PRESS RELEASE

German Institutes of Technology

Ten years of the "Bologna" Declaration
A review by the German Technical Universities of TU9 and ARGE TU/TH with recommendations for "Bologna 2020"

Summary and Press Release

The Bologna Process, launched in 1999, has contributed to a modernisation of the German universities. The German universities of TU9 and ARGE TU/TH have always considered the "Bologna Process" a chance to improve the quality of their courses in the process of the academic reform, as well as a chance to enhance the employability of their graduates and to reduce the length of their studying.

The ten-year existence of the "Bologna Declaration" is also the reason for analysing whether the set objectives could be achieved with the chosen methods.
The German Technical Universities of TU9 and ARGE TU/TH review the status quo and give recommendations as to how to create a European Higher Education Area by 2020:

The TU9 and ARGE TU/TH universities would welcome the launch of optional *Pre-engineering schools* for those interested in studying within the field of engineering, which would serve to prepare students for their studies. This should occur in the time between having earned the general qualification for university entrance and the actual entrance to a university. These *Pre-engineering schools* could prepare prospective students for the challenges of studying engineering and potential knowledge gaps could be closed before entering the course.

The universities have confirmed their position that there should not be a governmental quota system for the transition from the first to the second cycle (Bachelor's to Master's). The admission to Master courses must solely be controlled by the professional competence of universities according to certain quality criteria. Universities should be free and autonomous in their decision making.

The German Technical Universities appreciate the trend towards a structured programme for PhD candidates and already implement these actively.
At the same time, there ought to still be diverse ways to achieve a doctoral degree.
A regimented system of the doctorate, especially in the field of engineering and the sciences, ought not to come into existence.

Prof. Dr. Horst Hippler, President of TU9, the leading institutes of technology in Germany, Speaker of the Technical Universities in Germany (ARGE TU/TH) and President of Universität Karlsruhe (TH):
"The Bologna reform set many positive impulses, but also creates significant new problems. In many areas, it must be better implemented. After central objectives - such as increasing the mobility of students - have not been achieved yet, it is very important, not to come to a standstill halfway to success. The members of TU9 and ARGE TU/TH demand that the 'Bologna Process' should be pursued in a goal-oriented and effective manner."

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Ten Years of Bologna: Objectives, Methods and Results

The central objective of the "Bologna Declaration" was the establishment of a European Higher Education Area. Study courses should become internationally compatible and shifting within the European labour market should become more feasible. In detail, the Bologna Process was meant to increase the mobility, the international compatibility as well as the employability of graduates. This was meant to be achieved through several measures:

-Bologna-Objective: Introduction of a system of easily understandable and comparable degrees also by means of the introduction of an additional paper, the Diploma Supplement

"The Diploma Supplement, as additional information to the official documents about university degrees, ought to facilitate and improve the evaluation and assessment of academic degrees both internationally and nationally for study and working purposes." (Bologna Declaration)

Recommendation of ARGE TU/TH and TU9

The *Diploma Supplement* can act as a guide, which describes the university degrees and qualifications connected with these. The prerequisite for this is that it contains information about the required *learning outcomes*. This is an essential instrument for an internationally transparent documentation of the qualifications and expertise relevant to the labour market.

-Bologna-Objective: Introduction of a system which mainly rests upon two main cycles: one cycle up until the first degree (undergraduate) and another one following the first degree (graduate)

"A prerequisite for the admission to the second cycle is the successful completion of the first study cycle, which lasts for at least three years. The degree earned after the first cycle certifies the first level of qualification, relevant to the European labour market." (Bologna Declaration)

Recommendation of ARGE TU/TH and TU9

The Bachelor's degree of a technical university in the field of engineering is the gateway to a Master's course in the same or similar academic area of German and international universities, which means that it is a *mobility interface*.

It cannot and ought not substitute the knowledge and skills earned within the former university degree "Diplom Ingenieur".

The German Technical Universities appreciate the fact that the Bachelor's degree offers an interface for orientation to the students. The degree equivalent to the "Diplom-Ingenieur" still continues to be the Master's degree.

It has to be emphasised in this context that the German Technical Universities follow their mission to qualify research and innovation oriented engineers. Within the Master's phase at a Technical University, students gain knowledge through assisting in research projects, where they acquire the manner of working which is characteristic of a university engineer. This comprises applying scientific knowledge and methods for the analysis of complex technical problems as well as for the development of innovative products and systems.

German Technical Universities must have the authority to certify the equivalence of the "Dipl.Ing" to the Master's certificates as well as the Diploma Supplement of the Master's degree awarded at their institution. Further, it has to be declared that the comparability of Bachelor and Master's degree in Europe still has to be improved.

The members of TU9 and ARGE TU/TH have confirmed their position that there should not be a governmental quota system for the transition from the first to the second cycle (Bachelor's to Master's). The admission to Master's courses must be controlled solely by the professional competence of universities according to certain quality criteria. Universities should be free and autonomous in their decisions.

-Bologna-Objective: Introduction of a Credit Transfer System (ECTS)

Recommendation of ARGE TU/TH and TU9
The European Credit Transfer System has facilitated the assessment of the *workload* of students as well as the transfer of course achievements. However, practical experience shows that it is difficult to compare the individual modules of different universities. Here emphasis should be placed on improvements.

-Bologna-Objective: Promotion of mobility and European dimensions

Recommendation of ARGE TU/TH and TU9
Unfortunately, a decline in the mobility of German students within the Bachelor's scheme compared with those within traditional courses has to be noticed.
Surveys have revealed that students fear difficulties concerning the recognition of their credits as well as an extension of their length of studies. Shifting between universities during the Bachelor phase within one scientific subject is obviously still connected with too much many difficulties.

National and international mobility must be increased and hindrances must be abolished, according to the Bologna-Objective.TU9 and ARGE TU/TH are committed to making their contribution: a successful concept means the further implementation of integrated courses, which are offered by means of a cooperation between German and international Technical Universities. Furthermore, universities and their affiliated organisations have to bring forward solutions for the development of a reasonable and transparent system of recognition based on national and international grounds.
As one contribution to a clarification of terms, the Technical Universities of TU9 and ARGE TU/TH recommend the application of the following terms:
A Joint Degree (=Dual Degree) is documented through one certificate.
In terms of a joint course this certificate is signed by several partner universities. This also applies to the doctoral degree (for example with a Thése en cotutelle).
A Double Degree, in the sense of a joint study programme, is documented through two certificates according to the criteria of each university.

-Bologna-Objective: Doctoral phase as a “third cycle”

Recommendation of ARGE TU/TH and TU9
The German Technical Universities appreciate the trend towards a structured programme for PhD candidates and already implement these actively.
At the same time, there ought to still be diverse ways to achieve a doctoral degree.
A regimented system of the doctorate, especially in the field of engineering and the sciences, should not come into existence. An efficient conduct of the doctoral programme is an important aim for the members of TU9. The German Technical Universities emphasise that the doctorate should not be perceived as the third cycle of education but as a first level of working in a self-reliant way as a scientist, which prepares one for an academic career as well as a management position.

-Bologna-Objective: Quality Assurance

Recommendation of ARGE TU/TH and TU9
Quality assurance is also a central objective of the German Technical Universities. In this context, it is essential to define, develop and assure quality goals. According to the quality assurance within the education of engineers at German Technical Universities, the following can be concluded:
The quality of a study programme (course) shall first of all be monitored by its impact and learning outcomes.
Two characteristics mark the quality of a study programme to the greatest extent:
First, the quality of the qualification, especially indicated by the sustained relevance of the acquired knowledge and competence according to the working field.
Second, the quality of the study process especially marked by the feasibility of a study programme as well as the success rate of a course.
Universities have to establish and continuously work on an extensive quality management system. Therefore, adequate monitoring systems and principles concerning decision-making authorities, responsibilities and processes have to be applied. Information on study degree qualifications and quality of study processes can be generated with surveys among graduates. For judging the quality of the study process, a continuous analysis of the course of study is a suitable measure.
The provider of study programmes must be able to define the educational goals of their programmes, namely the qualification profile of the graduates, in the interest of competition; and also profile creation should be a result of a dialogue with their target group in a self-reliant manner.

-Bologna-Objective: Accreditation

Recommendation of ARGE TU/TH and TU9
Accreditation is one way of quality assurance, though its objective is merely a compliance of a minimum of standards. By a resolution of the *Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany* (KMK), besides an accreditation of programmes (“Programmakkreditierung”), the accreditation of the whole body of education (“Systemakkreditierung”) came into existence. The German Technical Universities believe in bearing responsibility for the quality of their courses. To

enhance this quality constantly, in order to stay internationally competitive, is the central mission of every single university. Here, the external point of view is a reasonable and necessary backing for self-perception. However, it ought not lead to a detailed regulation of the universities from outside. Universities must have the opportunity to design and develop their courses according to their profile and strategy. Therefore, having a choice is reasonable and a step into the right direction. However, with its application it has to take into account the diversity of the German higher education system without enforcing a wrongly perceived standardisation. Such a form of standardisation would confine the university's effort to develop competitive courses. The German Technical Universities, especially, have in the past already educated graduates with a very good reputation worldwide, within these specific courses that are particularly relevant for economic development. The tight engagement of German Technical Universities with companies has always been a guarantee that topics relevant for the practical work sphere and long-term developments have found entrance to the teaching sphere. Besides, this also impacts on the academic education, which reaches far beyond technical and scientific courses. In order to avoid a counter-productive levelling of universities, effective measures to assure the quality have to be applied which suit the specialities and the form of each individual university. Detailed restrictions do not lead to an enhancement of quality, on the contrary, they solely result in an increase in bureaucracy and an unwanted standardisation. Important to the development of universities is that diverse attitudes and diverse actions come to a peaceful coexistence. Recent approaches of quality management (QM) are to assist universities in acting stringently and facing increasing international challenges.

The accreditation by external (also international) agencies, assigned by the universities, has to focus, among other things, on the evaluation of the QM-system for which each university holds responsibility.

According to the system of TU9 Bachelor's and Master's, the research-oriented engineer is the Master. Consequently, the accreditation of consecutive university engineering courses has to take into account the whole study programme up until a Master's degree.

-European Ranking

Recommendations of ARGE TU/TH and TU9

In the public, rankings attract a huge amount of interest. Surveys have revealed that many international students have partly or entirely taken into consideration the ranking of their prospective university when it came to deciding upon a university.
Popular international rankings, however, have huge deficits: special caution has to be drawn with the comparison of institutions which vary to a large degree.
Particularly German Technical Universities report that the quality of their technical orientation, in particular, is not taken into account adequately, in the definition and indicators. Here, a common catalogue of indicators has to be defined in the European area, which particularly centres on the focus of German Technical Universities and their contribution to the social development. This would strengthen the European Higher Education Area decisively.
The members of TU9 and ARGE TU/TH recommend that a competitive situation should not alone arise from a direct comparison of different parameters, rather that it should be completed with a profile-oriented approach.

-Decrease of the attrition rate by introduction of optional *Pre-engineering schools*

Recommendation of ARGE TU/TH and TU9
The TU9 and ARGE TU/TH universities would welcome the launch of optional *Pre-engineering schools* for those interested in studying within the field of engineering, which would serve to prepare students for their studies. This should occur in the time between having earned the general qualification for university entrance and the actual entrance to a university. These *Pre-engineering schools* could prepare prospective students for the challenges of studying engineering and potential knowledge gaps could be closed even before entering the course. *Pre-engineering schools* are not absolved from the duty of designing courses which can be studied effectively. However, they would be a reasonable measure with which the attrition rate in the engineering courses could be significantly decreased. Participants should be able to claim financial support, similar to the BaFöG system, as particularly in engineering courses many students are from low-income families.

TU9 and ARGE TU/TH demand: "Bologna-Objectives should be implemented in a more effective manner!"

The members of TU9 and ARGE TU/TH demand that the "Bologna Process" should be pursued in a goal-oriented and effective manner. Since its objectives could not have been achieved by the set date, it is now essential not to come to a standstill halfway to success.

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About TU9

TU9 is the association of the leading Technical Universities in Germany: RWTH Aachen, TU Berlin, TU Braunschweig, TU Darmstadt, TU Dresden, Leibniz Universität Hannover, Universität Karlsruhe (TH), TU München, Universität Stuttgart

TU9 universities are excellent in research: according to the Federal Statistical Office, TU9 members attract a fourth of all third-party funding. In the DFG ranking for research funding in engineering, the TU9 universities are to be found in the top groups. Nationwide 57 per cent of all doctorates in engineering are awarded at TU9 universities.

Furthermore, TU9 universities were very successful in the German government's Excellence Initiative. RWTH Aachen, TU München and Universität Karlsruhe (TH) were awarded the status of "excellence universities".

TU9 universities lead the way in teaching: In Germany 47 per cent of all engineers with a university degree come from TU9 universities and ten per cent of all students at German universities and universities of applied science are registered at TU9 universities. 15 per cent of students at German universities attend TU9 universities.

TU9 universities are international: 18 per cent of the students at TU9 universities are international students. In addition to that, the Humboldt Foundation's ranking demonstrates how attractive the TU9 universities are to international scientists.

TU9 President Professor Dr. Horst Hippler is also the Speaker of the informal group of German Technical Universities (ARGE TU/TH) which includes 25 Technical Universities.

"TU9 - EXCELLENCE IN ENGINEERING AND THE SCIENCES - MADE IN GERMANY"