

## Experience of establishing and accrediting of a joint degree study programme

Algirdas V. Valiulis & Vytautas Bučinskas

Vilnius *Gediminas* Technical University  
Vilnius, Lithuania

**ABSTRACT:** Accreditation is a process to evaluate the standard of academic institutions around the world. Higher education programme accreditation is a type of quality assurance process, under which services and operations concerning an educational programme are evaluated by an external body to determine, if applicable standards are being met. If standards are met, accredited status is granted by the agency. The joint programme here refers to the higher education programme leading to the awarding of a joint degree. The joint degree is a single document awarded by higher education institutions offering the joint programme. This degree is acknowledged as the recognised award of the joint programme in all relevant countries. Since it is a joint award, this means that it is presented as a single document. In this article, the authors write about the merits and limitations of international accreditation of joint degree programmes offered by Braunschweig University of Technology (Germany) and Vilnius *Gediminas* Technical University (Lithuania).

**Keywords:** International accreditation, quality assurance, joint programmes

### INTRODUCTION

Joint programmes are a hallmark of the European higher education area (EHEA). They are set up to enhance the mobility of students and staff, to facilitate mutual learning and cooperation opportunities and to create programmes of excellence. They offer a genuine European learning experience to students [1].

*Joint programmes* are understood to be an integrated curriculum coordinated and offered jointly by different higher education institutions from EHEA countries, and leading to a joint degree. A joint degree programme is one in which a single degree is authorised and conferred by two or more partner institutions with faculty, administration and governance boards agreeing to share educational resources, responsibility, accountability and authority for the degree. The institutions that offer a joint programme should be recognised as higher education institutions by the relevant authorities of their countries. Their respective national legal frameworks should enable them to participate in the joint programme and, if applicable, to award a joint degree. The institutions awarding the degree(s) should ensure that the degree(s) belong to the higher education degree systems of the countries in which they are based.

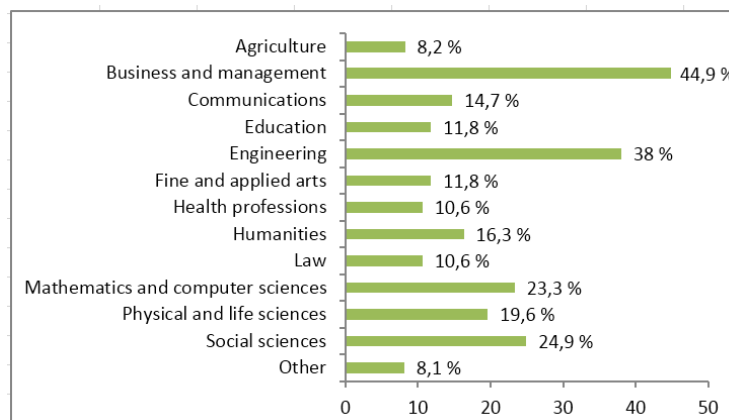


Figure 1: The fields in which institutions most want to develop new joint degree programmes [2].

The fields in which institutions most want to develop new joint degree programmes are the same fields that are most common in existing programmes: business and management, and engineering, followed by social sciences and mathematics and computer sciences (Figure 1).

A clear majority of higher education institutions (HEIs) from the developed countries plan to develop new programmes mostly at the Master's level (Figure 2).

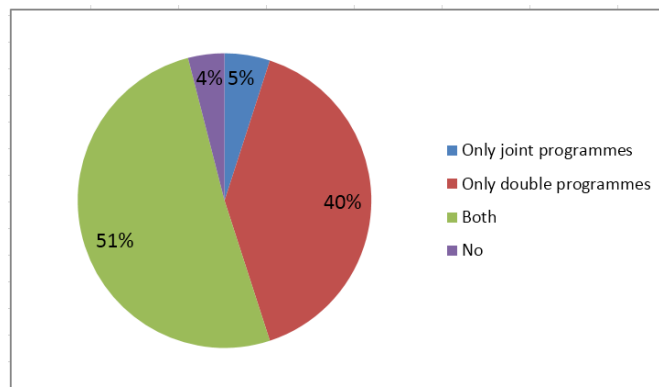


Figure 2: Institutional plans to develop joint or double degree programmes [2].

The member institutions offering the joint degree programmes are expected to design and operate joint degree offerings in conformity with the EU standards of accreditation, procedures and policies, including, but not limited to mission, integrity, curriculum and resources. In particular, member institutions are expected to ensure the integrity of operations and quality of these joint degree programmes leading to approved degrees that are awarded, including those of any partner institutions.

Member institutions offering joint degrees are expected to have the appropriate governmental permissions, to have clear written plans to offer, to monitor and assess these programmes, and to have clear, detailed agreements with partner institutions that describe all aspects of the relationship including, but not limited to such areas as administration, finance and governance related to the operation of the programme. The partner institution(s) must be duly licensed, approved, recognised or accredited by the appropriate bodies or agencies [3].

## DEVELOPMENT OF JOINT DEGREE STUDY PROGRAMME

International joint degree programmes are study programmes collaboratively offered by two (or more) HEIs located in different countries. They typically feature a jointly developed/integrated curriculum and agreed upon credit recognition. Students typically study at the two partnering HEIs (i.e. one home institution + one institution abroad). Upon completion of the study programme students are awarded a single degree certificate issued and signed jointly by all institutions involved in the programme.

This article presents a description of the study programme developed from existing studies of mechanical engineering in Vilnius *Gediminas* Technical University (VGTU) and a programme offered by Braunschweig University of Technology (BUT). Development of this particular study programme: *Mechatronics* took years of experience and intense cooperation with partners.

### Programme Initiation

The joint degree programme was initiated from the bottom up (i.e. individual professors' activities) and later on was supported by joint efforts from faculty leadership. In choosing a partner institution, the initiative was based on using exchange partners, a known contact and grant programmes. Positive aspect is that the institutions currently have a policy regarding the development of joint degree programmes and have implemented additional structures to handle the administration of joint degree programmes.

### Motivations

Motivations for launching a joint degree programme were the following: broadening educational offerings, advancing internationalisation, raising international visibility, increasing foreign student enrolments, increasing revenue.

The necessity of such a programme is based on market needs. In Lithuania, there are over 200 enterprises with activities in engineering and machine production, therefore, they produce equipment containing mechatronic components [4].

Almost all industrial enterprises have activities connected with mechatronics, even food or packing industry is fully equipped with mechatronic equipment (Figure 3 and Figure 4). Overall in Europe, there are over 35,000 free

engineering work places [5]. Mechatronic engineers are not presented as a separate item; they fall within such a number. In Germany at the moment, there are free working places for 26,000 engineers of this specialty [6].

The study programme is organised so that 1st and 2nd semesters are organised in VGTU, 3rd and 4th semesters are in BUT. Defence of the final project will take place in Braunschweig; both parties will participate in procedure. Students will study in the common group from both universities. Diplomas will be issued from both universities with a common diploma addendum. The study programme is coordinated by a programme board, consisting from five members. This board guides the programme and reacts to changes in the market and impact on the content of curricula.

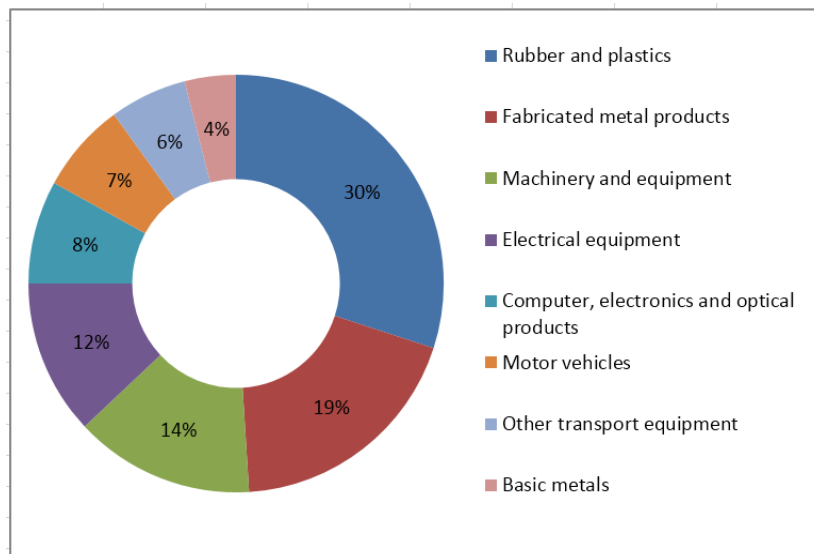


Figure 3: Structure of engineering industry in Lithuania [4].

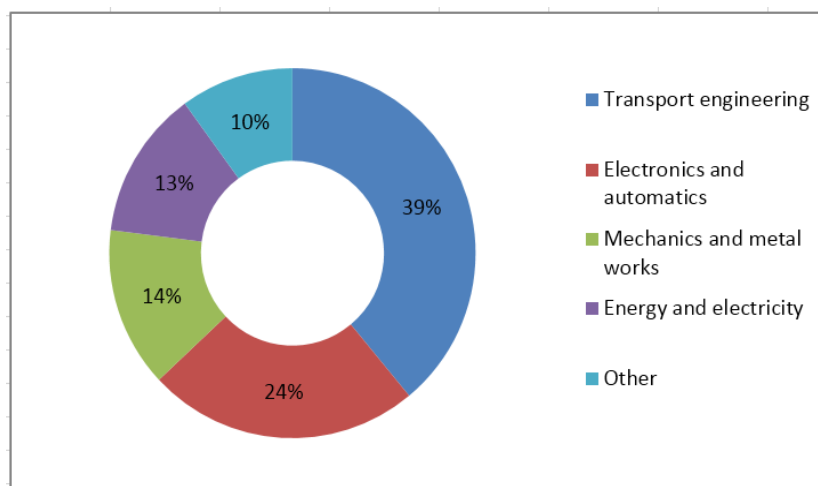


Figure 4: Engineering students' structure by major fields [4].

In general, there are two common patterns of student mobility in joint degree programmes. Students can form a cohort and *travel* together, starting in one location and transferring to another as a group. Alternatively, students can start their studies at different locations and later transfer to one or more participating institutions separately. Currently, the second option is more common.

The student selection is performed separately by each participating institution, but is based on common criteria and common interview for candidates. The recruitment strategy is focused on local and international students.

The most common media for recruiting students are the Web sites, programme homepages, national and international studies fairs, and involvement of other intermediate personnel in the recruitment process. The majority of students are enrolled at each institution according to the place of study for the entire programme.

Facilities of both partner universities are adequate for a study programme in *mechatronics*. There are enough auditoriums, laboratories and libraries for students and academic staff. Each partner institution has to provide the resources necessary for the operation of an adequate study programme. These include financial, technological and physical resources, and sufficient personnel. Adequate facilities include sufficient space for students and staff, and adequate and flexible space for information technology.

There are more laboratories available at BUT (seven institutions with extensive laboratories), therefore, the final project and Master's thesis is performed there. Such configuration of curricula brings additional value to joint study programme. VGTU has sufficient laboratories to perform their part of this study programme, only in the Faculty of Mechanics, laboratories of four departments are used directly; laboratories of other faculties are also available.

## Impact

The important impacts of joint degree programmes are:

- greater collaboration between faculty at the home institution and partner institution;
- increased international visibility of the institution;
- increased internationalisation of the campus.

The main challenges to setting up the joint degree programme were following:

- ensuring sustainability;
- securing adequate funding;
- legal issues;
- recruiting students;
- curriculum design;
- securing support from national/international organisations/governments;
- accreditation;
- academic calendar differences;
- institutional support;
- credit transfer agreement;
- communicating with partner;
- fee structure agreement;
- language issues;
- degree duration agreement;
- double counting of credits issue.

The most difficult challenge is aligning the academic regulations to encompass all individual requirements and ensuring that the essential elements are agreed to by all partners.

Adoption of the joint degree arrangements with international partners has required substantive policy/regulatory amendments to be implemented. This has been time consuming as changes have necessarily required approval through a number of key University committees.

One of the challenging aspects of setting up joint degree programmes is language issues, which is consistent with the findings that English is the main language of instruction for joint degree programmes. The big challenge is in securing the funds needed to run the programme. A joint degree programme is more demanding in terms of quality and budget.

The biggest challenge is developing the flexibility within administrative structures to support a programme that does not comport with the regular academic calendar and where there are differences in faculty workloads or differences in faculty compensation. The challenge is that countries have strict and centralised educational policies where the universities involved do not have the opportunity to negotiate freely and sometimes can actually not bestow titles on the basis of a dual degree.

## Value

The joint study programme adds value to both universities:

- studies in English will broaden labour markets and bring European values to this study programme;
- for VGTU, it provides the opportunity to use the experience and good practice of one of the oldest technical universities;
- for BUT, it is a chance to enter emerging markets and to arrange education in an international environment;
- the programme will attract students from third countries as challenging and good education quality, good experience and the opportunity to gain new connections during studies.

## FACULTY RESEARCH - AN ESSENTIAL FACTOR FOR THE JOINT DEGREE STUDY PROGRAMME

The International Group of Independent Experts formulated proposals for potential of *smart* specialisation in Lithuania. The fields of priority of the Faculty of Mechanics lay within these smart specialisation areas: health technologies and new processes, materials and technologies for industry.

The *niche* of the Faculty of Mechanics could be found by integrating traditionally strong areas of industrial engineering (mechatronics and robotics), mechanical engineering, materials engineering (formation of surfaces coatings), more advanced research techniques including tools of computational mechanics (mechanics of particles), application of integrated tools for the investigation of advanced technological processes and development of advanced materials.

Even today the results achieved in the area of modelling of particulate solids by the discrete method allow for the conclusion that a niche has already been found. Further interdisciplinary integration and collaboration with national and international partners in research centres, medicine centres, medical clinics and industrial enterprises is expected to open new vistas in the following areas:

- innovative medical and biomechanical engineering with an application to understanding the causes and mechanisms of diseases, improve the ability to diagnose and to monitor health and preventing, detecting and managing diseases, and supporting active and healthy life-style;
- biomaterials, formation of multifunction covers and super-hard materials processing.

Scientific activities between the universities have been dynamic for a long time, but now have intensified. Over 10 years VGTU has academic exchange for staff and students. This created deeper scientific relationships; two senior researchers had long-term scientific stays in BUT, and there were some PhD students engaging in common research. Most active in this field was the BUT's Institute for Design Engineering. There will be forthcoming joint scientific activity and common publications. There have already been some publications.

## ACCREDITATION

Joint programmes are programmes offered jointly by different higher education institutions irrespective of the degree awarded. Joint programmes could be subjected to the accreditation procedures by different accreditation organisations in each of the states in which the joint programme is offered. These distinct accreditation jurisdictions simplify the potential involvement of several accreditation organisations and, therefore, the execution of different accreditation procedures [6].

The aim of the accreditation strategy is to ensure that the institutions that offer education and training undergo the process of accreditation and ensure the quality at all times. Higher education accreditation is a type of quality assurance process, under which services and operations of post-secondary educational programmes are evaluated by an external body to determine if applicable standards are met. The executed educational programmes are evaluated according to six evaluative areas: programme objectives and expected results of the studies, programme structure, personnel, material resources, the study process and its evaluation, and programme management.

The process begins when a self-study of a programme is submitted, a document that includes:

- training goals, objectives and practices;
- student, faculty and financial resources;
- programme policies and procedures;
- competencies students are expected to obtain;
- actual outcome data that demonstrates the achievement of these competencies.

The purpose of current accreditation is to recognise excellence in professional education in member universities at the postgraduate level. The evaluated assessments are used by the stake holders, students, employers and society at large.

Currently, the study programme in *mechatronics* has national accreditation in Lithuania and Germany. The joint degree programmes award students a single degree upon completion, which requires standardisation between the partner institutions in both countries. There is an EU system of internationally-recognised accreditation, but local laws and bureaucracy are additional burden and barriers to the accreditation process. At the postgraduate level, the difference in number of years for the studies implies difficulties when implementing a common study plan.

## CONCLUSIONS

Each study programme is inevitably unique to the particular needs of the institutions involved and the circumstances surrounding the partnership. Despite funding issues and challenges in the area of accreditation, joint degree programmes are on the rise. Many countries plan to develop joint degrees.

The engineering discipline is likely to remain one the most popular disciplines for collaborative degree programmes. It is likely that there will be a further rise in joint degree programmes. The development of joint degree programmes that largely started in Europe in the 1990s has by now become a global trend and is rapidly spreading to other continents.

While English will most likely remain the most common language for such degree programmes, language barriers may persist as enrolled students will be from more varied countries.

The biggest challenge for institutions involved in joint degree programming is that of ensuring sustainability. In this context, universities tend to point towards lack of funding and relatively small student numbers.

Thus, institutions expanding their joint degree programme portfolios would be forced to establish a clear and comprehensive strategy and guidelines for the development of such programmes, and the collaborative programmes should be an integral part of their university's internationalisation strategy.

## REFERENCES

1. European Approach for Quality Assurance of Joint Programmes (2014/2015), 13 March 2016, [https://www.eqar.eu/fileadmin/documents/bologna/02\\_European\\_Approach\\_QA\\_of\\_Joint\\_Programmes\\_v1\\_0.pdf](https://www.eqar.eu/fileadmin/documents/bologna/02_European_Approach_QA_of_Joint_Programmes_v1_0.pdf)
2. Institute of International Education, Joint and Double Degree Programs in the Global Context. Report on an International Survey (2011), 13 March 2016, <http://www.iie.org/Research-and-Publications/Publications-and-Reports/IIE-Bookstore/Joint-Degree-Survey-Report-2011>.
3. Joint and Double Degree Programs: an Emerging Model for Transatlantic Exchange. Obst, D. and Kuder, M. (Eds), Institute of International Education and the German Academic Exchange Service (2009).
4. Justinas Pagirys. Manufacturing. Let's talk Lithuania (2015), 13 March 2016, [https://www.google.lt/search?q=4.+Justinas+Pagirys.+Manufacturing.+Let%27s+talk+Lithuania2015.&oq=4.+Justinas+Pagirys.+Manufacturing.+Let%27s+talk+Lithuania-2015.&aqs=chrome..69i57.3159j0j4&sourceid=chrome&es\\_sm=93&ie=UTF-8](https://www.google.lt/search?q=4.+Justinas+Pagirys.+Manufacturing.+Let%27s+talk+Lithuania2015.&oq=4.+Justinas+Pagirys.+Manufacturing.+Let%27s+talk+Lithuania-2015.&aqs=chrome..69i57.3159j0j4&sourceid=chrome&es_sm=93&ie=UTF-8)
5. Association of German Engineers (VDI), European Engineering Report (2010), 13 March 2016, [https://www.vdi.de/uploads/media/2010-04\\_IW\\_European\\_Engineering\\_Report\\_02.pdf](https://www.vdi.de/uploads/media/2010-04_IW_European_Engineering_Report_02.pdf).
6. European Consortium for Accreditation, Principles for Accreditation Procedures Regarding Joint Programmes (2015), 13 March 2016, [http://ecahe.eu/w/index.php/Principles\\_for\\_accreditation\\_procedures\\_regarding\\_joint\\_programmes](http://ecahe.eu/w/index.php/Principles_for_accreditation_procedures_regarding_joint_programmes)

## BIOGRAPHIES



Algirdas Vaclovas Valiulis graduated in mechanical engineering from Kaunas Polytechnic Institute (Kaunas, Lithuania) in 1967, was awarded a PhD (materials science) from Dnepropetrovsk Ferrous Metallurgy Institute (Dnepropetrovsk, Ukraine) in 1974 and a Doctor Habilitus degree in 1997. Since 1998 he has been a professor and a full member of Lithuanian Academy of Science. His research interests are in arc, resistance, lasers, diffusion welding, surfacing and coating, heat treatment of ferrous metals, curriculum development of study programmes. Since 2006, he has been Dean of the Faculty of Mechanics at Vilnius *Gediminas* Technical University, Vilnius, Lithuania. He has authored over 500 research, methodological, scientific and study organisation publications, including several books and textbooks, and many study guides and manuals. He has presented over 100 papers at international conferences. Currently, he is a national representative for Lithuania in the

European Commission Coal and Steel Committee (COSCO) and the European Commission European Steel Technology Platform (ESTEP). Also, he is a Board Member of the Lithuanian Confederation of Industrialists.



Prof. Dr Vytautas Bučinskas was born in Siauliai, Lithuania, in 1962. He graduated as an automotive engineer in 1980. In 2002, he defended a doctoral thesis in the field of mechanical engineering at Vilnius *Gediminas* Technical University, Vilnius, Lithuania. In 2012, he passed a procedure for a professorial position. Since 2013, he has held the position of head of the Mechatronics and Robotics Department at Vilnius *Gediminas* Technical University. His main scientific interest is in research and implementation of mechatronic systems, as well as the use of smart materials in mechatronic systems.