Strategy and Global Priorities of a Technical University

Vojtěch Petráček, Vice-rector for Science and Research
Czech Technical University in Prague

Czech Technical University in Prague

- biggest technical university in the Czech Republic, located in Prague, capital of the Czech Republic
- 2200 staff members, 15000 undergraduate students, 9000 graduate and PhD students. Out of the total of 24000 students there are 2500 foreign students
- CTU has the highest scientific output out of all czech technical universities
Brief history of the CTU

• CTU is also the eldest technical university in the Czech Republic
• founded in 1707 by the emperor Joseph I
• In more than 300 years long history our university has developed into the full scale technical university educating students in technical and natural sciences

Position of the CTU in the Czech Republic

• CTU has a leading role among the Czech technical universities namely in broad scope and quality of education and also in the quality of research
• University is educating also in economic and management skills needed for running their future business projects
• Apart of the educational and research role our university acts as a consultant in technical matters for the state and other institutions and officials
Structure and evolution of the university

CTU consists at present of 8 faculties:

- Faculty of Civil Engineering
- Faculty of Mechanical Engineering
- Faculty of Electrical Engineering
- Faculty of Nuclear Sciences and Physical Engineering
- Faculty of Architecture
- Faculty of Transportation Sciences
- Faculty of Biomedical Engineering
- Faculty of Information Technology

Main research flagships

- CTU performs research activities in two main directions - in technical and natural sciences. CTU puts the accent also on bio-medical research and economic research leading to improvement in competitiveness of the economy.
Main research flagships

Core of our research in natural sciences we find in following branches of physics

- particle physics
- theoretical and mathematical physics
- laser physics
- quantum optics and cryptography

... and of coarse in mathematics

Main research flagships

- Core of our research in natural sciences we find in following branches of physics
- nuclear physics
- physics of nuclear fusion
Main research flagships

Core of our research in technical sciences is located in
- cybernetics
- autonomous systems
- space research and satellite navigation
- aircraft and automotive development
- technology of intelligent buildings.

Main research flagships

- In biomedical research where we aim at improvement of life by means of technical means and at technical support for medicine.
- In development of technologies for modern machining systems
CTU in comparison with other universities

- CTU is steadily rising in university ranking for several years
- Currently (2010) we are placed on 121-st place among the technical universities
- And on 246-th place in natural sciences
  (QS ranking)

Main strategic goals in education

- The quality of students is very important; we aim at quality, not quantity
- We offer a wide range of study programs in all levels
- Students are during their studies engaged in research activities
- We would like to make our university more international
Strategy in basic and applied research

- A key role in formation of the research potential plays a proper motivation. We are trying to motivate our researchers towards the high quality and actual research topics.

- We support the flagships of our research but at the same time we are trying to built up a space for a new emerging topics which might bring a new important results in the future.

- We also support both basic and applied research, which has to be kept and developed in harmony and equilibrium.

Progress in technology transfer and innovations

- It is not an easy field, but we are progressing and steadily improving our approach.

- Activity is concentrated in our technology transfer unit which plays a role of the hub, commuting the information between the faculties and the industry.

- Intelectual property is maintained also at the central level of the university at our patent division.
International contacts and impact

- CTU cooperates with many universities and institutions both on national and international levels. We are trying to build and improve contacts with other universities of the same and higher ranking.

- With such universities we run student exchange programs, in many cases we also run common programs of joint or common degree.

- We are active in important international laboratories as CERN, BNL, FNAL and CTU also collaborates with international institutions as for example ESA and IAEA.

University as a part of community

- Our university is not only a place where we educate our students and where we perform the research, but it is also a part of the community, part of life of the district and city.

- Public has to be informed about the results of our activity not only due to our support from the public budget, but because it is very important for public to understand the importance of technical and natural sciences for the whole society.
Management efficiency
key factor for success

- Only effective university management can lead to the positive evolution
- Therefore we apply process oriented matrix system of management in which the management of the university and faculties act as partners
- Management defines rules and corridors integrating the university. Top management also integrates multi-faculty projects and activities

Partnership between the management and faculties

- Partnership between faculties is one of the important factors necessary for positive development of the university
- University management represents in this respect a catalyzer ensuring equilibrated cooperation of all the partner faculties
- We also technically support the necessary integration and we prepare conditions and tools for such cooperation.
View into the future

- In the near future we would like to concentrate on support of the research and development and also on support of the technology transfer.

- Our education programs are and will be based on the high quality research.

- We will educate our students not only as technical and scientific experts, but we would like to contribute also to the development of their personalities.

- Our goal is to improve our research university, so that it will be more attractive for researchers, tutors and students.

Conclusions

- We have presented CTU from several perspectives - as a technical university with a long tradition, as a university covering a wide range in education and research, as a university with strategic vision of its development and as a university improving steadily its management structures.

- We have presented a vision of the future progress, which should lead our university towards the better position in the international context.