SKVC

STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Kauno technologijos universiteto

TELEKOMUNIKACIJŲ STUDIJŲ PROGRAMOS (61201T205, 612H64001)

VERTINIMO IŠVADOS

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EVALUATION REPORT

OF *TELECOMMUNICATIONS* (61201T205, 612H64001)

STUDY PROGRAMME

at Kaunas University of Technology

Grupės vadovas: Team leader:	Prof. dr. Palle Jeppesen
Grupės nariai: Team members:	Prof. dr. Igor Kabashkin
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Išvados parengtos anglų kalba
Report language - English

Vilnius
2012

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	*Telekomunikacijos*
Valstybiniai kodai	61201T205, 612H64001
Studijų sritis	Technologijos mokslų
Studijų kryptis	Elektronikos ir elektros inžinerija
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinė (4), ištęstinė (6)
Studijų programos apimtis kreditais	240
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Telekomunikacijų inžinerijos bakalauras
Studijų programos įregistravimo data	1997-05-19, Švietimo ir mokslo ministro įsakymas Nr. 565

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INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	*Telecommunications*
State code	61201T205, 612H64001
Study area	Technological sciences
Study field	Electronic and electrical Engineering
Kind of the study programme	University Studies
Study Cycle	First
Study mode (length in years)	Full-time (4), part-time(6)
Volume of the study programme in credits	240
Degree and (or) professional qualifications awarded	Bachelor of Telecommunication Engineering
Date of registration of the study programme	1997-05-19, decree No. 565 by Minister of Education and Science of the Republic of Lithuania „On registration of higher education programmes" (State news, 1997, Nr. 49-1188).

Studijų kokybės vertinimo centras

CONTENTS

I. INTRODUCTION

An external evaluation of the Telecommunication study programme from Kaunas University of Technology, has been conducted by an international expert group consisting of Prof. Dr. Palle Jeppesen (leader of the group), Prof. Dr. Igor Kabashkin, Prof. Dr. Luis Torres, Mr. Edvardas Linkevičius and Mr. Andrius Kučinskas. The group performed an on-line analysis of the self-evaluation report before the visit, and held meetings during the visit with the administrative staff of the Faculty of Telecommunications and Electronics, the workgroup in charge of the preparation of the self-evaluation report, teaching staff and students of the study programme, as well as recent graduates and employers.

The Centre of the Studies Quality Assessment (SQAC) conducted a first official external evaluation of the Telecommunication study programme in 2003 whose outcome was made available to the international expert group. No further external evaluation has been carried out since then.

The main objectives of the international expert group have been to assess the information provided in the self-evaluation report, as well as to gather more facts and evidences in the on-site visit in order to perform a fair evaluation of the programme.

The international expert group would like to acknowledge the help and all facilities provided by the faculty and staff of the Faculty of Telecommunications and Electronics to perform the evaluation. The international expert group would like to acknowledge as well all the effort made by Centre for Quality Assessment in Higher Education and in particular Mr. Pranas Stankus who has allowed a very smooth evaluation process.

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

The Telecommunications Bachelors programme of KTU has been taught since 1994. Until 2009 this program had full-time and correspondence forms. There are full-time and part-time options since 2009. In addition, the program got the Telecommunications and Telecommunications information technology specializations by 2010. After the evaluation of the comments during the seminar with representatives of telecommunications companies held in 2010, specialization of the information technology was changed into the wireless technology specialization in 2011. After the evaluation of the optical penetration of fixed networks, optical communications technology specialization was introduced instead of the telecommunications technology specialization.

The aim of this Programme is directly related to the Government program of Lithuanian Republic set in resolution No. 1270 "National Lisbon strategy implementation program"(State news 2005, No. 78-2823) of November 22, 2005, where the goals for the creation of the knowledge society and knowledge-based economy in Lithuania are indicated

The aims of the first telecommunications study's cycle programme are, among others, to prepare the Bachelors of telecommunications engineering, to have the basic knowledge in the fields of sciences, general engineering fundamentals, and to be capable of understanding the latest telecommunications technology achievements, individually or in a team. In addition, the bachelors should be able to develop and implement projects, services, telecommunication

systems and networks, and to organize telecommunications business, as well as being capable to study in the universities' higher degree cycles.

In this context, the programme aims and learning outcomes are clearly defined. They are also publicly accessible as shown in some leaflets and web page of the University. However, the name of the programme (Telecommunications) present some difficulties to clearly understand the contents and the programme aims. Telecommunication is a very broad topic and many international universities have defined some specialities. From the name, it is not clear whether the emphasis is put on Telecommunication Engineering, Telecommunication Systems, Telecommunication Networks or something else.

A very good and detailed study has been made of the needs of the public sector and labour market. Many questionnaires have been sent to many telecommunication Lithuanian companies to find out about needs of the national labour market. In addition, a complete search study on the needs of the European market in the Telecommunication sector has been carried out as well. However, in order to broaden the future market potential of actual Lithuanian graduates and as there is no doubt about the importance of the globalization telecommunications market, the study should have taken into account the global market beyond the European perspective as well. Some hints about the research needs in both the Lithuanian and European context would have helped to focus on this area. Vision about possible labour market needed in emerging countries would have been welcomed. The needs of these global markets should be taking into account to redefine the programme aims and learning outcomes in the mid-term future.

2. Curriculum design

The curriculum design of the Telecommunications study programme is based on 240 credits and has two specializations, wireless technology and optical communications technology. The programme offers full-time and part-time options. The curriculum design meets all legal requirements. Bologna process recommendations have been taken into account as well. Theoretical and practical teaching according to the course schedule is implemented. Study programme is in general coherent but some remarks would need to be taken into account as noted in the sequel.

The general university study subjects take 18 credits and offer Basics of Communication, Philosophy, Culture of Professional Language and Foreign Language Alternatives which in total represents 7.5% of the whole programme. It is appreciated that such courses provide some added value to the students. However, given that this general background may be acquired before universities studies and given the amount of telecommunications issues that are not covered in the programme, some reduction in these courses might be considered. In addition, very few international curriculums in Telecommunication programmes have such courses.

The core subjects in engineering take 27 credits and offer, among others, Basics of Ergonomics, Theoretical Mechanics and Strength of Materials with a total of 9 credits. Although some general engineering courses may be adequate, but the number of credits allocated to these subjects may need to be reviewed. The students taking the programme have also confirmed this statement. More specifically, the teaching of Strength of Materials and Theoretical Mechanics in the seventh semester seems contradictory with the character of fundamental engineering topics.

The Mathematics and Physical Sciences subjects have a total of 42 credits that in general are well balanced among all the credits of the programme. However Chemistry is offered as well, which provides little added value to the programme. In addition, it has to be noted that very few

international curriculums in Telecommunication programmes, have Chemistry as a mandatory course.

During the meeting, the administration staff stated that they are willing to change these broad topics and offer some more innovative options. The self-evaluation report also states that *the study's programme modules, such as Chemistry, Strength of materials and Theoretical mechanics give only the additional knowledge which is not very useful for the telecommunications professionals. And this knowledge does not provide the programme's outcomes.*

The Social Sciences subjects have a total of 12 credits and offer a good introduction to economics and management.

The Core subjects of the study fields have a total of 66 credits that in general are well balanced among all the credits of the programme.

The Wireless and Optical communication technologies provide two adequate specializations in the programme as well as some other optional courses. However, and given the importance of multimedia communications, some courses in this area may give an added value to the programme.

Some of the courses have the names Course 1, Course 2, etc. In a general context and for a better understanding of the course contents, such names should be avoided.

The names of the courses Telecommunication Theory, Fundamentals of Telecommunications Technologies and Simulation Principles of Telecommunication Processes may prove to be misleading. There is a need to take a more realistic approach and change names, as it is difficult to distinguish the contents. The same applies to the wireless option with the courses Software of Wireless Communication Systems and Design of Wireless Networks. The name of Software of Telecommunication Systems may also prove misleading, as there is software in any topic of telecommunications.

In order to motivate the students and in order to introduce as soon as possible the telecommunications subject, it would be appropriate to have a module on telecommunication industry trends and innovations at the beginning of the programme.

Regarding optional modules, it seems too risky to have optional matters already in the second semester, as the students are not yet familiarized with the specifics of the degree.

Although the curriculum design in general is quite good, the programme needs some improvement. In particular, the programme as is established now, may not be fulfilling the expectations of the students who want to enroll. Prove of this is that, according to the self-evaluation report, only 11% of the students chose Telecommunication as first wish option (some corrections to this number was given during the visit). Even though the option for Telecommunication Engineering courses worldwide is declining, 11% is a very low number and some measures should be taken to attract more students. Changes in the programme as suggested above may prove useful.

3. Staff

An average of 26 faculty staff members have been involved in the Telecommunications programme in the period of 2007-2011. Most of them hold a Ph.D. degree that assures a high

level academic staff. In the particular case of the Telecommunication department, half of the staff is composed of young professors and the other half of older professors. The staff providing the programme meets the legal requirements. The teaching staff turnover is quite acceptable.

Every five years the lecturers' qualifications are determined by their certification in accordance with the University Senate decree No 56 *Lecturing and research staff attestation and competition for the position occupation description of November 25, 2009*. The permanent professional improvement of the academic staff is conducted in accordance with the Rector's order No A-8 *Directions on staff qualification improvement" of January 10, 2005*. In order to assure a high quality academic teaching staff, all the lecturers have to pass a professional qualification every five years. From the information provided in the self-evaluation report, the entire faculty succeeded in this qualification process. The results of this qualification process ensure the learning outcomes.

The number of lecturers/students ratio has been of 0.20 in the year 2011, which is very good and assures a good contact between lecturers and students and proves adequate to ensure learning outcomes. However, the reason for this excellent number seems to be due to the declining number of students enrolled in the programme in the last year. This may show a lack of programme's interest that should be corrected in the mid-term future.

The higher education institution creates conditions for the professional development of the teaching staff necessary for the provision of the programme. In particular, KTU has organized various qualification-raising courses for their employees. For example, in 2010 the seminar *Courses' transfer from the virtual learning environment Vista into the virtual learning environment Moodle*, and educational competence development courses *The modern university's teaching and learning system*, the training of the distance learning course creation *Courses creation in the virtual learning environment Moodle*, the training of the use of the science's electronic information resources (databases) *Sources of Technological Sciences* were organized. In 2007 - 2011 the courses *The base of the distance learning methodology*, *Management System of the study subjects*, *English language courses*, etc. were organized.

In the international mobility area, staff has opportunities to go to other international universities. However, very limited number of professors made use of this opportunity. Some of the staff attend international conferences to present research results. This lack of international mobility threatens the international vision of the staff and of the University in general and should be improved.

In the research context, the teaching staff of the programme is not involved wide enough in national and international research directly related to the telecommunication engineering. Efforts should be made by both, the University to provide the adequate environment and the teaching staff to increase their involvement in high quality international research, especially among the junior faculty.

In order to increase the international activities of the University and to be able to attract foreign students in the future, English teaching activities should be potentiated.

4. Facilities and learning resources

The space allocated to each student and the corresponding studying conditions are good enough to assure a comfortable learning environment. However, although it is completely understood that the latest equipment may not be updated constantly for economical reasons, some laboratories have been found outdated with regard to the state of the art in

Tecommunications. In agreement with the self-evaluation report, there is a lack of the education laboratories for some subjects. This hinders the implementation of the students' practical training programme. In particular, fiber-optic equipment has been found quite limited. Laboratories must have opportunities to develop practical designing and exploitation skills of the main telecommunications networks and technologies, in particular:

- Core network: transmission, aggregation and service delivery platforms.
- The main optical and wireless access technologies: FTTx (Fiber to the x), point-to-point, xPON (Passive Optical Network) and LTE (Long Term Evolution).

Update of the equipment relies mainly on the industrial partners. This is a very good sign of cooperation between the University and the Companies, but may prove insufficient to accommodate the latest developments.

Almost all textbooks are in Lithuanian that indicates a good involvement of national faculty in the field. However, more English books should be used which would provide a double added value. First, as the options are much wider, the students would have access to the latest developments in the Telecommunication area. Secondly, the students would be exposed to all technical English terms in the field that would offer additional skills, as all the updated literature is in English. In addition, and in agreement with the statement of the self-evaluation report, not all the subjects are based upon sufficient amount of required literature.

Library facilities are excellent and students have access to a great variety of books, journals and different teaching materials. But, and as pointed out in the self-evaluation report, there is a lack of availability of the methodological material in the University Intranet.

5. Study process and student assessment

The admission requirements are well founded. The admission to the Telecommunications first cycle study programme in the Faculty of Telecommunications and Electronics is carried out according to the Procedure description of the General admission to Lithuanian higher education first cycle and integrated studies issued in 2011. This description has been prepared by the Association of Lithuanian higher education to organize the general admission and approved by the President of the Republic of Lithuania. According to the Republic of Lithuania Law on Science and Studies the persons with the secondary education are accepted to the state-funded and paid places. The admission is carried out by a tendering procedure. The admission is carried out in two stages: the general admission under a common application to all the major education studies' programs of the higher schools or program groups and an additional admission to the free remaining state-funded and paid study places.

The detailed information about the first cycle of Telecommunications study programme and admission to Lithuanian higher schools' first cycle programmes is published in the University website. Students are encouraged to achieve good results by supplying them with complete information about their studies, the procedure, the usefulness of subjects, the level of their complexity and employment perspectives.

The studies are organized in autumn and spring semesters that each last 16 weeks, according to the schedule announced in the University Internet page and the annual KTU Study Programmes edition, following the individual plans and timetables. The organization of the study process ensures an adequate provision of the programme and the achievement of the learning outcomes. However, the addition of some more related Telecommunication courses at the

expense of some other courses as explained in the curriculum design section, would be more beneficial for the achievement of the learning outcomes.

According to the self-evaluation report, *the most talented students are attracted to the scientific-research activity that is carried out by the lecturers*. However, from the information found out on the site visit, not much involvement of students in research activities has been observed. In addition, and due to the limited research activity of the teaching faculty, not very much student involvement in research can be expected.

Students have the opportunity to participate in the international mobility programmes. However, as explained in the self-evaluation report and confirmed on the site-visit, the number of participating students is very limited. Some actions by the Faculty of Telecommunications and Electronics to promote these international exchanges would be very welcomed. Particular actions could be to increase the student's stipend, or the Faculty budget, needed to cover travel and living expenses and to increase the number of international institutions involved in the mobility plan. In addition, some additional effort to advertise more intensively the advantages of going abroad would be very useful for the students.

The higher education institution ensures an adequate level of academic and social support. In addition, the assessment system of student's performance is clear, adequate and publicly available.

The students' achievement assessment criteria are made public at the beginning of the semester: during the first lecture, the lecturer introduces students to the study subject, purpose, themes, the individual work schedule of tasks and their impact on the final grade. The study programmes and their constituent subjects with the detailed descriptions of the purposes and the acquired knowledge and skills as well as evaluation and accreditation standards are fully accessible to the students in the University's website since the beginning of January, 2009. In this context, the assessment system of student's performance is clear, adequate and publicly available. In addition, the professional activities of the majority of graduates meet the programme providers' expectations.

6. Programme management

The management of the Programme is implemented with reference to the KTU Statute approved by the Parliament of the Republic of Lithuania No XI-1194 of November 30, 2010 and the University Academic Regulations approved by the Order of KTU Senate No 43 of October 30, 2002. The Rector approves and the Senate confirms the studies programmes at the University. The activity of the Programme administration and internal assurance of the studies quality is administered by the Vice Rector for Studies with the assistance of the Studies Service's Study quality and the monitoring and Studies units.

The highest self-governing body for the studies quality assurance of the Faculty is the Faculty Council. Social partners participate in this activity: two representatives of the Faculty's student Union and two representatives from industry, heads of Departments and elected faculty members. The Council consists of 14 members. The decisions are made by voting. The programmes of the Faculty of Telecommunications and Electronics are developed and supervised by the continually working Study Programme Committee. Internal quality assurance measures seem to be effective and efficient.

Up to July of 2010, the continual assessment and development of the quality of the study Programme was performed with the reference to the Internal quality assurance system (IQAS)

approved by KTU Senate. IQAS was updated in 2010. According to the IQAS, a large number of practical telecommunication study's quality assurance methods are used. Among them, of special interest, are social partners interviews and student's interviews that allow to evaluate the subjects' content and teaching. In addition, first-year student interviews are also used to find out the reasons about the choice of KTU and about expectations related to studies. In this context, information and data on the implementation of the programme are regularly collected and analysed.

However, on the student's side, there is lack of participation in the quality assurance process. A very limited number of students are participating in the evaluation process of the programme and the teaching staff. The main reason presented by the students is the lack of confidence in the anonymity of the process. Adequate measures should be taken to assure this anonymity and to convince the students to participate in the process.

Regarding the external evaluation of the Telecommunications study programme done by The Centre of the Studies Quality Assessment (SQAC) in 2003, all recommendations have been taken into account.

III. RECOMMENDATIONS

Programme aims and learning outcomes

1. Consider to change the name of the programme
2. Take into account the global market beyond the European perspective
3. Take into account possible labour markets needed in emerging countries
4. Take into account the research needs in both the Lithuanian and European context

Curriculum design

1. Consider some or complete reduction in the general university study subjects and substitute them by more courses on Wireless and Optical Communication Technologies. Of special interest is to include Multimedia Communications.
2. Consider eliminating Basics of Ergonomics, Theoretical Mechanics and Strength of Materials and Chemistry and substitute them by more courses on Wireless and Optical Communication Technologies. Consider including Multimedia Communications.
3. Consider changing the names of some programme courses to distinguish the contents. In particular, Telecommunication Theory, Fundamentals of Telecommunications Technologies, Simulation Principles of Telecommunication Processes, Software of Wireless Communication Systems, Design of Wireless Networks and Software of Telecommunication Systems.
4. Consider changing the name of the courses Course 1, Course 2 to distinguish the contents.
5. Consider moving the optional courses offered in the second semester to more advanced semesters.
6. Consider introducing a module on telecommunication industry trends and innovations, at the beginning of the programme.

Staff

1. Strong efforts should be made to involve faculty staff in stays in international universities and research institutions.
2. Strong efforts should be made to involve faculty staff in cutting edge research activities.
3. Efforts should be made to potentiate English teaching activities

Facilities and learning resources

1. Strong efforts should be made to have the latest equipment in the laboratories. In particular:
   Core network: transmission, aggregation and service delivery platforms.
   The main optical and wireless access technologies: FTTx (Fiber to the x), point-to-point, xPON (Passive Optical Network) and LTE (Long Term Evolution).
2. Efforts should be made to increase the number of English textbooks to be used in the courses.
3. Strong efforts should be made to have all possible teaching material in the University Intranet.

Study process and student assessment

1. Efforts should be made to involve students in staff research activities.
2. Strong efforts should be made to involve students in international mobility programmes.

Programme management

1. Strong efforts should be made to involve students in the evaluation of staff activities.

IV. SUMMARY

Programme aims and learning outcomes

The programme aims and learning outcomes are clearly defined.

The name of the programme (Telecommunications) does not reflect exactly the outcome. Some considerations might be to emphasizing Engineering, Systems or Networks.

Curriculum design

The curriculum design meets all legal requirements. Bologna process recommendations have been taken into account as well. Theoretical and practical teaching according to the learning outcomes is implemented. Study programme is in general coherent.

Reduction in the general university study subjects and other non-telecommunications subjects should be considered. Substitute them by more courses on Wireless and Optical communication technologies. Consider including Multimedia Communications. Change the names of some programme courses to distinguish the contents.

Staff

The staff assures a high academic level. The staff providing the study programme meets legal requirements. The lecturers/students ratio is very good.

Staff should be much more involved in international stays and cutting edge research efforts.

Facilities and learning resources

The space allocated to each student and the corresponding studying conditions are good enough to assure a comfortable learning environment.

Efforts should be made to have the latest technological equipment in the laboratories.

Study process and student assessment

The admission requirements are well founded. The higher education institution ensures an adequate level of academic and social support. In addition, the assessment system of students' performance is clear, adequate and publicly available.

Strong efforts should be made to involve students in international mobility programmes.

Programme management

Internal quality assurance measures seem to be effective and efficient. A large number of practical telecommunication study's quality assurance methods are used. Information and data on the implementation of the programme are regularly collected and analyzed.

Strong efforts should be made to involve students in the evaluation of staff activities.

V. GENERAL ASSESSMENT

The study programme *Telecommunications* (state codes – 61201T205, 612H64001) at Kaunas University of Technology 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	3
2.	Curriculum design	3
3.	Staff	3
4.	Material resources	3
5.	Study process and assessment (student admission, study process, student support, achievement assessment)	3
6.	Programme management (programme administration, internal quality assurance)	3
	Total:	**18**

*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:
Team leader: Prof. Emeritus Dr. Palle Jeppesen

Grupės nariai:
Team members: Prof.dr. Igor Kabashkin

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Studijų kokybės vertinimo centras

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V. APIBENDRINAMASIS ĮVERTINIMAS

Kauno technologijos universiteto studijų programa *Telekomunikacijos* (valstybinis kodas – 61201T205, 612H64001) vertinama **teigiamai**.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	3
2.	Programos sandara	3
3.	Personalas	3
4.	Materialieji ištekliai	3
5.	Studijų eiga ir jos vertinimas	3
6.	Programos vadyba	3
	Iš viso:	**18**

* 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

Programos tikslai ir studijų rezultatai

Programos tikslai ir studijų rezultatai yra aiškiai apibrėžti.

Programos pavadinimas (Telekomunikacijos) tiksliai neatspindi studijų rezultato. Galbūt reikėtų apsvarstyti galimybę akcentuoti Inžineriją, Sistemas ar Tinklus.

Studijų turinio struktūra

Studijų turinio struktūra tenkina visus teisinius reikalavimus. Buvo atsižvelgta taipogi į Bolonijos proceso rekomendacijas. Vykdomas teorinis ir praktinis mokymas pagal studijų rezultatus. Studijų programa yra nuosekli

Reikėtų apsvarstyti galimybę mažinti bendrųjų universiteto studijų dalykų ir kitų ne telekomunikacijos dalykų skaičių. Jų vietoje galima būtų dėstyti belaidžio ir optinio ryšio technologijų kursus. Apgalvokite Multimedijos komunikacijų dalyko įtraukimą. Pakeiskite kai kurių programos kursų pavadinimus, siekiant išskirti jų turinius.

Studijų kokybės vertinimo centras

Personalas

Personalas užtikrina aukštą akademinį lygį. Studijų programą vykdantys darbuotojai atitinka teisinius reikalavimus. Dėstytojų/studentų santykis yra labai geras.

Darbuotojai turėtų daug aktyviau dalyvauti tarptautinėse stažuotėse ir naujausių mokslinių tyrimų veiklose.

Priemonės ir mokymosi išteklia

Vienam studentui tenkanti erdvė ir atitinkamos mokymosi sąlygos yra pakankamai geros, kad galėtų užtikrinti patogią mokymosi aplinką.

Reikėtų pasistengti aprūpinti laboratorijas naujausia technologine įranga.

Studijų procesas ir studentų vertinimas

Studentų priėmimo reikalavimai yra gerai pagrįsti. Aukštojo mokslo mokykla užtikrina reikiamą akademinės ir socialinės pagalbos lygį. Be to, studentų vertinimo sistema yra aiški, tinkama ir viešai prieinama.

Reikėtų dėti dideles pastangas, siekiant įtraukti studentus į tarptautines mobilumo programas.

Programos valdymas

Vidaus kokybės užtikrinimo priemonės atrodo esančios veiksmingos ir efektyvios. Naudojama daug praktinių telekomunikacijos studijų kokybės užtikrinimo metodų. Informacija ir duomenys apie programos vykdymą yra reguliariai renkama ir analizuojama.

Reikėtų dėti didžiules pastangas, kad studentai būtų įtraukti į personalo veiklų vertinimą.

III. REKOMENDACIJOS

Programos tikslai ir studijų rezultatai

1. Apsvarstyti programos pavadinimo keitimą.
2. Atsižvelgti į pasaulinę rinką už Europos ribų.
3. Atsižvelgti į galimas darbo rinkas, kurios reikalingos besivystančiose šalyse.
4. Atsižvelgti į tyrimų poreikius tiek Lietuvos, tiek Europos kontekste.

Studijų turinio struktūra

1. Apsvarstyti dalinį ar pilną bendrų universitetinių studijų dalykų mažinimą ir jų pakeitimą Belaidžio ir optinio ryšio technologijų kursais. Įtraukti Multimedijos komunikacijas kaip ypatingos svarbos dalyką.

Studijų kokybės vertinimo centras

2. Apsvarstyti Ergonomikos pagrindų, Teorinės mechanikos ir medžiagų stiprumo ir Chemijos dalykų panaikinimą, vietoje jų įvedant daugiau kursų, skirtų Belaidžio ir optinio ryšio technologijoms. Apgalvoti Multimedijos komunikacijų dalyko įtraukimą.
3. Apsvarstyti kai kurių programos kursų pavadinimų keitimą, siekiant išskirti jų turinį. Būtent šių kursų: Telekomunikacijų teorija, Telekomunikacijos technologijų pagrindai, Telekomunikacijos procesų simuliacijos principai, Belaidžio ryšio sistemų programinė įranga, Belaidžių tinklų kūrimas ir Telekomunikacijos sistemų programinė įranga.
4. Apgalvoti Kurso 1 ir Kurso 2 pavadinimų keitimą, siekiant išskirti jų turinius.
5. Apgalvoti antrajame semestre siūlomų laisvai pasirenkamųjų kursų perkėlimą į vėlesnius semestrus.
6. Apsvarstyti telekomunikacijos pramonės tendencijų ir inovacijų modulio įvedimą programos pradžioje.

Personalas

1. Reikėtų dėti dideles pastangas, kad fakulteto personalas vyktų į tarptautinius universitetus ir tyrimų institucijas.
2. Reikėtų dėti dideles pastangas, kad fakulteto personalas dalyvautų pažangiausių mokslinių tyrimų veikloje.
3. Reikėtų stengtis stiprinti anglų kalbos mokymą.

Priemonės ir mokymosi ištekliai

1. Reikėtų dėti dideles pastangas, kad laboratorijos būtų aprūpintos naujausia įranga. Būtent: Pagrindinis tinklas: perdavimo, kaupimo ir paslaugos teikimo platformos.
Pagrindinės optinės ir belaidės prieigos technologijos: FTTx (Pluoštas į x), point-to-point (taškas-į-tašką), xPON (Payvus optinis tinklas) ir LTE (Ilgalaikis vystymasis).
2. Reikėtų pasistengti padidinti kursų metu naudojamų angliškų vadovėlių kiekį.
3. Reikėtų dėti dideles pastangas, kad visa įmanoma mokymo medžiaga būtų patalpinta į universiteto intranetą.

Studijų procesas ir studentų vertinimas

1. Reikėtų pasistengti įtraukti studentus į personalo vykdomas mokslinių tyrimų veiklas.
2. Reikėtų dėti dideles pastangas, siekiant įtraukti studentus į tarptautines mobilumo programas.

Programos valdymas

1. Reikėtų dėti didžiules pastangas, kad studentai būtų įtraukti į personalo veiklų vertinimą.

Studijų kokybės vertinimo centras