



Dear Colleagues,

The IUVSTA Program of New Educational Activities has been successfully launched in the 2001-2004 triennium - four requests from the national vacuum societies were approved and grants of about 3.500 CHF donated to each one. At the IUVSTA General Meeting held in Venice, June 30, 2004, it was decided that in the 2004-2007 triennium a sum of 15.000 CHF is the budget for this kind of Educational Activities. The intention was to support nationally developed/organized IUVSTA Technical Training Courses (ITTC) in national languages, with the goal to establish technical training courses in member Societies of the IUVSTA. The IUVSTA grants are primarily intended for travelling/accommodation subsidies for participants and lecturers at the Technical Short Courses within national borders. Within the elapsed part of the triennium 2004-2007 two ITTC's were granted which implies that still two more ITTC's can be granted in the remaining time of the triennium 2004-2007, assuming an approximate grant of CHF 3500.-- per ITTC. I kindly invite you to express your interests and submit the Applications for the IUVSTA ITTC-related grants. The submitted Applications will be considered by the IUVSTA Education Committee, and decided upon at the Executive Council Meeting 99 (ECM-99) in San Diego, California (April 28-30, 2006). *Please kindly note that in general, IUVSTA is not supporting financially a series of ITTC's taking place in the same country in consecutive years. A second ITTC organized by a National Vacuum Society may be financially supported by IUVSTA if the second ITTC has a completely different topic. However, National Vacuum Societies applying for the first time have priority to be supported if otherwise all requirements for organizing a successful ITTC are satisfied.*

The Application should answer to the following questions:

1. location/date of courses; stand-alone course offering or part of a conference/workshop
2. title and content (abstract or outline) of each course
3. intent of the courses
4. who are the teachers; what language
5. expected educational and job level of students
6. expected average number of students per course
7. finances: cost per course in Euros, CHF, or US\$; sources and total amount of support; amount asked of us and how will it be used.

Please find the successful Application submitted by the Polish Vacuum Society, which also resulted in a very successful Technical Training Course, as an example at the end of this message.

The Society - recipient of the grant, is required (within 1 month after ITTC completion) to file the Report to the IUVSTA Education Committee which should inform on:

1. Title, location, and date of the TSC
2. Intent of the course, language of the course
3. List of teachers and attendants (with affiliations)
4. Names of beneficiaries of the IUVSTA support, with spending specifications



**International Union for Vacuum Science,
Technique, and Applications - Education Committee**

IUVSTA Technical Training Courses (ITTC) - Call for Applications

**Triennium
2004 - 2007**

I believe that the IUVSTA ITTC grants might help the educational activity of the national societies. Therefore, I kindly ask you to inform **Dr. László Kövér, Chairman of the Education Committee, about your interests in this matter, and to send him your Applications at your earliest convenience. The e-mail address of Dr. László Kövér is lkover@atomki.hu**

Thank you in advance.

Best regards,
Christoph Eisenmenger-Sittner,
acting IUVSTA Technical Training Courses Coordinator, IUVSTA Education Committee

Dr. Christoph Eisenmenger-Sittner
Vienna University of Technology
Institute of Solid State Physics
A-1040 Vienna
Austria
Tel.: ++43-1-58 801-13774
FAX: ++43-1-58 801-13899
e-mail: christoph.eisenmenger@ifp.tuwien.ac.at



EXAMPLE

Application of the Polish Vacuum Society for the IUVSTA Technical Short Course Grant in 2005

1. Course location: Jagiellonian University, Kraków, Poland; stand-alone course.
2. Tentative time: 27-29 October, 2005
3. Title and content of each course:

Part I: Basic physical processes relevant for vacuum technology (3+2 h):

Introduction:

- a concept of vacuum (definition, units, history)
- applications of the vacuum technology

Kinetic theory of gases, ideal gas, molecular incidence rate and cosine law, transport phenomena, thermal transportation, gas flow.

Physical and chemical phenomena at gas/solid interface:

- physisorption, chemisorption
- desorption rate
- cryotrapping
- diffusion of gases through solid (metal)
- interaction of particles with solid surface.

Part II: Methods and devices for obtaining vacuum (2 h):

Basics of pumping technology, mechanical vacuum pumps (rotary pump, dry pump), turbomolecular pump, diffusion pump, cryopump, getter pump, ion pump.

Part III: Vacuum measurements (4 h):

Vacuum measurement and gauges: manometers, thermocouple manometer, ionization gauges (hot, cold cathode), calibration of vacuum gauge.

Partial pressure measurements: mass spectrometry/spectroscopy, ion sources - ionisers, ion detectors, mass analysers (magnetic deflection, quadrupole mass filter, time-of-flight), data analysis.

Leak detection: leak rate, leak detection techniques, mass spectrometer leak detection.

Part IV: Applications of vacuum in industry (3 h):

Practical examples of vacuum applications in various industrial processes selected and reviewed by representatives of the Polish vacuum companies.



4. Goals of the course:

The Technical Short Course is offered mainly to Polish technicians, production engineers, junior researchers and students responsible for safe handling/operation and maintenance of vacuum equipment/systems in the local industries and laboratories of educational and research institutions. The Course should significantly enhance the knowledge and understanding of basic physical processes relevant for vacuum technology, provide practical knowledge required for every day operation of vacuum devices and measurements of vacuum, as well as introduce the trainees to selected aspects of technological processes requiring vacuum. Personal interaction between the course instructors and the trainees shall help in establishing long term contacts for future consulting and distribution of knowledge between academic circles, vacuum equipment producers and distributors, and vacuum practical users. The Course will end with test evaluation of the participant progress. The participants passing the required evaluation limit will be entitled for receiving the course certificate issued by the Polish Vacuum Society.

5. Teachers (all lectures will be in Polish):

- Prof. Andrzej Hałas – Wrocław University of Technology, Wrocław
- Prof. Stanisław Hałas – Maria Curie-Skłodowska University, Lublin
- Dr. Piotr Szwemin – Warsaw University of Technology, Warszawa
- Dr. Janusz Budzioch – Prevac - Vacuum Company
- Maria Tymieniecka – COMEF – Vacuum Company
- Ryszard Tyrankiewicz – ŻART – Vacuum Company

6. Expected educational and job level of students:

- a) educational level: at least with senior high school education
- b) job level: technician

7. Expected average number of students per course: min. 30

8. Finances:

Cost of Short Technical Course in CHF:

- a) Total cost of STC: **7 200 CHF**,
- b) Expected total amount of IUVSTA support: **3500 CHF** (IUVSTA grant),
- c) STC participant regular fee without IUVSTA support (including full board accommodation per one participant): 250 CHF,
- d) Full board accommodation cost (per participant): 190 CHF,
- e) Travel costs for one participant (estimated value): 35 CHF,
- f) Proposed IUVSTA financial support towards participant accommodation and travel : **140 CHF** per person.
- g) Expected number of IUVSTA supported participants: 25 persons.

On behalf of the Polish Vacuum Society:

/-/ Prof. Marek Szymonski,
President, PVS Executive Board

END EXAMPLE