



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Kauno kolegijos

**STUDIJŲ PROGRAMOS *BIOMEDICINOS*  
*DIAGNOSTIKA (653B81002)***

**VERTINIMO IŠVADOS**

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**EVALUATION REPORT  
OF *BIOMEDICAL DIAGNOSTICS (653B81002)***

**STUDY PROGRAMME**

at Kaunas College

Grupės vadovas:  
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Išvados parengtos anglų kalba  
Report language - English

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## DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Biomedicinos diagnostika</i>
Valstybinis kodas	653B81002
Studijų sritis	Biomedicinos mokslai
Studijų kryptis	Medicinos technologijos
Studijų programos rūšis	Koleginės studijos
Studijų pakopa	pirmoji
Studijų forma (trukmė metais)	Nuolatinė (3)
Studijų programos apimtis kreditais	180
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Biomedicinos diagnostikos profesinis bakalauras, technologas
Studijų programos įregistravimo data	2001-08-29

## INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Biomedical diagnostics</i>
State code	653B81002
Study area	Biomedical Sciences
Study field	Medical technology
Kind of the study programme	College studies
Study cycle	first
Study mode (length in years)	Full-time (3)
Volume of the study programme in credits	180
Degree and (or) professional qualifications awarded	Professional Bachelor of Biomedical Diagnostics, Technologist
Date of registration of the study programme	08-29-2001

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The Centre for Quality Assessment in Higher Education

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## CONTENTS

CONTENTS .....	3
I. INTRODUCTION .....	4
II. PROGRAMME ANALYSIS.....	4
1. Programme aims and learning outcomes.....	5
2. Curriculum design .....	6
3. Staff .....	7
4. Facilities and learning resources.....	8
5. Study process and student assessment.....	9
6. Programme management .....	12
III. RECOMMENDATIONS .....	13
IV. SUMMARY .....	14
V. GENERAL ASSESSMENT .....	18

## I. INTRODUCTION

Center for Quality Assessment in Higher education has started the evaluation procedure for the Study Programme of Biomedical Engineering at Kaunas College, Kaunas, Lithuania, according to the Procedure Of The External Evaluation And Accreditation Of Study Programmes, 24 July 2009 No ISAK-1652 amended on 05.11.2009; 17.12.2009; 30.09.2010. The necessary documents, including relevant legislature, Self Evaluation Report (hereinafter SER) and its annexes were completed prior the evaluation process. The evaluation team, consisting of:

Prof. dr. Aleksandar Jovanovic

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Birutė Lašaitė (student representative)

was established in due time and has started the first phase of the evaluation process, which was based on the documents provided and the existing legislation acts and the Law on Higher Education and Research. The same team participated in the second phase of the evaluation, consisting of the site-visit to the institution organizing the Study Programme and the interviews with the stakeholders and evidencing the premises and the equipment quality in relation to the Study Programme requirements.

## II. PROGRAMME ANALYSIS

After the 2007 Study Programme evaluation recommendations (SER, p33), the College made the exceptional effort to resolve these issues along with the ones that were within its competences. The College representative worked with the Ministry of Education and Science to create new 2010 classificatory of the study fields and programmes. Moreover, in that period the Biomedical Diagnostic Study Programme Committee and the teachers revised programme, thus reorienting it towards the output based education. According to the Law, students have the opportunity to continue their studies in the second cycle study programmes after completion of bridging courses in Lithuania, but not many students opt for this (Site visit on 23.04.2014). The

students should have the clear information about these opportunities. The vast majority of students (Site-visit on 23.04.2014.) and graduates expressed an interest to further their education and appeared knowledgeable of the process required. The students suggested programmes such genetic studies, biochemistry etc. in a number of universities. This ambition was not recognised by the staff (Site-visit on 23.04.2014.) and greater discussion with the students and support in this area should take place.

Additionally, the Programme was further amended in 2011 in order to reduce its scope to the rational level, foster international mobility and improve the staff research performances.

### ***1. Programme aims and learning outcomes***

The name of the programme, its learning outcomes, content and qualification offered are compatible with each other. The aim of the study programme is well-defined and consistent with the bachelor EQF level VI (Professional bachelor studies) requirements (e.g. professional qualification of a technologist who is able to perform biomedical -haematological, microbiological, biochemical, genetic, cytological, toxicological, serological, etc., environmental -air, water, soil, food, etc., laboratory and applied research, who is able to communicate and to cooperate in multi profile team, capable to plan one's own activities regarding the changing environment.). The aim and the competences listed in SER, p 6, which are used to describe the aim more closely, are also in accordance with the level 6 LTQF descriptor. The aim of the study programme corresponds to the description of requirements for the first cycle degree and consecutive study programmes

The learning outcomes at the Study Programme level are well defined. They are in accordance with the descriptors and competences defined at the level VI of EQF, and LTQF, and Bloom's taxonomy guidelines. The Programme outcomes are directly linked to the contents and names of the courses within the Study Programme (SER, table 2). The Study Programme management, staff and the social partners do the additional effort to analyse the actual labour market requirements and further adjust the learning outcomes to cover those requirements as much as possible. A very positive feedback from social partners, employers and mentors was obtained during the study visit. They are very confident that their suggestions are taken into programme development.

The learning outcomes of the study programme are clear and consistent with each other. Since the learning outcomes were already adjusted and reformulated in the previous period according to the students' performances, learning strategies and labour market needs, they are not "intended" any more and that terminology is not adequately used in the SER, p 8.

## **2. Curriculum design**

The scope of the Programme is 180 credits and it consists of 6 semesters, each bearing 30 credits, which is all in accordance with the legal acts (e.g. General Requirements of First Degree and Integrated Study Programmes, 2010). The scope of the Programme is sufficient to ensure learning outcomes. The prescribed minimum of 15 credits was given to general subjects, 135 were allocated to the study field subjects, 32 to the professional practice and 9 to the qualification examination and the final thesis. The elective subjects are awarded with 30 credits and they are divided in the deeper specialisation category (subjects prescribed by the College in the area of deeper specialization) and the free electives (9 credits). Almost 150 elective subjects could be chosen from the list provided and published online by Kaunas College, thanks to very good inter-programme and inter-institutional cooperation. Free electives could be chosen from the unrelated study programmes, thus expanding students' competences in the light of the labour market competition. Moreover, the Programme is constantly updated in order to better fit the European context. New subjects were included recently (for example, Molecular research, Environmental medicine - SER, p 13), while the contents of others were renewed.

The distribution among the general subjects, subjects in the specific study field and the elective subjects are within the Requirements of College study programmes, thus meeting legal requirements. However, since the final examination comprises both final thesis defence and qualification examination, it could be awarded with more credits than legal minimum.

In Biomedical Diagnostics study programme (hereinafter BDSPP) subjects are distributed consistently in semesters following systematic and logical sequence, continuity principle, subjects or topics are not repetitive (SER, p 12). The subject contents and learning methodology

corresponds to the type of the studies. Credits are distributed evenly per year as well as per semester.

The theoretical subjects/practical training ratio is also in accordance with the legislature (General Requirements of First Degree and Integrated Study Programmes, 2010). Great attention is paid to the practical part of the studies, which is the prominent strength of this Study Programme. There is a holistic approach during clinical professional practice with students engaging with patients, acquiring samples, laboratory analysis and grand rounds. This is to be especially commended.

The opportunities for the practical trainings are diverse and include a number of health care institutions with clinical, microbiological, public healthcare and pathological anatomy laboratories. During the practice, the students are supervised both by college – based mentor and practice tutor. Students receive training in good laboratory facilities with clinical settings, gaining expertise in manual techniques and modern automated bio-analysis systems, including calibration and setup routines.

### **3. Staff**

The total of 28 teachers provides the Biomedical Diagnostics Study Programme 18 of whom work full time. The teaching staff is comprised of 4 docents, 22 lecturers and 2 assistants. Seven teachers have PhD degree; three of them are doctoral students. In addition, one third of the teachers have double-master degree. All teachers have more than three years of experience in their respective fields. Therefore, the number and qualification of the teachers working in the BDSP study programme is sufficient for achievement of the study programme aims and learning outcomes and corresponds to the requirements of the legal acts. Also, the teachers' workload is in accordance with legal guidelines. Annual number of hours for one teaching post is 1440, divided into contact hours (theory, practical works, consultations, supervision and evaluation of the Final Thesis and self-study works of students) and non-contact hours (applied scientific and expert activities, publication of academic and applied scientific and expert activities, qualification development and organizational activity). The ratio of the contact hours: non contact hours is 44.2:55.8 %.

The teachers are engaged in the applied research within three main fields - biomedical diagnostics, healthy life style, and research of quality of studies. The teachers participate in the projects financed by the institution and also in the national projects. After the recommendations given by the external evaluators in 2007, the staff considerably improved the publication activities, with 104 articles published in the last five years (Annex 3, table 8) and additional 19 publications. Also the teachers' mobility was increased in that period (2009-2013), by the participation in the international mobility programmes (Erasmus and NordPlus) and bilateral cooperation funded by Faculty of Medicine. In 2011, 2012 and 2013 1/5, 1/3 and 1/5 of all teachers, respectively, participated in the outgoing mobility programmes, which is significant improvement comparing to the 2009/2010 with only 11%.. Also, the incoming mobility of the teachers was significantly improved, with 19 incoming teachers participated in the Study Programme in the period 2009-2013 (SER, table 10). The Programme teachers regularly attend seminars, courses and conferences in order to improve their research competences. The teachers follow and develop modern educational and pedagogic practice and use modern educational technologies, including student-centred approach and e-learning/hybrid courses. The teachers participate in seminars, conferences, educational courses and internships in order to improve their educational competences. During the assessment period all teachers of BDSP improved their qualifications (SER, p 17).

While staff has increased scientific publications the majority of these are not in international peer reviewed journals. The staff should be encouraged and supported to publish in high quality international journals.

#### ***4. Facilities and learning resources***

The Kaunas College signed the training contracts with great number of institutions in order to create a functional network of classrooms, laboratories, computer rooms, diagnostic centre. The list of institutions is provided in SER, table 14. The number of premises and the space provided are more than sufficient for the provision of the Study Programme. Since the Programme accentuate the practical aspects of biomedical diagnostics and since even four professional activity practices are included in the three-year study programme. The laboratories are well equipped and modern.

The college provides the students with excellent practical training facilities in microbiology, occupational therapy, anatomy and physiology, emergency medicine in addition to general lecture and tutorial rooms.

The library of Kaunas College, along with the library of the Faculty of Medicine and the public library of Kaunas, other faculties' libraries, provide enough books, copies, conference materials, scholarly journals, newspapers, working/reading places for the students. In addition, e-learning resources – materials stored in the College Database open-access and paid scientific journals are available via internet access.

As stated in SER, p 22, the equipment should be renewed and the reagent supplies should be increased and regularly provided in order to ensure the smooth provision of the practical trainings.

##### ***5. Study process and student assessment***

The student admission procedure is public and well founded. The competition score, comprising achievements in the relevant subjects, along with the entrance exam evaluation in 4 subjects is used to calculate the total entrance score.

The programme has a strong and consistent uptake with approximately 30 students per annum out of several hundreds (e.g. 790-888 per annum, during the last five years – table 17 of SER) which apply for the Programme on all priorities. There is significant competition for places and once students enter onto the programme there is a high retention rates. In the period 2006-2010, 67-81% of graduates complete their studies in time (the only exception was 2007 with 53% - SER, table 16) and the main reason for the dropout were work/continuation of the studies abroad. There is also a policy of recognition of formal and informal learning and practical experience (Site-visit on 23.04.2014). On-going labour market demand has been established and remains positive.

The students may be financed by state funds (state subsidized studies), or financed by students themselves (state unsubsidized studies), with the vast majority of students falling in the first

category. There are additional funding opportunities for the state unsubsidized students, though (SER, p 26), including incentive grants, awards, loans, aimed at promoting students achievements and motivation. For the students planning to work during the studies, students on maternal leave and students with disabilities, an individual study plan is provided with the free-schedule of lectures; moreover, the examination schedule may also be adjusted, with the Dean's permission (SER, p 23).

Learning methodology is diverse thus serving the student - oriented methodological approach; it includes lectures, laboratory practices, seminars, consultations, case studies, games, analyses, presentations, discussions, designs, laboratory trainings, applied research, video materials, self – studies. There is evidence (Site-visit on 23.04.2014.) that the virtual learning environment Moodle is being used in a number of modules and in diverse ways, assignments, grade feedback, notes, articles etc. This should be further encouraged, including professional practice components. The suggestions from the social partners and employers and labour market analyses (SER, p 23) are used to improve the quality of the studies.

Students' workload does not exceed 8 hours per day.

The practical trainings are exceptionally well organized, according to the order of Kaunas College Healthcare Faculty Dean „The Order of Student Practice Organization”. The students are acquainted with the opportunities and schedules for the practical training at the beginning of the studies, at the meetings with the management, than again at the meetings with teachers, as well as online. The cooperation between the College and the institutions offering the practices are ensured by the contracts. The practical trainings include the supervision by the qualified mentor.

The examination procedures are linked to the learning outcomes and include both summative and formative assessment. These procedures are clear, well founded, and precise; the information on assessment is available to the students from the very beginning of the academic year.

The procedure for the final (qualification) exam and final thesis defence is well founded and precise, in accordance with the order of Ministry of Education and Science: “Regarding the Approval of Non-university Learning Outcomes Assessment Regulations”. However, given the importance of the thesis in assessing that the student has achieved all the learning outcomes of the programme the panel recommends that the weighting of the Final Thesis be significantly increased (currently only 6 ECTS are awarded for this component and 3 ECTS for Qualification Examination). Currently the final theses are only the analysis of literature or epidemiology reviews. The theses should be expanded to include methodologies and practical components of diagnostic procedures and tests.

Students have opportunities to engage in multidisciplinary teams through shared lectures with other programmes, common conferences attended and through participation. Students speak very highly of the programme (Site-visit on 23.04.2014.) and are complimentary of feedback process, both oral and written, achieved in a timely manner.

The applied research of students is encouraged; the applied scientific research is designed and performed by the mentors, while the students analyse the literature, take samples, conduct surveys. These types of research activities are appropriate for the level of the studies as a form of the problem-based learning. The research results may be presented in annual students’ conferences; also, the results may be integrated in the Final Thesis (Annex 4).

The College provides all kind of support to the students. Information on the studies is abundantly available in face-to-face meetings, printing materials and online (SER, p 25). The consultations with teachers are regular and well organized. Students may be provided with the psychological counselling in the case of need. The particular educational policy created for the students with special needs is in place within the Programme procedures. Although there is no special Career Centre organized, the College constantly receives information from the labour market and the career opportunities; these are conveyed to the students by their teachers, management and practical training mentors. Students are also chosen by the employers either directly, during their professional practice, or after the recommendation by the Dean or the Head of the Department. Department and staff are very active in assisting students and graduates

finding employment. Alumni organization is well organized and active. The vast majority of students are employed after the completion of the study, some of them proceed with the master level studies, while only few remain unemployed (SER, p 29). Graduates are finding employment in a wide range of labs/ clinical hospitals/ healthcare and rehabilitation centres and universities/ research facilities. Additionally, experts recommend further activities to promote entrepreneurial awareness, critical thinking around practices, technology, approaches, quality etc.

Outgoing students' mobility is promoted and encouraged, and the College also made an effort to promote incoming mobility, with favourable results. Outgoing mobility was raised from 1 and 0 students in 2009-2010 to 6 and 9 students in 2013 and 2014. Incoming mobility did not exist until 2012, but in the last two years 5 students from Spain were admitted. A short – term internships and professional practices abroad are also organized, along with the Erasmus type exchange. The Programme should continue to promote and encourage international student admissions onto the programme, from 1<sup>st</sup> year or via Erasmus/ exchange programmes.

## **6. *Programme management***

Responsibilities and the decision – making process is clearly allocated among the Directorate, Deans' office, Academic Board, Programme Committee, Head of the Department, Head of Practical Training, Head of Studies and the Department staff. Division of responsibilities enables close cooperation between the management, teachers, students and committee.

Teachers are included in the decision making procedures in a continuous and systemic process of improvement of all phases of the study process, including the learning outcomes. The Study Programme Committee analyzes teachers' and students' opinions, employers' comments and recommendations, labour market needs, qualification committee reports, results of different studies, study programme regulating documents, assesses the study programme development needs and opportunities (SER, p 32) and represents the central link between the different stakeholders and information sources.

The internal quality assurance system is well based and elaborated. Since 2009 Kaunas College has been implementing Lithuanian Science and Studies Information System (LIEMIS). Along with the elements of the system already discussed above, the periodical (yearly) students' surveys as well as reflections and questionnaire surveys organized by the individual teachers serve to improve the key quality elements of the Study Programme. In addition, a permanent contact and influence of the employers is assured during the professional practices, and also by inclusion of the employers and social partners' representatives in the Committee.

Finally, the Self-Evaluation report was prepared very elaborately, sincerely depicting the strengths as well as the weaknesses of the Programme – which is the indicator of the quality of the management. In addition to that, the Programme management and the staff have done a great effort, far exceeding their actual capacities to fulfil all the recommendations from the previous evaluation, even those concerning the inter-institutional level and the Educational policy level at Ministry of Education and Science.

### III. RECOMMENDATIONS

1. The students should have additional opportunities to complete bridging programmes to further continue their studies, on study programmes such genetic studies, biochemistry etc. in a number of universities.. It is recommendable that the Kaunas College initiates the discussion with the Ministry of Education and Science in order to broaden the opportunities for their students. At the same time, the information about the opportunities should be broadly available for the students entering the Study Programme.
2. The supply of the reagents for analysis must meet the educational needs and become regular. Also, the strategic tendency towards development of e-learning and hybrid courses requires not only engagement of the teachers, but also the adequate IT equipment.
3. The topics of the final theses are adequate for the study level. However, given the importance of the thesis in assessing that the student has achieved all the learning outcomes of the programme the panel recommends that the weighting of the Final

Thesis be significantly increased (currently only 6 ECTS are awarded for this component and 3 ECTS for Qualification Examination).

4. Currently the final theses are only the analysis of literature or epidemiology reviews. The theses should be expanded to include methodologies and practical components of diagnostic procedures and tests.
5. In line with the achieved results so far, a continuous efforts should be undertaken to further promote research activities of the teachers, their research publication rating and mobility. While staff has increased scientific publications the majority of these are not in international peer reviewed journals. The staff should be encouraged and supported to publish in high quality international journals.
6. Experts recommend further activities to promote entrepreneurial awareness, critical thinking around practices by establishing and promoting innovation centres, business incubators or business incubation activities at the College.
7. The Programme should continue to promote and encourage international student admissions onto the programme, from 1<sup>st</sup> year or via Erasmus/ exchange programmes.

#### IV. SUMMARY

The aim of the study programme is well-defined and consistent with the bachelor EQF level VI. The learning outcomes at the Study Programme level are well defined and consistent with each other.

The students should have additional opportunities to complete bridging programmes to further continue their studies, preferably within Lithuania or across Europe. The vast majority of students and graduates expressed an interest to further their education and appeared knowledgeable of the process required. The students suggested programmes such genetic studies, biochemistry etc. in a number of universities. The activities for the support in this area

should take place. At the same time, the broader and more accessible information about the existing opportunities should be provided.

A very positive feedback from social partners, employers and mentors was obtained during the study visit. They are very confident that their suggestions are taken into programme development.

A great number of elective subjects could be chosen thanks to very good inter-program and inter-institutional cooperation. The Kaunas College signed the training contracts with great numbers of institutions.

Learning methodology is diverse thus serving the student - oriented methodological approach; the suggestions from the social partners and employers and labour market analyses are used to improve the quality of the studies.

Great attention is paid to the practical part of the studies, which is the prominent strength of this Study Programme. There is a holistic approach during clinical professional practice with students engaging with patients, acquiring samples, laboratory analysis and grand rounds. This is to be especially commended. The supply of the reagents for analysis, however, must meet the educational needs and become regular.

Students receive training in good laboratory facilities with clinical settings, gaining expertise in manual techniques and modern automated bio-analysis systems, including calibration and setup routines. The college provides the students with excellent practical training facilities in microbiology, occupational therapy, anatomy and physiology, emergency medicine in addition to general lecture and tutorial rooms

The teachers' workload is in accordance with legal guidelines. The teachers are engaged in the applied research; they participate in the projects financed by the institution and also in the national projects. The staff considerably improved the publication activities and the teachers' mobility and participation in seminars, conferences, educational courses and internships. In line

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with the achieved results so far, a continuous efforts should be undertaken to further promote research activities of the teachers, their research publication rating. While staff has increased scientific publications the majority of these are not in international peer reviewed journals. The staff should be encouraged and supported to publish in high quality international journals.

The programme has a strong and consistent uptake with approximately 30 students per annum. There is significant competition for places and once students enter onto the programme there is a high retention rates. There is also a policy of recognition of formal and informal learning, practical experience etc. On-going labour market demand has been established and remains positive.

There is evidence that the virtual learning environment Moodle is being used in a number of modules and in diverse ways, assignments, grade feedback, notes, articles etc. this should be further encouraged, including professional practice components.

Students have opportunities to engage in multidisciplinary teams through shared lectures with other programmes, common conferences attended and through participation. Students speak very highly of the programme and are complimentary of feedback process, both oral and written, achieved in a timely manner. The applied research and mobility of students is encouraged.

The topics of the final theses are adequate for the study level. However, given the importance of the thesis in assessing that the student has achieved all the learning outcomes of the programme the panel recommend that the weighting of the Final Thesis be significantly increased (currently only 6 ECTS are awarded for this component and 3 ECTS for Qualification Examination)

The examination procedures are linked to the learning outcomes and include both summative and formative assessment.

The College provides all kind of support to the students. It is positive to see that events are held where graduates engage with current students. Graduates are finding employment in a wide

range of labs/ clinical hospitals/ healthcare and rehabilitation centres and universities/ research facilities. Department and staff are very active in assisting students and graduates finding employment. Experts recommend further activities to promote entrepreneurial awareness, critical thinking around practices, technology, approaches, quality etc.

Responsibilities and the decision – making process is clearly allocated. Teachers and students are adequately included in the decision making.

The internal quality assurance system is well based and effective.

The Self-Evaluation report was prepared very elaborately, sincerely depicting the strengths as well as the weaknesses of the Programme. The Programme management and the staff have done a great effort to fulfil all the recommendations from the previous evaluation.

## V. GENERAL ASSESSMENT

The study programme Biomedical diagnostics (state code – 653B81002) at Kaunas College is given **positive** evaluation.

*Study programme assessment in points by evaluation areas.*

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	4
2.	Curriculum design	3
3.	Staff	3
4.	Material resources	4
5.	Study process and assessment (student admission, study process student support, achievement assessment)	4
6.	Programme management (programme administration, internal quality assurance)	4
	<b>Total:</b>	<b>22</b>

\*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;

2 (satisfactory) - meets the established minimum requirements, needs improvement;

3 (good) - the field develops systematically, has distinctive features;

4 (very good) - the field is exceptionally good.

Grupės vadovas:  
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Grupės nariai:  
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Prof. dr. Lajos Borbas  
Prof. dr. Dalia Giedrimienė  
Dr. Graham Gavin  
Doc. dr. Julius Griškevičius  
Birutė Lašaitė

## Santraukos vertimas iš anglų kalbos

<...>

### V. APIBENDRINAMASIS ĮVERTINIMAS

Kauno kolegijos studijų programa *Biomedicininė diagnostika* (valstybinis kodas – 653B81002) vertinama teigiamai.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	4
2.	Programos sandara	3
3.	Personalas	3
4.	Materialieji ištekliai	4
5.	Studijų eiga ir jos vertinimas	4
6.	Programos vadyba	4
	<b>Iš viso:</b>	<b>22</b>

\* 1 - Nepatenkinamai (yra esminių trūkumų, kuriuos būtina pašalinti)

2 - Patenkinamai (tenkina minimalius reikalavimus, reikia tobulinti)

3 - Gerai (sistemiškai plėtojama sritis, turi savitų bruožų)

4 - Labai gerai (sritis yra išskirtinė)

### IV. SANTRAUKA

Studijų programos tikslas gerai apibrėžtas ir atitinka Europos kvalifikacijų sandaros (EKS) VI lygio bakalauro laipsnį. Studijų rezultatai studijų programos lygmeniu gerai apibrėžti ir dera tarpusavyje.

Studentams turėtų būti suteikta daugiau galimybių baigti papildomas studijas, kad jie galėtų toliau tęsti studijas, pageidautina Lietuvoje arba Europoje. Dauguma studentų ir absolventų išreiškė susidomėjimą siekti tolesnio išsilavinimo. Panašu, kad jie yra gerai supažindinti su šiuo procesu. Studentai minėjo tokias programas kaip genetikos studijos ar biochemija ir pan. keliuose universitetuose. Šioje srityje reikėtų imtis remiamosios veiklos. Be to, reikėtų suteikti daugiau ir lengviau prieinamos informacijos apie esamas galimybes.

Vizito metu socialiniai partneriai, darbdaviai ir dėstytojai pateikė labai teigiamus atsiliepimus apie studijų programą. Jie yra įsitikinę, kad rengiant programą į jų pasiūlymus atsižvelgiama.

Dėl labai gero tarpprograminio ir tarpinstitucinio bendradarbiavimo siūloma daug pasirenkamųjų dalykų. Kauno kolegija pasirašė mokymo susitarimus su daugybe institucijų.

Mokymosi metodologija įvairi ir atitinka į studentą nukreiptą metodologinį požiūrį. Siekiant pagerinti studijų kokybę, atsižvelgiama į socialinių partnerių ir darbdavių pasiūlymus, taip pat į darbo rinkos analizės duomenis.

Didelis dėmesys skiriamas praktinei studijų daliai, o tai didžiausia studijų programos stiprybė. Klinikinės profesinės praktikos metu taikomas kompleksinis požiūris: studentai bendrauja su pacientais, ima mėginius, atlieka laboratorinius tyrimus, dalyvauja klinikinėse diskusijose. Tai ypač pagirtina. Analizei skirti reagentai turi atitikti mokymo poreikius ir būti tiekiami nuolat.

Studentai mokosi gerai įrengtose laboratorijose, įgyja praktinės patirties tiesiogiai dirbdami jose, taip pat susipažindami su šiuolaikinėmis automatizuotomis biologinės analizės sistemomis, įskaitant praktinius kalibravimo ir nustatymo veiksmus. Kolegija be bendrųjų auditorijų ir mokomųjų patalpų suteikia studentams puikią mikrobiologijos, profesinio gydymo, anatomijos, fiziologijos ir greitosios medicinos pagalbos praktinių užsiėmimų įrangą.

Dėstytojų darbo krūvis atitinka teisės aktų reikalavimus. Dėstytojai dalyvauja taikomuosiuose moksliniuose tyrimuose; jie taip pat dalyvauja institucijos finansuojamuose ir nacionaliniuose projektuose. Dėstytojai pradėjo gerokai daugiau spausdinti savo straipsnių, padidėjo jų judumas,

Studijų kokybės vertinimo centras

jie pradėjo daugiau dalyvauti seminaruose, konferencijose, mokymo kursuose ir stažuotėse. Atsižvelgiant į lig šiol pasiektus rezultatus, reikėtų ir toliau imtis veiksmų, skatinančių dėstytojus vykdyti mokslinius tyrimus, organizuoti šių mokslinių tyrimų publikacijų vertinimą. Nors dėstytojai daugiau spausdina mokslinių straipsnių, vis dėlto didžioji jų dauguma pasirodo ne tarptautiniuose kolegų skaitomuose žurnaluose. Dėstytojai turėtų būti skatinami spausdinti straipsnius aukštos kokybės tarptautiniuose žurnaluose ir tokia jų veikla turėtų būti remiama.

Studijuoti į šią studijų programą kasmet stabiliai priimama maždaug 30 studentų. Jie labai konkuruoja dėl vietų ir stengiasi baigti visas studijas. Be to, stengiamasi pripažinti formalųjį ir neformalųjį mokymą, praktinę patirtį ir pan. Atsirado nuolatinė darbo rinkos paklausa, ir ji išlieka teigiama.

Turima įrodymų, kad virtualioji mokymosi aplinka „Moodle“ naudojama keliuose moduliuose ir įvairiais būdais, teikiant užduotis, vertinimus, užrašus, straipsnius ir pan. Ši praktika turėtų būti toliau skatinama ir apimti profesinės praktikos komponentus.

Studentai turi galimybių dalyvauti daugiadalykėse komandose, lankydami bendras paskaitas, organizuojamas pagal kitas programas, taip pat dalyvaudami bendrose konferencijose. Studentai labai geria programą ir žodžiu bei raštu teikiamą grįžtamąjį ryšį, kuris vykdomas laiku. Palankiai vertinami taikomieji tyrimai ir studentų judumas.

Baigiamųjų darbų temos atitinka studijų lygį. Vis dėlto turint omenyje baigiamojo darbo svarbą ir vertinant, ar studentas pasiekė programos studijų rezultatus, ekspertai rekomenduoja, kad baigiamojo darbo svoris būtų gerokai padidintas (šiuo metu šiam komponentui skiriami tik 6 ECTS, o kvalifikaciniam egzaminui – 3 ECTS).

Egzaminavimo procedūros siejamos su studijų rezultatais ir apima ne tik apibendrinamąjį, bet ir ugdomąjį vertinimą.

Kolegija teikia visokeriopą paramą studentams. Teigiamai vertinami renginiai, kuriuose dalyvauja absolventai ir dabartiniai studentai. Absolventai randa darbą įvairiose laboratorijose,

Studijų kokybės vertinimo centras

klinikinėse ligoninėse, sveikatos priežiūros ir reabilitacijos centruose, universitetuose, mokslinių tyrimų įstaigose. Katedra ir jos personalas labai aktyviai stengiasi padėti studentams ir absolventams susirasti darbą. Ekspertai rekomenduoja tęsti veiklą, skatinančią verslumą, kritinį mąstymą apie praktiką, technologijas, metodus, kokybę ir pan.

Atsakomybė ir sprendimų priėmimo procesas aiškiai paskirstytas studijų programoje. Dėstytojai ir studentai tinkamai įtraukti į sprendimų priėmimo procesą.

Vidaus kokybės užtikrinimo sistema gerai pagrįsta ir veiksminga.

Savianalizės suvestinė buvo parengta išsamiai, sąžiningai įvardijant programos stipriąsias ir silpnąsias puses. Programos vadovai ir dėstytojai labai pasistengė įgyvendinti ankstesnio vertinimo rekomendacijas.

### **III. REKOMENDACIJOS**

1. Studentams turėtų būti suteikta daugiau galimybių užbaigti papildomas studijas, kad jie galėtų toliau tęsti savo studijas pagal genetikos, biochemijos ir kt. studijų programas kituose universitetuose. Rekomenduotina Kauno kolegijai inicijuoti diskusiją su Švietimo ir mokslo ministerija, kad šios kolegijos studentai turėtų daugiau galimybių dėl papildomųjų studijų. Be to, su informacija apie galimybes studijuoti toliau reikėtų plačiai supažindinti į šią studijų programą stojančius studentus.
2. Analizei skirti reagentai turi atitikti mokymo poreikius ir būti tiekiami nuolat. Be to, norint nenukrypti nuo strateginės krypties diegti elektroninį mokymą ir kurti mišrius mokymo kursus, šiam procesui reikia ne tik aktyviai dalyvaujančių dėstytojų, bet ir tinkamos IT įrangos.
3. Baigiamųjų darbų temos atitinka studijų lygį. Vis dėlto turint omenyje baigiamojo darbo svarbą vertinant, ar studentas pasiekė programos studijų rezultatus, ekspertai

rekomenduoja, kad baigiamojo darbo svoris būtų gerokai padidintas (šiuo metu šiam komponentui skiriami tik 6 ECTS, o kvalifikaciniam egzaminui – 3 ECTS).

4. Šiuo metu baigiamuosius darbus sudaro tik literatūros analizė ar epidemiologinės apžvalgos. Jie turėtų apimti metodologijas ir praktinius diagnostinių procedūrų bei bandymų komponentus.
5. Atsižvelgiant į lig šiol pasiektus rezultatus, reikėtų ir toliau imtis veiksmų, skatinančių dėstytojus atlikti mokslinius tyrimus, organizuoti šių mokslinių tyrimų publikacijų vertinimą; be to, reikėtų skatinti didesnę dėstytojų mobilumą. Nors dėstytojai daugiau spausdina mokslinių straipsnių, vis dėlto didžioji jų dauguma pasirodo ne tarptautiniuose kolegų skaitomuose žurnaluose. Dėstytojai turėtų būti skatinami ir remiami spausdinti straipsnius aukštos kokybės tarptautiniuose žurnaluose.
6. Ekspertai rekomenduoja toliau imtis veiksmų, skatinančių verslumą, kritinį mąstymą apie praktinę veiklą, toliau kolegijoje kuriant ir diegiant inovacijų centrus ir verslo inkubatorių veiklą.
7. Šios programos rengėjai turėtų skatinti, kad tarptautiniai studentai šioje programoje studijuotų nuo pirmo kurso arba pagal *Erasmus* mainų programas.

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