

BULLETIN

**Budapest University of Technology and Economics
2011–2012**

An ECTS Guide



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Engineering Programs in English
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**Bulletin of the Budapest University of Technology and Economics
Engineering Programs in English**

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This Catalogue provides information on the programs and services of the Budapest University of Technology and Economics. Curricula, courses, degree requirements, fees and policies are subjects to revision. Specific details may vary from the statements printed here without further notice. The manuscript was closed on 15th December 2010.

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Dear Student,

This Bulletin will introduce you to the Budapest University of Technology and Economics, the range of educational opportunities it offers, its faculties and their programs, its policies and philosophy, and its services and traditions. We hope the contents will help you make an informed decision about your studies and future career.

The Budapest University of Technology and Economics can trace its evolution through several academic institutions, dating back to 1782. Our present activity is based not only on our responsiveness to the needs of a continuously changing world, but also on more than 225 years of experience and tradition that provides a guaranteed basis for high-quality engineering studies.

Our university holds an international reputation for excellence in engineering education. It attracts professors and students from all over the world. We are proud of our international professors and our international students.

Hungary is a member of the European Union. It is a good opportunity to highlight our cultural heritage, including scientists, artists, other creators, enriching Europe's and the World's progress and values. Our former and present professors or even graduates have also had strong contributions to those results.

Consequently, international students of BME can benefit from their studies in Hungary in a particularly precious way. Parallel to their professional studies in fields of engineering, business and management, cultural courses will increase the excitement of study abroad.

Use this bulletin to help you consider our programs. Come to visit our campus. Better yet, come to study with us for one or two semesters or for an entire degree program. Should you decide to stay only for one semester, this bulletin will also help you choose from different semester programs.

The Budapest University of Technology and Economics extends a special welcome to students from abroad.

Dr. Péter Moson

Vice Rector for International Affairs
Budapest University of Technology and Economics

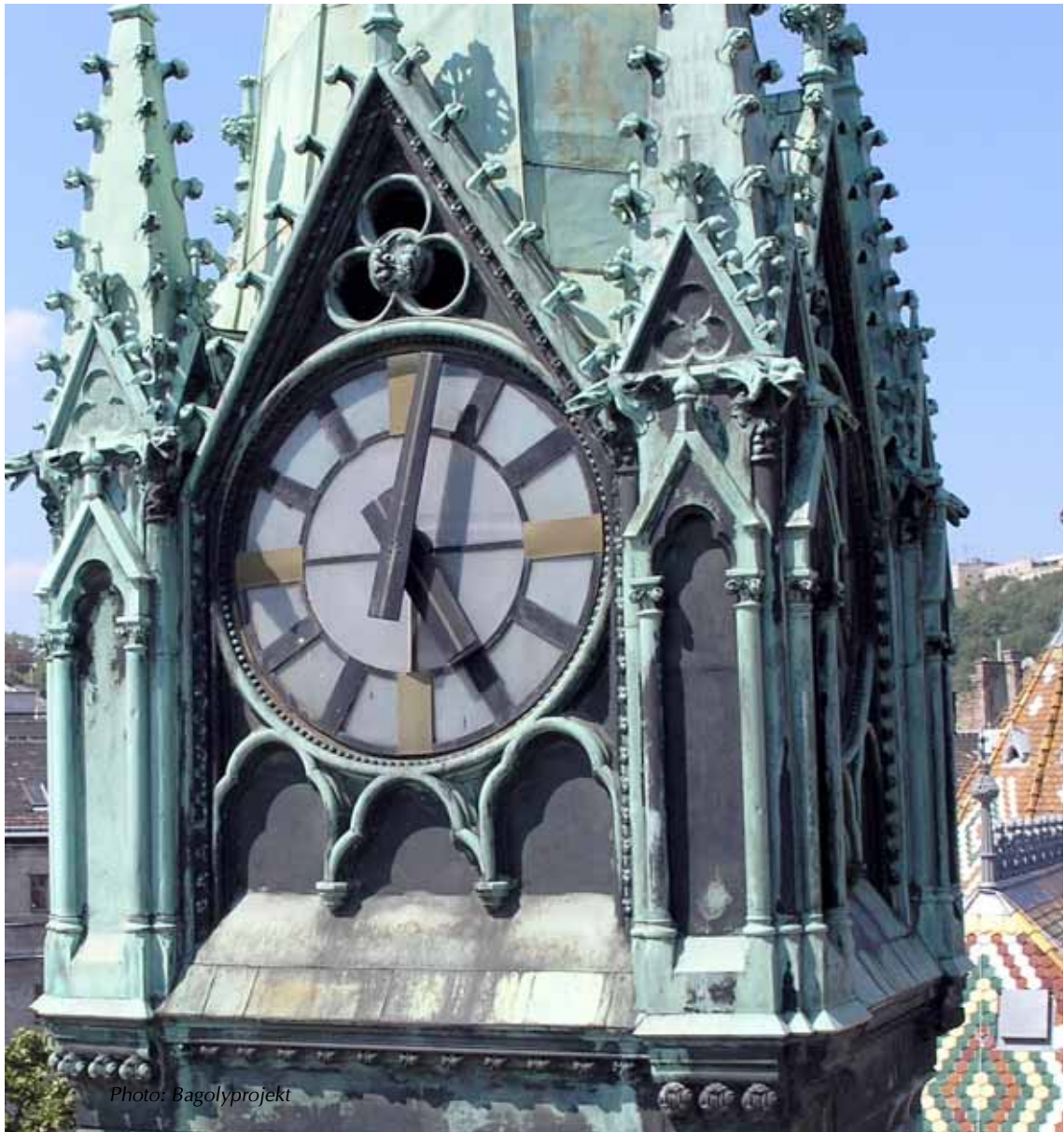


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Budapest University of Technology and Economics



The building of the Hungarian Parliament in Budapest

Rector's collar, with the crown and the shield of the national arms of the Republic of Hungary

on next page:
The mace of the University



Deans' collars' medal portraits

Architecture: Miklós Ybl – Architect of most famous public buildings of Budapest – Opera, St. Stephan's Cathedral etc. • **Chemical Technology and Biotechnology:** Géza Zemplén – Professor of organic chemistry greatly contributing to chemical engineers' training • **Civil Engineering:** Pál Vásárhelyi – Initiator and establisher of river control and flood protection in Hungary
Transportation Engineering: Kálmán Kandó – Constructor of electricity driven locomotives • **Mechanical Engineering:** Donát Bánki – Inventor of the first petrol atomizer, the so called "carburettor" • **Natural Sciences:** Kálmán Szily – Professor of the university, greatly contributing to natural science education • **Economic and Social Sciences:** Farkas Heller – Professor of the University, initiator of economic and business studies • **Electrical Engineering and Informatics:** Károly Zipernowsky – Inventor of the transformer





Photo: József Tóth



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A detailed watercolor illustration of the Budapest University of Technology and Economics building. The building is a grand, multi-story structure with a prominent central tower featuring a red-tiled roof and a green spire. The facade is light-colored with numerous windows and ornate architectural details. In the foreground, a stone wall with a wooden railing separates the viewer from the building. Several figures in period clothing are visible, some standing near the entrance and others walking. The sky is a mix of yellow and purple, suggesting a sunset or sunrise. The overall style is artistic and historical.

ABOUT THE
BUDAPEST UNIVERSITY
OF TECHNOLOGY AND ECONOMICS



The goal of the Budapest University of Technology and Economics is to graduate professionals who are capable of high-level creative work, who can organise and supervise production and infrastructure, and who are qualified to perform scientific research, participate in technical development, solve engineering problems and implement solutions. In addition to educating engineers and economists, the university provides continuing training through:

- undergraduate programs in engineering
- graduate programs in engineering specialisations
- refresher courses to inform practising professionals about new scientific developments which affect their work, and
- Ph.D. programs, guidance and instruction for scientific research fellows.

The Budapest University of Technology and Economics is proud of its more than two-hundred-year tradition of excellence in engineering education. It has developed into the largest institution of higher education in Hungary and is one of Central Europe's most important research centers. The university considers scientific research and development of equal importance not only to its educational activities, but also to economic and social development.

The university takes special pride in the contributions made to science, engineering and culture by its faculty, graduates, and researchers. Several Nobel Prize laureates have been associated with the Budapest University of Technology and Economics: Dennis Gábor (physics), George Hevesy (chemistry), Eugene Wigner (physics), György Oláh (chemistry) and János Harsányi (economics). Notable personalities have also studied or taught at the Budapest University of Technology and Economics:

John von Neumann, inventor of the computer,
 Edward Teller, nuclear physicist,
 Leo Szilárd, known for his work on nuclear chain reactions,
 Marcell Breuer, architect,
 Theodore von Kármán, aerodynamic scientist,
 Ernő Rubik, inventor of the famous cube,
 Donát Bánki, co-inventor of the carburetor,
 Károly Zipernowszky, one of the inventors of the transformer,
 Dénes Mihály, one of the inventors of television.

Brief History – Budapest University of Technology and Economics

- 1635 – Péter Pázmány, Primate – Archbishop of Hungary, founds the first Hungarian University of the New Age at Nagyszombat
- Late 18th century – The University moves to Buda and becomes the University of Buda.
- 1782 – Emperor Joseph II establishes the **Institutum Geometricum** as part of the Faculty of Liberal Arts at the University of Buda. The Institutum, the direct predecessor of the Budapest University of Technology and Economics, **is the first in Europe to award engineering degrees to students of land surveying, river control, and road construction.**
- 1850 – The Institutum Geometricum merges with the Joseph College of Technology.
- 1856 – The merged institutions become the Royal Joseph Polytechnic.
- 1860 – Hungarian replaces Latin as the language of instruction.
- 1862 – Royal Joseph Polytechnic becomes the Royal Joseph University.
- 1872 – Royal Joseph University **gains full autonomy** and the right to issue engineering diplomas after five years of studies. It is among the first institutions in Europe, to train engineers on university level.
- 1901 – Royal Joseph University is **entitled to confer the doctoral degree**, "Doctor Rerum Technicarum."
- 1925 – First women students enroll.
- 1939 – The Institute for Continuing Education opens its gates.
- 1949 – The name "**Technical University of Budapest**" becomes official. At this time the university consists of the faculties of: Civil Engineering, Mechanical Engineering, Architecture, Chemical Engineering and Electrical Engineering (in historical order).
- 1955 – Faculty of Transportation Engineering is established.
- 1984 – **Instruction is offered in English** as well as Hungarian.
- 1994 – The Technical University of Budapest in Hungary introduces the credit system. The university applies the credit assignment according to the European Credit Transfer System (ECTS) in its accredited academic programs.
- 1998 – Faculty of Natural Sciences and Faculty of Economic and Social Sciences are established.
- 2000 – The official name changes to **Budapest University of Technology and Economics.**
- Present* More than 77 departments and institutes operate within the structure of eight faculties. 7 knowledge centers has been established. About 1100 lecturers, 400 researchers and numerous invited lecturers and practising expert specialists participate in education and research at the Budapest University of Technology and Economics. Approximately 800 of the university's 24.000 students are from 50 different countries. **The Budapest University of Technology and Economics issues about 70% of Hungary's engineering degrees.**

Campus History and Architecture

The campus of the Budapest University of Technology and Economics is located in Buda along three bridges of the Danube River. Its eclectic collection of buildings dominates the right side of the riverbank and the varied architecture constitutes a study in the history of Hungary itself.

Education

When the Institutum Geometricum opened its doors in 1782, its goal was to graduate professional engineers qualified to survey, regulate waterways, and build roads. These professionals played an important role in rebuilding Hungary after 150 years of Turkish rule. The Institutum Geometricum trained engineers for three years, and the educational program concluded with examinations in both theory and practice.

In 1848, as an aftermath of Hungary's fight for independence from Austria, the Institutum temporarily lost its right to confer engineering degrees. In 1860, the then Royal Joseph Polytechnic began conducting classes in Hungarian (all classes had been previously taught in Latin).

Beginning in 1864, students spent five years studying civil and mechanical engineering, three years studying chemical engineering, two years studying agricultural engineering or economics. At this time the Royal Joseph University had five departments: Civil Engineering, Mechanical Engineering, Chemical Engineering, Agriculture and Commerce. In 1872, the university regained its autonomy and ability to confer engineering diplomas.

After World War I, the university was reorganised. From 1934 on, the Faculty of Civil Engineering incorporated the Department of Architecture; the Faculty of Mechanical Engineering was combined with

the Department of Chemical Engineering; the Faculty of Agriculture included the Department of Veterinary Sciences; and the new Faculty of Mining, Metallurgy and Forestry was established.

Between World Wars I and II, the Royal Joseph University was the largest university in Hungary to offer comprehensive educational programs in engineering and economics. After World War II, as a result of decentralisation in higher education, the Faculty of Economics, Faculty of Agriculture, Faculty of Mining, Metallurgy and Forestry, and the Department of Veterinary Sciences became the following independent institutions: Budapest University of Economic Sciences, University of Agriculture (Gödöllő), University of Heavy Industry (Miskolc), University of Forestry (Sopron) and the University of Veterinary Sciences (Budapest).

Within the Technical University of Budapest, apart from the Civil and Mechanical faculties the Departments of Architecture and of Chemistry became separate faculties as well. Two additional faculties were established: the Faculty of Electrical Engineering and the Faculty of Transportation Engineering. The Faculty of Natural and Social Sciences was set up in 1987.

In 1998 following the new demands the Faculty of Natural and Social Sciences was developed and split into two faculties: Faculty of Natural Sciences and Faculty of Economic and Social Sciences. Today the university has eight active faculties with numerous departments and institutes. Its commitment to excellence in higher education continues. Following the demands of the last decade, the University introduced new interdisciplinary fields of engineering, like the Environmental Engineering M.Sc. program at the Faculty of Chemical Technology and Biotechnology. At the same time, environmental engineering is naturally built in the B.Sc. programs of different faculties (Faculty of Civil Engineering, Faculty of Chemical Technology and Biotechnology, Electrical Engineering and Informatics and Faculty of Mechanical Engineering).

Location and Architecture

In the late 18th century, the University of Buda hosted the Institutum Geometricum. In the 1850s, the Institutum moved to private houses in Buda and later in Pest. In 1881, Imre Steindl, the architect of the Parliament building in Budapest, designed a Neo-Renaissance building for the then Royal Joseph University. Alajos Hauszmann and Samu Pecz, both professors of the University, completed the campus between 1892 and 1898. When the campus became too small, a new site, the present one on the Buda banks along the Danube River, was given to the university.

The structural plans for the new campus were prepared by Győző Czigler, professor of the Department of Architecture. Győző Czigler built the physics building (Building F), the chemistry building (Building Ch) and an electronics building, all in the conservative eclectic style. Samu Pecz, one of the last proponents of the Gothic style, designed the observatory, laboratories and the Central Library. Today the library houses 450,000 books and 120,000 volumes of professional journals. Alajos Hauszmann, architect of the Royal Palace of Buda, took over the direction of building the university after Győző Czigler's death. Alajos Hauszmann, one of the most successful architects of the Hungarian eclectic movement, designed the university's central building (Building K) with its amalgamated baroque elements. In 1987 UNESCO declared this entire building an ensemble part of the World Heritage.

After World War I, many technical schools abruptly fell outside Hungary's new borders based on treaty decisions made in Trianon, so the university and its curricula grew to accommodate Hungary's technical and economic educational needs.

More than one-fifth of the campus was ruined during World War II, but the university has restored its old buildings and added new ones. The buildings erected along the Danube between 1949 and 1955 reflect Gyula Rimanóczy's neo-classical style.

Architects found their work more difficult during the 1950s and 1960s. István Janáky and Zoltán Farkasdy designed the building for the Faculty of Transportation in opposition to the official architectural policy. A ten-storey academic building and a large auditorium with a folded slab roof were built in the 1960s. The nuclear training reactor was built in 1971. During the 1980s, industrial functionalism guided the design of the laboratories of the Faculty of Architecture, the building of the Institute Vehicular Machinery, the multi-storey residences and many cafeterias. The growth in the number of students and the scope of the university's activities have changed the scale of its buildings. The new ten to fifteen-storey buildings and residences no longer match the plans of the last century, but they make an impressive sight on the bank of the Danube. The new part of the campus, to the south of Petőfi bridge, is being built since the 1990's. Including the newest building of the University, called Building I (for Informatics) and buildings of another Budapest university (ELTE), the area has become a research center which is known as Infopark. The faculties and departments of BME co-operate with a number of international enterprises (Ericsson, General Electric, Hewlett Packard, IBM, Nokia etc.), many of which have impressive research centers here, and give opportunity to our master and doctoral students to do research work.

Faculties, Departments and Institutes

Faculty of Architecture



- Department of Architectural Representation
- Department for History of Architecture and of Monuments
- Department of Design
- Department of Building Energetics and Service System
- Department of Construction Technology and Management
- Department of Building Constructions
- Department of Mechanics, Materials and Structures
- Department of Industrial and Agricultural Building Design
- Department of Public Building Design
- Department of Residential Building Design
- Department of Urban Design

Faculty of Chemical Technology and Biotechnology



- Department of Applied Biotechnology and Food Science
- Department of Physical Chemistry and Materials Science
- Department of Chemical and Environmental Process Engineering
- Department of Organic Chemistry and Technology
- Department of Inorganic and Analytical Chemistry

Faculty of Civil Engineering



- Geodesy and Surveying
- Construction Materials and Engineering Geology
- Photogrammetry and Geoinformatics
- Geotechnics
- Structural Engineering
- Architectural Engineering
- Structural Mechanics
- Highway and Railway Engineering
- Hydraulic and Water Resources Engineering
- Sanitary and Environmental Engineering

Faculty of Economic and Social Sciences



- Institute of Applied Pedagogy and Psychology
- Department of Ergonomics and Psychology
- Department of Technical Education
- Centre for Learning
- Innovation and Adult Learning
- Institute of Economic Sciences
- Department of Environmental Economics
- Department of Economics
- Institute of Social Studies
- Department of Philosophy and History of Science
- Department of Cognitive Science
- Department of Sociology and Communication
- Center of Physical Education
- Institute of Business Sciences
- Department of Management and Corporate Economics
- Department of Finance and Accounting
- Department of Business Law
- Center of Modern Languages
- BME Language Examination Centre
- English Department
- German Department
- Department of Romance Languages

Faculty of Electrical Engineering and Informatics



- Department of Automation and Applied Informatics
- Department of Electronics Technology
- Department of Electron Devices
- Department of Telecommunications
- Department of Control Engineering and Information Technology
- Department of Measurement and Information Systems
- Department of Computer Science and Information Theory
- Department of Broadband Infocommunications and Electromagnetic Theory
- Department of Telecommunications and Media Informatics
- Department of Electric Power Engineering

Faculty of Mechanical Engineering



- Department of Materials Science and Engineering
- Department of Fluid Mechanics
- Department of Energy Engineering
- Department of Building Service Engineering and Process Engineering
- Department of Mechatronics, Optics and Information Engineering
- Department of Machine and Industrial Product Design
- Department of Applied Mechanics
- Department of Manufacturing Science and Engineering
- Department of Hydrodynamic Systems
- Department of Polymer Engineering

Faculty of Natural Sciences



- Institute of Physics
- Department of Atomic Physics
- Department of Physics
- Department of Theoretical Physics
- Institute of Mathematics
- Department of Algebra
- Department of Mathematical Analysis
- Department of Differential Equations
- Department of Geometry
- Department of Stochastics
- Institute of Nuclear Techniques
- Department of Nuclear Techniques
- Department of Nuclear Energy
- Graduate Schools
- Physics
- Mathematics

Faculty of Transportation Engineering



- Department of Building Machines, Materials Handling Machines and Manufacturing Logistic
- Department of Automobile Engineering
- Department of Vehicle Parts and Drives
- Department of Vehicles Manufacturing and Repairing
- Department of Chassis and Lightweight Structures
- Department of Control and Transport Automation
- Department of Transport Economics
- Department of Transport Technology
- Department of Aircraft and Ships
- Department of Railway Vehicles

Resources for Education

BME National Technical Information Centre and Library (BME OMIKK)

The Budapest University of Technology and Economics (BME) has benefited from the services of a Central Library since 1848. On 1st July 2001, it has been integrated with the National Technical Information Centre and Library (OMIKK). BME National Technical Information Centre and Library (BME OMIKK) provides, therefore, public library services both at the national and university levels. It supports both the scientific research development, educational activities and the profit-oriented activities of the enterprises.

Services in the reading rooms:

The reading rooms of the former university library have been extended to enable the new integrated library to receive all users of the combined university and non-university communities. A total of 100.000 documents are currently available in seven reading rooms equipped for open access. 550 readers can work simultaneously in the reading rooms and 40 computer workstations are at their service. The opening hours of the reading rooms have been extended to receive readers from 9 a.m. to 8 p.m. on work days. The reading rooms are available with reader's tickets only. The lending of books is subject to fees.

On-line access to electronic information resources:

The library provides on-line access to professional literature offered by seven international service providers, covering more than 7.000 periodical titles completed by the access to the tables of contents of more than 19.000 periodicals.

- CD-ROM readers allow accessing to more than 83 major international and national databases, such as CHEMICAL ABSTRACTS, ICONDA, INSPEC and Britannica Hungarica or the Hungarian National Bibliography.
- The library acting as the National Centre of the European Information Network Service (EINS), provides access to the most important scientific and technical on-line databases, such as those provided by CAS and FIZ Karlsruhe.

Loan services:

- All books are available for loan, with the exception of historical documents. Periodicals are accessible in the reading rooms only.
- Documents not available in the integrated library's holding can be obtained via interlibrary loan from Hungarian or international sources.

Reference services:

- Reference services are provided by the means of the ALEPH integrated library management system.

Other services of BME OMIKK:

- The library has developed a home-page providing access to all types of services and documents at: www.omikk.bme.hu.
- Publications are prepared in the fields of competence of the National Technical Information Centre, including the EU Info Newsletter, TMT.
- The library is in charge of providing information on matters related to the European Union, on relevant calls for proposals.
- The library is the host organization of the national registry of publicly financed R&D projects, the Hungarian Current Research Information System (HunCRIS).
- The library is the host organization of the Hungarian liaison office of the International Nuclear Information System (INIS), and of the information and documentation service of the International Atomic Energy Agency (IAEA) that processes most of the world's scientific and technical literature on a wide range of subjects ranging from nuclear engineering, safeguards and non-proliferation, to applications in agriculture and health.
- The library is the publisher of TMT (Scientific and Technical Information - a Hungarian journal of library and information science).
- The library is the publisher of Periodica Polytechnica, the scientific journal of BME in English. The current series covers the fields of Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, Social and Management Sciences, Transportation Engineering, and Architecture.

A special feature of the library is an on-line access to professional literature via IBM compatible PC's to seven international database centres and 600 databases. The national databases may also be accessed for information. A CD-ROM reader offers access to the ERIC, COMPENDEX PLUS, ICONDA and GROLIER systems. It is possible to search for material available in the stocks of European libraries and have requests filled in in a relatively short time. A full list of current professional journals is available in the reading room.



Computer Network

The University has an extensive computer network that is organised, co-ordinated and developed through the Department of Telecommunications and Informatics (TIO).

TIO operates and develops the campus backbone network also providing global Internet connectivity and direct access to research and education networks worldwide. Students, professors and researchers can access the network from the departmental networks, or from WLAN hot-spots around the campus. The student residences are also connected to the university network with high speed links.

Besides the university-wide data network, computing services include e-mail, UNIX shell accounts, PC rooms, access to various research databases and scientific journals. A professional-grade video conference station is also available for professors and researchers, as well as supercomputers (operated by NIIF/Hungarnet, the Hungarian research network organisation).

Nuclear Training Reactor

The nuclear reactor used for training and research at the university was designed and manufactured in Hungary. It operates at 100 kW maximum thermal power and it first became operational in June 1971. The current academic staff, about 18 people, work in well-equipped laboratories, studying topics in reactor physics, radiochemistry, health physics and computing, measuring and simulation techniques. The reactor falls under the direction of the Institute of Nuclear Techniques (Faculty of Natural Sciences).

Doctoral Schools of the University

- Civil Engineering
- Earth Sciences
- Mechanical Engineering
- Architectural Engineering
- Architecture
- Chemistry and Chemical Engineering
- Computer Science and Engineering
- Electrical Engineering
- Transportation Engineering
- Vehicles and Mobile Machines
- Physics
- Mathematics and Computation Sciences
- Business and Management Sciences
- Psychology (Cognitive Science)
- History and Philosophy of Science

Research at the University

Research at the Budapest University of Technology and Economics, another long-standing tradition, is highly encouraged and is present on all levels from the B.Sc. through to the doctoral level. The research is both individual and co-operative, scientific and industrial, national and international.

During the 1980's the Budapest University of Technology and Economics was among the first in the "Eastern block" to recognise the importance of participating in research activities with institutions of higher education in Western Europe. Consequently, the Budapest University of Technology and Economics has some well-established research relationships with Western European universities. Proposals are also being initiated for national and international co-operation with other types of institutions and other researchers.

As the results of the high level researches at the University, our professors are selected as members of the editorial boards of international journals with high reputation and some of them having the editor-in-chief position. Furthermore the University supports research as the publisher of the different Volumes of the Periodica Polytechnica. It publishes seven separate international scientific journals and a Technical Report series covering the following sciences: architecture, chemical engineering, civil engineering, electrical engineering and informatics, mechanical engineering, social and management sciences as well as transportation engineering. They were established more than three decades ago and due to the technical level of the papers these journals have been internationally recognized (indexed and references are in Scopus).

Recognising that doctoral work demands solutions to technological problems as well as the clarification of research queries, the university fosters an extensive series of long established relationships with various branches of industry.

Researchers at the university also are engaged in basic research projects supported by the National Scientific Research Fund. This research activity has resulted in several patents, and some of the softwares developed at the university have gained international recognition. Some research projects supported by EU and Hungarian R&D (Research and Development) programmes:

- Traffic Control of Vehicle by Board and Telecommunication
- Applied Systems of Speech Information
- INFOTERM: New Measurement Tools for Thermal Qualification of IT Appliances
- Development of Basalt Fibre Reinforced Polymer Composites
- Environment Friendly Utilisation of Lean Gases
- Intelligent Soft Materials
- Improvement of the Conditions for Optimal Technological Utilization of Raw Materials in Cereal Processing
- European Nuclear Engineering Network
- Enhanced Access to System Integration Technologies
- Supporting Rehabilitation of Disabled Using Industrial Robots for Upper Limb Therapy
- New Surface Modified Flame Retarded Polymeric Systems to Improve Safety Transportation and Other
- Network of Industrial Ventilation
- A Novel Bioprocess for Hydrogen Production from Biomass to Fuel Cells
- Network of Stratospheric Platforms for Traffic Monitoring, Environmental Surveillance and Broadband Services
- Intelligent Polymers and Composites



Inter-University Research

Scientific co-operation between different departments of different universities has been getting more and more comprehensive in the past few years. This tendency is especially significant in the fields where inter-university post-graduate training courses were launched by our university in the past few years (e.g. Industrial Design Engineering, Environmental Engineering, Biomedical Engineering etc.). The nature of most research projects in these fields allows and even requires direct connection of students to research and, in most cases, to the individual doctoral research.

Student Research

The Budapest University of Technology and Economics encourages its students to participate in scientific and research activities that will prepare them to do independent work as engineers after graduation. Project laboratory courses that are part of a Faculty's curriculum require students to do individual design work, usually from the second year or as early as the first year, if a student has performed exceptionally well.

Inter-Departmental Research

Students can pursue courses in addition to faculty prescribed curricula and engage in guided research activities in any department provided their research proposal is accepted by the respective department.

Student Scientific Groups

Student Scientific Groups provide a special forum for students to pursue scientific activity and achieve national and international recognition as early as possible in their careers. Under the direction of a professor, a finished project is presented at an annual conference competition. Substantial prizes usually accompany the recognition students earn for their scientific activities. Students of the Budapest University of Technology and Economics have a notable record in these contests.

International Relations

The Budapest University of Technology and Economics (BME) and its staff are keenly interested in maintaining and strengthening existing international relationships as well as forging new ones. BME has entered into agreements of co-operation with over 190 universities, mainly in Europe and in the USA, but all other regions of the world are involved, too. Some of these co-operative ventures are research-oriented while others involve the exchange of faculty staff and students. Currently more than 800 international students, from 50 different countries of the world, study at the Budapest University of Technology and Economics.

BME puts great emphasis on student exchanges and operates direct exchange networks, therefore welcomes students every year from the Technical Universities (or Engineering Faculties) of Austria (Vienna, Graz), Finland (Helsinki, Tampere, Jyväskylä), France (INSA de Rennes, Paris VII), Germany (Karlsruhe, Munich, Dresden), Japan (Waseda University, Tokyo, Osaka), The Netherlands (Delft, Leeuwarden), Denmark (Technical University of Denmark), Singapore (National University of Singapore), the United States (University of New Hampshire), etc.

Besides engineering courses, BME offers a variety of courses in Hungarian and Central European Studies as a nice addition to the technical subjects. This program was specially created for our exchange students. For strengthening and building up the multilateral relationships, the Central European Exchange Program for University Studies (CEEPU) has played an important role in the University since 1995. Being the first among the Central and Eastern European countries, Hungary joined the ERASMUS program in 1997. In the frame of this program BME signed institutional contracts with 90 European universities, started this kind of co-operation in 1998 and has intensified student mobility and teacher exchange ever since. For Further details see at: Additional Academic Opportunities. (see page 34)

BME is also a member of many international organizations:

- EUA (European University Association)
- CESAER (Conference of European Schools of Advanced Eng. Education and Research)
- SEFI (European Society for Engineering Education)
- Conference of Rectors and Presidents of European Universities of Technology
- 4TU League: Regional cooperation of BME, CTU in Prague, SUT in Bratislava, TU Wien
- AUF (Agence Universitaire de la Francophonie)
- ATHENS Network (Advanced Technology Higher Education Networks/Socrates)
- ENEN (European Nuclear Education Network)
- EDEN (European Distance Learning and E-Learning Network)
- IAUP (International Association of University Presidents)
- Central and Eastern European Metropolitan University of Technology Cooperation

and mobility programmes:

- ERASMUS
- ERASMUS MUNDUS and External Cooperation Window
- Leonardo da Vinci Mobility Project
- CEEPU (Central European Exchange Program for University Studies)
- ATHENS Network (Advanced Technology Higher Education Networks/Socrates)
- T.I.M.E. Association (Top Industrial Managers for Europe)

International Exchange Programs

The BME has bilateral exchange programs with the University of New Hampshire, the University of Denver, the University of Arizona, etc. in the United States. Within the framework of these programs US students take their chosen professional credit courses, and courses in Hungarian and Central European Studies. Students attending the Budapest University of Technology and Economics on a semester exchange can choose the courses described in this bulletin in consultation with their home institutions and with the assistance of an adviser at the Budapest University of Technology and Economics. Please note, that requests for any courses can only be accommodated, if the minimum number of students is met.

Office of International Relations

The Office of International Relations is responsible for the administrative functions connected with the programs in foreign languages at the Budapest University of Technology and Economics. The office handles student and faculty staff exchanges, coordinates the international students' affairs from registration - medical check-up, health insurance, finding accommodation, help with obtaining residence permit etc. - until the end of the degree program. The office organizes orientation programs for freshmen in the registration week and a farewell party for the newly graduated students and their families when the diploma is awarded. The two-semester Pre-Engineering Course, and the General Course in Architecture prepare students for the various engineering B.Sc. programs taught in English. The PR activity of OIE has resulted in a growing number of international students to our university.





Organisation and Administration of the University

The Budapest University of Technology and Economics functions under the supervision of the Ministry of Education. The executive functions of the university are carried out by the University Senate and the Rector.

University Senate

The University Senate determines the rules by which the university is to be governed, establishes graduation requirements, chooses the fields and direction of scientific research and also makes decisions on financial matters, the development and services of the university and on the themes of the student scientific groups. The senate also decides on the nature of co-operation with other institutions, on the principles of information services to be offered through the library and on "Doctores Honoris Causa". It shapes the continuing education program, the sports and cultural activities and all other matters that affect university life.

The senate is chaired by the Rector. Its members include the faculty deans, two elected members (who can be either teachers or researchers) from each faculty, two elected employees and elected student representatives whose number must be at least one-third of the total membership. Permanently invited members of the senate, if not members, are as follows: Vice-Rectors, Secretary, General Director of Finance, various representative organisations of the university, and three to five well-known leaders in science and business. Voting members include the chair and the members of the university senate.

The present leaders of the University are:

Rector: Prof. Dr. Gábor Péceli
Vice Rector: Prof. Dr. György Andor

Faculty Leadership and Senate

The Faculties are led by the Dean and the Faculty Senate. The Faculty Senate decides on the duties and activities of the faculties in accordance with university and faculty rules, including curricula and subject plans, developmental plans and financial matters, principles of instruction, scientific activity, international relations, continuing education and all other faculty concerns which are within the sphere of the Faculty Senate. Membership of the Faculty Senate includes leaders of the independent units of the faculties, support personnel who are designated by faculty regulations, and elected representatives of the teachers, researchers and staff. The number of the elected members must be in the majority but not more than twice the number of officers. Half of the elected members must be students.

University regulations determine the sphere of activities and the scope of authority of the Faculty Senate. Additional activities are defined by faculty regulation and approved by the University Senate.

Deans of the Faculties:

Prof. Dr. Gábor Becker	Faculty of Architecture
Prof. Dr. György Pokol	Faculty of Chemical Technology and Biotechnology
Prof. Dr. Antal Lovas	Faculty of Civil Engineering
Prof. Dr. János Kövesi	Faculty of Economic and Social Sciences
Prof. Dr. László Vajta	Faculty of Electrical Engineering and Informatics
Prof. Dr. Gábor Stépan	Faculty of Mechanical Engineering
Prof. Dr. Péter Moson	Faculty of Natural Sciences
Prof. Dr. Béla Kulcsár	Faculty of Transportation

Budapest

Budapest is the capital of the Hungarian state existing for more than 1000 years. Budapest, a large cosmopolitan city of about 1,8 million inhabitants, has an abundance of culture, history and entertainment to offer students and visitors alike. It boasts of a world-class opera house, ballet, the modern Palace of Arts with world famous acoustics of its concert hall, jazz, musical theatre, movies in English and other languages, numerous museums, folk dances of many nationalities, night-clubs, disco music, tennis courts, an annual runners' marathon and other sport events, restaurants with Hungarian and international cuisine, and much more. An efficient, inexpensive public transportation system provides easy access to all of these places and events day and night.

Often referred to as the "Queen of the Danube", Budapest is divided by the Danube River but connected by an impressive series of bridges, each with a special history. The rolling hills of Buda occupy one side of the Danube, and the bustling city of Pest, the other. The silhouette of the Neo-Gothic style Parliament Building on the Pest bank of the Danube is often used to characterise Budapest, but many styles of buildings live side by side in this eclectic city.

The Gellért Hill on the Buda side provides the best panoramic view of the city and the Castle Hill, which has some of Budapest's well-known sites: a still intact medieval wall, the Halászbástya (Fisherman's Bastion), Mátyás templom (King Matthias Church) and the Royal Palace, which now houses both permanent and visiting collections of Hungarian fine arts. The area belongs to the World Heritage since 1987.

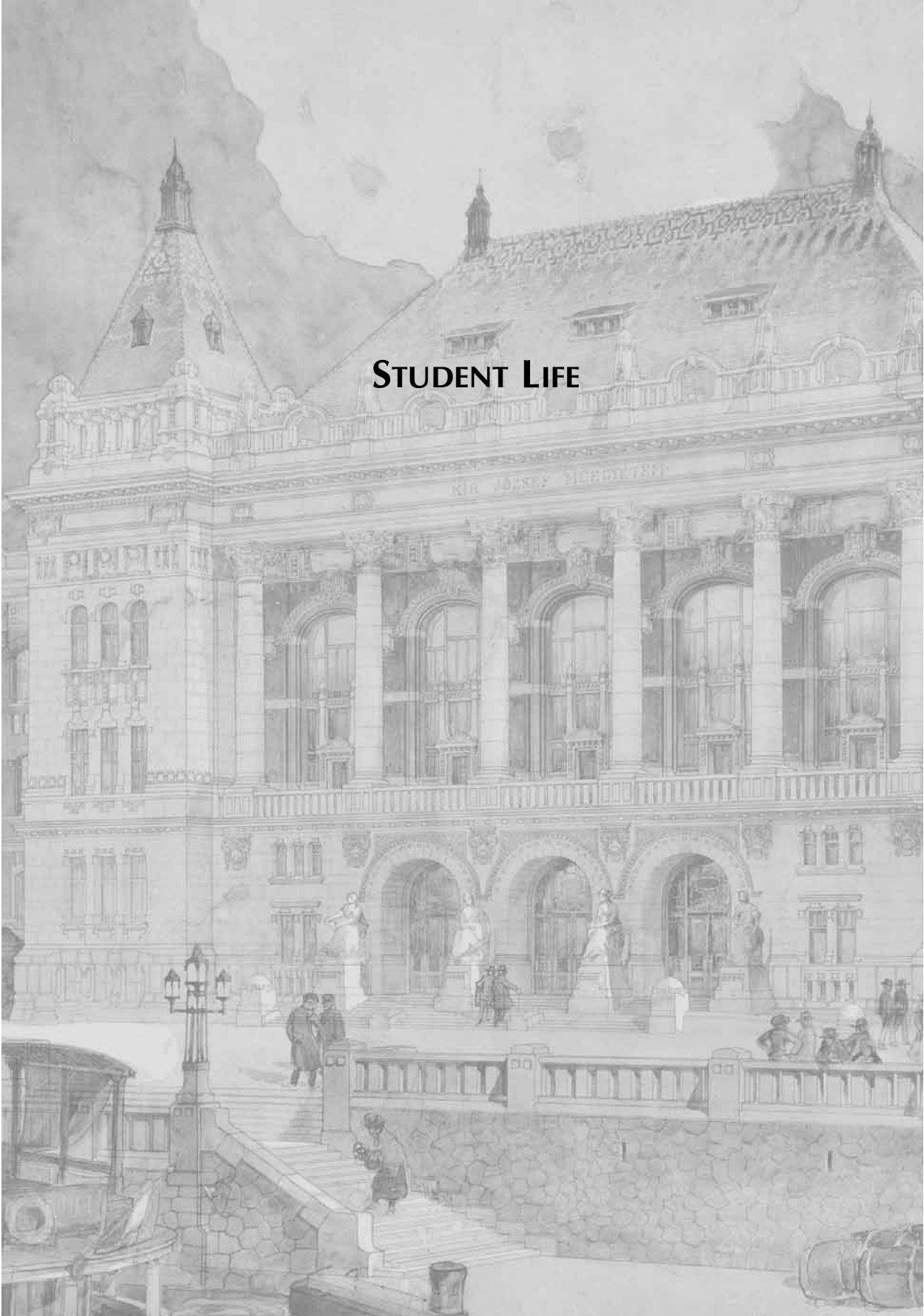
Between Buda and Pest, in the middle of the Danube River, there is the Margitsziget (Margaret Island), named after St. Margaret, whose royal parents in the 13th century dedicated her life to God in gratitude for the nation's safety. This island offers long walks along tree-lined paths to a rose garden, a chapel and many places for reflection. It has a sports club and is an excellent place for jogging and biking. The summer season offers several swimming pools, an outdoor theatre, a movie and clubs on the island.

The atmosphere of another era prevails in Óbuda (Old Buda), one of the three cities that merged to become Budapest. In the 1st century, Fő Tér (Main Square) was a Roman military camp. The medieval buildings were destroyed during the Turkish invasions in the 16th and 17th centuries, but the town was rebuilt during the 18th and 19th centuries and baroque and neoclassical buildings can still be seen in the square.

No description of Budapest would be complete without mentioning the multitude of hot springs that are the source of its famous spas. Some of them still maintain features from the time of the Roman and the Turkish occupations.



STUDENT LIFE



Services

Orientation Program

The orientation program welcomes newly arrived students, who are often from other cultures and introduces them to academic life at the Budapest University of Technology and Economics and to the details of studying in Hungary. The program lasts 3 days and besides several lectures and informal discussions includes a tour within the university and an introduction to university officials. A guided tour in the city is also offered. Members of the Students' International Union (SIU) play a particularly valuable role by sharing their experiences and offering support to the newly arrived.

IMPORTANT! Before the week of ORIENTATION there are preparatory CLASSES for the Placement Test (see Academic Calendar) in MATHEMATICS and PHYSICS.

Health Service

All foreign students must have a sufficient health insurance while studying at BME. New students should purchase insurance when they enroll and renew it at registration for each semester except for EU citizens, who are covered by their EU health insurance program. The insurance fee is approx. EUR 100 for a semester. The service includes medical consultation, emergency care, short hospitalization and certain medicines at a subsidized cost. Some services, however, do involve charges. It is advisable to inquire about the possible cost of a service in advance.

At the beginning of the academic year, new students are obliged to have a medical check-up as a condition of the insurance. The staff of the Dean's Office provide information on check-up arrangements during the registration period. (*See also the Academic Calendar in this Bulletin.*)

Student Card

On registration, students receive a student card, which entitles them to use the university library at discount and gives them access to other university facilities. This card entitles students to a 50% discount on the national railways and on public transportation within the city, and also to free admission to some museums and several libraries.

Student Government

Student representation, considered a basic right at the Budapest University of Technology and Economics, has two functions. First, the Hungarian student representatives, who also represent international students, serve the interests of all students on the various official bodies of the university. Second, the University Student Government office (located in building K, 1st floor #51) offers help to students in finding housing, acquiring lecture notes, and dealing with other needs of their academic and personal life. Foreign students have established the Students International Union, which has also elected members at each faculty and an elected representative the whole foreign students' community.

There are two to seven representatives at each faculty, who serve in the academic councils, each faculty has from two to seven representatives, who serve in the faculty academic councils. Additionally, the students at each faculty send two representatives to the university senate, the most important governing body of the university. About 30% of the university senate's membership are students, and the students' viewpoint is significantly represented in decisions that affect the daily life and future of the university.

Housing and Meals

Private Accommodation

Due to the limited number of places in the student residences, foreign students generally rent rooms or apartments in the city. A one-room furnished apartment with a kitchen and a bathroom generally costs about EUR 300 - 400 a month. The price does not include heating, electricity and telephone costs.

BME offers organised help with Hungarian students *during the registration period* for students to find accommodation. Later they should find accommodation on their own. Tourist offices have extensive lists of accommodations for rent.

Meals

Meals are available on an "a la carte" basis in the two main cafeterias of the university. A well-balanced, nutritious and plentiful meal costs approximately EUR 4. These cafeterias are open for all meals of the day and serve a wide variety of dishes. In addition, most buildings have their own buffets and they serve grilled food, sandwiches, sweets and beverages.



International Resources

Student Center

The Student Center is a Hungarian organization for Hungarian students in cooperation with the International Students. It was organised in November 1989 and it serves an important function for all students at the Budapest University of Technology and Economics. The center collects and provides up-to-date information on part-time study, semester and language programs in Hungary as well as in other countries. The center also offers information on educational opportunities and exchanges available in different countries and provides assistance in applying for these international programs.

Information reaches the student center through the contacts of the university and through projects with public and private foundations.

The Center is the headquarters for a few international student organisations:

BEST	(Board of European Students of Technology) www.best.bme.hu
ESN	(Erasmus Student Network) www.esn.bme.hu
IAESTE	(Intern. Association for the Exchange of Students for Technical Experience) bme.iaeste.hu
AIESEC	bme.aiesec.hu
ESTIEM	www.mszk.bme.hu
EESTEC	(Electrical Engineering Students' European Association) www.eestec.hu

Budapest University of Technology and Economics Student Center

H-1111 Budapest, Műgyetem rakpart 3.
Building K, 1st floor, rooms 51 and 52
Hungary
Phone: (+36-1) 463-2521, 3838
Fax: (+36-1) 463-1065



ERASMUS Student Network (ESN) BME

ESN BME is a group of Hungarian students coming from all faculties of the Budapest University of Technology and Economics aiming to help the international exchange students visiting our institution and representing the university on different international summits, international student meetings.

Among other activities, ESN BME organized or helped organizing several events during the term mostly for the international students: apartment/flat search (at the beginning of September), organizing weekend trips to famous Hungarian places, wine regions (Pécs, Eger etc.), organizing Ice-Skating (December), a Traditional Hungarian "Gulyás" Evening and regular "Pub Evenings", introducing the Mentor-System to help exchange students, and administering an e-mail list for the exchange students. ESN BME also works to provide the flow of information between the administration and the students of the University.

Every semester they organize the BME Study Abroad Fair to help students in finding and using the international opportunities.

Students International Union (SIU)

The Students International Union was formed in 1990 to create an international family, which takes an active part in the larger community of the university, provides an environment where students are encouraged to pursue their academic work and also participate in social and recreational activities. The Union encourages students to be physically and emotionally healthy by providing information, activities and support for their studies. The union has also sought the right to represent its members and, on request, other students before the university administration in matters that affect them as students of the university. The union also organises recreational activities such as chess, table tennis, football tournaments and national celebrations. The SIU office is located in building Z, ground floor.

Activities

Cultural Secretariat

The cultural policy of the university, fully supported by the Student Center, holds that future engineers should not be only highly-skilled but acquainted with the humanities as well. The Cultural Secretariat promotes cultural activities for both the students and the staff. The secretariat runs a ticket bureau in building K, 1st floor, room 52, where all music and theatre performances and other cultural activities in Budapest are listed and tickets can be purchased. The Secretariat also gives information about the availability of different competitions for grants for cultural activities and how to apply for them as well as how to manage the funding necessary for such events.

Szkéné Theatre

One of the major projects of the Cultural Secretariat is a theatre called Szkéné (*pronounced: Skay-nay*), which is located on the campus. This has grown into a significant venue for alternative performing arts, including contemporary music and performance art. Though the theatre has but a small budget, it presents more than 150 shows a year and represents a live and popular forum for many artists. It invites 3 to 4 international groups a season.

The International Dance and Movement Club (IDMC) grew out of the Szkéné Theatre and now it has an international reputation among professional and amateur movement theatres and companies. Its primary goal is to promote the best Hungarian dance movement theatres and develop new sponsorship and management of groups which require it. This group has also instituted a biennial festival of international movement groups to which 12 to 14 companies are invited. The festivals up to now have drawn over 60,000 spectators. Prominent members of the international theatre world have helped as advisers for the festivals. The group also offers summer workshops and a forum where national movement groups can meet.



Symphonic Orchestra

Among the universities which do not have a faculty of music, the Budapest University of Technology and Economics was among the first ones in the world to form a symphonic orchestra in 1896. The orchestra has given performances each year except in 1945 (World War II). The members of the orchestra are students of this and other universities as well as graduate engineers and members of the faculties.

The orchestra gives two or three performances a year. The program depends on the current composition of the orchestra. For a few years now it has been fortunate enough to have all instruments represented, so Beethoven, Mozart, Liszt, Brahms, etc. symphonies and modern music has been on the program. The orchestra has also performed Mozart's Requiem in co-operation with the university choir.

The university orchestra co-operates with the Liszt Ferenc Academy of Music in their graduation concerts and gives guest concerts at other educational institutions at home and abroad. The orchestra has performed at technical universities in Wroclav, Vienna and Enschede, Holland as well as hosted the Harvard University Orchestra and the Albrecht's University Orchestra (Kiel).

The conductors and soloists are usually young artists who are beginning their careers. In fact, many recently well-known artists have premiered with the university's orchestra.



Athletics and Football Club

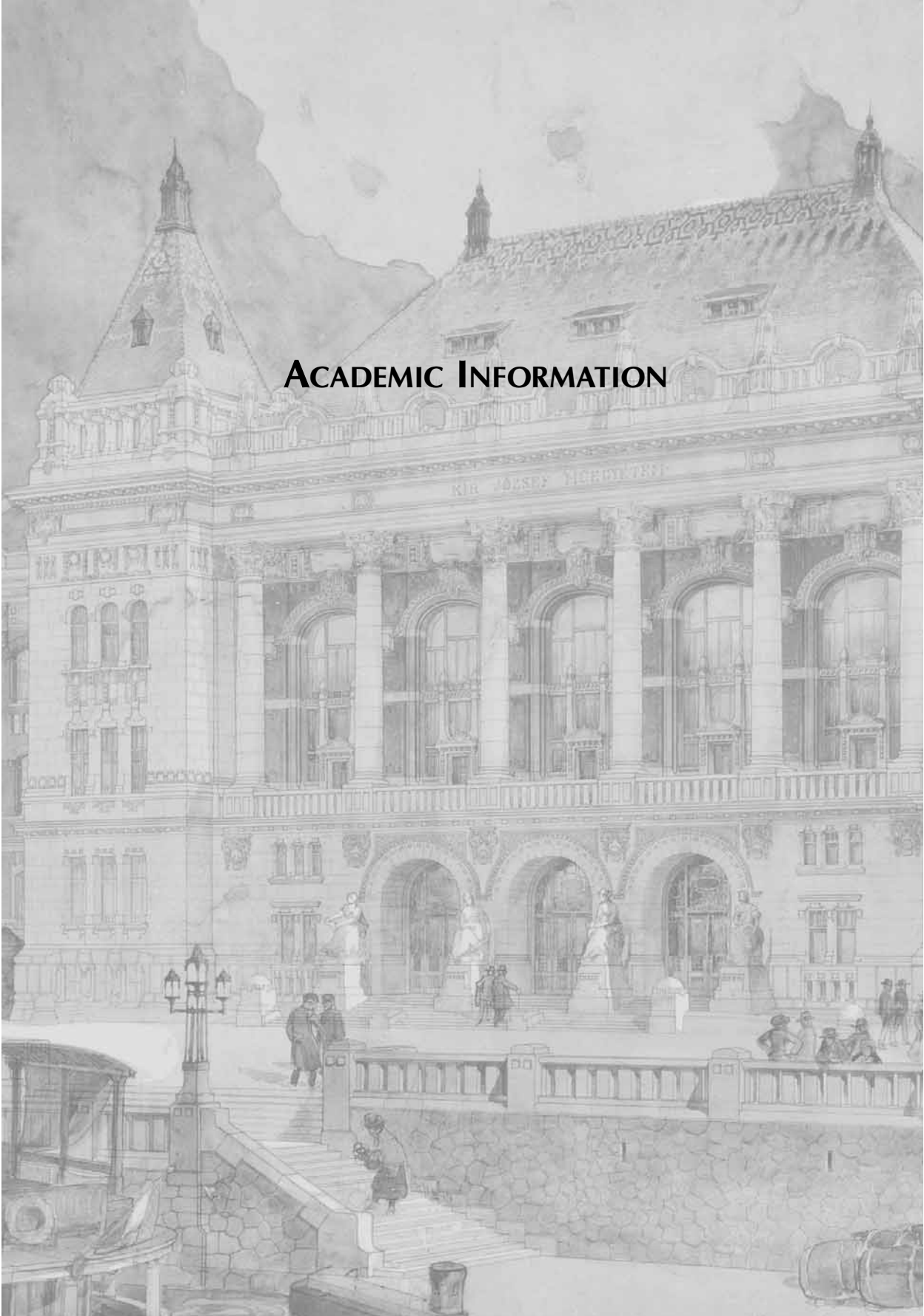
The Budapest University of Technology and Economics has an Athletics and Football Club (MAFC), which, during its nearly 100 years of existence, has held that regular physical activity is important to the health of students, staff and members of the faculty alike. The Club provides sports facilities, training and instruction necessary for competitive and recreational sports for which there is demand, along with tours and camps. The club has more than 4000 members and offers 22 sports activities. It has trained competitors, who have taken titles in the Olympics as well as in national, international, European and university competitions and who have set numerous world records.

Competitive sports available to both men and women include athletics, basketball, pentathlon, triathlon, weight lifting, orientation running, tennis, chess, sailing, motorboats and horse riding. Competitive sports available to men include handball, soccer, volleyball and water polo.

A recreational sports section offers instruction and programming in badminton, hiking, skiing, swimming, judo, conditioning, gymnastics, tennis, kayaking, canoeing and rowing.

The men's basketball team has been in existence since 1937 and has been representing the university well in competitions over the decades. There are women's and youths' teams as well.

ACADEMIC INFORMATION



Full-Time Degree Programs

The Budapest University of Technology and Economics offers degree programs in both Hungarian and English, and most students from abroad choose to study in English. This Bulletin describes all the programs and courses conducted in English throughout the university's eight faculties.

The programs taught in English lead to the B.Sc. degree in three and a half or four years depending on faculty curricula (see detailed descriptions in the Academic Information Chapter) - and to the M.Sc. degree in one and a half or two additional years. The postgraduate Ph.D. program is individualised and requires min. three years of combined course work and research.

The degree programs taught in English are fully equivalent with the Hungarian programs - curricula, content, teaching materials and responsible professors. Hungarian students have the opportunity to join the courses in English. All degrees of the university are accredited and recognised by the Hungarian governmental institutions, and by the European Union.

B.Sc. Degree

Taking into consideration that students arrive from many countries and a variety of educational backgrounds, all freshmen take a Placement Test before their academic program. Based on the results of this test, students will either be accepted to the first year of a B.Sc. program or advised to join one of the two-semester preparatory programs: Pre-Engineering Course or General Course in Architecture (see details in this Bulletin).

The six engineering faculties offer bachelor degree programs in seven and eight semesters depending on the faculty curricula. The programs provide the scientific fundamentals, such as mathematics, computing, needed for a chosen field of engineering, give the necessary insight into bases of business and management for future engineers. They also provide a thorough knowledge of practical engineering and offer opportunities for specialisation. Experimental work in well-equipped laboratories is emphasised.

The B.Sc. degree programs usually consist of opportunities for specialisation that differ from faculty to faculty. Faculties divide their programs into branches with compulsory electives and offer optional elective subjects as well. For details, see the individual faculty descriptions and their curriculum tables in this Bulletin.

The hours of instruction range from 26 to 32 hours per week. Some variation occurs from faculty to faculty and also during the last semester when students work on their final projects. Students typically take 5 to 6 exams each semester. In addition, students are required and encouraged to participate in active research and design in the project laboratories and to develop their abilities to do independent research.

On successful completion of the curriculum, final exams and the final project, a student will be granted a bachelor degree (B.Sc.), which certifies its holder's ability to be engaged in engineering work without limitations.

M.Sc. Degree

Students already holding a B.Sc. degree or its equivalent, can pursue an M.Sc. degree in the same field of study at the Budapest University of Technology and Economics. Acceptance and placement is based on the student's academic credentials and current level of knowledge (of English language, as well), which is assessed on the student's arrival. Some M.Sc. programs offer refresher courses or preparatory semesters so students can upgrade their knowledge in relevant engineering subjects. Applicants must submit transcripts and, if they have been employed since graduation, details of their professional experience.

Students generally follow an approved curriculum, but elective subjects allow for personal interests. Courses are run for small groups (*the minimum number depends on faculty decision*) and the students are expected to work individually under the direction of a personal tutor. Students have free access to laboratories, research facilities and computers. An M.Sc. program is generally 4 semesters, 2 years in duration and consists of 26 hours of instruction per week and 5 examinations per semester. After the successful completion of a thesis and final exams the M.Sc. degree is granted which enables its holder to do research and solve high level engineering tasks without limitations.



Ph.D. Programs

The Budapest University of Technology and Economics is a strongly research-oriented university that has conferred doctoral degrees since the nineteenth century in various fields of engineering.

The academic staff of our University are doing research in almost all engineering disciplines, related applied sciences, and in a few areas of the social sciences as well. Ph.D. candidates are welcome to take part in this research work in order to prepare for the Ph.D. procedure.

A Ph.D. at the Budapest University of Technology and Economics is a degree that can be earned by sufficiently proving the candidate's ability for self-standing scientific work that must be demonstrated by writing a thesis summarising the candidate's

research results. Furthermore, it is necessary to pass a set of qualifying examinations in some basic and applied sciences related to the field of the submitted thesis. Candidates are to publish their results prior to the submission of their theses.

Applicants for the Ph.D. program must hold an M.Sc., M.Phil. or equivalent degree issued by an academic institution and must possess an overall understanding of, and a high competence in, their field of knowledge, and be familiar with cognitive disciplines. They must also be capable of using research techniques. Admission requirements include excellent grades (mainly or exclusively A's), an excellent M.Sc. (or equivalent) final project, and/or the achievement of good initial results in research – depending on the length of period between the obtaining of the Master's degree and the time of the application. Applicants working on their Master's project can be admitted conditionally. For applicants who have already spent a few years in scientific or engineering practice since their first postgraduate degree, their achievements during this time will be considered in addition to their graduation results. Besides their professional achievements, applicants should also demonstrate a sense of responsibility for the advancement of scientific knowledge.

Ph.D. candidates carry out their studies and research on an individual basis under the guidance of a professor or a senior member of the academic staff at the faculty concerned. This research work must contribute to scientific knowledge in general and it must be recognized as such by the international scientific community. In order to prove this, doctoral candidates must present their research results at national and international conferences and symposia and they are expected to publish the significant and major achievements of their works in internationally referred professional periodicals. (Conference proceedings papers are usually accepted only as partial fulfillment of the requirement to publish one's results properly.)

Besides the research work, the Ph.D. supervisor usually recommends the participation in various courses related to the research topic. In such a case, the appropriate examinations must be successfully completed, the results of which will be documented in the transcripts of the candidate. Similarly, the advancement in individual study and research will be documented on a semester basis by the supervisor.

Work towards a Ph.D. degree requires at least 3 years (6 semesters) of study. This time might be considerably longer, depending on the topic and the candidate's personal diligence. It is possible to set individual Ph.D. study plans for candidates who spend a part of their preparation period at another institution, e.g. their own original research oriented affiliation or another university.

Upon completing all necessary work for the Ph.D. thesis, this dissertation must be prepared according to the formal requirements in the Doctoral Code of the Budapest University of Technology and Economics.

According to the procedural code of our university, every Ph.D. candidate must apply to the Doctoral Board of the specific faculty as an individual, although the recommendation of the supervising professor and department, including the attachment of the protocol of the departmental public presentation of the thesis (including the comments and recommendations of several departmental and/or internal referees, and other professional experts of the field) is a requirement.

The doctoral board will appoint an independent examination board for each candidate which consists of the President, two examiners and several jury members. Final decision lies on this board, which will hear the public presentation and defense of the thesis work and the subject's examination.

The conferred degree is declared and testified by a corresponding Ph.D. diploma at the next solemn ceremony of the university by the Dean of the faculty concerned.

Additional Academic Opportunities

In addition to full-time degree programs in all eight faculties, the Budapest University of Technology and Economics offers several other courses:

- One-semester programs, special interest courses, credit or non-credit programs can be organised for students who wish to study for just one semester. Special interest courses can be set up for groups of 10-15 students. A Hungarian and Central European Studies program is often organised for international students during a semester-abroad program (see description of courses under Hungarian and Central European Studies program in this bulletin).
- Language courses for regular students in English, Hungarian, French, German and Russian languages at beginner, intermediate and advanced levels. The English course can be credited toward the Cambridge First Certificate and TOEFL (see Language Course descriptions under the Faculty of Economic and Social Sciences).
- Two-semester Pre-Engineering Course and General Course in Architecture (see separate descriptions in this bulletin).
- One-semester or two-semester student exchange programs.

The Erasmus Students

Erasmus is Europe's education programme and involves 30 European countries. Its main objective is to build up a Europe of knowledge and thus provide a response to the major challenges of the new millennium: to promote lifelong learning, encourage access to education for everybody, and help people acquire recognised qualifications and skills. In more specific terms, Erasmus seeks to promote language learning, and to encourage mobility and innovation. It is oriented to promote a European dimension of education and to improve its quality by encouraging co-operation between the participating countries. By promoting European student mobility, Erasmus develops an increased awareness of European citizenship among the university population.



Eligibility Criteria (to be considered an Erasmus student)

Students undertaking a program of study at a partner university in the framework of bilateral agreements under Erasmus are regarded as Erasmus students provided the following conditions are fulfilled (regardless of whether or not they actually receive an Erasmus student mobility grant):

- the students have completed at least their first year of university studies;
- the students are registered in a formal program of study at higher education level, leading to a degree or diploma up to and including doctoral level, recognised according to the procedures of the participating country concerned;
- the exchanges of the students proposed for mobility are based on inter-university agreements;
- the period of study undertaken at the partner institution is between three months and a year;
- the study period abroad is an integral part of the program of study at the home university;
- full academic recognition is given for the study period abroad, i.e. the home university is committed to ensuring that the period of study undertaken abroad (including examinations or other forms of assessment) is recognised as replacing a comparable period of study (likewise including examination or other forms of assessment) at the home university even though the content may differ; the student must be informed in writing about the content of the courses to be followed abroad. At the end of the period of study abroad, the host university should provide the incoming student and the sending university with a transcript confirming that the agreed program of study has been completed, listing the student's results;

- no university fees (for tuition, registration, examinations, access to laboratory and library facilities etc.) are to be paid at the host institution. The sending institution may continue to charge university fees to its outgoing students;
- the student is registered to have a sufficient knowledge of the language in which the courses are taught,
- a study abroad period under Erasmus may include a work placement, provided that the work placement is followed or preceded by a minimum period of study abroad of three months and that it is recognised as an integral part of the student's program by his/her home university. This implies that the host and home universities play an active role in organising and supervising the placement.

The European Credit Transfer System (ECTS)

The ECTS – European Credit Transfer System – has been developed by the European Commission in order to provide common procedures to guarantee academic recognition of studies abroad. It provides a way of measuring and comparing learning achievements and transferring them from one institution to another.

The ECTS students will receive full credit for all academic work successfully carried out at any of the ECTS partner institutions and they will be able to transfer these credits from one participating institution to another on the basis of prior agreement on the content of study programs abroad between the institutions involved.

In this Bulletin you will find a description of the courses offered, along with some practical information, so that you can prepare your study period at our University. Remember that one semester is worth about 30 ECTS credit points and a year - 60 ECTS credit.

International students wanting to spend an academic period in Budapest in the frame of the ERASMUS program must be members of the partner institutions of the Budapest University of Technology and Economics (BME). Applications must be sent to the International Education Centre of BME by their institution; no individual request can be considered.

Useful addresses for ERASMUS students:

**Budapest University of Technology and Economics
Central Study Office
Erasmus Office**

H-1111 Budapest, Műegyetem rkp. 3-9., bldg. R.
Phone: (+36-1) 463-2237, 463-1622
Fax: (+36-1) 463-1026
e-mail: erasmus@mail.bme.hu
<http://www.bme.hu>



Academic Policy and Procedures

The academic policy and procedures of the University affecting the Engineering Programs in English are the same as for the Hungarian students. Students may turn to the Dean's Office for further help about the policy and procedures of the university.

Admission

Admission Requirements for the Pre-Engineering Course in English

- Secondary High School Certificate with good results (min. 50%), especially in Mathematics, Physics and English. Applications must be accompanied by notarized official English translations of all transcripts. Unofficial copies are not accepted.
- Proof of English language proficiency, see at "Application Procedure" next page.

Admission Requirements for B.Sc. Programs in English

- Secondary High School Certificate with good results (min. 70%), especially in Mathematics, Physics and English. Applications must be accompanied by notarized official English translations of all transcripts. Unofficial copies are not accepted.
- Proof of English language proficiency, see at "Application Procedure" next page.

A Placement Test is given to all B.Sc. freshmen to determine the level of their Mathematics, Physics and English language skills, for Architecture students Freehand Drawing as well. Students who pass the tests will receive confirmation of their acceptance in the first year of the B.Sc programs. Students found to have inadequate skills in Mathematics, English, (and in Physics) will be directed to the one year Pre-Engineering Course or General Course in Architecture before the B.Sc.programs.

Admission Requirements for M.Sc. Programs in English

- B.Sc. degree or its equivalent, (with notarized official English translations of all transcripts. Unofficial copies are not accepted.)
- Average grades of "B" or better (depends on faculty requirements)
- Proof of English language proficiency, see at "Application Procedure" next page.

Acceptance will be decided by the dean of the faculty. A one- or two-semester program of transition or refresher courses (Pre-M.Sc. Course) may be recommended prior to the M.Sc. Program. Courses run for small groups, the minimum number depends on faculty decision.

Admission Requirements for Ph.D. Programs in English

- M.Sc., Dipl. Ing. degree or its equivalent, (with notarized official English translations of all transcripts. Unofficial copies are not accepted.)
- Excellent grades in the transcripts and the final exams including the diploma project (thesis).
- Proof of English language proficiency, see at "Application Procedure" next page.

Acceptance will be decided by the Doctoral Board of the Faculty.

Application Procedure

Application deadlines:

- 1st June 2011 for the first semester (Fall) of 2011/2012 academic year (for Pre-Engineering Course, General Course in Architecture, B.Sc., M.Sc. and Ph.D.)
- 1st October 2011 for M.Sc. spring semester of the 2011/2012 academic year
- 1st December 2011 for the spring semester of the 2011/2012 academic year for the Pre-Engineering Course and General Course in Architecture
- 30th June 2011 for exchange students

IMPORTANT: *Notarized English translations are required for all written documents except passports. All documents should be enclosed in attested notarized copies. Unofficial copies are not accepted.*

Applications are considered complete and will be processed only if they include all the documents listed below. The following items should be submitted for admission to:

B.Sc. Programs and the Pre-Engineering Course/

General Course in Architecture

- Application form completely filled in (be sure that your personal data appear correctly as are in your passport)
- Copy of applicant's passport
- Four recent photographs
- Proof of bank transfer of Application Fee of EUR 100 (non-refundable) (see Tuition Payments and Banking)
- Secondary high school reports relevant to your application, with special reference to Mathematics, Physics and English language.
- Curriculum Vitae (CV / autobiography / résumé)
- General certificate of education (G.C.E.) or equivalent secondary high school diploma
- One of the following documents of English language proficiency (recommended):
 - a) TOEFL Internet Based Test (iBT) score 85 or paper based score 550,
 - b) Cambridge First Certificate "B",
 - c) IELTS score of 5.0

M.Sc. Programs:

- Application form completely filled in (be sure that your personal data appear correctly as are in your passport)
- Copy of applicant's passport
- Four recent photographs
- Proof of bank transfer of Application Fee of EUR 100 (non-refundable) (see Tuition Payments and Banking)
- B.Sc. degree or its equivalent
- Official transcripts of any higher education already completed
- Curriculum Vitae (CV / autobiography / résumé)
- 2 letters of recommendations (depending on the faculty requirements)
- One of the following documents of English language proficiency (required):
 - a) TOEFL Internet Based Test (iBT) score 85 or paper based score 550,
 - b) Cambridge First Certificate "B",
 - c) IELTS score of 5.0

Ph.D. Programs:

- Application form completely filled in (be sure that your personal data appear correctly as are in your passport)
- Copy of applicant's passport
- Four recent photographs
- Proof of bank transfer of Application Fee of EUR 100 (non-refundable) (see Tuition Payments and Banking)
- M.Sc. degree or its equivalent
- Official transcripts of any higher education already completed
- Curriculum Vitae (CV / autobiography / résumé)
- 2 letters of recommendations (depending on the faculty requirements)
- One of the following documents of English language proficiency:
 - a) TOEFL Internet Based Test (iBT) score 85 or paper based score 550,
 - b) Cambridge First Certificate "B",
 - c) IELTS score of 5.0
- Study Plan

NOTE: *Exchange students do not pay application fees.*

Application forms for all the programs listed in this Bulletin are available on the Internet at:

<http://portal.bme.hu/langs/en/Education.aspx>

http://icepe.bme.hu/admission/application_form_2011.pdf

or from the Information Center for Engineering Programs in English (ICEPE).

Application Address

Budapest University of Technology and Economics

Information Center for Engineering Programs in English (ICEPE)

H-1111 Budapest, Műegyetem rkp. 3-9. Building D room 116 - Hungary

Phone: (+36-1) 463-2620 • Fax: (+36-1) 463-3746

E-mail: admission@mail.bme.hu

web: <http://portal.bme.hu/langs/en/Education.aspx>

http://icepe.bme.hu/admission/application_form_2011.pdf

Visa

Non-EU and non-EEA (European Economic Area) citizens, please, contact the nearest Hungarian Consulate to learn if you need visa to Hungary. List of embassies and consulates are at

www.mfa.gov.hu/kum/en/bal/missions/missions_abroad

The entry visa - "RESIDENT VISA FOR STUDY PURPOSES" - is to be obtained before departure from your country. Among others, you must present the Letter of Acceptance from BME together with the proof of payment of the first semester tuition fee, proof of your accommodation in Budapest and a passport valid at least until October 2012. The process takes two weeks or more. Please, note that the visa will be valid for 30 days only, and after your arrival in Budapest you will have another 30 days to pick up your residence permit (after registration at the university).

Tuition Payments and Banking

To apply for the Residence Visa for study purposes to Hungary, in the home country of the student, proof of payment of the tuition fees (together with the proof of acceptance by the university) is required.

Tuition fees should be paid before 1st July 2011 for the first, Fall semester beginning in September and 1st January 2012 for the Spring semester of the Preparatory Course beginning in February 2012.

NOTE: The university will not allow students to enroll, continue in their studies or graduate unless all fees are paid and all financial obligations to the university are discharged.

How to Pay the Application Fee and Tuition Fees

Note: The student's sponsor must declare that funds are available to guarantee the student's living expenses as well as tuition fees while studying at the Budapest University of Technology and Economics.

Only bank transfer is accepted. For bank transfer, the bank details are as follows:

Bank name:	National Bank of Hungary
Bank address:	H-1850 Budapest, Szabadság tér 8/9. Hungary
Swift Code:	MANEHUHB
IBAN Number:	HU78 1003 2000 0142 5279 0000 0000

Beneficiary's name:	Budapest University of Technology and Economics
Beneficiary's address:	H-1111 Budapest Bertalan Lajos utca 2. Hungary

Information for beneficiary: student's name and **registration number**

Late Tuition Payments: Tuition fees which are not actually in the university bank account before the first day of the semester are considered late. **In case of late payment of tuition fees, the university reserves the right to refuse enrolment.**

The following condition applies to the case of late tuition payment:

BME will not assist students, who are late in paying their tuition fees, in acquiring or renewing their residence permits.

Overpayment: Tuition fees are generally not refundable except in cases of overpayment. The amount overpaid will be refunded to the student in the original currency through the National Bank of Hungary. The overpayment may be reserved for the following semester's tuition fees.

Reduction of Tuition Fees for Excellent Performance: The dean of the faculty concerned will consider requests for reduced fees from students who achieved an average of 4.5 (out of 5.00) or better in the previous year. Students must first submit a request to their faculty. A faculty is limited choosing only one student. Reductions will not exceed 30% and the faculty will inform the student about the decision.

Banking: Bank accounts for students may be opened at any banks in Hungary in the currency of their choice. Major credit cards are also widely accepted in Hungary.

Some banks in Budapest where foreign currency accounts can be opened:

ERSTE Bank
(on the campus)
H-1111 Budapest
Goldmann György tér
1-3.
Phone:
(36-1) 463-3722

K & H Bank
H-1051 Budapest
Vígadó tér 1.
Phone:
(36-1) 328-9000,
(36-1) 267-5000

OTP Bank
H-1055 Budapest
Nádor u. 16.
Phone:
(36-1) 353-1444

**Hungarian Foreign
Trade Bank (MKB)**
H-1056 Budapest
Váci u. 38.
Phone:
(36-1) 269-0922

Tuition Fees

	<i>for non-EU citizens</i>	<i>for EU citizens</i>
Undergraduate Tuition Fees – for the Pre-Engineering Course and General Course in Architecture	EUR 3,200 per semester	EUR 3,200 per semester
Undergraduate Tuition Fees – leading to B.Sc. degree	EUR 3,200 per semester	EUR 2,250 per semester
Undergraduate Tuition Fees – leading to B.Sc. degree in Civil Engineering	EUR 3,500 per semester in the first semester, EUR 3,200 per semester from the second semester	EUR 3,500 per semester in the first semester, EUR 3,200 per semester from the second semester
Graduate Tuition Fees – leading to M.Sc. degree for graduates from external higher education institutions	EUR 3,500 per semester	EUR 3,200 per semester
Graduate Tuition Fees – leading to M.Sc. degree for graduates of BME continuing the studies according to the Curricula	EUR 3,200 per semester	EUR 2,750 per semester
Postgraduate Tuition Fees – leading to Ph.D. or DLA degree	From EUR 4,500 per semester, depending on the character of the research and course programs.	From EUR 4,500 per semester, depending on the character of the research and course programs.
Tuition Fees for special students – courses leading to no degree (min 15 credits/semester)	EUR 110 per credit points (min. 12 hours per week)	EUR 110 per credit points (min. 12 hours per week)

Medical Requirements

New students must have a medical check-up at the beginning of the academic year in Hungary. The staff of the Dean's Office provide information on check-up arrangements for the students concerned upon registration. (See Academic Calendar in this bulletin for medical check-up.) This medical check-up serves as the basis of health insurance. BME accepts the Generali-Providencia or the European Health Insurance card only.

Registration

Registration for the fall semester will take place from 22nd August to 2nd September 2011. All students should register within 48 hours after arrival. It is necessary for the residence registration and application for the residence permit. Late registration is not possible, only for new students of preparatory courses.

Address: H-1111 Budapest, district XI, Műegyetem rkp. 9. building R.

New students must apply for a residence permit after registration.

Important: All newly enrolled 1st year students must write the Placement Test - see the Academic Calendar - (except those who are exempted) on 29th-31st August 2011. Students who arrive after 31st August, may join the preparatory courses only.

To sit for the Placement Test one has to be fully registered at BME.

Orientation Program

We hold an Orientation Program between 31st August and 2nd September 2011, for newly enrolled 1st year and pre-courses students as well as for exchange, transfer, M.Sc. or Ph.D. students. The program includes introductory lectures, informal meetings with students and teachers, access to Internet and the library, a sport event and a sightseeing tour.

Examinations, Grades and Transcripts

Examinations: The 14-week Fall and Spring semesters are followed by 4-6 week examination periods. Students should complete all term assignments, lab reports, designs and other assigned work before the examination periods start. They should also have a recorded grade for their term work or have obtained their instructor's signature (in the Transcript Book) to indicate satisfactory completion of the term. Academic and Examination Regulations permit a limited number of repetitions of failed exams.

Transcripts: Term grades, examination results, credit points and WGPA are entered in each student's Transcript Book. The Transcript Books, which are in the student's possession (unless there are other faculty regulations), during the examination period, must be given to the Office of Academic Affairs at the conclusion of the exam period. Extracts from the Transcript Book may be requested from the respective offices.

Final Project and Graduation Requirements

B.Sc. and M.Sc.: Final projects are prepared during the last semester. Final projects consist of a practical project or a design with a thesis describing it. The projects are prepared under the guidance of one of the appointed departments. Final projects or theses must be defended before the Final Examination Board. The board usually consists of professors and eminent specialists in the profession related to the student's work.

In order to graduate from the Budapest University of Technology and Economics, students must have qualified for their absolutorium or university leaving certificate. This certifies that they have successfully passed all exams and completed all the required practical and research assignments and have also successfully defended their final project or thesis before the Final Examination Board.

English language is a criterion subject of the curriculum of the faculties.

2011/2012 ACADEMIC CALENDAR

Fall Semester: All new Students

Registration in Students' Office	22 Aug - 2 Sep, 2011
Appointments for Obligatory Medical Check-up (Required for Health Insurance) ..	22 Aug - 2 Sep, 2011
First day of classes	5 Sep, 2011
Orientation (New Degree Seekers, Study Abroad, Pre-Engineering, General Course) ..	31 Aug - 2 Sep, 2011

Pre-Engineering Course

Registration in Students' Office	22 Aug - 2 Sep, 2011
Preparatory Classes (Math, Physics) for Placement Test .....	.23 - 26 Aug, 2011
Placement Tests: Math, Physics and English Language .....	.29 - 31 Aug, 2011
Placement Test Results, Schedules for Freshmen (Student's Office, Bldg. R) .....	.2 Sep, 2011/ 12:00-13:00
Registration for Pre-Engineering at the Course Director's .....	.5 Sep, 2011 / 13:00
Pre-Engineering Classes Begin .....	.5 Sep, 2011
Classes and Examinations for Pre-Engineering .....	.2-27 Jan, 2012
Winter Holidays for Pre-Engineering Students .....	.22 Dec, 2011 - 2 Jan, 2012

General Course of Architecture

Registration in Students' Office	22 Aug - 2 Sep, 2011
Preparatory Classes (Math, Physics) for Placement Test .....	.23 - 26 Aug, 2011
Placement Tests: Math, Physics, English, Freehand Drawing .....	.29 Aug - 1 Sep, 2011
General Course Classes Begin .....	.5 Sep, 2011

Last Day of Classes (New Degree Seekers, Study Abroad, Pre-Engineering, General Course) ..	.9 Dec, 2011
Days off for All Students .....	.23 Oct, 1 Nov, 2011
Delayed Submission .....	.12 Dec, 2011 - 16 Dec, 2011
Examination Period .....	.19 Dec, 2011 - 20 Jan, 2012
Winter Holidays .....	.24 - 26 Dec, 2011

Fall Semester: 2nd and Higher Year Students

Registration in Students' Office	22 Aug - 2 Sep, 2011
First and Last Days of Classes .....	.5 Sep - 9 Dec, 2011
Delayed Submission .....	.12 Dec, 2011 - 16 Dec, 2011
Examination Period .....	.19 Dec, 2011 - 20 Jan, 2012
Winter Holidays .....	.24 - 26 Dec, 2011

Spring Semester: All Students

Registration in Students' Office .....	.30 Jan - 3 Feb, 2012
Orientation (New Degree Seekers, Study Abroad, Pre-Engineering, General Course) ..	.1 - 3 Feb, 2012
First Day of Classes .....	.6 Feb, 2012
Last Day of Classes .....	.11 May, 2012
Delayed Submission .....	.14 - 18 May, 2012
Examination Period .....	.21 May - 18 June, 2012
Days off .....	.15 March, 9 April, 1 May, 28 May, 2012

Grades, Grading System:
Grades and gained credit points are entered into the Transcript Book after the examinations have been taken. The Budapest University of Technology and Economics uses the following grading system:

Grades, Grading System:		Marks average:	
Excellent (A)	= 5	4.51 to 5.00	Excellent
Good (B)	= 4	3.51 to 4.50	Good
Satisfactory (C)	= 3	2.51 to 3.50	Satisfactory
Pass (D)	= 2	2.00 to 2.50	Pass
Fail (F)	= 1		

Information on the Neptun Student Information System

Neptun is an intelligent database where students' personal and academic data are managed.

After the first registration at BME international students receive their Neptun code and can choose a password to have access to Neptun, where they can

- register and modify their personal data,
- register the e-mail address through which they can communicate with the administration,
- check their academic data,
- register for academic semesters (except the first semester),
- register for subjects they would like to study (except the first semester),
- register for exams at the end of the academic semester.

After registration students can have access to Neptun either at the BME Student Computer Center or from their own computer via the Internet.

Concise Code of Studies

Credit system

The credit system is a relatively free study system which handles the subjects individually. It gives you the possibility to register for a subject in the following semester again if you have failed not to lose a whole semester because of this fact. On the other hand if you want to finish your studies faster you can do it by registering for more subjects than subscribed by the curriculum.

Credit points

Each subject has a credit value depending on the invested work needed to complete it. There are subjects of 0 to 8 credit points. The number of achievable credit points is independent of your result but to get them you have to pass the subject criteria.

Curriculum

In the credit system there is no exact rule when you have to register for a subject. Of course there are more difficult subjects requiring some previous knowledge (prerequisites). There is a Curriculum which you can follow and finish your studies successfully in time without clashes in the system. This Curriculum suggests you to register for subjects of 30 credit points altogether each semester.

Semester

A semester builds up of a study period, a repeating period and an examination period. The registration week is the first week of the study period. This week you have to decide if you want to continue your studies. You must register for an active or a passive semester until the end of the registration week.

The study period is to attend labs, classes, practices and fulfill the study requirements. The teachers have to announce the study requirements, the books to use, the type of exams and their replacements, their timing and the measure of absence tolerated, in the beginning of the study period.

You should watch out for the dates of tests because if you got more than one in-class test a day you can ask for a change in dates.

The repeating period is to repeat the in-class tests, the study requirements and to take possible pre-exams. The examination period is to take exams.

Registering for subjects

You can register for subjects until the last day of the registration week. The subjects' courses are definite from the first day of the Registration week (from 16:00) only, but because of the overloaded Neptun during the Registration week you should register for the subjects as soon as possible so you only have to check them during the Registration week. The complaint that the system was overloaded and you could not register for a subject will not be accepted. You can drift according to your pace but the only way to avoid mix ups in courses and exams is to follow the curriculum.

Grades

The subjects have different requirements therefore you will get different types of grades. Term mark and signature mean that you will get your grade, according to your work during the semester, at the end of the study period. Examination mark means you have to prove your knowledge in exams or in class tests as well during the examination period.

Repeating Exams

If you failed your exam or you are not satisfied with your result you have the right to take a repeated exam for any subject. You can take one repeating exam for each exam. A third trial is possible only for one exam, in one semester, for which you have to pay the repeated exam fee.

Why should you follow the curriculum?

- You will have problems if you could not fulfill the requirements of a subject.
- Some of the subjects don't have courses each semester they can only be taken up in accordance with the Curriculum.
- You cannot register for a subject whose prerequisite subjects are not fulfilled.
- You cannot study the subjects with your classmates so it is difficult to get information about the subject.
- You can also run into timetable problems when two classes are held at the same time.

Dismissal

You will be dismissed

- if after the second semester the sum of your credit points is less than 30,
- if you don't register after two passive semesters at all,
- if you don't pass all the subjects of the Curriculum (you don't have all of your needed credits meaning you are not ready for the final examination) after the given number of semesters (which is double of the number of semesters in the Curriculum).

Questionnaires

Your opinion about education is important for the University therefore there is a questionnaire in Neptun about every subject you have finished. Please fill them out.

Description of Curricula and Subjects

The following section introduces each Faculty of the Budapest University of Technology and Economics, lists the B.Sc. and M.Sc. curricula of each faculty and also describes each subject.

The tables list the curricula in chronological order semester by semester to show the sequence of studies. The tables show the names of the subjects, their identification numbers, the semester in which they are taken and their weekly contact hours. Credit points are based generally on the number of contact hours per week listed in the tables. Marks are indicated as **p** practical mark; **s** signature; **e** exam mark.

Subject			lecture/practice/laboratory								Requisites
Name	Code	Credits	1	2	3	4	5	6	7	8	
Statics	BMEEPSTA201	4		2/2/0e							BMEEPSTA101
History of Architecture 2 (Antiquity)	BMEEPETA201	3		2/1/0p							BMEEPETA101
Drawing 2	BMEEPRAA201	4		0/4/0p							BMEEPRAA101

The subject descriptions generally are separated into B.Sc. and M.Sc. subjects.

Explanation of Course Identification Numbers

Character Identifies

- 1-3 BME Abbreviation of Budapest University of Technology and Economics in Hungarian
- 4-5 VE Abbreviation of the name of the faculty in Hungarian
- 6-10 GB51 Code of department, semester and subject ordinary number

Analytical Chemistry Practice I

BMEVEGB51

Dr. Róbert Gyurcsányi

Gravimetric and titrimetric determinations of different ions. (2 credits)



Welcome and Farewell Traditions

Hungarian traditions of warm welcomes and affectionate but wistful good-byes are mirrored by the Budapest University of Technology and Economics at opening ceremonies that welcome students to the university and at the graduation ceremonies.

During the opening ceremony held each year, the first-year students make a "Solemn Declaration" which symbolises their acceptance as members of the university community. Certificates of Merit are presented to the best students of the previous semester from the Pre-Engineering, B.Sc., M.Sc. and Ph.D. programs.

As part of the farewell ceremony, the graduating students wander through the Aula (main lobby) of the Central Building (K) for the last time as students. They walk to the strains of Brahms' Overture carrying a symbolic parting gift, a small pack tied to a walking stick. The tiny pack, which contains food and a coin symbolises the hard-earned knowledge the students gained at the Budapest University of Technology and Economics are given to serve them well on their life's journey. In the Ceremony Hall there is a farewell handshake with all graduating students by the Deans of each Faculty.