

**SEE- Award (name "Herman Potočnik – Noordung Award" proposed by MHEST) for
Research Infrastructure Donations within the Framework of RTDI Collaboration
with West Balkan Countries**

**Research Infrastructure needs
- Application form for Scientific & Research Institutions from West Balkan Countries**

Section A – General information	
A.1 Contact details	
Name of applicant/(institution) DEPARTMENT OF INDUSTRIAL CHEMISTRY, LABORATORY OF CHEMICAL ENGINEERING, FACULTY OF NATURAL SCIENCES, UNIVERSITY OF TIRANA, ALBANIA	
Legal status / Type of organisation; PUBLIC EDUCATION AND SCIENTIFIC RESEARCH INSTITUTION	
Address (Street name, ZIP code, town): BULEVARD ZOGU I, TIRANA, ALBANIA	
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web address/url:	WWW.FSHN.EDU.AL
represented by (name of person <u>legally responsible</u>) PROF. LLUKAN PUKA, Dean of the Faculty of Natural Sciences	
Name of the contact person PROF. ILIRJAN MALOLLARI	
Address (if different from address stated above) RRUGA DURRESIT, PALL. 69, SHK. 2, AP. 15 TIRANA, ALBANIA	
Telephone no.:	00355 68 2005501
Fax no.:	00355 4 226724
e-mail:	ilir.malo@excite.com
web address/url:	
A.2 Applicant (Institution) profile (half page A4) <i>Division of Chemical Engineering</i>	
<p>Being integral part of the Faculty of Natural Sciences, this department it represents a long experience in the preparation of student generations, who worked or continue to work in important fields of social life as education, research, production or management, inside the country and abroad as well.</p> <p>In the area of this department there are functioning several laboratories helping research activities or other users. There are two Sections attached to the Department of Industrial Chemistry of this faculty: Section of Chemical Technology (Organic Chemical Technology and Inorganic Chemical Technology) and Section of Technical Microbiology, Food Technology and Chemical Engineering.</p> <p>Main subjects conducted by the Section of Chemical Technology are:</p> <ul style="list-style-type: none"> Inorganic Chemical Technology; Organic Chemical Technology; Comprehensive Chemical Technology; Petroleum and Gas Chemistry; Chemical Technology of Textile <p>Main areas of study and research conducted by the staff:</p>	

- Petroleum and solid combustibles;
- Environmental management of urban and industrial wastes;
- Plastics recycling, and textile
- Technology of phosphate fertilisers;
- Technology of silicate materials (cement, refractors) ;

Special courses conducted by the Section of Technical Microbiology, Food Technology and Chemical Engineering are:

- Treatment of industrial and food industrial liquid wastes;
- Treatment of solid wastes;
- Fuels and food technological-environmental requirements;
- Environmental impact of bio fuel utilisation etc.

Main subjects conducted by the Section:

- Food Chemistry and Food Technology; Food System and Food Equilibres; Food Microbiology I,II; Food chemistry and Food Technology (Pharmacy, Chemistry, Biochemistry), Sensorial Analysis of Food Products. Chemical Engineering (Transport Phenomena. Fundamental Processes. Theory of Chemical and Bio chemical Reactors); Control Bases in Chemical Industry in general and in Food Industry, in particular.

There are 5 laboratories:

- Laboratory of Chemical and Biochemical Engineering.;
- Laboratory of modelling and simulation of unit operation in chemical engineering;
- Laboratory of Food Chemistry;
- Laboratory of Food Technology;
- Laboratory of Food Microbiology;

Main areas of study and research conducted by the staff:

- ⊗ Physical and Mathematical Modelling of the Processes
- ⊗ Precipitation and Crystallisation. Design of Industrial Equipment.
- ⊗ Contamination in Food Industry and Chemical Processes.
- ⊗ Bioreactor as a controlled environment for the growth of microorganisms;
- ⊗ Microbiology-----bacteria, yeasts, moulds with industrial importance.
- ⊗ Taxonomic Studies. Technological Studies.
- ⊗ Food Chemistry and Food Technology. Analysis of Food Products.
- ⊗ Fermentative Processes. Study of the Flocculation in Fermentative Processes.
- ⊗ Metabolic activities inside the cell at various levels.
- ⊗ Development of methods for monitoring and control of commercial bio-processing;
- ⊗ Instrumentation for bioprocess control;
- ⊗ Fed-batch fermentation process etc.

Special courses conducted by the Section:

- Environmental engineering issues,
- Control and protection from contamination and design of relevant processes
- Sensorial Analysis and Legislation in Food Industry.

Department of Industrial Chemistry has close research relations with other European Departments such as Limozh-France, Patras-Greece, Thesalonika-Greece, Ziegen- Germany, Bari and Perugia-Italy etc.

Most important overarching Priorities are: Biomass evaluation, treatment and process design for utilizing as an organic resource for energy recovery from forestry and agriculture residues.

- **Expand research to discover, characterize, modify, and control the products quality and processes of a broad range of different applications in biotechnology and in chemical engineering.**
- **Apply the tools of modern of chemical engineering and biotechnologies to problems in agriculture, environment, and manufacturing to facilitate the development of new and improved products, processes, and test methods.**
- **Strengthen and enhance facilities, repositories, databases, reference standards, and human resources.**

Section B – Description of the research infrastructure requirements/needs

B.1 Please list your research infrastructure requirements – the most urgent equipment you would need.

1) Multifunctional Reaction Plant 10 1

The IC61D system is a highly versatile training unit which can be used as a reaction set either for organic synthesis, or for one-directional distillation.

By fitting an optional unit, it can be used to perform the reaction process in vacuum conditions, with or without the addition of liquid.

It is available an automatic data acquisition and analysis system for Personal Computer called SAD/IC61D, which makes it

possible to monitor the reaction process and to file the experimental data on disk or print them out.

The system is supplied with a teaching manual illustrating its operation and the theoretical principles of organic synthesis and

containing a series of exercises with a step-by-step guide on their execution.

B.2 Describe the relevance of the requested research infrastructure for the work of your institution and the potential impact of receiving the items listed above (B.1).

- The main task of this project is the dissemination and assistance to develop numerous fields of Chemistry, Chemical Engineering and Technology, to extend activity as well as their scientific and pedagogic stimulation.
- Increasing the level of theoretical and scientific preparation in Chemistry, Chemical Engineering and Technology of our professionals located in industry, research and academic institutions.
- A lot of diploma work and the master degree thesis has to have a good chance working with this kind of equipment

B.3 Please indicate the potential users of the requested equipment.

All last year students, masters and Diploma works, as well as all academic staff of the Department

B.4 Please describe the training needs of your institution related to the requested equipment

Not we don't need the relevant training.

B.5 Please indicate if there is assistance needed with regard to the transportation and maintenance related to the requested equipment

Yes we need assistance for the transportation and maintenance of this equipment.

B.6 Additional Comments

Please fill in and return the form by email to the contact person in your country (see appendix 1)

Place, date: **Tirana, October 22nd**

Signature and Stamp of applicant

Prof. Llukan PUKA