

## Quality assurance and accreditation of study programmes

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**ABSTRACT:** The Bologna Process has triggered a Europe-wide harmonisation of higher education, which included not only an agreement regarding formal facts of study programmes, such as the length of the programmes, but also regarding the quality of the study programmes across countries. International cooperation in the field of quality assurance is needed, in order to provide a solid and trustworthy basis for academic and professional mobility. In Germany, engineering and computer science programmes are usually accredited by the ASIIN e.V (Akkreditierungsagentur für Studiengänge der Ingenieurwissenschaften, der Informatik, der Naturwissenschaften und der Mathematik e.V - accreditation agency for study programmes in the engineering sciences, computer science, natural sciences and mathematics). The author describes the necessity of having an international valid quality assurance system and the accreditation process by the ASIIN e.V.

### INTRODUCTION



Since 1999, the Bologna Process has mobilised 47 European countries to work together on a common academic quality assurance system leading to the creation of a European Higher Education Area (EHEA) by 2010. One of the most important instruments in this process was, and still is, the Lisbon Recognition Convention focusing on making academic degree standards and quality assurance standards more comparable and compatible throughout Europe. The main goal behind the Bologna Process is to ensure a high quality academic education for students across countries, including the possibility for students to study abroad, which has been recognised as an essential element of European integration since the foundation of the Council of Europe in 1949. A growing international mobility includes and requires the mutual acceptance of each other's programmes and credits. The international focus aims at enabling students to be of interest to the job market across countries and, therefore, opens boundaries, which have imposed restrictions of mobility on students before.

However, in order to ensure the international acceptance of credits, courses and programmes across countries, a solid basis in form of an agreed upon level of quality has to be assured. In Germany, the ASIIN e.V, which is a registered association in accordance with the law of the Federal Republic of Germany, is the main agency for the accreditation of study programmes in the areas of the engineering sciences, computer science, the natural sciences and mathematics. A team of auditors, who come from academia as well as industry, evaluate study programmes and check, on the basis of quality criteria stated in the Bologna Process, the Lisbon Recognition Convention, but also by the Accreditation Council, as well as the ministers of education KMK (Kultusministerkonferenz - conference of ministers of education from all states in Germany), whether study programmes can be certified with the ASIIN label, standing for a high level of academic quality. The success of this agency is reflected in the number of accreditations over the past 15 years.

### THE BOLOGNA PROCESS AND ITS EFFECTS ON QUALITY ASSURANCE

#### History

The *Bologna Process* is a series of ministerial meetings and agreements between European countries designed to ensure comparability in the standards and quality of higher education qualifications. Through the *Bologna Accords*, the process has created the *European Higher Education Area* (EHEA), in particular under the *Lisbon Recognition Convention*. The process started in 1999 with education ministers from 29 countries signing the declaration and, it is named after the place it was proposed, the University of Bologna. Greece and Germany were among the first countries to sign the declaration in 1999. In following years, further governmental meetings have been held in Prague (2001), Berlin (2003),

Bergen (2005), London (2007) and Leuven (2009). Incrementally, all 47 countries of the Council of Europe have become members of the declaration, and the EHEA now covers all of Europe, including European Union newcomers Armenia, Azerbaijan, Georgia, Moldova and Ukraine, which is shown in Figure 1.



Figure 1: The image shows the member states of the EHEA and the year they joined, (Source: <http://globalhighered.files.wordpress.com/2011/04/oldsbolognmap.jpg>)

## Goals

*The Bologna Process was a major reform created with the claimed goal of providing responses to issues such as the public responsibility for higher education and research, higher education governance, the social dimension of higher education and research, and the values and roles of higher education and research in modern, globalised, and increasingly complex societies with the most demanding qualification needs [1].*

On the basis of the Bologna Process, higher education systems in European countries were and are to be organised in such a way that [2]:

- it is easy to move from one country to the other (within the EHEA) - for the purpose of further study or employment;
- the attractiveness of European higher education has increased, so that many people from non-European countries also come to study and/or work in Europe;
- the European Higher Education Area provides Europe with a broad, high-quality advanced knowledge base, and ensures the further development of Europe as a stable, peaceful and tolerant community benefiting from a cutting-edge European Research Area;
- there will also be a greater convergence between the US and Europe as European higher education adopts aspects of the American system.

Core elements and tools of the Bologna Process and the EHEA are:

- A three-cycle study system, typically in the form of a Bachelor's, a Master's, and a PhD programme, where a Bachelor's degree typically requires 180-240 ECTS credits and a Master's programme between 90-120 ECTS credits, with a minimum of 60 *European Credit Transfer System* (ECTS) at Master level, which allows for a flexible approach in defining the length of both Bachelor's and Master's programmes.
- The establishment of a commonly acknowledged *European Credit Transfer System* (ECTS), to ensure that periods of study abroad are recognised.
- The former is especially guaranteed by the *Lisbon Recognition Convention*, which aims at making academic degree standards and quality assurance standards more comparable and compatible throughout Europe, stipulating that degrees and periods of study must be recognised unless substantial differences can be proven by the institution that is charged with recognition. Students and graduates are guaranteed fair procedures under the Convention. This allows for degrees and qualifications awarded in one country to be understood and recognised in other countries

(thereby, facilitating mobility and enhancing employability). The Lisbon Recognition Convention has been signed by 53 countries (all Council of Europe member states, except Monaco and Greece), as well as Australia, Belarus, the Holy See, Israel, Kazakhstan, Kyrgyz Republic, New Zealand and Tajikistan.

- A Diploma Supplement, explaining in detail the study programme the certificate was awarded for.
- The formulation of expected learning outcomes and competencies for each course/module and programme - so-called *can do statements*, which state what students know and can do on completion of their degrees (The key word in the definition of learning outcomes is the word, *Do*. The word suggests what skill, knowledge or behavior a student is able to demonstrate as a consequence of a learning activity [3]).
- A continuous cooperation in quality assurance of all study programmes in academia leading to a high degree of employability (nationally, as well as internationally).

All these tools and instruments aim to provide a system that is easy to comprehend for students, institutions and employers.

#### Pros and Cons of the Bologna Process

The given information makes it clear that agreement is needed not only on formal criteria when it comes to a common academic network, but also on quality standards across the EHEA, as it would otherwise lead to tremendous confusion among students and universities. If study programmes would not be unified, a mapping, and mutual acceptance of courses and modules across country boundaries would be close to impossible; thus, leading to a severe restriction in international mobility for students. On top of that, a commonly agreed upon quality assurance will lead to a mutual understanding of each other's programmes, learning outcomes and competencies. This is mandatory for companies across the EHEA (and beyond) and employability in general.

Against the background of increasing globalisation, one would assume little to no resistance or criticism with regard to the Bologna Process. Nevertheless, some discussion has been raised since the Bologna Process was started. This should be brought into the discussion in order to reach a valid standpoint with regard to the *educational revolution*.

For some countries, the Bologna Process involved quite a revolution of their educational system, and several arguments were brought up as concerns against this educational revolution. These concerns included economic, academic and logistic reasons:

- A Europe-wide standardisation of the *values* produced in each of the national higher educational systems will lead to competitiveness not only among institutions, but also among countries.
- The former split into vocational and academic higher education, where the vocational education was offered at a polytechnic university (polytechnical universities - universities of applied sciences, Fachhochschule - in Germany or TEI - in Greece) and the academic higher education was offered at the (technical) universities, was abandoned in the sense that both *types* of universities still exist, but the degrees offered are treated differently, i.e. the *validity* of the *identical* degrees are *different*:
  - industry is irritated by the newly introduced Bachelor's degree and considers this not being a *full* qualification, and
  - students receiving a Master's degree from a polytechnic university are usually not qualified to enter PhD programmes, i.e. are treated differently to their study colleagues at (technical) universities.
- This split was the previous higher education system in much of continental Europe, and it was based on the German system - as opposed to the Anglo-Saxon system. With the Bologna Reform, the two educational systems have been conflated and, thus, lost the possibility to exit (vocational) education after three years without the intention for further study, but with a full degree in hand. This also lead to a *loss* of the former higher academic degree *Engineering Diplom (Dipl.Ing.)*, which is now sometimes set equal to a Master's degree, and led to confusion, primarily in industry.
- The Bachelor's degree is only regarded as a step towards the Master's degree, i.e. students who enter the workforce at that point are considered not being properly prepared.
- The EHEA did not introduce the *Bachelor's with Honours* programme, which allows graduates with a *BA Hons.* degree (e.g. in UK, Australia, Canada) to undertake doctoral studies without first having to obtain a Master's degree.
- In the Bologna Process, a workload of 60 ECTS per year, i.e. 1,500-1,800 hours, is required to be available for the students, but the duration of semesters is not standardised. This leads to differing workloads while in session, as some universities are still on a trimester system (vs. a semester system), or their length of a semester differs between 14 and 16 weeks. Thus, effective total workloads are likely to vary between universities, and these differences will also most likely be apparent between countries with their national education systems.

The given arguments against the Bologna Process are valid and need to be considered in future meetings regarding the EHEA. Nevertheless, they can and should not lead to a refusal or condemnation against the Bologna Process which changed the face of higher education across Europe. In order to continue the process on a high quality level, quality

assurance systems have been implemented, which lead to higher education qualifications, more recognisable programmes and degrees across borders, and they are building trust among the EHEA members.

## ACCREDITATION OF ENGINEERING AND COMPUTER SCIENCE PROGRAMMES THROUGH ASIIN

In Germany, the ASIIN e.V, which is a registered association in accordance with the law of the Federal Republic of Germany, and which was implemented in 1999, is one of the six agencies accredited by the German Accreditation Council to issue accreditations, and is the main agency for the accreditation of study programmes in the areas of the engineering sciences, computer science, the natural sciences and mathematics.

Other agencies, such as the Agency for Quality Assurance through Accreditation of Study Programmes (AQAS) and the Accreditierungs-, Certifizierungs- und Qualitätssicherungs-Institut (Accreditation, Certification and Quality Assurance Institute) (ACQUIN), are less focused on certain study fields, or are directed towards other special study programmes, such as health and social sciences, being accredited by Die Akkreditierungsgesellschaft im Bereich Gesundheit und Soziales (AHGPS).

Since 2000, the ASIIN has the right to award the accreditation seal of the German Accreditation Council, in addition to the ASIIN quality seal. The association is supported by many organisations, which view the quality of university education as a central concern. They are associations of universities and universities of applied sciences, expert societies, profession-related organisations, industrial and business associations and unions. The quality of ASIIN's work is fundamental to support the quality of the work of their partners and partner organisations. They, therefore, expect that their accreditation approach and their procedures fulfil the principles of objectivity, validity, confidentiality and transparency.

One important goal of the ASIIN is to be in line with a goal of the Bologna Process; namely, the mutual recognition of national accreditations. International networking is very important to ASIIN and their quality expectations to higher education reach beyond the European space of higher education with a rapidly growing number of successful programme accreditations both nationally, as well as internationally, which is shown in Figure 2.

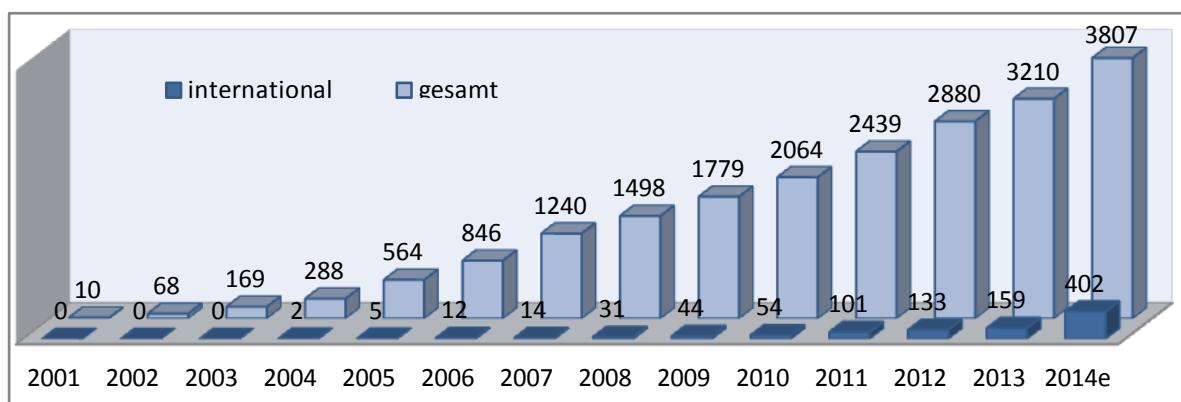


Figure 2: Successful accreditation of study programmes by ASIIN, international and total [4].

The ASIIN keeps up their high quality standards by having implemented QM instruments and methods which are oriented towards the following four fields of activity:

- Field 1 - auditors and panel members: quality of the pool of auditors and experts.
- Field 2 - accreditation requirements: quality of the accreditation criteria and procedural principles.
- Field 3 - conduction of the procedure: quality of the application of the accreditation criteria and procedural principles.
- Field 4 - recognition: recognition of the procedural and practice-related outcomes of ASIIN e.V by third parties.

A typical accreditation process (per study programme to be accredited) involves an audit team of at least four experts from universities and universities of applied sciences, industry and also students. The evaluation includes the studying of (print) material provided by the institution that wants a programme to be accredited prior to the actual visit, which usually takes 1½ days. The written report of the audit team, which includes suggestions and requirements for changes, will first be re-evaluated by the team itself and is, then, given to a committee of experts (others than the auditors), which evaluate the report and make further suggestions.

The institution that seeks the accreditation is, then, given up to nine months to implement the suggestions, recommendations and requirements, before they are given the ASIIN quality seal. Before the seal is issued, the previous

audit team will re-evaluate the changes. This iterative process guarantees a neutral process involving experts from all institutions and organisations which are interested in high quality education. As this process is being applied across the EHEA, member countries are getting closer to an identical quality level in higher education across Europe with each accreditation that is being conducted. Step by step countries will grow closer to understanding each other's study programmes, to be able to compare each other's programmes and to simply trust each other's quality in higher education.

## CONCLUSION

The Bologna Process harmonised the architecture of the European higher education system and its consequences opened up academic opportunities, as well as enhancing student mobility. In order to satisfy quality margins set up internationally, a valid and commonly agreed upon accreditation process is required. Stanisław Juszczuk summarises this as follows:

*The Bologna reforms changed the face of higher education across Europe, thanks to the involvement and dedication of higher education institutions, staff and students. Higher education structures are now more compatible and comparable. Quality assurance systems contribute to building trust, higher education qualifications and more recognisable [degrees] across borders and participation in higher education has widened. Students today benefit from a wider variety of educational opportunities and are increasingly mobile. The vision of an integrated EHEA is within reach [5].*

This article described the background and process of this quality assurance process by giving the example of the German accreditation agency ASIIN.

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