

INTERNATIONALIZATION OF HIGHER EDUCATION STUDIES – CASE STUDIES FROM POLISH TECHNICAL UNIVERSITIES

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Abstract. Internationalization of study is one of the most important processes which development can be observed in higher education in the first decade of the 21st century. International exchange, of course, existed all over the world for years, and it always was one of the engines stimulating the development of research and education. Poland entered the wide international market of the university education just about 30 years ago when started to be a member of many European projects but especially after joining EU in 2004 and taking part in the creation of EHEA and ERA. However, despite many activities and programmes performed, the level of internationalization of Polish university education is still very low in comparison to other OECD countries. For this reason internationalization of Polish higher education institutions is currently one of the most important goals defined in *The Strategy for the Development of Higher Education: 2010–2020*, commissioned in 2009 and 2014 by the Conference of Rectors of Academic Schools in Poland (*KRASP*) and the Polish Rectors Foundation (*FRP*). Among operational goals this report indicates the following needs: increasing attractiveness of Polish universities as partners in international educational and research area; giving international character for educational and research activities carried out at Polish universities; improving the image of Polish higher education in the world. The paper presents the general information concerning the activities currently proposed to improve internationalization of Polish universities by the organizations related to the higher education societies as well as the by Polish Ministry of Science and Higher Education (*MNiSW*) in the programme for the development of higher education and science in the period 2015-2030. Some activities as Erasmus programmes, summer schools, double diploma and T.I.M.E., English language studies and courses, different internship funds as well as the international accreditations were discussed on the example of two selected Polish technical universities of different size and regional situation: Wrocław University of Science and Technology (WUST) and Białystok University of Technology (BUT). Especially, some works made by the Faculty of Civil Engineering of WUST and the Faculty of Civil and Environmental Engineering of BUT, at which civil engineering is the main field-of-study, are presented.

1 INTRODUCTION

Internationalization of research and education processes is one of the most important strategic goals for Polish universities since the beginning of the 21st century [1-4]. Poland entered the international market of higher education just about 30 years ago when started to take part in many European projects (TEMPUS is worth mentioning) but especially after joining EU in 2004 and taking part in the creation of EHEA and ERA. However, Polish universities still have to face a very large distance to overcome in this field, both to European and world universities [2, 5, 6].

For this reason internationalization of Polish higher education institutions is currently wide discussed by different governmental and societal institutions and many interesting programmes have been developed and they are implemented into action [1-8]. For example, in *The Strategy for the Development of Higher Education: 2010–2020*, commissioned in 2009 and 2014 by the Conference of Rectors of Academic Schools in Poland and the Polish Rectors Foundation [1] as the operational goals, the following needs were indicated: increasing attractiveness of Polish universities as partners in international educational and research area; giving international character for educational and research activities carried out at Polish universities; improving the image of Polish higher education in the world. Among other it resulted in creation of the *Study in Poland* project of international promotion of Polish higher education and study opportunities in Poland (see: chapter 2). Meanwhile, under the auspices of the Polish Ministry of Science and Higher Education, strategic programmes for development of Polish higher education and research institutions, including process of internationalization, have also been developed and launched [2, 3].

The goals for the activities in this field are defined as [2]:

- the development of activities that will allow the best universities to advance in international rankings what may influence on the decisions of foreigners to study or to perform the academic work in Poland;
- launching a programme supporting universities in obtaining international accreditations;
- stimulation of the creation of courses and whole study programmes given in English;
- expanding scholarship programmes financing mobility and establishing cooperation with the best foreign institutions and scientists;
- active policy to promote studying in Poland and facilitating the adaptation of foreign students in Poland.

More detailed goals for universities were defined as [3]:

- acquisition of international accreditations for higher education institutions or individual education programmes;
- increasing the number of first and second cycle programmes in foreign languages and joint educational projects;
- building up doctoral programmes on international scale and developing career paths for post-doctoral candidates;
- increasing the number of foreign scientists involved in didactic and scientific work in Poland as well as foreign reviewers;
- increasing the offer of study conducted in the form of e-learning, including massive online open courses (MOOCs);
- developing mechanisms for better servicing of foreign students, developing competencies

- of administrative employees, including their language competences;
- supporting students and academic staff travelling abroad and returning to Poland;
 - (ex. increasing the recognition of foreign visits in the frame of educational programmes);
 - participation of the university in the implementation of the *Ready, Study, Go!* action;
 - use of state promotion support (see: chapter 3).

Some performed and developed activities as, among others, Erasmus programmes, summer schools, double diploma and T.I.M.E. programmes, English language studies and courses, different internship funds as well as international accreditations for study programmes were discussed in the paper on the example of the activities of two Polish technical universities: Wrocław University of Science and Technology (WUST) and Białystok University of Technology (BUT) (see: chapter 4).

2 PROGRAMME STUDY IN POLAND

The *Study in Poland* (www.studyinpoland.pl) project was created on the initiative of the *Conference of Rectors of the Academic Schools in Poland* and the *Perspektywy Educational Foundation* in the form of an integrated marketing platform for Polish universities. It is a long-term project of promoting Polish higher education and study opportunities in Poland. It assumes the complexity and long-term nature of conducting, as well as flexibility in launching its modules, such as information and promotion activities or implementation of projects aimed at increasing the number of study programmes in English. One of the very important activities is also awareness of foreigners about the possibilities and conditions of studying in Poland. The programme offers also analysis of the process of internationalization of studies in Poland in a statistical way (Figs 1 and 2).

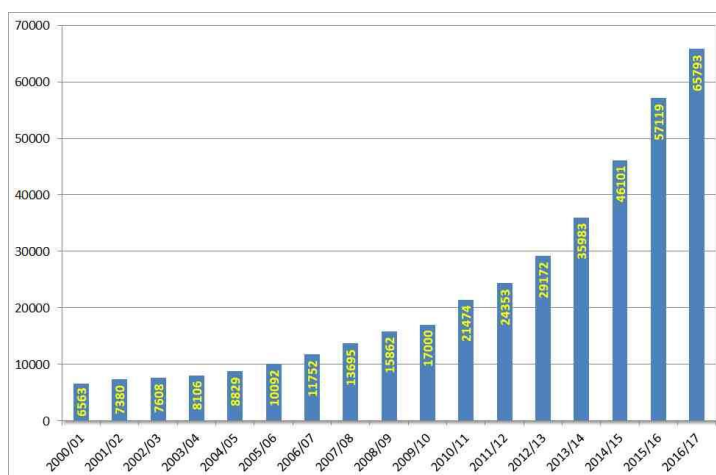


Figure 1: Number of foreign students in Poland 2010-2016 (source: www.studyinpoland.pl)

The *Study in Poland* project strives to significantly improve the internationalization of Polish universities. Since 2005 Polish universities have consistently increased the number of foreign students who currently constitute 4.88% of all students in Poland (eight years ago there were only 0.61% and in the academic year 2015/16 - 4.07%). However, the growth in percentage is also due to decrease in the total number of students in Poland (Fig. 3).

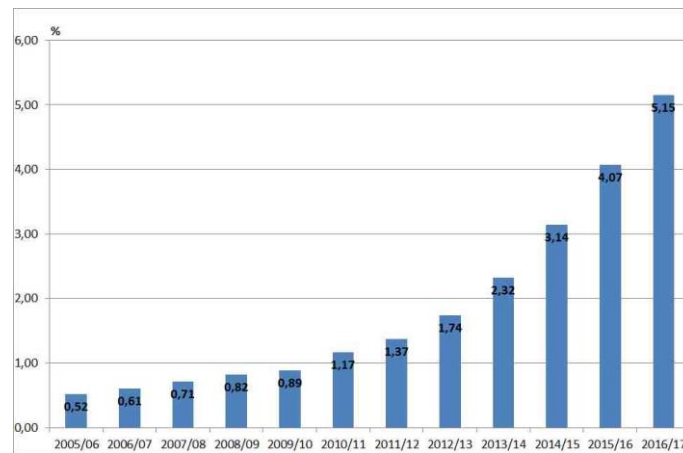


Figure 2: Internationalization factor of Polish universities (source: www.studyinpoland.pl)

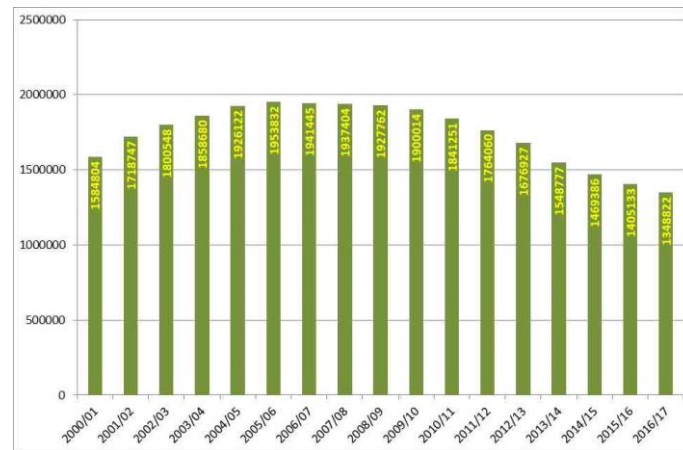


Figure 3: Total number of students in Poland in 2000-2016 (source: www.studyinpoland.pl)

Despite the increase in total number of foreign students that choose Poland to study, there are still fewer percentage of foreign students studying in Poland in comparison to the most developed European countries or China, but also in comparison to the neighbouring states as Czech Republic, Hungary, Slovakia or Lithuania.

3 POLISH NATIONAL AGENCY FOR ACADEMIC EXCHANGE NAWA

Polish National Agency for Academic Exchange (NAWA) was set up in 2017 with the aim to coordinate all state activities determining the process of internationalization of Polish academic and research institutions by:

- supporting international mobility of students, academics and researchers;
- supporting the process of internationalization of Polish HEIs and research institutions;
- promoting Polish science and higher education worldwide;
- promoting and popularize teaching of Polish language.

The Agency's mission is to support academic exchange and international cooperation in order to strengthen the potential of Polish science and higher education. The Agency's task is

to conduct a long-term policy to support academic mobility and pro-quality internationalization of the Polish universities offer, among others through the implementation of programmes addressed to students and academic staff both from Poland and from abroad.

NAWA (<https://nawa.gov.pl/en/>) offers programmes for outgoing Polish students and for incoming foreigners. At present, foreign students are offered scholarship programmes as part of development assistance and a scholarship programme for persons of Polish origin. Polish students have the opportunity to go abroad under the Central European University Exchange Programme (CEEPUS), which is the second largest academic exchange programme after the Erasmus + programme - and on the basis of bilateral agreements with third part countries.

4 SELECTED FORMS OF INTERNATIONAL COOPERATION IN THE EDUCATION AREA – EXPERIENCE OF WUST AND BUT

4.1 Description of the faculties offering civil engineering major

Wrocław University of Science and Technology (WUST) is the largest technical university in the Lower Silesia. It offers 51 fields of studies in more than 130 specializations (also within the individual course of study), including 31 programmes taught in foreign languages. Wrocław University of Science and Technology currently educates approximately 28,000 students and 854 PhD students. The academic staff consists of 2,165 research and teaching academicians. All faculties of WUST have been participating in the Erasmus programme since it began functioning at universities in Poland. Within the Erasmus Programme, Wrocław University of Science and Technology cooperates with 270 foreign universities, and its faculties have signed more than 390 bilateral agreements.

The Faculty of Civil Engineering (FCE) provides of civil engineering study in general academic profile, at both the first (BSc) and the second (MSc) cycles and in full- and part-time forms. The curriculum is fully based on NQF and for the first time it was introduced in the academic year 2012/2013. At the BSc level students can choose from three diploma specializations: Building Engineering, Geo-engineering and Hydro-engineering, and Civil Engineering (all given in Polish). At the MSc level students can elect one of 9 specializations: Building Structures, Building Technology, Hydro-engineering and Special Structures, Underground and Urban Infrastructure, Roads and Airports, Railway Engineering, Bridge Engineering, Theory of Structures (all given in Polish), and Civil Engineering, given in English. After completing any of these BSc or MSc specializations graduates can apply for recognition of the Polish Chamber of Civil Engineers. Currently, FCE educates 2,300 students and 50 PhD students and the faculty employs nearly 160 of academic staff.

The WUST has 826 foreign full-time students while there are 42 students from abroad (in 2016 there were 26 students) at the FCE. The development of the total number of foreign students at WUST is presented in Fig. 4. It can be seen that currently full-time foreign students constitute only about 2.87% of total number of WUST students. This number is even less at the FCE reaching only 1.81%.

Bialystok University of Technology (BUT) is the largest technical university in the northeast of Poland. Bialystok Technical University currently offers 26 fields of studies and numerous specializations at full-time and part-time studies. The university educates about 8,500 students and the teaching staff consists of nearly 660 academics.

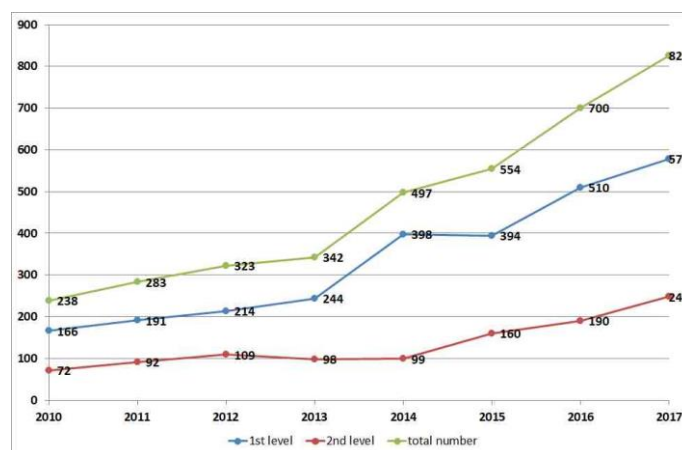


Figure 4: Total number of full-time foreign students at WUST in 2010-2017 (source: WUST IROffice)

All faculties of BUT have been participating in the Erasmus programme since 1998. Within the framework of bilateral contracts, the university actively cooperates with 130 foreign institutions. BUT offers 10 full educational programmes in foreign languages (including two doctoral programmes), and for students of the Erasmus programme it also offers a selection of courses from all conducted fields of studies.

The Faculty of Civil and Environmental Engineering (FC&EE) offers five graduate programmes at full-time and part-time studies: Civil Engineering, Spatial Planning, Landscape Architecture, Environmental Engineering and Environmental Protection. Studies are organized in three-cycle structure recommended by the European Union (Bologna Declaration) with PhD course as the highest cycle. The majority of course units at the FC&EE is taught in Polish. Although, there is a number of courses offered in English. English taught studies are offered in the following study programmes: Environmental Engineering, Construction and Building Systems Engineering, Landscape Architecture and Civil Engineering. Currently, more than 2,400 students and about 50 PhD students study at the FC&EE. The Faculty employs nearly 160 academics.

In addition to offering the full cycle study in English, Faculty of Civil and Environmental Engineering of BUT focuses on short-term stays of foreign students (one or two semesters) as part of exchange programs, internships, double degree programmes and freemovers. The development of number of foreign students at FC&EE is presented in Table 1. *Civil engineering* has been the most popular field of study for many years.

Table 1. Foreign students at FC&EE of BUT (source: BUT IROffice)

| Academic year | Erasmus+ KA103/KA107 | Freemovers | Internship | Full time | Double degree | Total |
|---------------|----------------------|------------|------------|-----------|---------------|-------|
| 2014/2015 | 75 | 5 | 4 | 3 | 5 | 92 |
| 2015/2016 | 86 | 16 | 0 | 1 | 36 | 139 |
| 2016/2017 | 84 | 8 | 1 | 5 | 34 | 132 |
| 2017/2018 | 64 | 3 | 1 | 37 | 36 | 141 |

4.2 ERASMUS+ programme

The ERASMUS+ Programme has been carried out in Poland since 1987. Despite its scope and objectives being broadened over almost 30 years, the main idea remains the same - development of international co-operation among universities. It supports international cooperation of universities, enables students to go abroad for part of their studies and internship, promotes the mobility of university staff and creates numerous opportunities for universities to participate in projects with foreign partners.

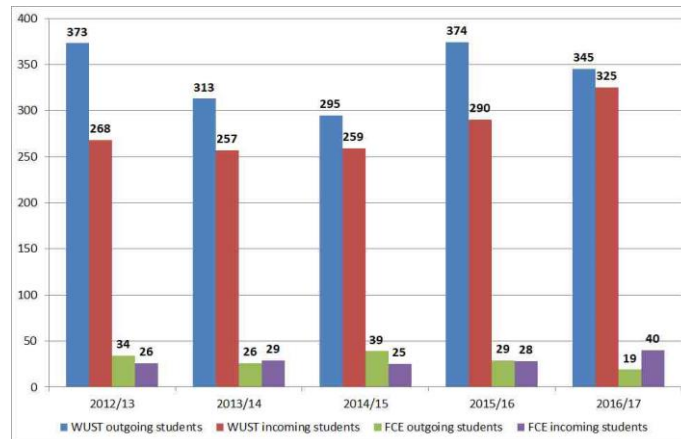


Figure 5: Total number of outgoing and incoming students at WUST and FCE within Erasmus+ programmes (source: WUST IROffice)

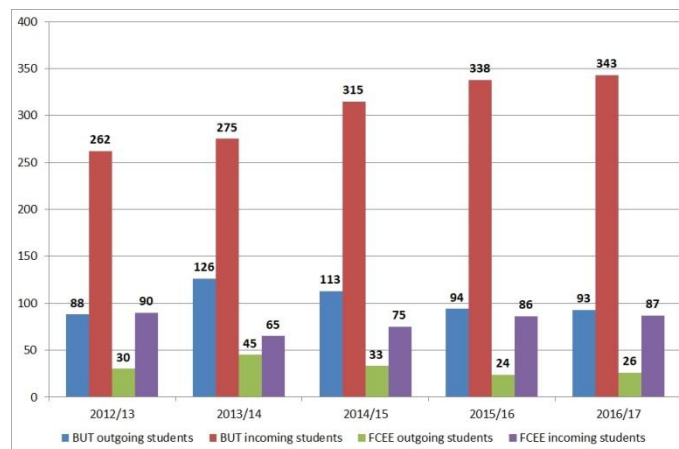


Figure 6: Total number of outgoing and incoming students at BUT and FC&EE within the Erasmus+ programmes (source: BUT IROffice)

ERASMUS is the most popular programme for international exchange of students and academic and administrative staff. Currently, the following types of ERASMUS activities are conducted at WUST and BUT: Erasmus+ - studies abroad and student and graduate internships (KA103) in programme countries, Erasmus+ with partner countries (KA107) and Erasmus Mundus. The total number of students participating in Erasmus+ programme and

number of students of considered faculties are presented in Figs 5 and 6. Both universities are very active participants of Erasmus+ programme, but the trends in the numbers of outgoing and incoming students are totally different.

4.3 Double diploma and T.I.M.E. programmes

The T.I.M.E. programme is implemented by the elite of European universities with a recognized teaching and scientific reputation, based on trust, reciprocity and equivalence of the partners' benefits. The study is awarded with two diplomas that increase the employment opportunities of graduates on the European labour market. Thanks to agreed programmes, students, by completing a part of the study programme at a partner university, obtain a double diploma: a home university and a partner university. The programme assumes extending standard studies by one year (4 years at the home university and 2 at a partner one), studying in the partner's language and treating foreign students equally with their own students.

The WUST conducts, in cooperation with selected partner universities, education programmes within the framework of double diploma agreements, the so-called double degree. A significant part of these agreements was signed thanks to the WUST affiliation to T.I.M.E. Association as the first Polish technical university in 2004. The FCE of WUST is currently a partner in the T.I.M.E. programme with: Ecole Centrale de Lille, Politecnico di Milano, and Ecole des PontsParistech.

The FC&EE offers cooperation within double diploma programme with Lviv Polytechnic National University, Poltava National Technical University, Moscow State University of Civil Engineering, Tianjin Chengjian University (for incoming students), Hebei Normal University for Nationalities, Polytechnic Institute of Bragança, Polytechnic School of Belmez, University of Cordoba, University of Beira Interior, Universite de Valenciennes et du Hainaut-Cambresis.

4.4 Study programmes in foreign languages

From 2010 the FCE of WUST offers the MSc specialization in *Civil Engineering* [9] given in English and dedicated to foreign students (both the full-time and Erasmus ones) as well as for Polish students keen on study in English. The *CE* specialisation enables a graduate to gain extended knowledge and skills in the area of design and construction of different building objects such as composite reinforced concrete and steel structures, building structures, urban engineering objects, roads and highways, bridges, railway engineering objects. Moreover the graduate possesses extended knowledge of hydraulics and computer aided engineering. In the year 2017-2018 the total number of students studying this specialization was 62, including 14 participants from abroad.

The FC&EE of BUT offer for study in English consists of the following full-time studies: *Civil Engineering*, *Environmental Engineering*, *Construction and Building Systems Engineering*, and *Landscape Architecture*. Graduates of the *CE* course will acquire comprehensive knowledge of: erecting apartment buildings, transportation and industrial infrastructure, designing engineering structures. They will also have knowledge of building technology, organization and management as well as building development using modern technologies and computing techniques in civil engineering practice. On completing the course of *EE* graduates will have extensive knowledge how to solve technical, technological

and organizational problems related to the protection, utilization and conversion of environmental resources both in rural as well as urban environment. The graduate of *CBSE* is prepared to perform construction as well as building systems installation manager duties and responsibilities. They are also prepared to design civil-engineering objects of small volume, including their basic building systems. Graduates of *LE* will attain all the necessary abilities to carry out design, documentation and stock taking work in the field of planning green areas (parks and gardens) in urban open spaces. Currently, the number of participants in these courses is 40, including 33 students from abroad.

4.5 Summer schools

One of the best ways to acquire foreign students to study at the universities are summer schools [10]. Summer schools in recent years experienced a huge development at European universities - this is very often the result of the need to search for foreign candidates for studies, especially from countries such as India and China, in the face of shrinking number of national candidates. In addition, summer schools, very often narrowly profiled, allow for the fetching of the most talented students, promising the opportunity to carry out later scientific work. Of course, the undeniable advantage of these schools is cooperation between students coming from many different countries and continents.

At WUST there are organized the following summer schools: TECHSummer2018 (dedicated to students from India); Energy, Excellence, Excitement 3E+; Summer School of Architecture; GUT Summer School (dedicated for students from Guilin University of Technology). In the two first schools FCE of WUST is one of the leading faculties. For example, TECHSummer started with 15 students in 2014 and there was 53 Indian young people in 2017.

BUT organized the following summer schools: Polish-German-Belarusian Summer School for students from BUT, Belarusian National Technical University in Minsk, and Eberswalde University for Sustainable Development (3 editions of international summer school in Poland, Germany and Belarus); Polish-Chinese Summer School (2016, 2017) for students from BUT, School of Management of Zhejiang University Ningbo Institute of Technology (ZJUNIT) from China; Summer Schools VIPSKILLS (Virtual and Intensive Course Developing Practical Skills of Future Engineers) dedicated for civil and environmental engineering students from BUT, University of Cordoba and Vilnius Gediminas Technical University.

5 INTERNATIONAL ACCREDITATION OF STUDY PROGRAMMES

The Polish Accreditation Committee (PKA) - an independent institution working with the aim of education quality improvement has been working in Poland since 2002. The primary objective of the PKA is to support Polish public and non-public higher education institutions in the development of educational standards matching the best models adopted in the European and global academic area. Another institution dedicated exclusively to assessment of technical fields of studies is the Accreditation Commission of Universities of Technology (KAUT). It is authorized by the European Network for Accreditation of Engineering Education (ENAAE) to award also the European EUR-ACE[®] Label certificate.

Currently, the Polish Ministry of Higher Education and Science, opened a project dedicated to support Polish higher education institution in obtaining international

accreditations. In case of *civil engineering* field-of-study the ABET Accreditation and ENAEE (EUR-ACE[®] Label) are the most desired.

6 CONCLUSIONS

In the paper, based on the data on international exchange of two selected Polish technical universities (WUST and BUT) and their faculties educating in the civil engineering field-of-study, respectively: Faculty of Civil Engineering and Faculty of Civil and Environmental Engineering, as well as on presentation of selected forms of implemented activities (international exchange programmes, foreign language education programmes, double diploma programmes, summer schools etc.) the current condition of the internationalization process at these institutions was discussed.

Due to the length of existence, the largest student exchange is organized as a part of the Erasmus+ programme activities, although it is limited by the granted funds. Three other forms of action are becoming increasingly important: study in foreign languages, double diploma agreements and summer schools. The latter one constitutes a very good way of presenting the universities and faculties to potential candidates, especially from such countries as India, Turkey, China or Vietnam, in the case of the universities considered. Together with the BSc and MSc programmes, offered in foreign languages, and obtained international accreditations, they seem to be the best solution for increasing the internationalization level of Polish HEIs.

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