, many of whom have obtained training in the universities of the European Union. Among them are Prof. D.Sc. Ivan Vuchkov, Prof. D.Sc. Kamen Velev, Prof. D.Sc. Stoyan Stoyanov, Associate professor Dr. Vencislav Tzotchev, Associate professor Dr. Anastas Kehaiov, Associate professor Dr. Elena Koleva, Senior Assistant Vasil Metodiev.

During the training modern laboratories equipped with computers, specialized software in quality management, multimedia equipment, video equipment and specialized videos are used. The specialized software QstatLab is used, which is provided to students for home use for the entire duration of the training and writing of a thesis. Students receive free teaching materials for all the subjects that are studied.

To participate in the Master course the applicants must have a completed a bachelor's or master's degree (or equivalent) in engineering, natural and economic sciences from all Bulgarian and foreign universities which are recognized in the country. Admit-

tance to the programme is done through ranking of applications. Graduates receive a university diploma of Master in Quality Management. Masters in Quality Management can apply their knowledge in production and technology departments, design and development departments, quality departments, departments of marketing and sales, service organizations and others. Since the beginning of the programme, about 200 people have graduated, many of whom are in positions of responsibility in the industry and work in the field of quality management. Theses of the students are generally related to the activity carried out in enterprises where they work.

Foreign scholars praised the work of the center. Here are some comments:

"The quality of the Master degree course and short courses is excellent. It is at least equivalent to similar courses in the West. The European quality centre should be considered as a domestic asset worthy of permanent support".

Professor Henry Wynn,
University of Warwick, UK

"The scope of the program, the curriculum and the level of Bulgarian faculty are such that the master's program in Quality Management can easily compete with the best programs in this field in Europe".

Professor Peter Sander,
Technical University -
Eindhoven, Netherlands

MATERIALS SCIENCE CENTRE

MSC is established in 2005 at the Faculty of Metallurgy and Materials Science (FMMS) of the University of Chemical Technology and Metallurgy - Sofia, UCTM.

The Speciality "Materials Science" is accredited with the highest mark for quality and includes the main engineering materials: metals, silicates, semiconductors and polymers. Teaching process on Bachelor and Master degree level is in Bulgarian and of main responsibility of the Specialized Departments and MSC. In addition a Master course in English "Materials Science and Engineering" has been established by MSC and is on its full responsibility. The students from the "Materials Science" speciality acquire

knowledge and develop skills of synthesis, development, properties, characterization, testing, selection and design of advanced materials for different engineering applications.

Materials Science Forum (MSF), is established at MSC and ensures additional education of Master and Ph.D. students, additional qualification of young researchers supporting their promotion, and participation of all of them in different conferences, symposiums and workshops.

The relationship between science and industry is accomplished by active contact with Metallurgical and Engineering compa-

nies in the country, Bulgarian Association of Metallurgical Industry and Chamber of Chemical Industry in the fields of education, industrial training of students and research.

The successful realization of the graduates is a result from a harmonized education with the European Universities and the established contacts with university educational structures in Europe and the World. The graduated Bachelor and Master Engineers have access to leader positions in the Bulgarian businesses, different research structures and the European and World specialized markets.

The first graduation of students from the Master course in English "Materials Science and Engineering" took place in 2009. Since their number has been continuously growing to some 33 students, 7 of which are now Ph.D. students at UCTM in the field of advanced, multifunctional and smart materials.

The activity of MSC is directed to ensuring of possibilities for those students to take part in teaching and research of other universities, and in solving of specific problems in different metallurgical and engineering companies.

With the help of MSF an exchange of students and lecturers is established in some universities in Germany, France, Greece, Portugal, Spain, Denmark and England. Also, MSC has good contacts with some universities from Great Britain, Belgium, Serbia, Canada and Japan.

MSC is a co-organizer of the traditional Summer School IFMASS on Fracture Mechanics and Fatigue of Materials and Structural Integrity of Engineering and Nanomaterials for Master and Ph.D. students, young researchers, experts and engineers from Southeast Europe. The school IFMASS – 2005 is organized by MSC in Varna, Bulgaria. Young researchers and lecturers from MSC were participants in summer schools and specializations in Powder Metallurgy and Fatigue of Metals in Austria and Germany; also in the organized by MSF high-qualification courses.

Since 2010 lecturers from the Hydrogen Technologies Centre at the Kyushu University, Fukuoka (Japan) are scientific consultants in the Doctoral Programme on Materials for Hydrogen Technologies at UCTM, Sofia. A part of research for diploma theses on Materials Science are conducted in the mentioned universities-partners by using their advanced research methods, machines and equipment.

MSC is teaching and scientific structure with fast developing international activities.

In MSC there have been 9 Master students from Israel, Egypt, Germany, Spain, China, Niger and Romania.

The lecturers from MSC take part in research and different collaboration forms with many European Universities, based on innovative science and ecological development of society: with the Faculty of Physics at the University of Le Mans (France) – in the field of research and education in Materials Science and Ecological Efficiency; with the Faculty of Technology and Metallurgy at the University of Belgrade (Serbia) in the field of research and education in Metallurgy and Materials Science; with the Institute of Solid State Physics at the Bulgarian Academy of Science – in education of Master and Ph.D. students, and in scientific projects in Materials Science.

MSC is a member of the European Structural Integrity Society, ESIS, and not only participate, but takes part in the organization of some conferences of ESIS:

European Conference on Fracture, ECF 16-18 (in co-organization with the American Society for Testing and Materials, ASTM) in Greece (2006), Ukraine (2010) and Germany (2012); and in the organization of International Conferences on Fatigue, ICF: NT2F "New Trends in Fatigue and Fracture" in Serbia (2009) and France (2010). With the help of MSF some Ph.D. students and young researchers participate in ECF and NT2F conferences, in the Scientific Conference of the Bulgarian Academy of Science, in the Qualification Courses organized by MSF in the field of Materials Science (in English).

CENTRE FOR HYDROGEN TECHNOLOGIES

The Center for Hydrogen Technologies (CHT) was created in 2009 by a decision of the Academic Council of UCTM to coordinate the implementation of the National program "Hydrogen Technologies and Hydrogen Economy" and to organize specific training for Master's degrees on Hydrogen Technologies and Chemical Technologies in Nuclear Power Plants. This decision was based on a Framework Agreement for a long-term partnership and strategic cooperation between UCTM and Bulgarian Hydrogen Society (BG H2 Society), a National Coordinator in Hydrogen Technologies and a member of the European Hydrogen Association (EHA). The activities of CHT are implemented by the joint effort of lecturers and researchers from UCTM, as well as part-time lecturers and researchers in hydrogen technologies from the Faculty of Chemistry and Pharmacy of the Sofia University "St. Kliment Ohridski", The University of Mining and Geology "St. Ivan Rilski" (UMG), the Technical University of Sofia (TU) and the Institute of Electrochemistry and Energy Systems at Bulgarian Academy of Sciences (IEES - BAS). CHT is a separate teaching and research unit with the rank of a department within the Procedural Rules of UCTM, and provides administrative services to the Faculty of Chemical Technology. CHT is governed by a Council on Hydrogen Technologies consisting of 9 persons, including the Rector of UCTM Prof. Dr. Eng. Mitko Georgiev and The Director of CHT, Prof. D.Sc. Tzvety Tzvetkoff.

The main activities of the Centre of Hydrogen Technologies are the following:

- Organization of specific training in Master courses: "Hydrogen Technologies" and "Chemical Technology in Nuclear Power Plants";
- Research and coordination of the implementation of the National Program "Hydrogen Technologies - Hydrogen Economy";
- Organization and participation in the programs of the European Commission on Nuclear Safety and the programs of the European Hydrogen Association;
- Coordinating and conducting research, consulting, expert and maintenance in the field of hydrogen technology and chemical technologies in nuclear power plants;
- Organization of postgraduate education in the field of hydrogen technologies and chemical technologies in nuclear energy agreement with the Department of Continuing and Distance Education;
- Implementation of international cooperation in the field of training and research, expertise and consultancy in hydrogen technologies and chemical technologies in nuclear energy.

The overall activities of CHT are defined in the Statute Regulations of the Centre

of Hydrogen Technologies, approved by a decision of the Academic Council of UCTM from 25 March 2009.

CENTRE FOR ENERGY EFFICIENCY

The Centre for Energy Efficiency (CEE) at the Faculty of Metallurgy and Materials Science was founded on 16 April 2008.

The mission of the CEE is to perform education and scientific investigations in the field of energy efficiency. The main task is to ensure contemporary material equipment for education.

From the time the CEE was established till present day the Head of the centre is Assoc. Prof. Dr. Eng. Venko Petkov.

The CEE provides: education in Bachelor and Master Degree, short courses and individually training of Bulgarian and foreign students, doctoral and post-graduate students; scientific, research and development activities, international collaborations for education and scientific investigations in the field of energy efficiency.

The Centre for Energy Efficiency is equipped with up-to-date instruments for thermal measurements and investigations - hydrogen cell; infrared (thermographic) camera (-50, 1600^{o}C); infrared combined thermometer (-50, 600^{o}C) for contactless temperature measurement; a calori-meter; contact thermocouples; instruments for measurement of gas pressure, velocity, temperature and humidity.

Special-purpose, standard and in-house software is developed for numeric analyses and diagnostics of thermal objects and vibration analysis of mechanical facilities.

UNIVERSITY COMPUTER CENTRE

The Computer Center was founded in 1977 as an Educational Electronic Computing Center at UCTM – Sofia, with director prof. Boris Goranov, and a staff of 32 people.Despite the limited possibilities of the machine and the laborious operation, the center was recognized as an essential unit which served learning, scientific research and management of the university. In the first three years several information systems were implemented, such as “Prospec-

tive Students Admittance” „Students“, Financial system, statistics and more. A system for teleprocessing ESTEL 2 was also put into practice. The accumulated knowledge and experience in computer technology allowed the Computer Center to purchase in 1984 a superminiature multiuser computer VAX-11/750 with 32 terminal stations. With their help 3 computer laboratories for training of students in the discipline “Programming and computing systems usage” were built. In addition to teaching, the Computer Center provides training courses for post-graduate students and university employees. Students under the supervision of the staff of the computer center can work independently on a so-called free access. In the following years the Computer Center was a leader in the implementation of personal computers (Apple II, «Pravets 8“, „Pravets

16», IBM, HP) in education, scientific research, and administrative services of the university.

Following the global trends in computer communications in 1996 the Computer Center initiated the cabling of the university's buildings and constructing computer networks. In 1997 a team of the Computer Center created the first site of the University, and in 1998 with the help of specialists from a French university, it placed a Satellite Internet Connection (SAT-1) with universities around Europe and the world. Today, with over 10 000 m fiber, copper and wireless connections, 12 network servers and tens of 10/100/1000 Mb / s switches from the university support network, the computer center provides network services (e-mail, intranet and Internet) and software for all the needs of the university at any place of the university. With the founding of a new unit for Prepress preparation in 1993, the Computer Center opened new horizons – prepress and printing of educational materials. In 2002 a XEROX DocuTech printing complex was bought, which helped the self production of numerous educational titles in several languages and the equipment of a bookbinding workshop. For the last 10 years over 120 educational titles in Bulgarian, German, French and English have been printed.

In recent years, the university computer centre (UCC), has launched its activity in some key areas, such as: „Administration of Local Area Networks and Telecommunications„; "Information Systems and Internal Computer Communications"; „WEB-based information services"; "E-learning". Relying on its traditions and the experience of the leading universities in the country and across the world UCC seeks the most effective methods and tools for the application of information technology in the education of the future professionals.

As early as the introduction of the first calculation system, the building of information systems securing the prospective student campaign, services to students, finance and accounting department of the university and NIS has begun. Over the years, with the advent of more contemporary technology, the scope of information that is maintained has been growing. New modules are introduced and up to now, the entire process of maintaining information about students and Ph.D. students from application to graduation (teaching process, health insurance, scholarships) has been covered. The maintenance of data is done in UCC and the data are transferred to:

- Register of academic staff;
- Register of undergraduate and graduate students;
- Register of graduates.

Specialists from U|CC provide consultations to faculty and staff of UCTM regarding the software they use.

CAREER CENTRE

The Career Centre of the UCTM is created with a decision of the Academic council on 27 October 2004. Its leading was assigned initially to Assoc. Prof. Dr. Eng. Georgi Elenkov, then to Assoc. Prof. Dr. Eng. Tsolo Tsolov. From the end of 2011 its Director is Assoc. Prof. Dr. Eng. Rayko Stanev.

The main purpose of the Career Centre is to afford conditions for a successful professional realization of the UCTM students. The ways for its fulfilment are comprehensively specified in the Regulations of this di-

vision, which are accessible also on-line.

The basic tasks of the Career Centre in generalized form are the following:

- designing of an information system for the UCTM students from all educational-qualification degrees, as well as for potential employers;

- creating and sustainment of an University labour exchange as an instrument for assistance at the work finding and for the career development of the UCTM alumni;

- promoting of the practical education organization;

- provision of a good knowledge ability and motivation of the students about the opportunities for their future realization.

The information activity is priority for the Career Centre. It comes down to:

- implementation of contacts with employers, enrichment and improvement of

the supporting forms at the professional realization of the UCTM students;

- studying of the labour market state, the trends for its changes and the employers' opinion about the training of the University cadres;

- development of the system for a centralized assistance of the contacts with UCTM alumni;

- creating and sustainment of a database for employers and other representatives of the practice, for taught students at the university and also for the realization of the persons, which are already graduated;

- affording of the information for the free job openings;

- acquaintance about opportunities for practical teaching implementation (produc-

tion trainings, probations, specialized teachings et al.), as well as for working places for students and result-oriented grants;

- preparation, press and distribution of information.

For the achievement of these tasks a website of the Career Centre (http://uctm.edu/career) is created and continuously actualized. The remaining important activities of this section are the consulting, the relations with the community and the business, which acquire more and more various manifestation forms, participation at the implementation of practical training of the UCTM students and rendering of comprehensive assistance at their vocational guidance and professional development.

The complete action of the Career Centre is conformable to the principles of BDS EN ISO 9001:2008 for control of documents, continual improvement, analysis of the customer satisfaction and other good practices.

CENTRE FOR MATHEMATICAL MODELLING AND COMPUTER SIMULATION

The centre for mathematical modelling

and computer simulation has been created in connection with the activities under contract BG051PO001-3.3.06-0014 "Centre for mathematical modelling and computer

simulation for training and development of young researchers" to provide financial assistance under Operational Programme "Human Resources Development" financed by the European Social Fund of the European Union.

Main tasks of the centre are financial support and training of young researchers to solve engineering problems in chemical and metallurgical industries and energetics through mathematical modelling and computer simulation of physical processes: transport phenomena, thermo mechanical, chemical, combustion, etc.

Within the contract period centre provides resources for:

- Financial support for Ph. D. students with monthly studentship;

- Full funding of participation in national and international conferences and seminars, and support of publication activity;

- Acquisition of new skills in the field of mathematical modelling and computer simulation through training and consulting on specialized subjects. Successfully completed participants will receive a certificate;

- Application and dissemination of knowledge and skills in the scientific and industrial community through seminars of mathematical modelling and numerical simulation;

- Meetings and consultations with experts from practice and easier access to industrial systems;

- Access to specialized facilities, equipment, software and scientific literature.

The centre is a stable structure, which will continue operation after the expiry of the contract through:

• Submission of projects in national and European programmes;

• Expert work and problems solving related to increasing energy and technology efficiency of industrial systems and investment planning;

• Training through the Department of Continuing and Distance Education in UCTM.

DEPARTMENT OF CONTINUING AND DISTANCE EDUCATION

Assoc. Prof. Dr. Kosta Boshnakov
Dean
Eng. Dimitrina Maslarova
Secretary

The Department of Continuing and Distance Education (DCDE) was established in its present structure in 2000. It is a successor of earlier structures that functioned as a provider of postgraduate education and the Faculty of social professions. The Department was established with the aim to reflect the current needs of providing specializations and retraining at a time characterized by business and social changes at the end of 90s and the beginning of the development of the Bologna process.

During the period of 2000-2004 the Dean and Vice Dean were Assoc. Prof. Dr. Georgi Nikolov and Assoc. Prof. Dr. Ivan Dosev, respectively, and during the period of 2004-2012 - Assoc. Prof. Dr. Kosta Boshnakov and Assoc. Prof. Dr. Senia Terzieva.

The main functions of the Department are related to providing training after a degree of higher education has been acquired or during the training in Bachelor, Master and PhD programs, as well as training in specialized language courses giving special competences to employees engaged in state and company structures and industry, and training to acquire specific skills and improving qualification, and retraining courses.

There are short-termed and long-termed training activities, and training is evenly distributed in semesters and modules of concentrated contact classes in periods of different duration. Specializations can be done in groups or individually, on the territory of the University, or externally at the site of the company requiring them.

New long-term specializations include courses in Alternative fuels, Energy efficiency and environment and Industrial business and entrepreneurship, and short-term trainings are based on the assumption of students and qualified specialists' future needs of knowledge and are provided depending on the interest. The short-term courses include those in Object-oriented programming with JAVA, Companies Financial Accounting, AutoCAD, Environmental impact assessment and the especially topical course in Management and monitoring of projects under national and European programs.

Traditionally successful long-term specializations of the Department are those of the School of Engineering Pedagogy, which in the academic year 2011/12 trained its twenty-fifth batch of graduates, as well as the specializations in Financial management, Customs service, Analytics, Industrial Business and entrepreneurship, Energy efficiency and Environment, Perfumery and cosmetic products, Pre-press, Graphics and WEB-design, English, Public relations (PR) and Bulgarian folk dances.

Lecture notes were issued for the specialization in Financial Management in the following disciplines: Management accounting information; Financial credit management and Management of tax providing.

There is a wide range of individual specializations being offered. The academic

curricula for the specializations provides 150 modules of between 15 and 45 academic hours each that are intended for the different programs of postgraduate education depending on the applicants' needs.

Lately, the following individual specializations have been provided: Production, composition and application of hard petroleum products, Thermal engineering, Plastics

extrusion, Plastics processing, Instrumental methods in analytical chemistry, Company management, Methods and instruments for mathematical modeling and assessment of ambient air quality, Dyeing and final finishing of woolen textiles, Ecological problems in textile industry, Textile chemistry and technology, Technology for lead and zinc, Perfumery, cosmetic and pharmaceutical products, Ecology, Ecological planning and management, Ecological engineering, Metallography and thermal processing of steel, Ancient ceramics – technologies, methods of study and properties, Methods of common migration of materials and plastic objects for food contact, etc.

On request by industry, target group specializations have been carried out for "Techceramic -M" OOD - Mezdra, „Neochim" AD - Dimitrovgrad, „Aurubis Bulgaria" – Pirdop and „Sofia Med" AD.

During the period 2003-2007, an average of 250 students and postgraduate students were taught annually in the different directions of DCDE, and for the period of 2008-2012, the average number of students was 395; for the academic 2010/2011 year, a record number of students and postgraduate students was registered, namely 491.

The advertised specializations are interesting and are attended by students from other universities too, such as: SU St. Kliment Ohridski, TU - Sofia, New Bulgarian University, UNWE, University of forestry, Higher School of Civil Engineering Lyuben Karavelov, Todor Kableshkov University of Transport and others. The department has also taught postgraduate students from other countries. The Department has also contributed for raising the prestige of UCTM in industry, state structures, other universities and primary schools. A priority for the future development of the Department is distance education. Necessary stages in the development are completing the learning content in the various subjects and building computer infrastructure. At departmental level the materials have almost been prepared for distance education in Industrial business and entrepreneurship.

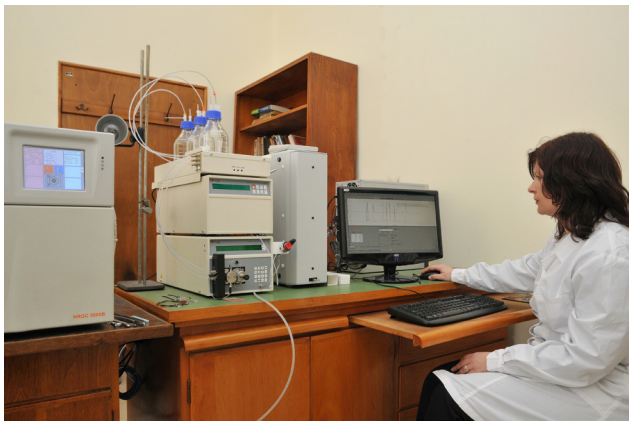
CENTRAL RESEARCH LABORATORY

Assoc. Prof. Dr. Svetlin Parvanov

The Central Research Laboratory was created at the end of 1961 by decision of the Academic Councill; however, it actually started working in the beginning of 1965. The first Administrative Head of the laboratory Prof. Dr. Borislav Karadakov was appointed in 1966. During the period of 1976 - 2003 the Laboratory was managed by Prof. Dr. Bohos Mesrob (1976-1985), Prof. Dr. Yoncho Pelovski (1985-1989) and Prof. D.Sc. Rodimir Nikolov (1990-2003). Since 2004 until now the Laboratory has been managed by Assoc. Prof. Dr. Svetlin Parvanov.

The Central Research Laboratory is an independent specialized unit within the

structure of the UCTM which provides analytical services and scientific research in the area of organic and inorganic analysis utilizing modern instrumental and chemical analytical methods. Its function is to assist the educative and scientific research activities of the UCTM as well as to carry out analyses for the needs of outside clients. The academic staff of the Laboratory consists of one Associate Professor and four Assistant Professors. The assisting personnel include two chemical engineers.

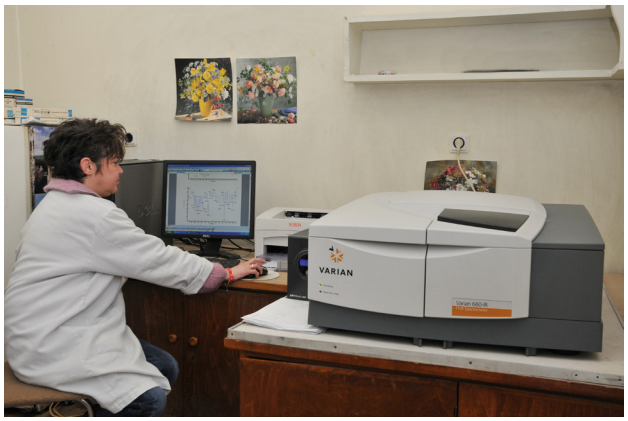


The following specialized laboratories operate within the Central Research Laboratory:

- Atomic spectrometry;
- Molecular spectrometry;
- Elemental organic analysis;
- Chromatographic analysis;
- Silica analysis;
- Electron microscopy;
- Thermal chemistry and physical and thermal testing;

- Infrared spectroscopy.

The labs of the Central Research Laboratory are equipped with modern high tech measuring and analytical devices such as:

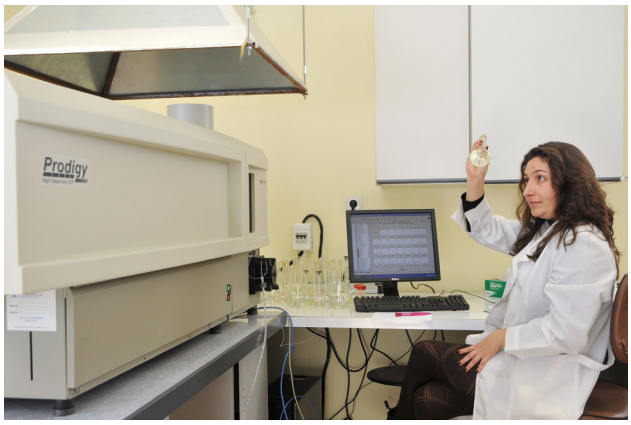


Optical Absorption Spectrometer with Inductively Coupled Plasma

(OAS-ICP) „High Dispersion ICP-OES Prodigy" of the company Teledyne Leeman Labs – USA, dual channel UV-VIS spectro-

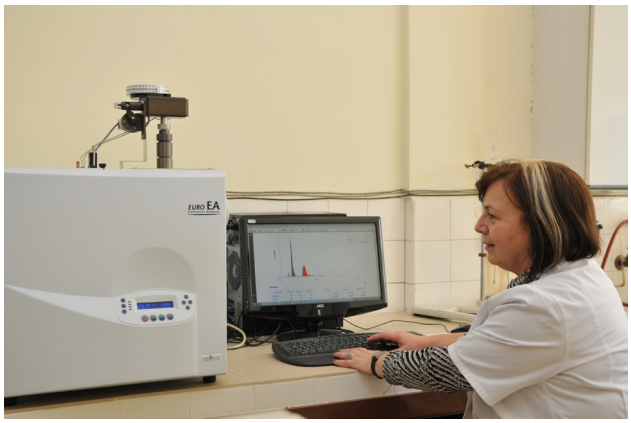
photometer, model "Cary -100" of the company "VARIAN" having spectral bandwidth of (190-900 nm), dual channel FTIR

Spectrophotometer of the company "VARIAN" of the series 600 having a wide wavelength range (400-4000 $см^{-1}$), automatic elemental analyzer EA 3000 of the Italian company Euro Vector, unique combined chromatography system K2 (HPLC+GC+MS) of the company "KONIK-TECH" - Spain and derivatograph analysis apparatus STA PT1600 TG-DTA/DSC (STA



Simultaneous Thermal Analysis) of the company LINSEIS Messgerate GmbH, Germany.

The scientific and research work of the Central Research Laboratory develops in two directions: the first one is to assist the fundamental and applied scientific works of the University Departments providing mod-



ern analytical services. The second direction is related to the development of own scientific research of fundamental theoretical and applied nature.

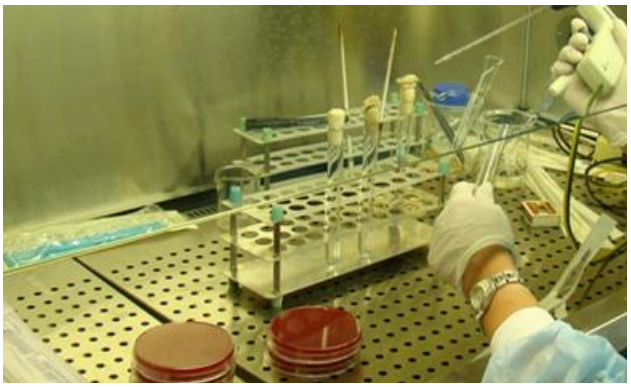
The staff focuses their efforts on providing and implementing new specific analytical techniques.

INSTITUTE NATIONAL BANK FOR INDUSTRIAL MICROORGANISMS AND CELL CULTURES (NBIMCC)

NBIMCC is in the structure of UCTM since 2011. Acting Director is Dipl. Eng. Snezhana Dimitrova and Main scientific secretary is Assoc. Prof. Dr. Angela Yordanova. NBIMCC contributes to realization of the state policy for protection of the intellectual and industrial property rights in the field of the biotechnology and for preservation of biological diversity through collection, conservation and long-term storage of the viability, taxonomic characteristics and other

specific properties of microorganisms, viruses and cell cultures.

NBIMCC represents an unique organi-



zation, necessary for the operation of production units and control authorities related to guarantee the quality of biotechnology products, the protection of the public health and environment, the maintenance of science and education, to provide the state, the public and the public interest.

NBIMCC performs public services on: acceptance of microbiological specimens for deposit – for patent procedure, for storage (open deposit) and for safe deposit; distribution of microbiological specimens; delivery of microbiological specimens from foreign collections; dispatch of microbiological specimens abroad; issue of certificates for microbiological specimens; information references for microbiological objects. NBIMCC is the national collection for bacteria, actinomycetes, yeasts, fungi, plasmid-bearing microorganisms, animal and plant viruses, animal cell cultures. At present, over 8 400 microbiological objects from first and second risk groups are preserved there, in liophilization and/or frozen state – patent, type, control, industrial and collection

strains from all over the world.

NBIMCC is an International depositary authority under to the “Budapest treaty on the international recognition of the deposit of microorganisms for the purposes of patent procedure” by the World Intellectual Property Organization. The Bank is member of the World Federation of Culture Collections and of the European Culture Collections Organization.

LIBRARY AND INFORMATION CENTRE (LIC)

Eng. Maya Pencheva
Head of LIC

The library at our university, then Higher Institute of Chemical Technology, was established in 1958 with the appointment of the first librarian and a law graduate Penka Hashovska. At that time, the library took up one room in building „A“, which was used for both the depository and lending services. As early as the first year over 5000 volumes were collected from the departments with protocols. This marks the beginning of library catalogues and the first inventory book, written in ink. The first monograph in the fund is an inventory of 04 November 1958, and it is Astanin, P. Practical courses in biochemistry, M., 1951. With the increase in book stock and the number of readers in 1961 another librarian was appointed. In 1965 the library was moved to building „B“ in specially designated spaces for it. In the following years various repairs were made and absorption of new space, until 1975 when separate sectors were established in the library - Loan Service, Catalog Room, Literature Treatment Department, depositories, a reading room with periodicals delivered since 1970 with 50 seats, a reading room with current periodicals with 20 seats, and a student reading room with 34 seats.

The library at the Higher Institute of Chemical Technology (HICT) then was structurally a scientific library - a branch of the Central Library at Higher Technical Institutes, VIAS (now University of Archtecture, Civil Engineering and Geodesy), along with the University Libraries of the VMEI (now Technical University) and Higher Institute of Mining and Geology - HIMG (now MGU). The central library had a center for scientific and technical information serving all four higher education institutes, through the so-called OSTI (offices for scientific and technical information).

Acquisition of books, subscriptions to scientific periodicals, Interlibrary loan (ILL) and the International interlibrary service (IIS) was done by the Central Library at VIAS.

In 1988, the library management was assumed by M.Sc. Eng. Svetla Stantcheva, specialist in library and information science.

On October 26, 1992 by the Academic Board of the STU (then Sofia Technological University), the library and OSTI were merged and converted to Library and Information Centre. Eng. Evgenia Gancheva, expert in scientific information, was appointed head of LIC. During the same year the 3 branch libraries were decentralized and were made autonomous to each university.

Since 2004, Eng. Maya Pencheva, M.Sc. ecologist and specialist in Library and Information Science has been Head of LIC.

LIC is a highly specialized scientific library providing information for educational, scientific and research work at UCTM.

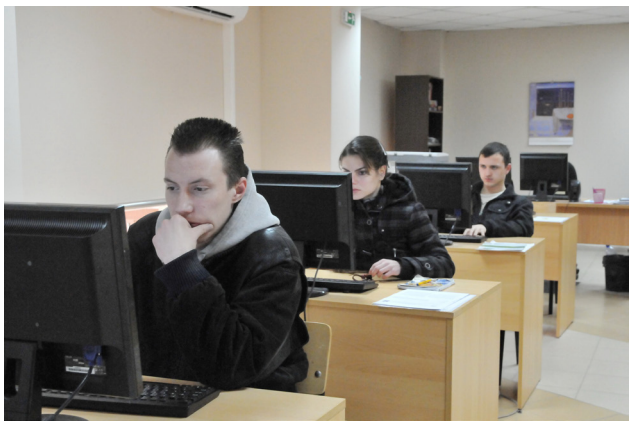
LIC procures, processes, organizes in various catalogues, stores, and disseminates information, maintaining extensive collection of monographs, academic and reference books, theses, encyclopedias, dictionaries, periodicals, CD-ROMs, and databases.

In 2000 the automation of the activities in the library began by using a specialized software "AB" in modules - building and maintaining databases of bibliographic descriptions of books, periodicals, theses; establishing a database of 45 classifiers (authors, author responsibility, copyright sign, publishers, library document type, areas of knowledge, subject heading, keywords, topic name, classification index, etc.).; analytical description of articles from the scientific journal "Journal of Chemical Technology and Metallurgy"; establishing a database of readers for Loan Service.

In 2004, the electronic catalogue of LIC was launched, allowing information search and presentation of databases on the Internet and the local net. The search is possible by using various categories: title, author, subject heading, keyword, UDC, ISBN /ISSN, signature, etc., and the report is displayed in a list, a short/full bibliographic description. The bases of the catalogue are four: books (received in the library since 1993), periodicals (available since 2000), articles (analytically described by the Journal of Chemical Technology and Metallurgy since 1991), theses (the whole collection since 1968).

Since 2008 the service of readers is completely automated, the library cards are printed and a loan note is issued when distributimg textbooks for home (only the electronically processed fund). The system generates statistics of the registered readers and the borrowed literature.

In 2009, LIC moved to the new three-storey renovated building long awaited by both students and faculty, and the dedicated librarians. The total area is 1 302.20 m^2. The following funds were moved: scientific periodicals - since 1999 till today, including newspapers Novinar, Az buki, SN (State Newspaper), Computer World; books - since 1975 till today; theses - the whole fund.



LIC has 5 reading rooms, with a total of 94 reading seats, 26 of them with computers; registration; loan service; traditional catalogues of various library funds; union catalogues of the National Library „St. St. Cyril and Methodius „; 4 depositories. The center offers its readers and users a free access to a remote textbook and reference fund protected by electromagnetic detection system.

Librarians assist readers in the search

for literature in catalogues (traditional cards or electronic) in the electronic resources from private subscription of online journals and databases-SpringerLink, VINITI; from shared subscription access to databases EBSCO Publishing, in the Library consortium of subscribed by the Ministry of Education

database of „Elsevier“ - Scopus and Science Direct, and products of Thomson Reuters on the platform Web of Knowledge (Web of Science, Journal Citation Reports, Conference Proceedings SM, BiosisCitation Database, Medline, InCites); several platforms available on free access - Blackwell Publ., Bentham Open Access, Google Scholar, Research GATE, Academic Journals.; photocopying, binding, printing. Since 2013 UCTM has enabled self-governing remote access to databases Scopus and Science Direct.

LIC at UCTM has a modern digital library, implemented under the Operational Program „Regional Development“. With the purchased robotic book scanners Kirtas Kabis I, specialized software and digital production machine XEROX 700 Digital Color Press, a digital library was built. It allows students and academic staff to use electronic resources from any computer in the network and outside the university. The aim is to support the educational process, to improve the quality of education and to facilitate maximum access to knowledge. The LIC employees are highly qualified specialists with various degrees and majors in - chemistry, ecology, electronics and semiconductor technology, industrial management, librarianship and information science.

THE SCIENTIFIC EDITION JOURNAL OF CHEMICAL TECHNOLOGY AND METALLURGY

Prof. Dr. Eng. Bogdana Koumanova

Editor-in-Chief

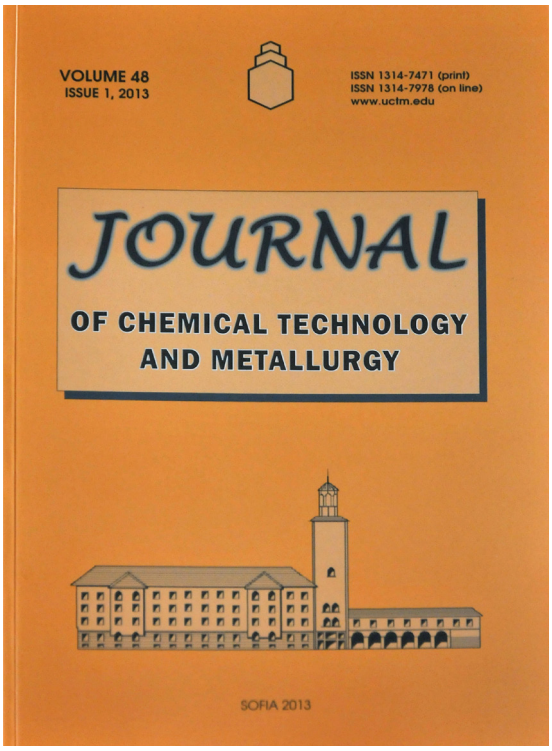
Journal of Chemical Technology and Metallurgy is a specialized scientific edition presenting original research results in the field of chemical technology and metallurgy, chemical engineering, biotechnology, industrial automation, environmental protection and natural sciences.

The edition of the journal started originally in 1954 as Annual Journal of the former Higher Institute of Chemical Technology. It ran in Bulgarian. Until that time editors were: Prof. Dr. Krum Kaishev, Prof. Dr. Dimiter Djoglev, Prof. Dr. Evgeni Kanchev, Prof. Dr. Eva Sokolova, Prof. D.Sc. Maria Maneva. In 1999 its Editor-in-Chief became Prof. D.Sc. Rumen Dimitrov. In 2000 the title was changed to Journal of the University of Chemical Technology and Metallurgy. It was published quarterly in English.

The journal has been substantially changing with time. It was initially the forum of the researchers working at the University of Chemical Technology and Metallurgy in Sofia but started to draw the attention of contributors from other universities and research institutes in Bulgaria. The greatest impact was achieved when it was started to be run in English. Thus it became available and attracted the interest of researchers from abroad. Its scope is broadening and this in fact required the change of the title. Since 2013 it runs bimonthly as Journal of Chemical Technology and Metallurgy.

In 2007 Prof. Dr. Eng. Bogdana Koumanova became its Editor-in-Chief.

Recognized scientists from Bulgaria and abroad participate in the Editorial Board (14 are from the United Kingdom, Spain, Portugal, Romania, Germany, Poland, Macedonia, USA, Australia, Finland, Serbia).



The journal is distributed in the libraries in many universities in Bulgaria and abroad.

The articles of the journal are indexed and abstracted in SCOPUS, EBSCO, Chemical Abstracts and Referativnii Journal Himii (VINITI). This fact contributes to the citation of the publications in many scientific editions abroad.

ADMINISTRATIVE SERVICES

DEPARTMENT „FINANCE AND ACCOUNTING“

The department is headed by the Chief Financial Officer Tinka Stoykova. The chief accountant is Galina Kalcheva.

The department summarizes and reports the huge flow of revenue and expenditure information, including NIS, UPD, DSO and NBMPKK. It implements in due time the changes to all laws, decrees, decisions by public authorities relating to financial, labor and other legislations.

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DEPARTMENT „LEGAL“

The department maintains a record of contracts relating to the financial activities of UCTM. It organizes, coordinates and controls the lawful operation of the activities of the university. It monitors the obsevance of the provisions of the contracts in compliance with the information from the FSO at UCTM.

DEPARTMENT „PUBLIC RELATIONS“

The main functions of the department are to organize, develop, maintain information and links to other academic communities and public institutions; to promote basic educational services of the university, research achievements and initiatives, additional services, events and products.

DEPARTMENT „INTERNATIONAL COOPERATION AND PROTOCOL“

The main functions of the department are to prepare contracts for international cooperation of the university, to coordinate them with the Legal Department and to exchange of necessary correspondence to sign them; to store documentation of past and existing contracts; to prepare the documents and visas for the trips of the lecturers, students, Ph.D. students and university officials abroad; to prepare the official meetings of the Rector and the Rector’s Council with their foreign guests.

DEPARTMENT „SAFETY AND HEALTH AT WORK„

The department registers, investigates and reports existence and employment accidents. It provides special clothing and personal protective equipment for workers at UCTM. It also provides accountability and control of documentation for reimbursement of expenses related to labor safety, fire safety and it also provides free food and antidote for employees who are entitled to it. It organizes medical check-ups.

Eng. Antonio Manolov
Assistant Rector

Several departments under the leadership of Assistant Rector Eng. Antonio Manolov serve different activities at the University.

DEPARTMENT „SOCIAL AND WELFARE SERVICES„

The department organizes the admittance of documents of students and doctoral students for scholarships and accommodation in the student hostels. It peviews the legality of the accepted papers. It organizes and conducts the recreation campaign. It accepts and processes applications for one-off grants for students, Ph.D. students, faculty and staff. It is responsible for the archives of UCTM under the ZDA.

DEPARTMENT „PLANNING AND SUPPLY“

The activities of the department are planned and reported based on the preliminary plan accounts for the expenditures of the departments and offices which receive allocated limits in advance. The department monitors the compliance with the Accounting Act for the purchase of fixed and current assets relating to the obligatory requisites of the primary accounting documents.

DEPARTMENT „LARGE-SCALE CONSTRUCTION AND MAJOR REPAIRS “

The department prepares a proposal for planning costs for major repairs and purchase of fixed assets for the sites of „Large-scale construction“ in the long term and in the short term. It gives an account of the capital expenditure on a quarterly basis and annualy in accordance with the requirements of accountancy and the regulations in the field of construction. It admits, stores and prepares the documentation for acceptance of construction sites and major renovations. It controls the cadastral, building, regulation and other treatments affecting the territory of UCTM.

DEPARTMENT „POWER-MECHANICAL“

The department plans and negotiates with the energy supply companies the supply of electricity on a quarterly basis and annually. It reports and controls the cost of electricity at the university and in the structures outside the buildings of the University of Chemical Technology and Metallurgy - recreation centres and others. It plans and orders the purchase of electrical materials. It reports and controls the telephone costs.

DEPARTMENT „REPAIR AND SERVICE“

The department reports and controls the cost of heat and water of the university and the recoverable costs of external users.

It repares reports for the purchase of supplies for the maintenance of the centralized heating network, ventilation systems, ventilators, chimneys, fire hydrants, shafts and water-supply network.

HOLIDAY CENTRES

UCTM has two recreation and rehabilitation centres - on the beach, near the town of Nessebar and in the mountain – in the village of Ribaritza located in the beautiful Teteven Balkan. The recreation centre in the town of Nessebar is located directly on the beach in the area of student camps between Nessebar and Ravda and consists

of two-, three-and four- bed bungalows with a sea view. Every summer more than 550 faculty and staff of the University and members of their families recreate there in shifts. Some of the beds are provided for use of undergraduate and graduate students. The mountain centre is situated in the beautiful village of Ribaritza and it has 15 two-bedroom bungalows, each with its own bathroom and there is also a solid two-storey building, which in addition to a well-furnished dining room has three apartments. The huge garden and swimming pool offer a chance for sports and entertainment. The centre is located near an ancient forest, rich in herbs and berries in the summer. In the winter the meadows below the centre are a superb slide. Both recreation and rehabilitation centres are used by means of a well-developed rank-

ing system of the willing faculty, staff and students. For pensioners, former faculty and staff of UCTM and their families there are preferential terms for the use of the recreation centres. At slightly higher rates, outsiders can relax also when there are

beds not occupied by faculty and staff. The classification is done by social and welfare services department by means of a ranking system.

STUDENT COUNCIL

Student Council at UCTM is a legally-regulated form of relationship between students and university governing bodies at all levels - Faculty Councils, Academic Council and Rector's Council. Its members are representatives in the University General Meeting. Each is selected on a quota basis and the quota of students from a faculty depends on the number of students in it.The Student Council is funded by the budget of the university and the financial support is for the conduct of cultural, sporting, scientific, social, creative and international work, coordination and cooperation with student councils and organizations at home and abroad. Student Council at UCTM assists disadvantaged students by allocating single grants, participates in the organization, admission and ranking of the applications for scholarships granted by both UCTM and the project „Student Scholarships" under OP „Human Resources Development", is actively involved in the scientific, sports and mass activity of the university, participates in the management of the student hostels, promotes the prestige of University of Chemical Technology and Metallurgy, contacts employers.

STUDENT HOSTELS

UCTM has 1500 beds, located in blocks 20, 37, 42A and 60B in the Students town, which are sufficient to meet the housing needs of all students and postgraduates wishing to use the hostel. This material fund is managed by the „Student hostels," and the definition of the terms and conditions of use and ranking of candidates is carried out by the Committee on Social and welfare issues of students (CSWIS) in which 70 % of the members are undergraduate and graduate students, studying at UCTM. A House-council functions in each of the blocks, elected by the residents in the block whose task is to assist the Department „SH" in its efforts to provide decent living conditions as well as continuation of the educational process in the hostels.