



# JOŽEF STEFAN INTERNATIONAL POSTGRADUATE SCHOOL

## Performance Self-Evaluation

Summary of the self-evaluation report for the 2018/2019 academic year

Mission • Integration into Environment • Study Programmes • Teaching Staff • Students

# Mission of Jožef Stefan IPS

The mission of the Jožef Stefan International Postgraduate School (hereinafter IPS) is **to ensure the highest quality of master and doctoral postgraduate studies** with the help of a research and educational process in an intensive R&D and innovative environment. Additionally, the school aims to contribute **to strengthening the role of excellent science and high technologies** in the development potential of the society, which can significantly contribute to the economic power and harmonious social development. The IPS acts as a centre of excellence **closely interlacing basic research with postgraduate education and innovation development**.

## COLLABORATION WITH NATIONAL INSTITUTES

The basic strategy of the IPS is to **invite leading researchers** from the founding and partner institutes in the selected fields, and include them in the research and educational process of the school. In collaboration with the IPS founders and partners, who also provide state-of-the-art research infrastructure, the school therefore ensures material and intellectual capacities in order to educate new masters and doctors of science.

**Jožef Stefan Institute (JSI)**  
**Institute of Metals and Technology (IMT)**  
**National Institute of Biology (NIB)**



The IPS was established mostly out of **the need for an efficient transfer of excellent research achievements to the industry and the service sector**. In collaboration with other institutes and the industry, the IPS sets up joint development projects with excellent foreign and Slovenian professors and students.

Research achievements are directly incorporated into innovation projects aimed at developing production, service activities, and management. IPS masters and doctors, together with their supervisors and co-supervisors, **contribute to new achievements** in basic research and innovation development.

Slovenian Quality Assurance Agency for Higher Education (**NAKVIS**) established that in addition to the legal provisions the IPS also meets the Criteria for Accreditation and Reaching Quality Standards, as defined in the Criteria, and therefore prolonged the accreditation of the school until 30 September 2024.

## INDUSTRIAL PARTNERS

17 founders and associate partners:

**BSH**, Nazarje  
**Cosylab**, Ljubljana  
**Domel**, Železniki  
**ETI**, Izlake  
**Gorenje**, Velenje  
**HYB**, Sentjernej  
**Kolektor Group**, Idrija  
**LTH Castings**, Škofja Loka  
**Luka Koper**, Koper

**Premogovnik Velenje**, Velenje  
**Salonit**, Anhovo  
**Štore Steel**, Štore  
**Talum**, Kidričevo  
**Telekom Slovenije**, Ljubljana  
**Termoelektrarna**, Šoštanj  
**Trimo**, Trebnje  
**Unior**, Zreče



# IPS Integration into Environment

The IPS cultivates this integration by directly connecting and implementing all its activities with founding and partner institutes, by contributing to the world treasury of knowledge, and by increasing the efficiency of drawing from it. Great concern is devoted to inviting excellent Slovenian and foreign institutions

to collaborate with the IPS in the field of study programmes, projects and special actions by individually including international leading scientists as IPS visiting professors and by encouraging collaboration between IPS professors and leading research groups in the framework of joint projects.

## IPS STUDENTS FROM AROUND THE WORLD

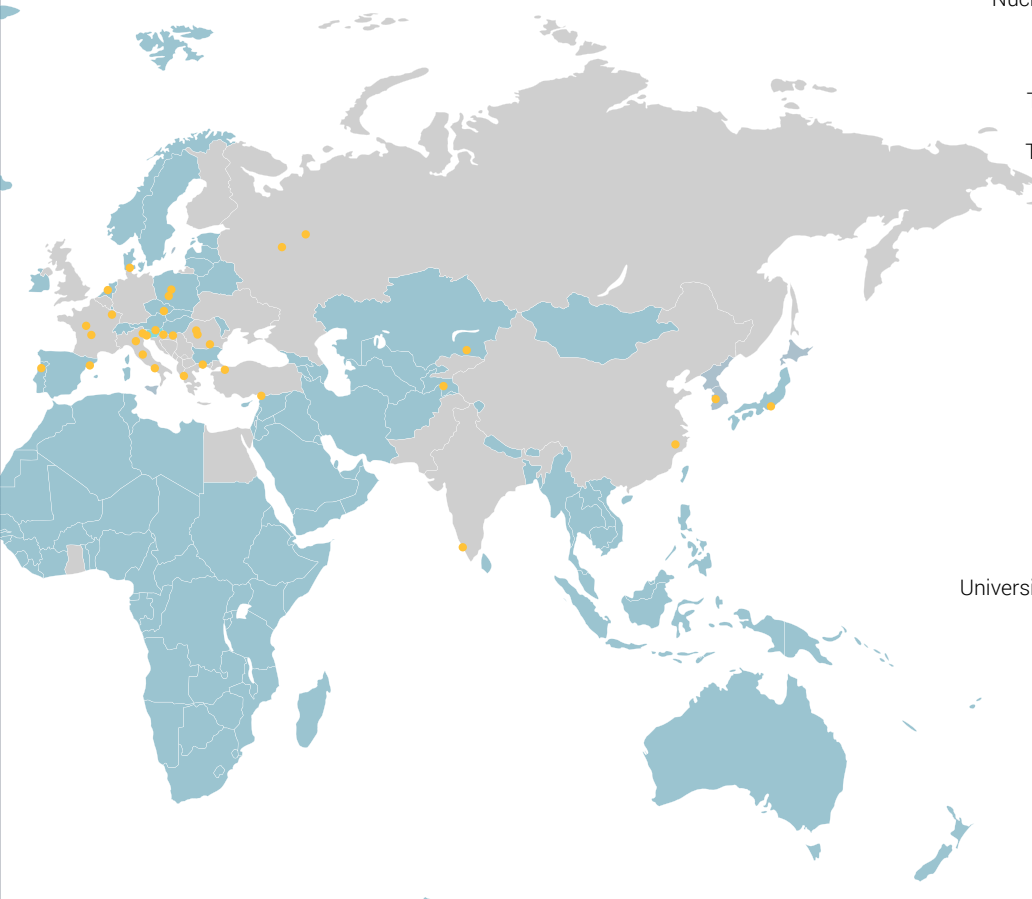
**Over a quarter of IPS students come from outside of Slovenia** (shown as grey on the map), mostly from Europe:

North Macedonia	Kosovo	United States of America
Serbia	Romania	Montenegro
United Kingdom	Russian Federation	Brazil
Germany	Greece	Egypt
Italy	Cuba	Pakistan
Argentina	India	France
Albania	Colombia	China
Croatia	Belgium	Kyrgyzstan
Bosnia and Herzegovina	Ukraine	Costa Rica
Turkey	Finland	
	Ghana	

## INTERNATIONAL COLLABORATION AGREEMENTS

The IPS currently has **36 international collaboration agreements** with foreign research and higher education organisations (shown as yellow dots on the map):

Adam Mickiewicz University, Poznań, Poland
Al-Farabi Kazakh National University, Almaty, Kazakhstan
Aristotle University of Thessaloniki, Greece
Babeş-Bolyai University, Cluj-Napoca, Romania
Bauman University, Moscow, Russia
Joint Institute for Nuclear Research, JINR, Dubna, Russia
Josip Juraj Strossmayer University of Osijek, Croatia
Korea Advanced Institute of Science and Technology, KAIST, Daejeon, South Korea
Mahatma Gandhi University, Kottayam, Kerala, India
Mining-Metallurgical Institute of Tajikistan, Tajikistan
Mustafa Kemal University, Antakya, Turkey
Nuclear Technology Development Center (CDTN), Belo Horizonte, Brazil
Roskilde University, Denmark
Sabancı University, Istanbul-Tuzla, Turkey
Technical University of Cluj-Napoca, Romania
Tokushima Bunri University, Tokyo, Japan
Tomas Bata University in Zlín, Czech Republic
Universidade de São Paulo, Brazil
Universidad Nacional del Sur, Bahía Blanca, Argentina
Universitat de Barcelona, Spain
Universitatea din Bucureşti, Romania
University of Amsterdam, the Netherlands
University of Ioannina, Greece
University of Porto, Portugal
University of Salerno, Italy
University of Udine, Italy
University of Wrocław, Poland
University of Zagreb, Croatia
Università degli Studi di Perugia, Italy
Université de Limoges, France
Université de Lorraine, Nancy, France
Université François Rabelais, Tours, France
University of Ljubljana, Biotechnical Faculty, Slovenia
University of Parma, Italy
University of Nova Gorica, Slovenia
Zhejiang University, Hangzhou, China





# Study Programmes

## NANOSCIENCES AND NANOTECHNOLOGIES STUDY PROGRAMME

master and doctoral degree programme

The Nanosciences and Nanotechnologies programme represents a field at the crossroads of physics, chemistry, and biology, combined with elements of electrical engineering, medicine, and environmental sciences. It explores nature and the use of systems with components of nanometric size. Potential applications can also be found in almost all economic sectors.

### PROGRAMME OBJECTIVE

The principal objective of studying nanosciences is **to acquire the understanding of the structure and dynamics of materials at an atomic and molecular level**, which is also the basis for their macroscopic properties. Through knowledge of methods of atomic and molecular micromanipulation **we can build new molecules, devices and machines** with entirely new properties and possibilities of application. Some examples are projects aimed at building atomic-scale computer components, constructing new sensors at a molecular level, which can sense specific viruses and bacteria, magnets at a level of specific molecules, nanoparticles that serve as carriers of active substances for targeted cancer therapies, micromotors and molecules which can use sunlight to control environmental contaminants.

### PROGRAMME VIRTUES

One of the programme's virtues is also that **it successfully ensures multidisciplinary approaches** of nanophysics, nanochemistry, biosciences, material sciences and nanomechanics. This systematic cultivation of coordinated inter- and multi-disciplinary approaches allows for **a fast discovery of new fields of applications**. This is also supported by the project-oriented structure of the study programme, as all students are **directly involved in economic, national, and international projects**. Within the framework of projects and alongside research work, they learn

and deepen the methods for creating, transferring and applying knowledge. Being involved in the projects gives the students access to **the state-of-the-art research equipment** within the JSI, associate institutes, and centres of excellence.

### PROGRAMME IN THE CONTEXT OF USER NEEDS

Nanosciences and Nanotechnologies is an interdisciplinary study programme covering the following research fields:

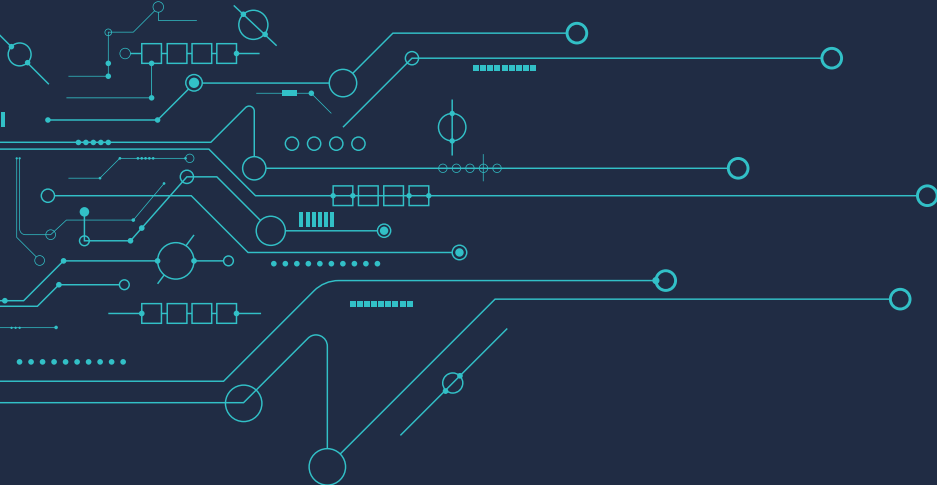
- 1 new nanomaterials and nanochemistry,**
- 2 nanophysics** (including physics of artificial nanostructures and the development of methods of research and nanomanipulation of atoms and molecules, and their dynamics),
- 3 biosciences** (including biomedicine),
- 4 advanced metallic materials,**
- 5 nanomechanics** (including mechanics of time-dependent materials).

All the fields also include the fundamental knowledge needed for establishing successful communication with experts in the field of **commercial and civil law, microeconomics of companies and project management, and the basics of sustainable development**.



The Nanosciences and Nanotechnologies programme attracts a lot of students each year. The principal reasons behind that are the prospects of nanotechnologies in relation to the development of high technologies and products with high added value. To the same extent, young researchers are also attracted by breakthrough research in this particular field, interesting international projects and excellent researchers acting as their supervisors.





The implementation of the study programme is interlaced with national and especially EU projects within which ICT achieves enviable results in both the scope and complexity of research which also directly involves the students of the school.

## INFORMATION AND COMMUNICATION TECHNOLOGIES STUDY PROGRAMME

master and doctoral degree programme

Information and Communication Technologies is an interdisciplinary postgraduate study programme following the latest tendencies in the field. With excellent research results it also directly contributes to surpassing the existing boundaries of knowledge and technologies in the field. The study programme includes the following fields: knowledge technologies, advanced internet technologies, computer structures and systems, information security systems, intelligent systems and robotics, and advanced concepts in telecommunications.

### PROGRAMME OBJECTIVE

The study programme is **oriented towards solving actual problems and challenges of the modern society**. Examples of such challenges are **the future Internet** and **the Internet of things** as factors that will have a decisive impact on the life of the society in the future years, and lately also **the digitalisation of economic operators, the development of services of the digital market, and artificial intelligence**. Despite concerns that the future Internet and the Internet of things interfere with the living space of an individual, they should in fact be accepted as a challenge for further development and an opportunity to realise creative ideas. The reoccurring economic crises will also shape the future of workplaces in numerous branches of economy. Basic knowledge of information and communication technologies is **crucial even for our sole survival, while a more profound knowledge of the field is becoming vital in research work, development of new products and services, economic analyses, medicine, and the entire field of sustainable development**.

### PROGRAMME IN THE CONTEXT OF USER NEEDS

**Modern information and communication technologies are of key importance for the economic and social progress:** new and efficient ways of exchanging information expand the development possibilities of production, the service sector, scientific, cultural and social establishments, and in addition fundamentally support the transfer of knowledge with the aim of sustainably developing a knowledge society. In the increasingly globalised economy, the information and communication technologies are crucial for ensuring competitiveness and economic growth of companies, as well as entire countries.

**Development of the knowledge society primarily depends on the development of the knowledge-based economy** which further on depends on the most educated and enterprising experts who master quick access to information, efficient ways of managing it and recognising essential messages, as well as its incorporation into problem solving within the development and optimisation of new procedures, products, and services. **Information and communication technologies play an important role in increasing the employment structure** in every single field since Europe –

and Slovenia within – can face the world competition only with a highly competent workforce that masters digital skills and where the ability of quickly acquiring, managing, transferring and applying information is an inevitable requirement of the modern management. For the needs of integration into the emerging European digital market, attention in delivering the learning content will be devoted to the digitalisation of the economy, which is a prerequisite for an equal position of economic operators in the implementation and operation of the digital market and related trust services.

The Information and Communication Technologies postgraduate study programme therefore provides to future masters and doctors of science fundamental knowledge in the given fields, while at the same time **it prepares them for solving key development problems**, such as increasing the efficiency of production and marketing processes, management support in companies, administrative authorities and in banking, upgrading business processes with ICT technology, ensuring business security, developing new branches of economy, environment and health protection, as well as creating new quality employment opportunities in all the given fields.

Within the programme, research is mostly conducted in the following fields:

- 1 knowledge technologies,
- 2 advanced internet technologies,
- 3 computer structures and systems,
- 4 intelligent systems and robotics,
- 5 modern concepts in telecommunications.

The application of acquired knowledge includes **management of networks, high performance computer resources and artificial intelligence technologies, as well as data mining for computer-assisted analysis of databases/data warehouses generated as a result of scientific research** in the fields of physics, chemistry, biology, biochemistry and pharmacology, bioinformatics, environmental sciences, and also in the fields of social and economic sciences, as well as the data that is accumulated as a result of ambient measurements and data acquisition on the Internet.



## ECOTECHNOLOGIES STUDY PROGRAMME

master and doctoral degree programme

The Ecotechnologies programme incorporates science that supports the efforts of meeting the needs of the humankind in harmony with nature while causing as little damage to the environment as possible, especially by efficiently incorporating natural processes. As it is oriented towards solving actual problems, which calls for a comprehensive approach, ecotechnologies are characterised by bringing together achievements from natural, technological and social sciences, which are oriented towards sustainable development. That makes the multidisciplinary approach a strong characteristic of the Ecotechnologies programme. Emphasis is also placed on the environmental and economic approach.

### PROGRAMME OBJECTIVE

The strategy of sustainable development incorporates the **integration of environmental, technological, economic and social objectives, especially in production and consumption.**


The study programme provides the acquisition of knowledge and the development of skills in order to be able to carry out competent research, establish international connections, and manage sustainability-oriented development, transfer and application of ecotechnologies.

The emphasis is placed on threefold qualifications:

- **broadening and deepening of scientific content, methods and techniques** in selected fields of natural sciences, technologies, engineering and informatics, which will support the strategic choice, development, transfer, optimisation, exploitation and supervision of selected ecotechnologies **for improving business efficiency while at the same time satisfying broader social interests in sustainable development,**
- developing competences and skills for **raising the quality of processes, products and services, and increasing the added value** while striving for excellence and maximal enforcement of the principles of sustainable development,
- **developing an integral way of thinking** which surpasses individual fields and develops competences for: communicating with experts from other disciplines and fields, **comprehensive problem definition, systemic approaches, decision-making and solving complicated problems** in teams, and strategic planning with a long-term perspective.

### PROGRAMME VIRTUES

It should especially be emphasised that the school systematically **steers** the Ecotechnologies postgraduate study programme from the previously predominant environment protection content **to a more comprehensive orientation towards sustainable development, especially for improving the efficiency of using input materials and energy sources.** This requires a significantly



**The implementation of the study programme is intertwined with national and especially EU projects within which the Ecotechnologies programme achieves enviable results – both in the scope and complexity of research which also directly involves the postgraduate students of the school. One of the more successful EU projects that we acquired is ERA Chair ISO-FOOD.**

stronger emphasis on a more efficient development and transfer of ecotechnologies and introducing sustainability-oriented consumption. Considering these demands, the Ecotechnologies programme requires the development and implementation of multidisciplinary synthesis methods, which the IPS systematically cultivates in the framework of postgraduate research oriented towards sustainable development.

One of the programme's virtues is also that it successfully ensures **multidisciplinary approaches** which include the following fields: chemistry, geology, biochemistry, biological sciences, biotechnology, hydrology, ecotoxicology, chemical engineering, biostatistics, and modelling. In addition, these disciplines are to a great extent intertwined with tools that **ensure support to political decision-making in the field of environment and human health and/or ensure a practical value in the industrial environment.** This is also supported by the project organisation of executing the study programme, as all students are directly involved in economic, national, and international projects. Within the framework of projects and alongside research work, they discover and deepen the methods for creating, transferring and applying knowledge. Being directly involved in these projects gives the students access to the state-of-the-art research equipment within the JSI, associate institutes, and centres of excellence.

### PROGRAMME IMPLEMENTATION

The Ecotechnologies study programme is **embedded in development projects intended to achieve ecotechnological reform and progress in the production, service activities, and public services.** The programme emphasises economic efficiency alongside environment protection. Most research is tied to solving actual problems in the following fields:

- 1 tools for environmental quality control** which also include integrated modelling tools for political decision-making,
- 2 development and testing of environmentally acceptable materials,**
- 3 development and testing of clean technologies,**
- 4 characterisation and treatment of waste and waste waters,**
- 5 water management,**
- 6 plasma technologies,**
- 7 development of intelligent systems for environmental quality control,**
- 8 sustainable civil engineering,**
- 9 food and environmental health technologies.**



# SENSOR TECHNOLOGIES STUDY PROGRAMME

## doctoral degree programme

The Sensor Technologies programme is an interdisciplinary doctoral study programme that was first implemented in the 2016/2017 academic year. Sensors have become an invisible yet indispensable part of our world. For example, our cars are full of sensors for regulating the engine functioning, speed, fuel consumption, temperature, ventilation and, last but not least, our own safety. Environmental sensors are crucial for pollution control. Biosensors, among which nanosensors, promise considerable progress, especially in healthcare. Designing and manufacturing of so many different sensors is enabled by sensor technologies which are based on outstanding achievements in science and technology. The Sensor Technologies study programme connects knowledge from the fields of physics, chemistry, biology, materials, environmental and technical sciences, nanosciences and nanotechnologies, as well as information and communication technologies.

### PROGRAMME OBJECTIVE

The objective of the doctoral degree programme is **to acquire knowledge of sensors and sensor technologies** from the selected fields of physics, chemistry, materials, environmental and technical sciences, nanosciences and nanotechnologies, as well as information and communication technologies. It also **encourages the development of an integral way of thinking** as a foundation for interdisciplinary research. Beside mastering the methods and techniques of research work, the students will also develop competences for conducting independent and team R&D work and for using the acquired knowledge in practice.

### PROGRAMME IN THE CONTEXT OF USER NEEDS

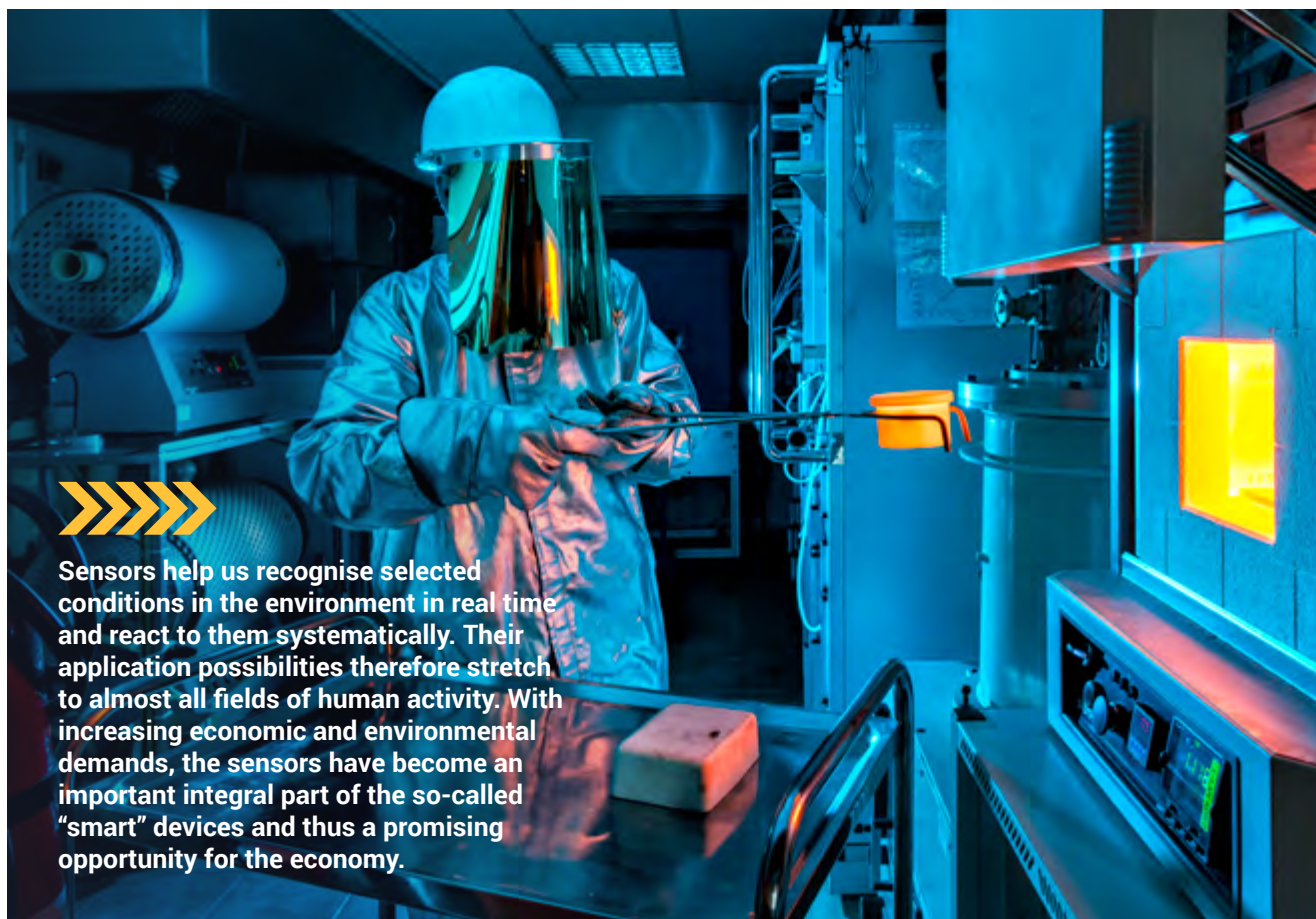
The programme systematically **connects knowledge from the field of sensors and sensor technologies with great international expertise in order to educate a highly-skilled workforce** to support the penetration of economic development projects to the global market while at the same time ensuring socially balanced sustainable development.

### PROGRAMME IMPLEMENTATION

This interdisciplinary study programme **provides the acquisition of knowledge and the development of skills in order to be able to carry out competent research, transfer the scientific achievements to industrial development, and establish international connections** in the following fields of sensor technologies:

- 1 sensors for ionizing photons and particles,
- 2 physical and chemical sensors,
- 3 biosensors,
- 4 information and communication technologies in sensorics.

The implementation of the study programme is intertwined with **national and international projects**, especially within the framework of the European Community, and projects carried out with partners from the industry.



Sensors help us recognise selected conditions in the environment in real time and react to them systematically. Their application possibilities therefore stretch to almost all fields of human activity. With increasing economic and environmental demands, the sensors have become an important integral part of the so-called "smart" devices and thus a promising opportunity for the economy.



# IPS Teaching Staff

A great majority of IPS professors are employed full time at IPS founders and partners, especially at the Jožef Stefan Institute which is also the seat of the IPS. Supervisors are therefore available to work with students directly.

The structure of academic titles for 179 IPS professors is the following: 81 full professors, 48 associate professors, 50 assistant professors. We only have 3 teaching assistants as the research and education process of the postgraduate studies requires a predominantly highly demanding and individualised supervision work. The share of less demanding group forms of study, which normally require the help of teaching assistants, is very small. Considering the study fields and the standard of studies at the IPS, our postgraduate students are in fact already at the level of teaching assistants.

## STRUCTURE OF ACADEMIC TITLES

81	full professors
48	associate professors
51	assistant professors
3	teaching assistants
179	higher education teachers,
3	teaching assistants

**A significant factor of quality is the fact that the students work in their supervisors' research groups and are therefore normally in contact with them on a daily basis.**

## TEACHING STAFF SELECTION CRITERIA

The basic criteria for selecting the teaching staff of the Jožef Stefan International Postgraduate School are **their internationally highly acclaimed scientific quality, development-oriented attitude, and talent for supervising students**. Since 2019, a domain has been available on the **SICRIS** website, which gives access to bibliographic indicators of performance for appointment to title.

Among other criteria is also their creative role in national, European and international projects, where they also include the IPS students, and their willingness to adapt the study programmes according to the specific needs of a student's research work, i.e. the so-called "tailored studies".

## VISITING PROFESSORS

The IPS is especially interested in directly including **brilliant scientists** from leading research groups around the world in IPS programmes. Such groups usually operate within **acclaimed institutions**. The IPS systematically maintains personal contacts of its professors with colleagues from such research groups and invites them individually as visiting professors. These are as a rule brilliant scientists – experts in fields selected based on **the achievements** of the leading branches of science and economic interests.

## SUPERVISION

Master theses and doctoral dissertations are the main part of the studies at the IPS. **The quality of conceptualising the topic of a master thesis or a doctoral dissertation** is therefore at the centre of all student interactions with their professors and especially their supervisors. **Supervision** initiates the moment students first come to the IPS, when they start **discussing their "tailored studies"**, generally in breakthrough research fields or in fields that are economy and development oriented. **It starts with the conceptualisation of the research topic, which is then discussed by the Study Commission and approved by the IPS Senate, and concludes with carefully monitoring the realisation of the master thesis or doctoral dissertation.** Special attention of the IPS is therefore devoted to the supervisor selection procedure which takes place in two phases. **The first supervisor** helps the student as a mentor before the enrolment, especially in outlining the individually selected study programme, and monitors the student during the first semester. **After that, the student can keep the same supervisor or select a new one.** If the topic covers several specific fields, the student is appointed **one or more co-supervisors**. If the topics are directly development oriented, the students are also appointed **supervisors from the industry** who help direct their research work systematically and apply their achievements into practice in real time. In the 2018/2019 academic year, the Study Commission approved 8 modifications to the supervising teams due to justifiable reasons.



## QUALITY OF THE TEACHING STAFF

The quality of the majority of professors and assistant professors at the IPS is at **an enviably high level** according to scientific criteria. The same goes for their participation **in national and international projects**, whereas a lot of them are still gaining experience in directly transferring the research achievements into practice. To this end, we **enhanced our collaboration with the industry and the service sector**.

The IPS regularly monitors the work of its professors by:

- assessing **the scope and quality of their scientific publications** in internationally renowned scientific journals and the scope of their citations – with a special emphasis on including the research achievements of IPS students,
- monitoring the participation of IPS supervisors and students **in national and international projects**,
- supporting **the collaboration of IPS professors with the industry**, especially in regard to target-oriented R&D projects, and protecting the intellectual property of their achievements,
- **evaluating, with the help of committees, the interim results** of the research and educational process for each student at research seminars held in each study year, and giving assessment and pointers for future work,
- **regularly monitoring the work of supervisors** within the framework of the Programme and Central Study Commissions with special committees designated for this purpose, from conceptualising the topic of doctoral dissertations to gradually realising the set out plans and finally assessing the quality of the submitted dissertations. In the 2018/2019 academic year, the IPS processed: 28 doctoral dissertation topic proposals and 38 approval proposals for submitted dissertations,

- **anonymously surveying the students at the end of each academic year regarding the quality of the IPS teaching staff** and informing all the participants of the outcomes. If the given results show less than 80 % of the maximum quality assessment (below 4 out of 5), the IPS Dean carries out individual interviews with the concerned parties and addresses the problems in board meetings.

In the 2018/2019 academic year, the IPS updated the questionnaire, improved the questions and added the general assessment of the school. **The results of the questionnaire for the 2018/2019 academic year were the following:**

The students gave an average grade of **4.44** to professors (4218 answers), **3.62** to courses (417 answers), and **4.23** to the assessment of the school (252 answers), which altogether amounts to an average grade of **4.36** (4681 answers).

## OUTSTANDING ACHIEVEMENTS AND AWARDS RECEIVED IN 2018/2019

**Prof. Dr. Nives Ogrinc** received the Zois Award for outstanding achievements and the honorary title Congress Ambassador, **Prof. Dr. Spomenka Kobe** received the prestigious "Frey Award for Leadership in developing new technologies that contribute to global sustainable development in the environment, economy, and social points of view" in Paphos, Cyprus, and **Prof. Dr. Milena Horvat** received a lifetime achievement award in the field of mercury at the 14th ICMGP (International Conference on Mercury as a Global Pollutant) in Krakow, Poland.

1:2

The professor : student ratio at the IPS is generally higher than 1 : 2.



The quality of the majority of professors and assistant professors at the IPS is at an enviably high level according to scientific criteria. The same goes for their participation in national and international projects.



Our professors receive prestigious awards and recognitions every year.

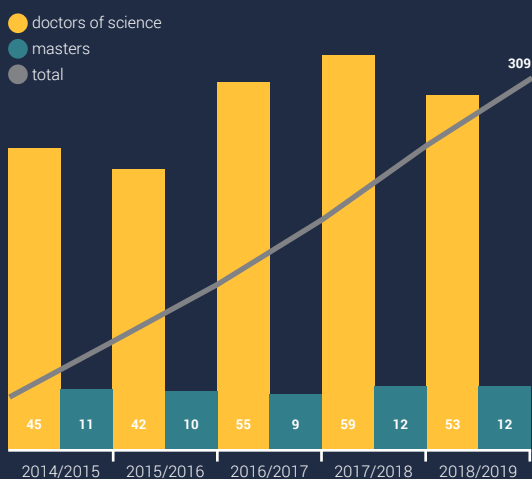


# IPS Students

The school informs potential students about the studies at the IPS through responsible government institutions, media, invitations to IPS and JSI Open Days, IPS research and industrial partners, and, most efficiently, through personal contacts among potential candidates, students and the teaching staff.

## STARTING THE STUDIES

The IPS predominantly enrolls students with considerable achievements from their undergraduate studies – the average grade of all students upon first enrolment at the IPS is above 8.5. However, undergraduate achievements are not the only criteria. The school holds systematic interviews with candidates for enrolment where we assess their creative disposition and research talent. An important role is also played by their potential employers, especially in the field of research and economy.



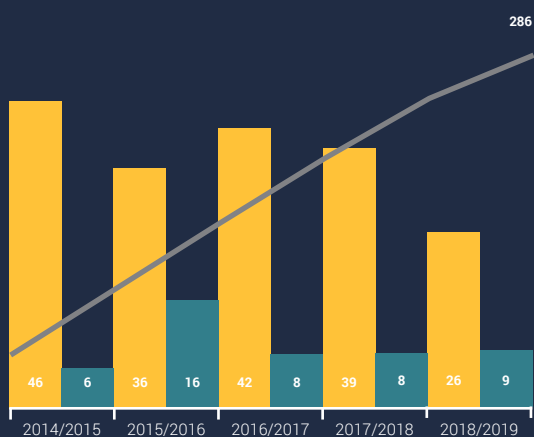
The graph shows the number of students enrolled in doctoral and master programmes, and the total per year.

The average grade from undergraduate studies of newly enrolled doctoral students per academic year:

• 2014/2015	8.76	• 2017/2018	8.75
• 2015/2016	8.78	• 2018/2019	8.85
• 2016/2017	8.71		

## COMPLETING THE STUDIES

The quality of master theses and especially doctoral dissertations at the IPS is high. The quality of the study process is at the European or even global level, as attested by student achievements, publications in high quality scientific journals, and patents.



The graph shows the number of completed master and doctoral studies, and the total per year.

Average time needed to complete the studies (applies to 2018/2019):

- doctoral studies: **5 years**
- master studies: **3.3 years**



## STUDENT COUNCIL

The Student Council is **an official body of the Jožef Stefan International Postgraduate School (IPS)**, as defined in the IPS Statute, and therefore participates and takes equal part in joint decision-making in the IPS Senate, Academic Council, and Governing Board sessions. The Student Council has the right and duty **to give opinion and take part in joint decision-making regarding all matters related to the rights and duties of students.**

The Student Council consists of **12 elected representatives** of students who select two representatives from among the members as the president and the vice-president.



## EMPLOYMENT PREPARATIONS

The IPS prepares its students for employment from the very beginning. **Employment is an important conversation topic from the initial enrolment interview** and the first meeting with a potential supervisor. Consequently, it also helps design the student's curriculum. The emphasis is even stronger when selecting the topic of a master thesis or a doctoral dissertation which is usually at least roughly related to the future employment of the candidate. **The IPS offers its students possibilities to establish direct contacts with founders and partners from the industry and organises activities designated for this purpose** (arranging visits of students and their supervisors to the industry, holding talks with responsible development officials in the economy and the service sector, organising meetings with IPS students and potential employers, etc.).

### Employment of IPS graduates:

In 2019, the IPS doctors and masters were employed **in 28 different countries**. Out of **26 graduates** who completed their studies in the 2018/2019 academic year, **19 were employed in Slovenia and 6 abroad**. We do not have employment information for 1 student.

- **Share of employed graduates** who completed their studies in the last academic year (2018/2019): **96 %**.
- **Number of countries** where they are employed: **5** (Slovenia, Brazil, Greece, Croatia, Germany).
- Number of graduates who are employed **at prestigious universities and research institutes**: **2**. (Forschungszentrum Jülich - Peter Grünberg Institut (PGI), Technische Universität Darmstadt).
- Number of doctors and masters who started their **own R&D company**: **1**.

## IPS STUDENTS' CONFERENCE (IPSSC)

The most important event organised by the Student Council is **the annual Jožef Stefan International Postgraduate School Students' Conference** where the students from our school and also other faculties have **the opportunity to promote their research work**. At the beginning of the academic year, the students are invited to prepare a presentation of their best research achievements in the form of **a contribution and a poster for the conference** held in May. The quality of submitted contributions is assured by **a careful review which is done by established researchers in specific fields**. Thus we can assure that students get proper feedback on their work from experienced scientists, and we ensure a higher quality of contributions.

In the 2018/2019 academic year, we held what was already the **11th traditional conference organised by the students of the Jožef Stefan International Postgraduate School**. It was organised in the Planica Nordic Centre on **18–19 April 2019** in collaboration with the 13th Young Researchers Day of CMBE. The students' contributions in the fields of NANO, ST, ECO, and ICT were **very interesting, instructive and attractive**. The atmosphere was also very relaxed, both during the presentations and the more social part of the conference. The students held **3-minute 'elevator pitch' presentations and a poster session**. The programme also included two expert lectures and a guided tour. The first lecture entitled Wind Tunnel Operation was held by **Prof. Dr. Brane Širok** and was followed by a guided tour of the project in the Planica Nordic Centre. The second expert lecture entitled **Altitude Hypoxic Rooms and Laboratories** was held by **Prof. Dr. Igor Mekjavić** and was followed by a guided tour of the hypoxic rooms in Planica.



## ALUMNI CLUB

The IPS established an Alumni Club. The primary tasks of the IPS Alumni Club are:

- providing study information,
- establishing connections for project work,
- organising visits to institutes and the industry in Slovenia and abroad,
- giving suggestions on how to improve the quality at all levels,
- increasing collaboration with research and industrial partners,
- organising an annual meeting with an excellent expert programme and a more relaxed social gathering.



# Publications and Projects

Within the framework of all study programmes the students are systematically encouraged to write scientific articles for acclaimed international journals, scientific contributions for conferences, their abstracts and independent scientific compositions or chapters in monographs, patent applications, project proposals, and research reports, as well as to publish their research achievements in internationally acclaimed scientific journals and as patents.

## PUBLICATIONS

The DELO newspaper analysed the data of eight Slovenian universities and postgraduate schools (published on 23 August 2019) and **established that the average number of publications per new doctor of science is the highest at the IPS**. A detailed examination of the published articles shows that **their number amounts to, on average, 4 articles per obtained doctoral degree in a 4-year period, which is well above the average in the field of postgraduate studies of most universities**. It should also be stressed that **more than a half of articles were published in international journals with impact factors which contributed to a high number of citations**. The articles written by IPS students and professors are also published in journals with the highest impact factor, i.e. **Nature and Science**. In the 2018/2019 academic year, **26 IPS graduates issued 89 publications in JCR altogether, from which 58 were categorised as 1A1 and 17 as 1A2, which demonstrates a high level of quality of these publications**.



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In the scope of the **Creative Path to Knowledge programme**, we successfully carried out the **RESPO and FrAPI projects**.



The school also prolonged the **Competence Centre for Factories of the Future (KOC-TOP)** project until **2022** and expanded the consortium to **50 partners**.

## Research Equipment

Within their research and educational programme, the IPS students have **access to state-of-the-art research equipment** within the framework of the founding and partner institutes (**JSI, IMT, and NIB**) and especially within the centres of excellence, in particular:

- the **Centre of Excellence on Nanoscience and Nanotechnology** (CENN Nanocentre),
- the **Centre of Excellence for Integrated Approaches in Chemistry and Biology of Proteins** (CE CIPKeBiP), and
- the **Centre of Excellence for Advance Materials for the Future** (CE NAMASTE).

In the scope of the projects designed for industrial partners, the IPS students are also directly **involved in their respective research laboratories**. The IPS also established its **own research laboratory for developing measuring instruments for selective proximity detection of materials**.

In this context, the IPS students have access to modern research equipment to work on their research tasks and are provided the expertise of highly qualified research instructors within the framework of expert groups from responsible institutions.



**JOŽEF STEFAN  
INTERNATIONAL  
POSTGRADUATE SCHOOL**

### PERFORMANCE SELF-EVALUATION

Jožef Stefan International Postgraduate School  
Summary of the self-evaluation report for the 2018/2019 academic year

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