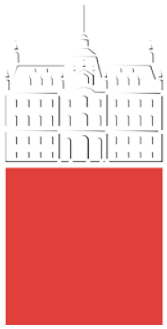
University *of Ljubljana*
Faculty *of Electrical Engineering*



ANNUAL REPORT 2016

BUSINESS REPORT

INCLUDING
ACCOUNTING REPORT

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The Annual report was approved at the 8th regular session of the Faculty of Electrical Engineering Management Board on 23 February 2017.

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1. INTRODUCTION

The report consists of a presentation and a performance report for each individual area of activity of the Faculty of Electrical Engineering, University of Ljubljana (hereinafter UL FEE or FEE), in 2016, together with a quality report. The Annual Report also comprises an assessment of operation by the internal public finance control and an accounting report.

Last year was a fruitful one, as we were successful in both attracting new projects and implementing the current ones. We excelled in scientific research, as confirmed by the international resonance of our projects and innovations, and of our numerous publications, articles, chapters and monographs. All of our 1st and 3rd cycle study programmes were re-accredited, and a review by the international ASIIN accreditation evaluation team was performed. In 2016, 489 students graduated under the old pre-Bologna study programmes, which were phased out by the end of the year. In preparing for the introduction of an interdisciplinary 2nd cycle masters study programme in Multimedia, to be launched in the 2017/2018 academic year, we successfully cooperated with the Faculty of Computer and Information Science (UL). Every effort was made to ensure the high quality of teaching in other interdisciplinary study programmes of the University of Ljubljana in which we participate.

We also organised numerous seminars, workshops and training sessions for our external partners, and, like every year, offered courses to introduce our future students to the study process (introduction to studies and revision lessons for 1st year students). We offered various extra-curricular activities to our students and successfully cooperated with the Student Council, the Faculty Student Union and student societies in the organisation and execution of professional and promotional events. The Faculty organised many workshops focusing on the research areas of its laboratories, as well as other promotional events. Resounding events and research achievements filled the media, and we once again won the first place among the faculties and academies of University of Ljubljana in positive media coverage. As part of our humanitarian involvement, the Faculty Alumni Club organised a humanitarian campaign for children with Asperger syndrome. All of these numerous activities further strengthened the reputation and high profile of the Faculty among the public.

At the end of December, the Faculty added yet another important achievement to the many successes of 2016: a modern renovated entrance with a covered wheelchair ramp, a refurbished reception and bookstore area, and a spacious lobby with a “living room”, extended to a new covered atrium. This provided us with bright new areas that immediately became the focal point of the Faculty for socialising among students and staff.

In 2016, the Faculty of Electrical Engineering, University of Ljubljana, conducted its work in accordance with the planned objectives, as is evident from the performance indicators annexed to this report.

UL FEE Officials: Vice-Dean for Research Prof. Dr. Tadej Kotnik, Vice-Dean for Financial Affairs Assoc. Prof. Dr. David Nedeljković, Mag. Maja Slovenc, Secretary General, Dean Prof. Dr. Igor Papič, Vice-Dean for Education Prof. Dr. Gregor Dolinar

2. MISSION AND VISION

Mission **of the Faculty of Electrical Engineering of the University of Ljubljana:**

- to offer diverse forms of education with an emphasis on internationalisation and practical skills as well as on international comparability of achieved educational levels;
- to conduct internationally comparable scientific research work;
- to foster professional work and the transfer of technologies into practice;
- to promote and advance the development of the profession in society.

Vision **of the Faculty of Electrical Engineering of the University of Ljubljana:**

- to be committed to top-notch teaching aimed at educating highly skilled engineers;
- to be committed to top-notch scientific research and professional work by all teaching and research staff;
- to promote the dedicated and honest work of students in meeting their study obligations;
- to promote the dedicated and professional work of joint Faculty services in providing support for teaching, scientific research and professional work;
- to nourish correct and professional relationships between all stakeholders in a creative Faculty environment, including teaching staff, students, researchers and joint service staff;
- to ensure the wellbeing and reputation of the Faculty and to provide the required material resources for its operation.

"By 2025, the Faculty of Electrical Engineering of the University of Ljubljana shall be among the top 20 percent of electrical engineering faculties in Central Europe and the broader region* according to scientific research indicators and shall sustainably improve teaching and professional performance indicators."
****(Switzerland, Germany, the Czech Republic, Slovakia, Italy, Austria, Hungary, Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Macedonia).***

3. PRESENTATION OF THE FACULTY OF ELECTRICAL ENGINEERING

3.1 Organisation

The Faculty of Electrical Engineering of the University of Ljubljana (hereafter: the Faculty), established by the Republic of Slovenia, is a top-notch education as well as science and research institution exercising its mandate in accordance with the Higher Education Act, the Decree on the Reorganisation of the University of Ljubljana, and the University of Ljubljana Statutes. The Faculty is a full member of the University of Ljubljana.

Faculty activities are carried out in organisational units and sub-units.
The organisational units of the Faculty include:

- departments
- laboratories
- the Secretariat

Departments are autonomous organisational units of the teaching, research and development processes carried out at the Faculty. They bring together several related fields of study and expertise. The department is a form of professional cooperation and coordination between Faculty teachers, scientific researchers and Faculty associates in one or several fields at all levels of education carried out at the Faculty. Within each department, there are autonomous organisational units – laboratories – where teaching, research, development and professional work is carried out. There are a total of nine departments at the Faculty.

Laboratories are autonomous organisational units within departments, established to carry out teaching, research, development, professional and consultancy processes. Laboratories are individual cost centres. Laboratories can link up into centres in order to increase their R&D and consultancy competence in broader R&D fields. However, these centres never take over the basic mission of the laboratories, instead complementing this mission and building on the synergies created. Laboratory staff can also team up to form research teams, programme teams, centres of excellence, centres of competence and other organisational forms required by external institutions, with the aim of more efficient R&D work and funding acquisition. There are a total of 33 laboratories at the Faculty.

The Secretariat is an autonomous organisational unit performing administrative and professional technical tasks in the implementation of the National Higher Education Programme, as well as scientific research and development work at the Faculty. It consists of the following sub-units:

- the Study Affairs Department providing administrative support for teaching at the Faculty;
- the Research Department, providing administrative support for the management of scientific research projects;
- the Finance and Accounting Department;
- the Information and Communication Technology Department;
- the Library;
- the General Affairs Department, which comprises:
    - the Dean’s Office,
    - the Human Resource Service,
    - the Publishing Unit,
    - the Technical Maintenance Service,
    - the Safety at Work and Fire Safety Service.

3.2 Faculty management

The Faculty is managed in accordance with the Higher Education Act, the University of Ljubljana Statutes and the Rules on the Organisation and Operation of the Faculty.

Faculty bodies include: the Dean, the Senate, the Management Board, the Academic Assembly and the Student Council. The Faculty is managed and represented by the Dean.

The Dean manages, represents and acts on behalf of the Faculty and is at the same time the managing body when the Faculty performs activities under Article 16 of the UL Statutes. The Faculty has three Vice-Deans, for financial affairs, education and research, respectively.

The Senate of the Faculty is its highest professional body. It considers and deliberates on technical issues in the field of the educational, research and development work of the Faculty, and proposes relevant decisions to the Senate of the University of Ljubljana for adoption. The Senate consists of higher education teachers of the Faculty; its composition is based on the principle of equal representation of all scientific disciplines and professional areas, as well as of Faculty Student Council representatives. The working bodies of the Faculty Senate are: the Study Committee, the Scientific Research Committee, the HR Committee, the Quality Self-Evaluation and Accreditation Committee, and the Committee for the Recognition of Foreign Qualifications with a View to Access to Further Education.

The Academic Assembly is composed of full-time higher education teachers and associates, scientists and research associates employed at the Faculty. Student representatives are also involved in its work. The Academic Assembly considers reports of the Dean and other Faculty bodies on the work of the Faculty and submits proposals and initiatives to the Faculty Senate. Representatives of the Faculty students are also involved in the discussion and decision-making process.

The Management Board decides on the management of funds earned through activities under Article 16 of the University of Ljubljana Statutes, and ensures the smooth financial operation of the Faculty when the latter is involved in legal transactions in its name and for its account. Concerning matters under the state-funded National Higher Education Programme and the National Research and Development Programme, the Faculty Management Board decides within the powers conferred to the Faculty by the University of Ljubljana. The Board also discussed delivery and financial support for European and other research projects.

The Student Council discusses all matters related to the rights and duties of the students. In addition: it formulates the opinion of the Faculty students for the Student Council of the University of Ljubljana; it elects members of the working bodies of the Faculty Senate and other Faculty bodies from among the students, as stipulated by the Faculty rules; it submits its opinion on teaching qualifications in the procedure for the election to titles of teachers and associates; it gives its opinion on candidates for the Dean's office; and it performs other tasks resulting from decisions of the Senate or the Dean. Working together with the Faculty student community, the Student Council also adopts and implements the programme of student interest activities.

The Dean's Cabinet is an advisory body composed of the Dean, Vice-Deans and Secretary of the Faculty, normally meeting at weekly sessions. Members of the Extended Dean's Cabinet also include heads of departments and the president of the Student Council. The Extended Dean's Cabinet has an advisory role and meets as necessary to discuss issues related to the core activity of the Faculty.

4. ACTIVITIES CARRIED OUT IN 2016

4.1 By activity

4.1.1 Educational activities

The Faculty implements the National Higher Education Programme in accordance with the Higher Education Act and the University of Ljubljana Statutes. In so doing, it follows the principle of professional autonomy and the principle of professional competence stemming from the registered activity of the Faculty of Electrical Engineering, the Decree on the Reorganisation of the University of Ljubljana and the resolution of the University of Ljubljana Senate.

Furthermore, the Faculty of Electrical Engineering provides professional development and top-up training for experts from various technical professions. For this purpose, seminars, workshops and summer schools are organised and implemented. Special attention is devoted to educating junior researchers, who are introduced to research and teaching under the mentorship of university professors.

In 2016, the Faculty of Electrical Engineering offered four accredited 1st cycle undergraduate programmes, two accredited 2nd cycle programmes and one accredited doctoral programme.

Furthermore, the Faculty commenced the introduction of lectures in English in some 2nd cycle courses in 2016. However, most 1st and 2nd cycle courses for foreign students continue to be available in English only in the form of consultations.

4.1.1.1 1st cycle

In 2016, education in undergraduate programmes progressed according to the adopted plan.

In the 2016/2017 academic year, the Faculty is executing the following Bologna 1st cycle undergraduate study programmes:

- Academic study programme in **Electrical Engineering**
- Interdisciplinary Academic Study Programme in **Multimedia** (in co-operation with the Faculty of Computer and Information Science)
- Professional study programme in **Applied Electrical Engineering**
- Professional study programme in **Multimedia Communication**

Number of enrolled student and number of graduates:

1. Cycle	**No. of first time enrolled students in 1st year 2016/2017**	**No. of enrolled students 2016/2017**	**No. of graduates 2016**
Electrical Engineering (academic)	166	435	85
Multimedia (academic)	39	91	0
Applied Electrical Engineering (professional)	183	452	98
Multimedia Communication (professional)	0	35	28
Total	**388**	**1013**	**211**

Progression of enrolled students:

	No. of first time enrolled students in 1st year 2015/2016	From this enrolled students in 2nd year 2016/2017	Progression from 1st to 2nd year	No. of first time enrolled students in 2nd year 2015/2016	From this enrolled students in 3rd year 2016/2017	Progression from 2nd to 3rd year
Electrical Engineering (academic)	162	95	58.64%	97	71	73.20%
Multimedia (academic)	38	23	60.53%	20	18	90.00%
Applied Electrical Engineering (professional)	181	81	44.75%	110	77	70.00%
Multimedia Communication (professional)	30	20	66.67%	15	9	60.00%
Total	411	219	53.28%	242	175	72.31%

4.1.1.2 2nd cycle

In the 2016/2017 academic year, the Faculty is executing the following Bologna 2nd cycle postgraduate study programmes:

- 2nd cycle postgraduate study programme in **Electrical Engineering**
  Of the students who passed the selection exam and enrolled in the 1st year, 59% were 1st cycle academic programme graduates, 25% were graduates of the professional programme in Applied Electrical Engineering, 1% were graduates of the professional programme in Multimedia Communication, 3% were graduates of the old higher professional programme, and 12% were graduates of other faculties and 4% were foreigners
  The progression rate from the 1st to the 2nd year was 82.35%.

- Interdisciplinary 2nd cycle postgraduate study programme in **Applied Statistics**

4.1.1.3 3rd cycle

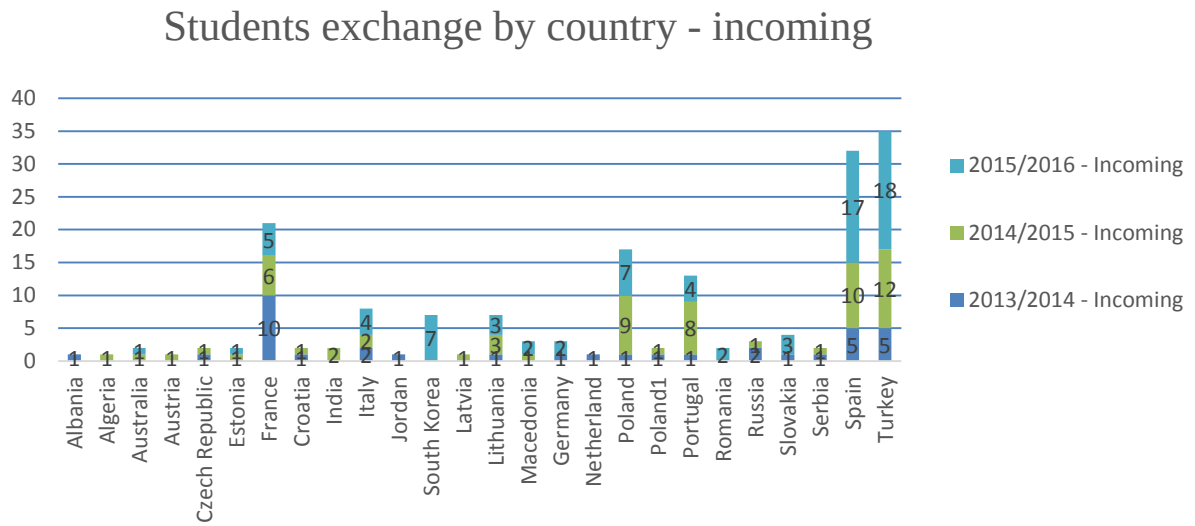
In the 2016/2017 academic year, the Faculty is conducting the 3rd cycle doctoral study programme **Electrical Engineering** as well as participating in the implementation of the interdisciplinary doctoral study programme Bioscience, in which it coordinates the field of **Nanoscience**, and in the interdisciplinary doctoral study programme Statistics, in which it coordinates the field of **Technical Statistics**.

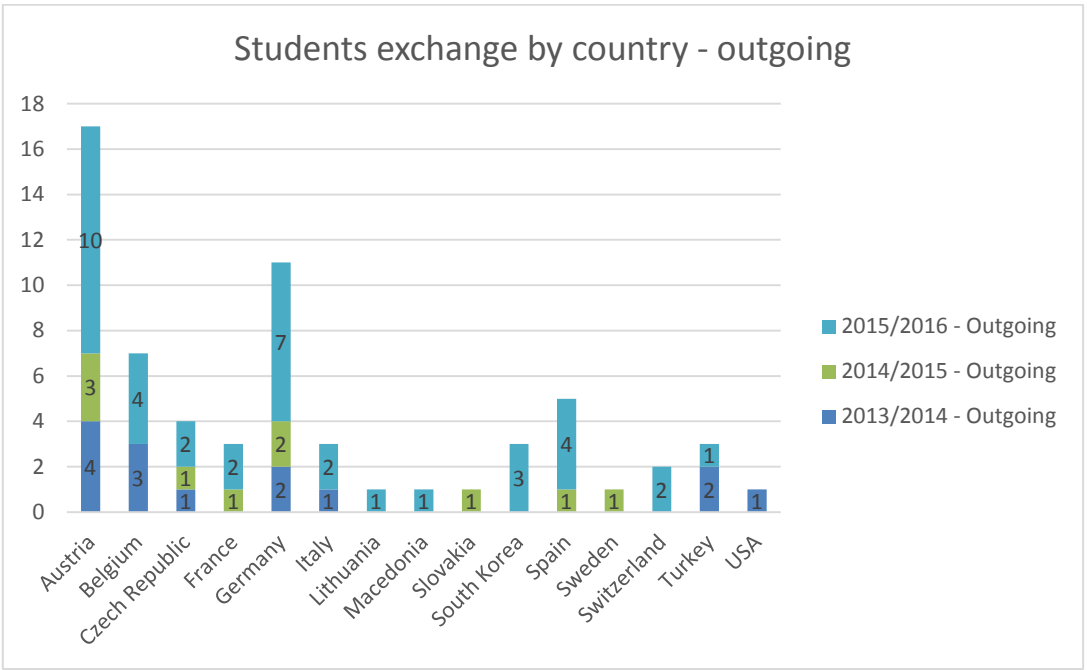
In the 2016/2017 academic year, 51 students enrolled in the 3rd cycle Bologna doctoral study programme Electrical Engineering: 22 in the 1st year, 12 in the 2nd year, and 17 in the 3rd year.

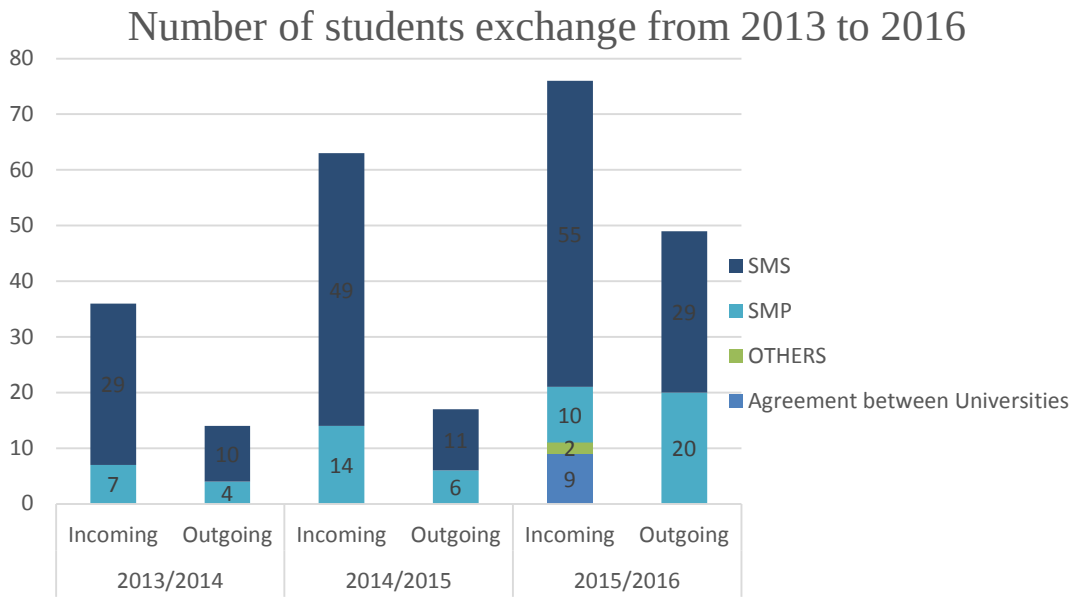
By submitting and successfully defending their doctoral theses, **21 students-doctorands completed the programme** in 2016 and acquired the scientific title of Doctor of Science.

4.1.1.4 Internationalisation in education

The Faculty of Electrical Engineering endeavours to increase the number of international exchange students, both Slovenian students who intend to complete part of the study process abroad, and foreign students, who intend to complete part of their study at the FEE. With this in mind, the Faculty has set up an international office with an international exchange coordinator and a staff member in the Study Affairs Department. Moreover, activities are being conducted to allow some 2nd cycle courses to also be delivered in English.







4.1.2 Research and development activities

Research work at the Faculty is conducted by the Faculty laboratories, as well as by programme and research groups. In 9 departments, there are 33 research laboratories bringing together the research efforts of teaching and scientific staff, researchers, junior researchers and other associates.

Research programmes and projects are carried out on the basis of public calls published by the ministries and agencies of the Republic of Slovenia. We also work with Slovenian industry and take part in projects within framework programmes and other programmes of the European Community.

The research activity of the Faculty of Electrical Engineering is very diverse. There are 33 research laboratories carrying out 14 research programmes and one infrastructure programme. In addition, 33 research projects of the Slovenian Research Agency were conducted (22 basic projects and 10 applied projects and 1 postdoctoral research).

The Faculty participates in 12 projects of HORIZON2020, 4 projects of the 7th Framework Programme of the European Community, as well as in 30 other EU projects, 12 bilateral projects with the participation of researchers from six countries were conducted at the Faculty, as well as 100 industry-funded projects for national and international companies.

In 2016, the Faculty provided training to 47 junior researchers. The Faculty also hosted 4 conferences.

All of this is made possible by the first-rate experts, modern laboratory equipment and ramified activities of the Faculty of Electrical Engineering, covering the fields of Electrical Power Engineering, Photovoltaics, Electronics, Microelectronics, Optoelectronics, Microsensors, Nanostructures, Mechatronics, Embedded Systems, Intelligent Systems, Control Systems, Robotics, Metrology and Quality Engineering, Biomedical Engineering and Informatics, ICT and Multimedia Systems.

In 2016, the Faculty was involved in **14 research programmes** with total programme funding of **EUR 1.753 million** or **29.28 FTE** (in 2015, EUR 1.721 million or 29.25 FTE). The Faculty coordinates or autonomously conducts 12 research programmes and participates in 2 research programmes coordinated by the Jožef Stefan Institute.

The Faculty also runs the infrastructural centre of the Laboratory of Biocybernetics (0.9 FTE) as part of the infrastructure programme Network of Research Infrastructure Centres at the University of Ljubljana (MRIC UL). In 2016, one research programme came to a close.

Based on the Public Call for Submitting Research Programmes for the Next Funding Period and Reports on the Results of Research Programmes, the following programmes have been selected by the Slovenian Research Agency for funding over the next 4 years (Table 4.1.2-1):

Table 4.1.2-1: **Research programmes at the FEE in 2014, scope and duration of funding**

CODE	PROGRAMME TITLE	FTE	FTE FE	DURATION
P2-0246	Algorithms and optimization methods in telecommunications	5.04	5.04	1.1.2015 - 31.12.2019
P2-0228**	Motion analysis and synthesis in man and machine	2.05	1.83	1.1.2015 - 31.12.2020
P2-0249	Electroporation in biology, biotechnology and medicine	3.10	3.10	1.1.2015 - 31.12.2020
P2-0197	Photovoltaics and electronics	3.00	3.00	1.1.2015 - 31.12.2020
P2-0232**	Electric power converters and controlled drives	2.30	2.10	1.1.2015 - 31.12.2020
P2-0225	Metrology and quality	1.36	1.36	1.1.2015 - 31.12.2019
P2-0219	Modelling, simulation and control of processes	1.80	1.80	1.1.2015 - 31.12.2018
P2-0356	Power systems	1.58	1.58	1.1.2016 - 31.12.2020
P2-0250**	Metrology and biometric systems	1.55	1.17	1.1.2013 - 31.12.2017
P2-0244	Microstructures and nanostructures	1.38	1.38	1.1.2014 - 31.12.2017
P2-0258	Photovoltaics and electronics	2.14	2.14	1.1.2014 - 31.12.2017
P2-0095*	Parallel and distributed systems	3.50	0.25	1.1.2014 - 31.12.2016
P2-0073*	Reactor physics	4.70	0.10	1.1.2014 - 31.12.2019
P2-0257	Systems on chip with integrated optical, magnetic and electrochemical sensors	4.43	4.43	1.1.2014 - 31.12.2019
	Total		**29.25**	
	Total in EUR			**1,753,915.66**
* programmes in which the Faculty participates that are coordinated by the Jožef Stefan Institute				
** programmes in which other institutions participate that are coordinated by the Faculty (unmarked) the programme is conducted by the Faculty autonomously				

4.1.2.1 Research projects of the Slovenian Research Agency

In 2016, a total of **34 research projects** of the Slovenian Research Agency (ARRS) were active: 22 basic projects, 10 applied projects and 1 postdoctoral research (Table 4.1.2-2).

The volume of project funding by the Slovenian Research Agency in 2016 amounted to **EUR 1,180 thousand EUR** or **18.60 FTE** (in 2015: EUR 832 thousand or 11.55 FTE).

Table 4.1.2-2: **Research projects of the Slovenian Research Agency at the FEE in 2016, scope and duration of funding**

CODE	PROGRAMME TITLE	DURATION	FTE FEE	FTE 2016
J1-6728	Impact of inorganic nanoparticles on biological membranes	1.7.2014—30.6.2017	0.18	1.88
J1-6732	Community level transcriptomic de-novo assembly reveals microbial enzymes that effectively contribute to complex plant polymere degradation	1.7.2014—30.6.2017	0.10	1.31
J2-5466	Nanostructures for high-efficiency solar cells and photovoltaic modules	1.8.2013—31.7.2016	0.77	0.96
J2-5473	Image-guided endovascular interventions	1.8.2013—31.12.2016	0.76	0.96
J2-5482	Tunable ferroelectric thin film capacitors for agile microwave antennas	1.8.2013—31.7.2016	0.17	0.85
J2-5495	Measuring psychophysiological parameters as input data for computerized adaptive testing	1.8.2013—31.1.2017	0.21	0.48

CODE	PROGRAMME TITLE	DURATION	FTE FEE	FTE 2016
J2-6758	Development and in vitro characterization of multimodal magnetic nanoparticles for drug delivery and cell tracking	1.7.2014—30.6.2017	0.15	1.63
J2-7105	Photovoltaic cell and module inhomogenity analysis and performance monitoring in power plants through lifetime	1.1.2016—31.12.2018	1.51	1.88
J2-7118	Computer-assisted spine surgery planning based on quantitative image analysis	1.1.2016—31.12.2018	1.31	1.63
J2-7211	Oral health screening by hyperspectral imaging	1.1.2016—31.12.2018	1.31	1.63
J2-7360	Learning and autonomous adaptation of dual arm assembly and service tasks	1.1.2016—31.12.2018	0.42	1.63
J3-5505	Electrochemotherapy in treatment of deep seated tumors	1.8.2013—31.7.2016	0.19	0.48
J3-6793	New approaches of tumor radiosenzibilization with gene therapy	1.7.2014—30.6.2017	0.15	0.73
J3-6794	Cellular energy metabolism as a target for cancer therapy – genetic and pharmacological approach	1.7.2014—30.6.2017	0.48	1.88
J3-6795	The textural analysis of spatiotemporal changes for breast lesions diagnosis on ultrafast breast MRIs	1.7.2014—30.6.2017	0.31	0.73
J5-6814	Explaining effective and efficient problem solving of the triplet relationship in science concepts representations	1.7.2014—30.6.2017	0.10	0.81
J5-7098	Assessment of blood parameters and extracellular vesicles for optimization of sport results	1.1.2016—31.12.2018	0.49	2.14
J7-5497	Selective and hipersensitive microcapacitive sensor system for targetted molecular detection in the atmosphere	1.8.2013—31.7.2016	0.52	0.85
J7-6781	Quantitative analysis of brain white matter lesions	1.7.2014—30.6.2017	0.85	1.07
J7-6783	Development and optimization of electroporation protocol for extracting biotechnologically relevant molecules from bacterial cells	1.7.2014—30.6.2017	0.65	0.81
J7-7197	Development of decision-support methods based on smart sensors for steel recycling process in electric arc furnace	1.1.2016—31.12.2018	1.32	1.88
J7-7424	Evaluation of possible harmful effects of nanoparticles and underlying mechanisms ? from physico-chemical and in vitro toxicity characterisation to innate immune system activation	1.1.2016—31.12.2018	0.81	1.63
L2-5471	Intelligent robot for walking training	1.8.2013—31.7.2016	0.48	0.96
L2-5472	Visual analysis of orderless pharmaceutical tablets in mass production processes	1.8.2013—31.12.2016	0.48	0.96
L2-5476	Optimisation of energy cost for refrigeration systems in shopping malls	1.8.2013—31.7.2016	0.38	0.96
L2-5481	Use of wireless sensor devices for motion analysis and bio-feedback	1.8.2013—31.7.2016	0.24	0.96
L2-5571	New materials for printed sensors and indicators and their integration in smart printed matter	1.8.2013—31.7.2016	0.09	0.25
L2-7541	Smart Real Time Continuous Noninvasive Glucose Monitoring Sensor	1.3.2016-28.02.2019	0.97	1.21
L7-5459	Graph models and algorithms applied to parameterizing base stations of fourth generation	1.8.2013—31.7.2016	0.25	0.96
L7-5534	Development of novel technologies for detection, quantification and characterisation of bacteriophages	1.8.2013—31.7.2016	0.14	0.86
L7-6858	DriveGreen: Development of an ecodriving application for a transition to a low-carbon society	1.7.2014-30.06.2017	0.10	1.88
L7-7566	Advanced hemocompatible surfaces of vascular stents	1.3.2016-28.02.2019	0.08	0.61
Z3-7126	Development and validation of treatment planning methods for treating cancer with electroporation based therapies	1.1.2016-31.12.2017	1.00	1.00
N2-0027	Electroporation as Method for Inserting Functional Membrane Proteins in Mammalian Cells	1.1.2015 –31.12.2017	1.63	1.63
	Total FTE	**18.60**	18.60	40.09
	Total in EUR	**1,180,237.65**		

4.1.2.2 Junior researchers

In 2016, the Faculty provided training to **47 junior researchers under the Slovenian Research Agency programme, which is 7 more than in 2015.** In 2016**,** 8 junior researchers from the Slovenian

Research Agency completed their training. In 2016, the Faculty welcomed 9 new junior researchers under the Slovenian Research Agency programme, all of whom entered the training in autumn.

4.1.2.3 International projects

In 2016, the Faculty participated in 46 EU projects: 4 projects of the Seventh Framework Programme (FP7), 14 projects of the COST programme, 1 projects of the TEMPUS programme, 2 projects of the Metrology Research Programme (EMRP), 4 projects of the Metrology Research Programme (EMPIR), 6 projects of the ERASMUS+, 12 projects of the HORIZON2020 and 1 project of INTERREG EUROPE, INTERREG SLO-AT and NATO. (Table 4.1.2-2).
In 2016, the funding received for the implementation of these projects at the Faculty was **EUR 1.49 million (**in 2015, EUR 1.46 million**)**.

Table 4.1.2-3: **International projects, in which the Faculty participated**

PROGRAMME	ACRONYMS	DURATION	Type of Cooperation
COST	NESUS	2014-2018	partner
COST	3D-ConTourNet	2012-2016	partner
COST	EP4Bio2Med	2012-2016	coordinator
COST	TObeWELL	2012- 2016	partner
COST	SaPPART	2013-2017	partner
COST	LUDI	2013-2017	partner
COST	MultiscaleSolar	2015-2019	partner
COST	ORIGINS	2014-2018	partner
COST	Integrating Biometrics and Forensics for the Digital Age	2012-2016	partner
COST	De-identification for privacy protection in multimedia content	2013-2017	partner
COST	European network for innovative uses of EMFs in biomedical applications (EMF-MED)	2014-2018	partner
COST	Electrical discharges with liquids for future applications	2013-2017	partner
COST	Biomaterials and advanced physical techniques for regenerative cardiology and neurology	2016-2020	partner
COST	Advancing effective institutional models towards cohesive teaching, learning, research and writing development	2016- 2020	partner
EMPIR	HIT	2015-2018	partner
EMPIR	EURA-THERMAL	2015-2018	partner
EMPIR	ERASII	2016- 2019	partner
EMPIR	HUMEA	2016- 2019	partner
EMRP	MeteoMet2	2014-2017	partner
EMRP	SIB64 METefnet	2013-2016	partner
FP7	INCREASE	2013-2016	partner
FP7	ECHORD++	2015-2016	partner
FP7	TETRACOM	2013-2016	partner

PROGRAMME	ACRONYMS	DURATION	Type of Cooperation
FP7	WINSMART	2012-2016	partner
TEMPUS	BME-ENA	2013-2016	partner
ERASMUS+	VET4APPS	2014-2016	partner
ERASMUS+	OnCreate	2014-2017	partner
ERASMUS+	SCORE 2020	2014-2016	partner
ERASMUS+	DBBT-MS	2015- 2018	partner
ERASMUS+	MERIA	2016- 2019	partner
ERASMUS+	InMotion	2016- 2019	partner
HORIZON2020	STORY	2015-2018	partner
HORIZON2020	NEXES	2015-2018	partner
HORIZON2020	BET	2015-2018	partner
HORIZON2020	ARCADIA	2015-2017	partner
HORIZON2020	UNCAP	2015-2017	partner
HORIZON2020	FIWIN5G	2015-2018	partner
HORIZON2020	MIGRATE	2015-2019	partner
HORIZON2020	CONSEED	2016- 2019	partner
HORIZON2020	SOLAR-TRAIN	2016- 2020	partner
HORIZON2020	DISC	2016- 2019	partner
HORIZON2020	ARCIGS-M	2016- 2019	partner
HORIZON2020	DECAS	2016- 2019	partner
INTERREG EUROPE	ERUDITE	2016- 2020	partner
INTERREG SLO-AT	MM03D	2016- 2019	partner
NATO	NATO - SIARS	2015-2018	coordinator

4.1.2.4 Bilateral projects

In 2016, the Faculty participated in **12 bilateral projects** with research institutions from **6 foreign countries.**

4.1.2.5 Research and development cooperation with the business sector

The Faculty laboratories are developing various forms of R&D cooperation with Slovenian industry: education of junior researchers from the business sector, participation in centres of excellence, centres of competence, technology platforms and networks, and implementation of R&D projects. Project-based cooperation is facilitated by public calls published by ministries and public agencies, which encourage joint applications, partnerships on applied projects, and the involvement of complementary partners, whether institutions of knowledge or businesses, in particular: co-funding and partnership in applied projects of the Slovenian Research Agency, certain public calls of the Ministry of Education, Science and Sport (e.g., early career researchers), and public calls published by the Slovenian Technology Agency. In 2016, the Faculty had 100 different contracts with Slovenian and foreign

companies. The level of funding and the implementation dynamic of industry-funded projects vary a great deal. Smaller projects with a value of around 10,000 EUR prevail (approx. one half), while other projects exceed 100,000 EUR in value. Most projects last for at least one year, but some have a duration of only a few months while others continue for several years. Project work in conjunction with industry is an important source of income for the Faculty.

4.1.2.6 Scientific and academic publications, citations and patents

In 2016, Faculty members published 146 scientific articles in journals with a JCR impact factor and three scientific monographs with recognised international publishers; in addition, they were granted four foreign and international patents. Fourteen scientific articles were published in journals ranking first or second within their subject category according to the impact factor; a total of 67 articles were published in journals appearing in the first quartile within their subject category.

To date, scientific works by Faculty members published in 2016 have received 53 pure citations, while all works published between 2000 and 2016 have received 4089 pure citations (Table 4.1.2-4).

Table 4.1.2-4: **Number of published articles in journals with an impact factor and number of received pure citations by year, 2000-2016.**

YEAR	2000	2001	2002	2003	2004	2005	2006	2007	2008
PUBLISHED ARTICLES	78	86	81	115	97	103	95	115	147
PUBLISHED ARTICLES IN THE 1ST QUARTILE OF THE IF	21	25	31	25	33	30	29	33	58
RECEIVED PURE CITATIONS	225	286	345	424	545	720	911	1104	1281

YEAR	2009	2010	2011	2012	2013	2014	2015	2016
PUBLISHED ARTICLES	121	154	166	168	186	148	146	126
PUBLISHED ARTICLES IN THE 1ST QUARTILE OF THE IF	41	48	55	58	61	63	67	67
RECEIVED PURE CITATIONS	1668	2049	2648	2859	3252	3245	3521	4089

Monographs issued by foreign publishers:

- IGLIČ Aleš, KULKARNI Chandrashekhar, RAPPOLT Michael (editor). *Advances in biomembranes and lipid self-assembly*. Volume **23**, Amsterdam etc., Elsevier, 2016.

  IGLIČ Aleš, KULKARNI Chandrashekhar, RAPPOLT Michael (editor). *Advances in biomembranes and lipid self-assembly*. Volume **24**, Amsterdam etc., Elsevier, 2016.

- AMBROŽIČ Vanja, ZAJEC Peter, *Električni servo pogoni*, Cigre Cired, 2016.
- ŚCIGAN, Marcin, GONUL, Gurbuz, TÜRK, Andreas, FRIEDEN, Dorian, PRISLAN, Blaž, GUBINA, Andrej. *Cost-competitive renewable power generation : potential across South East Europe*. Abu Dhabi: IRENA, cop. 2017.
- TKALČIČ M., DE Carolis, B., DE GEMMIS, M., ODIĆ, A., KOŠIR, A. *Emotions and Personality in Personalized Services, Models, Evaluation and Applications* , Springer, 2016
- MIHALIČ, Rafael, EREMIA, Mircea, BLAŽIČ, Boštjan. Static synchronous compensator - STATCOM. V: EREMIA, Mircea (ur.), LIU, Chen-Ching (ur.), EDRIS, Abdel-Aty (ur.). Advanced solutions in power systems: HVDC, FACTS, and artificial intelligence. Hoboken: Wiley, cop. 2016, str. 459-525, ilustr. [COBISS.SI-ID 11579220].

High profile scientific articles:

- KILLIAN, Manuela Sonja, KRALJ, Slavko, MARK, Klaus von der, IGLIČ, Aleš, SCHMUKI, Patrik. Protein interactions with layers of TiO_2 nanotube and nanopore arrays : morphology and surface charge influence. *Acta Biomaterialia* 45: 357-366, 2016.

- KRISTAN, Matej, SULIĆ KENK, Vildana, KOVAČIČ, Stanislav, PERŠ, Janez. Fast image-based obstacle detection from unmanned surface vehicles. *IEEE Transactions on Cybernetics* 46: 641-654, 2016.

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- BOKALIČ, Matevž, PIETERS, Bart E., GERBER, Andreas, RAU, Uwe, TOPIČ, Marko. Bandgap imaging in $Cu(In,Ga)Se_2$ photovoltaic modules by electroluminescence. *Progress in photovoltaics* 25: 184-191, 2016.

- STOJMENOVA, Kristina, JAKUS, Grega, SODNIK, Jaka. Sensitivity evaluation of the visual, tactile, and auditory detection response task method while driving. *Traffic injury prevention*, 2016 (v tisku).

- KOTNIK Tadej, FREY Wolfgang, SACK Martin,HABERL MEGLIC Sasa, PETERKA Matjaz in MIKLAVCIC Damijan. »Electroporation-based applications in biotechnology«, Trends in Biotechnology (faktor vpliva revije je 12.065).

- KNEZ, Dejan, LIKAR, Boštjan, PERNUŠ, Franjo, VRTOVEC, Tomaž. Computer-assisted screw size and insertion trajectory planning for pedicle screw placement surgery. *IEEE transactions on medical imaging*, ISSN 0278-0062. [Print ed.], 2016, vol. , no. , str. 1-12.

- JERMAN, Tim, PERNUŠ, Franjo, LIKAR, Boštjan, ŠPICLIN, Žiga. Enhancement of vascular structures in 3D and 2D angiographic images. *IEEE transactions on medical imaging*, ISSN 0278-0062. [Print ed.], Sep. 2016, vol. 35, no. 9, str. 2107-2118.

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- LESJAK, Žiga, PERNUŠ, Franjo, LIKAR, Boštjan, ŠPICLIN, Žiga. Validation of white-matter lesion change detection methods on a novel publicly available MRI image database : Elektronski vir. *Neuroinformatics*, ISSN 1559-0089, 2016, vol. , no. , str. 1-18.

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RISK FOR NEURODEVELOPMENTAL DISORDERS, IEEE Robotics & Automation Magazine Vol. PP , No. 99 ing, Vol. 53, No. 2, 2016.

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4.1.3 Knowledge transfer and use – University's third dimension

The Faculty of Electrical Engineering has traditionally developed good **cooperation with its environment** through direct contracts for R&D work with the business and public sectors.

The transfer and use of knowledge from the Faculty to the business sector takes place in a number of forms involving R&D cooperation with industry: the training of junior researchers from the business sector, participation in centres of excellence, competence centres, technological platforms and networks, and implementation of R&D projects for businesses. However, at the UL we are still awaiting the relevant university rules providing a legal basis for founding spin-offs and facilitating the transfer of innovative technologies to industry.

Again in 2016, the Faculty was very successful in transferring knowledge to the real-world environment, as demonstrated by the numerous scientific research results and achievements, innovations, patents and procedures.

4.1.4 A creative environment for work and study

The Faculty has Creative classroom – KuFE, which is a multipurpose space for students and for employees of the Faculty, where various workshops, lectures, courses and other meetings are held.
Students are introduced to project work as part of the study process and through research projects in laboratories. In this way, they can establish their initial contacts with businesses and potential employers quite early on. Within the framework of the project Demola, we encourage cooperation between students from different faculties working on interdisciplinary projects.

Workshops and training exercises are carried out within the framework of the open laboratory for the creative work of youth Open Lab in Kranj, which is part of the Faculty of Electrical Engineering.
OpenLab is an important venue in the local environment and is recognised as a youth centre where knowledge, education institutions and entrepreneurship come together. It remains an important facility for the promotion of the UL Faculty of Electrical Engineering in the Gorenjska region.

4.1.4.1 Extracurricular and interest activities, student services

At the Faculty of Electrical Engineering, extracurricular activities have always had a strong presence, and are a high-quality complement to educational and scientific research work. The Faculty cooperates successfully with a number of organisations that have their seat at the FEE – the FEE Student Council and the FEE Students' Organisation, the Sports Club of the FEE and the Faculty of Computer and Information Science (FRI), the Slovenian section of the IEEE and its student branch – as well as with numerous organisations based outside the Faculty premises – the Association for Technical Culture of Slovenia, the association Stromar.si, EESTEC LC Ljubljana (Electrical Engineering Students European assoCiation), AIESEC Slovenia, BEST (Board of European Students of Technology),

MENSA Slovenia, the Society of Junior Researchers of Slovenia, the Electrotechnical Association and the Association of Radio Amateurs. We also cooperate well with the UL Career Centre.

The FEE Student Council, as a Faculty body, addresses current topics at its session, participate in the FEE Senate and its committees. The members participated in FEE visits to secondary schools aimed at presenting FEE programmes and increasing school pupils' interest in the study of electrical engineering. The Student Council is also involved in the organisation of an open day for prospective students and in the reception of freshmen. In the previous year, the Student Council carried out several projects, autonomously or in cooperation with other organisations, the Faculty and its clubs. In cooperation with the Student Organisation, Council members organised the traditional second-hand study book fair and the Charity Week.

The FEE Student Organisation carried out numerous activities and events for students, some in cooperation with the FEE Student Council and the EESTEC (the freshmen inauguration party, excursions, professional and study workshops, participation in Faculty events: Industrial Robotics Day (DIR), Introduction to the Study of Electrical Engineering, the organisation of sports classes and other events, etc.).

SPORT AT THE FACULTY

The course Physical education, which is available to 2nd year students enrolled in the 1st cycle professional study programme Applied Electrical Engineering as an elective course worth 5 ECTS credits has been successfully introduced, as there is a lot of interest among students.

As a part of the physical education programme, the students were able to choose from various sports disciplines: swimming, ball games, basketball, volleyball, indoor football, fitness and jogging. Within the programme of outdoor sports activities – which are part of the regular physical education programme – mountaineering, cycling and ski trips were organised, as well as classes.

Sports Club of the FEE and FRI

The Sports Club of the FEE and FRI encourages students and Faculty staff to be active in sports and caters to their sports interests. The Club's goals include participation in competitions and recreation activities. Club members attend University championships as well as faculty, interfaculty and international competitions organised by sectoral and other associations. The Club organises skiing and mountaineering trips. Through workshops, courses and lectures, they pass on sports knowledge to everyone interested. In 2015, they organised university-level and individual competitions.

4.1.4.2 Library and publishing activities

The FE Library is a higher education library (academic library). It is intended for the needs of students, professors and researchers of the Faculty of Electrical Engineering as well as the needs of other users to assist them with their study, teaching and research work.

In 2016, **1229 library items** were purchased for the needs of the **FEE (**in 2015: 774, which is 56% more than in 2016).

PUBLISHING

In 2016, FEE Publishing Unit (Založba FE) published study aids, textbooks, workbooks, instructions for tutorials and laboratory practice, professional manuals and teachers' monographs for the students of our Faculty. Once a year, the publishing unit launches a public call for the publishing of study aids. The Editorial Board (FEE) draft and approve the publishing plan.

In 2016, the FEE Publishing Unit sold 1575 books and study literature items. The FEE Publishing Unit offers 205 study aids for different study programmes in its bookstore. There, several books of Tehniška založba Slovenije and different faculty's promo goods are also available.

4.1.5 Material conditions and support activities

4.1.5.1 Physical asset management

In 2016, the Faculty completed a major renovation of the entrance area and the lobby. By renovating the entrance and covering the atrium, we improved our energy efficiency (insulated glazing) and gained more natural light in the lobby. The outdoor wheelchair ramp is also almost entirely covered. By refurbishing the old computer classroom, now called “the living room”, and covering the atrium between two buildings, we gained ample additional space dedicated primarily to creative socialising among students and staff. Under the atrium, a new room for the faculty servers has been arranged. We also restored the benches in the Faculty outdoor park, which offer a relaxed ambiance in the outdoors, particularly in the summer months, and which both students and staff members can greatly benefit from during short breaks.

There are two **solar power** plants on the roofs of the Faculty buildings. The LPVO solar power plant on the roof of the A building generated 17,579 kWh of electrical energy, and the LRTME solar power plant on the roof of the D building generated 5,056 kWh. Both of the power plants are also used for scientific research and educational purposes.

A safe and healthy working environment is provided at the Faculty, as reflected in the ergonomic equipment in the working spaces, emergency lighting and the knowledge of safety-at-work and fire safety rules.

4.1.5.2 Public procurement

In 2016, the Faculty conducted public procurement in accordance with the Public Procurement Act (ZJN-2, OJ RS Nos. 12/2013, 19/2014), since 1st April 2016 in accordance with the Public Procurement Act (ZJN-3, OJ RS No. 91/2015) and the legal bases and rules applicable to indirect budget users in Slovenia:

- Non-regulated low-value public procurement was conducted up to EUR 19,999 for goods and services and up to EUR 39,999 for works. No publication is required for this type of procurement; however, it is mandatory to keep statistical data and publish them on the portal of the Official Journal of the Republic of Slovenia.
- All other procurement was conducted from EUR 20,000 for goods and services and from EUR 40,000 for works, with mandatory publication on the “E-procurement” portal of the Official Journal of the RS.

We acted extremely economically in procurement due to the reduced funding of educational and research activities. All submitted offers were examined carefully and the most advantageous solutions were selected.

Non-regulated low-value public procurement
This involves procurements up to EUR 20,000.00 for goods and services and up to EUR 40,000.00 for works (not subject to publication requirement on the PP and TED portal), which are not regulated by the Public Procurement Act, but require statistical recording.

Non-regulated low-value public procurement in 2016

Type of PP	Amount of PP in EUR incl. VAT	%	No. of PPs
Goods	1,070,373.00	34	1249
Services	2,030,739.00	64	1058
Buildings	70,000.00	2	5
Total:	**3,171,112.00**	**100**	**2312**

Source: FEE PP archive – PP statistical data for 2016.

We processed a total of 2312 requests, of which 1249 were for the procurement of goods (34% of the total value of non-regulated low-value procurement), 1058 were for the procurement of services (64% of the total value of non-regulated low-value procurement), and 2 were for construction and finishing works (5% of the total value of non-regulated low-value procurement).

Public tenders

In 2016, we carried out four public tenders (electronic publication of statistical data is available on the PP portal) for goods and services, with a total value of **EUR 612,109.00**. The public tender for the purchase of electricity was conducted through a joint public procurement by the University of Ljubljana. The values are indicated in the table below.

Public tenders in 2016

Type of PT	Amount of PT in EUR incl. VAT	%	PT total
Goods	160,677.00	26	2
Services	92,387.00	15	1
Buildings	359,045.00	59	1
Total	**612,109.00**	**100**	**4**

Source: FEE PP archive – PP statistical data for 2016.

As shown above, in 2016 we carried out public tenders worth **EUR 612,109.00** for the purchase of goods, buildings and services, 8% less than in 2015.

Total value of public procurement in 2016

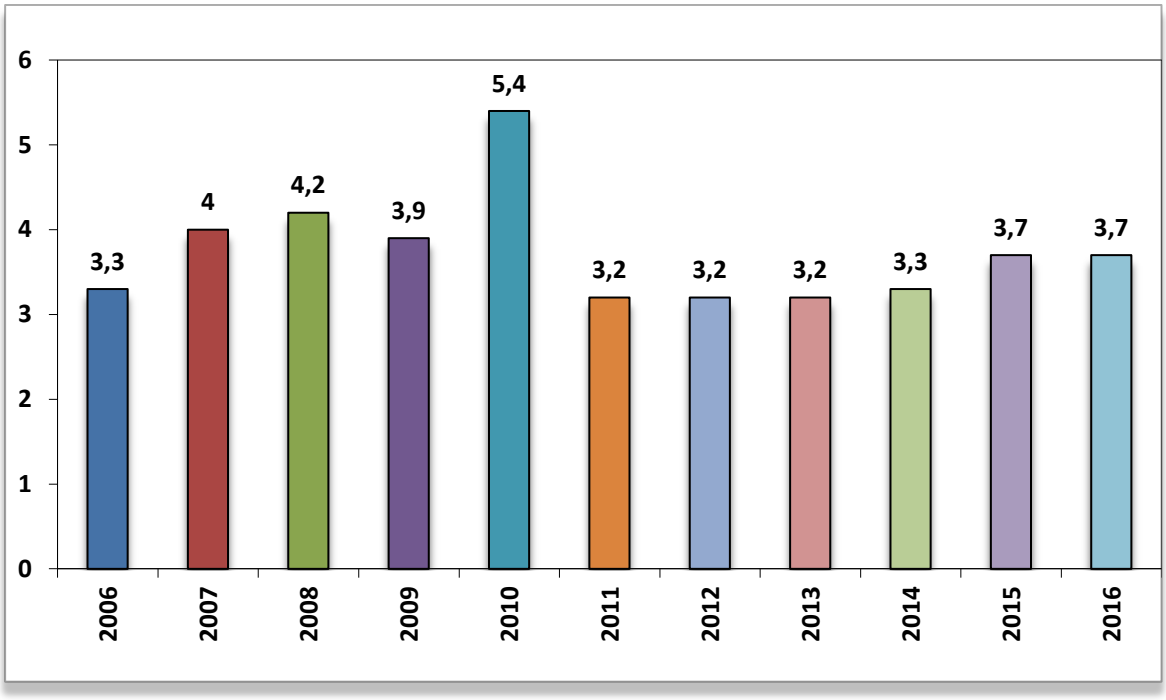
Type of procedure	Procurement amount in EUR incl. VAT	%
Non-regulated low-value PP	**3,171,112.00**	84
Public tenders	**612,109.00**	16
Total	**3,775,660.00**	**100**

Source: FEE PP archive – PP statistical data for 2016

In 2016, there was a total of 3,783,221.00 euros worth of public procurements, of which 16% (EUR 612,109.00) were subject to publication; other non-regulated procurement requiring only statistical

reporting accounted for 84% (EUR 3.171.112.00), which indicates the degree of fragmentation in public procurement based on the requirements of individual projects and the specificities of funding of educational and research activities. All amounts include VAT.

Overview of public procurement between 2006 and 2016 (in million EUR)



Source: FEE PP archive – PP statistical data 2006-2016

4.1.5.3 Human resource development

The organisational structure of the FEE did not change significantly in 2016. Compared to 2015, the total employee count increased by 5, primarily due to researchers employed for the duration of a project.

At the end of 2016, the Faculty was employing 119 teaching staff, 123 scientific associates, researchers, 18 technical staff, and 38 junior researchers. The professional services of the Faculty Secretariat employed 55 staff. There are 4 foreigners among the Faculty staff, most of whom are junior researchers.

5. UL FEE STATISTICAL DATA (2016 results)

Table 5 -1: Number of graduates 2016

BOLOGNA PROGRAMME						
1. cycle MMK	1. cycle Appl. el.	1. cycle El.	2. cycle El.	2. cycle Appl. St.	3. cycle El.	3. cycle Bio-Nano
28	98	85	84	4	21	2

PRE-BOLOGNA REFORM PROGRAMMES				
VS	UN	Spec.	MAG	DR
227	175	14	70	3

Table 5 -2: Number of cooperation agreements in acquiring "double" degrees

CYCLE	STUDY PROGRAMME	No. of study programmes carried out in a foreign language
1. CYCLE	PROFESSIONAL PROGRAMMES	0
1. CYCLE	ACADEMIC PROGRAMMES	0
2. CYCLE	MASTERS PROGRAMME	partly 1
3. CYCLE	DOCTORAL PROGRAMME	0

Table 5 -3: Practical training

CYCLE	STUDY PROGRAMME	No. of students involved in practical training	No. of students involved in practical training abroad	No. of Faculty students who have passed at least one course at another UL member	No. of credits earned by students who have passed at least one course at another UL member	No. of students from other UL members who have passed at least one course at the Faculty	No. of credits earned by students who have passed at least one course at the Faculty
1. CYCLE	PROFESSIONAL PROGRAMMES	140	2	0	0	2	10
1. CYCLE	ACADEMIC PROGRAMMES	0	4	1	3	5	25
2. CYCLE	MASTERS PROGRAMME	0	4	0	0	8	48

Table 5 -4: Number of students with a special status

TYPE OF DISORDER/IMPAIRMENT OF THE STUDENT WITH A DISABILITY OR TOP ATHLETE STATUS	number of students with a special status
top athlete status	7
speech and language disorders	3

Table 5 -5: Exchange teachers, associates and researchers (in Slovenia)

CYCLE	STUDY PROGRAMME	No. of visiting experts from the business and non-business sectors participating in education	No. of visiting higher education teachers, associates and researchers from Slovenian research institutes participating in education
1st CYCLE	PROFESSIONAL PROGRAMMES	11	0
1st CYCLE	ACADEMIC PROGRAMMES	20	0
2nd CYCLE	MASTERS PROGRAMME	12	3

Table 5 -6: Exchange teachers, associates and researchers (abroad/from abroad)

YEAR	No. of foreign higher education teachers, associates and scientists participating in the delivery of at least part of a course	No. of foreign scientists and research associates participating on exchange and participating in the scientific research process	No. of higher education teachers and associates on exchange, in education or participating in education, scientific research or artistic work abroad with foreign higher education institutions
2016	8	8	0

6. SUMMARY OF THE ACCOUNTING REPORT FOR 2016

In accordance with Article 13 of the Accounting Act and Article 16 of the Order on Classifying and Measuring Revenues and Expenses in the Uniform Chart of Accounts, the Faculty of Electrical Engineering, University of Ljubljana, is obliged to produce the annual report according to the rules for certain users of the uniform chart of accounts. In compiling its accounting statements, the Faculty of Electrical Engineering followed the principle of accrual accounting for the 2016 business year (which is the same as the calendar year) and, as an indirect budget user, also the cash flow principle.

The Faculty of Electrical Engineering is liable under the Corporate Income Tax Act and the Value Added Tax Act. In accordance with Article 65, item 7, of the VAT Act, we calculate the tax based on the actual data, separately for the public service and market activity (two tax records).

Key elements of the Balance Sheet

Assets

The value of assets of the FEE on 31 December 2016 amounted **EUR 19,238,511.42** (on 31 December 2015: EUR 19,112,397.44).
The tables below offer a comparison of acquired fixed assets and small tools at the FEE in 2015 and 2016 together with the relevant sources.

Table 6-1: Purchase of fixed assets and small tools in 2015 and 2016

TYPES OF FIXED ASSETS AND SMALL TOOLS	FIXED ASSETS		index	SMALL TOOLS		index	TOTAL PURCHASE		index
	2016	2015	2016/2015	2016	2015	2016/2015	2016	2015	2016/2015
computer software license	23.202,68	19.060,87	121,73				23.202,68	19.060,87	121,73
investment	484.985,51	2.511,25	19.312,51				484.985,51	2.511,25	19.312,51
teaching aids	10.356,69	37.020,32	27,98	311,70	9.630,93	3,24	10.668,39	46.651,25	22,87
furniture	18.334,18	106.009,37	17,29	19.406,74	127.437,64	15,23	37.740,92	233.447,01	16,17
laboratory equipment	209.757,95	453.280,03	46,28	5.826,11	5.286,63	110,20	215.584,06	458.566,66	47,01
other transport and communication equipment		2.405,35	0,00	972,51	4.178,13	23,28	972,51	6.583,48	14,77
computer equipment	205.679,14	201.215,02	102,22	36.192,73	39.627,75	91,33	241.871,87	240.842,77	100,43
servicing and maintenance equipment		553,49	0,00				0,00	553,49	0,00
AV equipment	45.807,05	9.053,42	505,96		1.361,17	0,00	45.807,05	10.414,59	439,84
printing and copying equipment					251,63	0,00	0,00	251,63	0,00
cooling and heating equipment	17.935,51	86.273,36	20,79		71,99	0,00	17.935,51	86.345,35	20,77
other equipment	28.109,69	88.189,11	31,87	5.141,29	11.829,76	43,46	33.250,98	100.018,87	33,24
TOTAL EQUIPMENT	**535.980,21**	**983.999,47**	54,47	**67.851,08**	**199.675,63**	33,98	**603.831,29**	**1.183.675,10**	51,01
TOTAL PURCHASE OF FIXED ASSETS	**559.182,89**	**1.005.571,59**	55,61	**67.851,08**	**199.675,63**	33,98	**1.112.019,48**	**1.205.247,22**	92,26

Table 6-2: Sources of funding for fixed asset and small tools purchase in 2015 and 2016

SOURCES OF FUNDING FOR FIXED ASSET AND SMALL TOOLS PURCHASE			
			index
	2016	2015	2016/2015
education funding	172,090.88	142,106.87	121.10
surplus from previous years	455,918.69		
research funding	303,887.16	450,741.19	67.42
ARRS Pack 16	39,058.44	14,579.34	267.90
other public funding	2,048.16	12,456.74	16.44
donation	779.10	233,293.93	0.33
EU	33,794.29	12,116.30	278.92
market-based funding	104,442.76	339,952.85	30.72
TOTAL	**1,112,019.48**	**1,205,247.22**	**92.26**

Liabilities

The liabilities of the FEE on 31 December 2016 totalled **EUR 428,654.68**.

On 31 December 2016, the assets fund for intangible assets and tangible fixed assets owned by the FEE, being the main liabilities item, was worth **EUR 13,579,743.85** (in 2015: EUR 14,103,093.27) and consisted of the following items:

Table 6-2: Fixed assets fund in 2015 and 2016

FIXED ASSETS FUND	2016	2015	Index
assets fund – education	9,209,740.10	9,290,353.18	99.13
assets fund – donated equipment FRI	183,984.78	196,068.82	93.84
assets fund – TDC	120,000.00	120,000.00	100.00
assets fund – Ministry grants for equipment	28,669.71	2,693.20	1.064.52
assets fund – Ministry grants for competence centres	13,340.34	14,050.46	94.95
assets fund – research	1,352,277.25	1,352,277.25	100.00
assets fund – market activity	1,240,166.89	1,240,166.89	100.00
unused surplus of revenues for investments and purchase of fixed assets	295,218.49	751,137.18	39.30
unused surplus of revenues for general maintenance	1,136,346.29	1,136,346.29	100.00
TOTAL	**13,579,743.85**	**14,103,093.27**	**96.29**

Key elements of the Statement of Revenue and Expenditure

The table below includes revenue and expenditure data, shown separately for the provision of public service and market activities, for the business years 2016 and 2015.

Table 6-3: Comparison of results: public service vs. market activity 2016/2015

DESCRIPTION	PUBLIC SERVICE 2016	PUBLIC SERVICE 2015	Index 2016/2015	MARKET-BASED ACTIVITY 2016	MARKET-BASED ACTIVITY 2015	Index 2016/2015	TOTAL 2016	TOTAL 2015	Index 2016/2015
REVENUES	**14.531.471,00**	**14.436.172,00**	**100,66**	**2.315.359,00**	**3.041.507,00**	**76,13**	**16.846.830,00**	**17.477.679,00**	96,39
1. Operating revenues	14.474.249,00	14.372.896,00	**100,71**	2.286.442,00	3.015.763,00	**75,82**	**16.760.691,00**	**17.388.659,00**	96,39
2. Financial revenues	1.273,00	26.219,00	**4,86**	1.457,00	426,00	**342,02**	**2.730,00**	**26.645,00**	10,25
3. Other and revaluatory revenues	43.775,00	22.435,00	**195,12**	27.460,00	25.318,00	**108,46**	**71.235,00**	**47.753,00**	149,17
4. Increase of inventories	12.174,00	14.622,00	**83,26**		0,00		**12.174,00**	**14.622,00**	83,26
EXPENDITURE	**14.529.463,00**	**14.489.146,00**	**100,28**	**2.149.439,00**	**2.860.161,00**	**75,15**	**16.678.902,00**	**17.349.307,00**	96,14
1. Costs of materials	656.292,00	703.262,00	**93,32**	36.950,00	85.918,00	**43,01**	**693.242,00**	**789.180,00**	87,84
2. Cost of engaged services	2.293.719,00	2.968.551,00	**77,27**	1.119.559,00	1.487.321,00	**75,27**	**3.413.278,00**	**4.455.872,00**	76,60
3. Labour costs	10.833.952,00	10.144.117,00	**106,80**	695.505,00	970.151,00	**71,69**	**11.529.457,00**	**11.114.268,00**	103,74
- Gross wages	8.587.939,00	8.071.227,00	**106,40**	533.120,00	747.753,00	**71,30**	**9.121.059,00**	**8.818.980,00**	103,43
- Social security contributions	1.395.095,00	1.289.576,00	**108,18**	87.523,00	118.117,00	**74,10**	**1.482.618,00**	**1.407.693,00**	105,32
- Holiday allowance	850.918,00	783.314,00	**108,63**	74.862,00	104.281,00	**71,79**	**925.780,00**	**887.595,00**	104,30
- Other labour costs	236.292,00	182.956,00	**129,15**	14.002,00	20.874,00	**67,08**	**250.294,00**	**203.830,00**	122,80
4. Other costs	14.947,00	15.947,00	**93,73**	0,00	0,00		**14.947,00**	**15.947,00**	93,73
- contributions for special cases of insurance	58.062,00	57.316,00	**101,30**	0,00	0,00		**58.062,00**	**57.316,00**	101,30
- remaining other cost	163.283,00	109.693,00	**148,85**	14.002,00	20.874,00	**67,08**	**177.285,00**	**130.567,00**	135,78
5. Costs of inventory sold	11.758,00	11.924,00	**98,61**	214,00	1.074,00	**19,93**	**11.972,00**	**12.998,00**	92,11
6. Depreciation	485.713,00	466.207,00	**104,18**	212.399,00	290.932,00	**73,01**	**698.112,00**	**757.139,00**	92,20
7. Financial, other and revaluatory expenditure	11.737,00	12.129,00	**96,77**	70.810,00	3.891,00	**1.819,84**	**82.547,00**	**16.020,00**	515,27
SURPLUS OF REVENUES/EXPENSES	**2.008,00**	**-52.974,00**	**-3,79**	**165.920,00**	**181.346,00**	**91,49**	**167.928,00**	**128.372,00**	130,81
INCOME TAX	1.438,00	1.243,00	**115,69**	6.386,00	4.511,00	**141,57**	7.824,00	**5.754,00**	135,97
SURPLUS OF REVENUES/EXPENSES AFTER TAX	570,00	**-54.217,00**	**-1,05**	**159.534,00**	**176.835,00**	**90,22**	**160.104,00**	**122.618,00**	130,57

Revenue

In 2016, the FEE generated a total of **EUR 16,846,830.35** in revenues, i.e., 3.61 % less than in 2015 (EUR 17,477,678.46).
The total revenue structure by sources is shown below.

Table 6-4: Sources of revenue in 2015 and 2016

SOURCES OF REVENUE	AMOUNT (in EUR) 2016	SHARE 2016	AMOUNT (in EUR) 2015	SHARE 2015
Ministry of Education, Science and Sport – education funding	8,199,635.45	49%	7,897,533.84	45%
Ministry of Education, Science and Sport / Slovenian Research Agency and Slovenian Technology Agency – research funding	4,084,354.53	24%	3,736,331.46	21%
Other budget sources (other ministries)	268,547.49	2%	685,012.59	4%
Receipts from the EU budget	1,184,117.75	7%	1,353,807.16	8%
Other funds for the provision of public services	794,816.09	5%	763,486.54	4%
Proceeds from sales of goods and services on the market	2,315,359.04	14%	3,041,506.87	17%
TOTAL REVENUES	**16,846,830.35**	**100%**	**17,477,678.46**	**100%**

Expenditure

In 2016, FEE expenditure totalled EUR **16,678,902.23 EUR**, i.e., 3.86% less than in 2015 (EUR 17,349,306.59 EUR).

Surplus of revenue over expenditure

In 2016, the operation of the FEE was again affected by the economic crisis, as reflected in reduced revenues (**EUR 16,846,830.35)** and, consequently, reduced expenditure (**EUR 16,678,902.23)**. Nevertheless, the FEE closed the 2016 business year with a surplus of revenues over expenditure of **EUR 167,928.12**. Corporate income tax amounted to **EUR 7,823.92**; therefore, the remaining surplus of revenues over expenditure was **EUR 160,104.20**.
The generated surplus of revenues over expenditure for 2016 remains undistributed.

Statement of revenue and expenditure indicators

INDICATOR	2016	2015
Total revenue per employee (in EUR)	50,440	52,963
Total expenditure per employee (in EUR)	49,937	52,574
Labour costs per employee (in EUR)	34,519	33,680
Share of labour costs in total expenses (%)	69	64

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