



International Society for Engineering Education
Internationale Gesellschaft für Ingenieurpädagogik
Международное общество по инженерной педагогике

IGIP 2011

International Society Engineering Education

Prof. Dr. Dr. Michael E. Auer
President of IGIP



Mission of the Society

The aims of the International Society for Engineering Education IGIP are

- Improving teaching methods in technical subjects
- Developing practice-oriented curricula that correspond to the needs of students and employers
- Encouraging the use of media in technical teaching
- Integrating languages and the humanities in engineering education
- Fostering management training for engineers
- Promoting environmental awareness
- Supporting the development of engineering education in developing countries

New competencies of educators are needed as

- Evaluation management
- Development competencies
- Communication skills
- Teamwork
- Ethics and intercultural competencies



History of IGIP

The International Society for Engineering Education IGIP was founded in 1972 at the University of Klagenfurt (Austria) by Adolf Melezinek. Establishing an engineering pedagogy was a step forward at that time, engineering and pedagogy had never been linked before on a scientific level. What is meanwhile known worldwide as the "Klagenfurter Ingenieurpädagogische Schule" (Klagenfurt School of Engineering Pedagogy) had been established starting with the 1. International Symposium of Engineering Pedagogy in 1972, symposia of IGIP are now held each year.

Even in the seventies of the 20th century European integration and standardized profiles for educators were seen as most important factors of education, training and learning.

So the International Society of Engineering Education created an international register of engineering educators, which since then guarantees minimum standards in technical expertise and a well-balanced competence profile for engineering educators. The register lists qualified educators who had gone through a curriculum which has been approved by IGIP. Those registered are International Engineering Educator and can use the title ING-PAED IGIP.

IGIP accredits training centers for "International Engineering Educators", whose teaching matter conforms to IGIP's curriculum for engineering pedagogy.



IGIP Curriculum - Principles

ING-PAED IGIP is a register, which certifies a certain educational level for a teacher, trainer or instructor, which is given by the IGIP curriculum.

Any engineering educator who passes the curriculum at any accredited training centre for International Engineering Education, and whose education, training and professional experience meet the IGIP standards may register for the professional register as "***International Engineering Educator ING-PAED IGIP***".

By passing the curriculum as proposed by IGIP in any accredited institution worldwide, IGIP states that a given engineering educator with an ING-PAED IGIP title has all the competencies needed to teach at the state of the art with the best available teaching technologies.

IGIP has 52 accredited Training Centres worldwide.

The ING-PAED IGIP Register covers already 1170 Engineers from all over the world.

[Both the Register and the Title "ING-PAED IGIP" will generally improve the position, role and responsibility of engineering educators in society.](#)



IGIP Curriculum - Content

IGIP curriculum is a modular system which consists of:

- core modules (8 Credit Points), and
- theory modules (4 CP) and
- practice modules (8 CP).

The core modules include

- theoretical and practical engineering pedagogy
- laboratory methodology

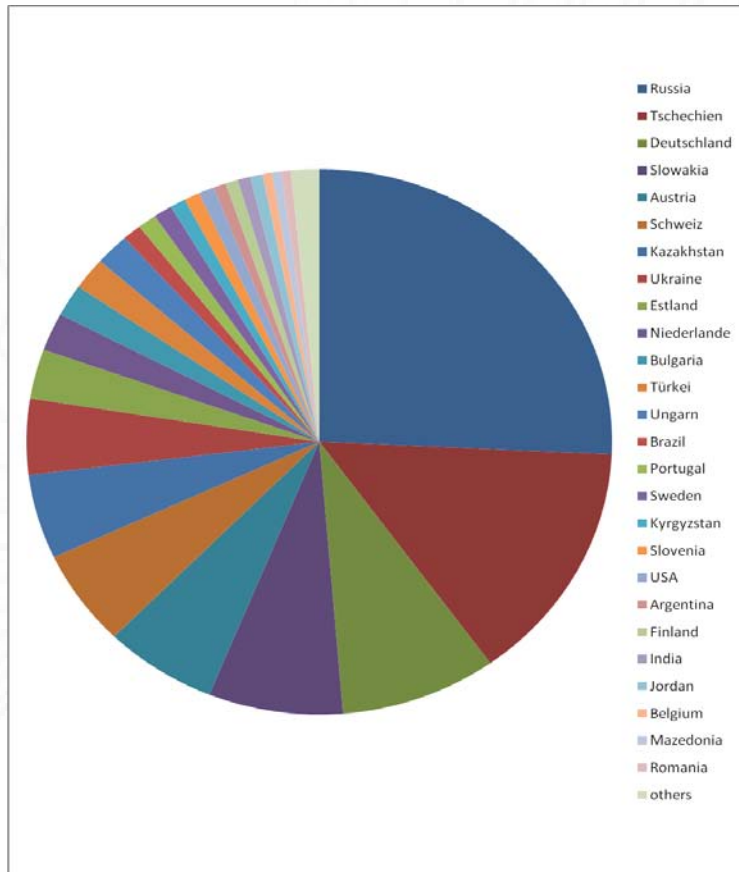
The theory modules include

- psychology,
- sociology,
- ethics, and
- intercultural competencies.

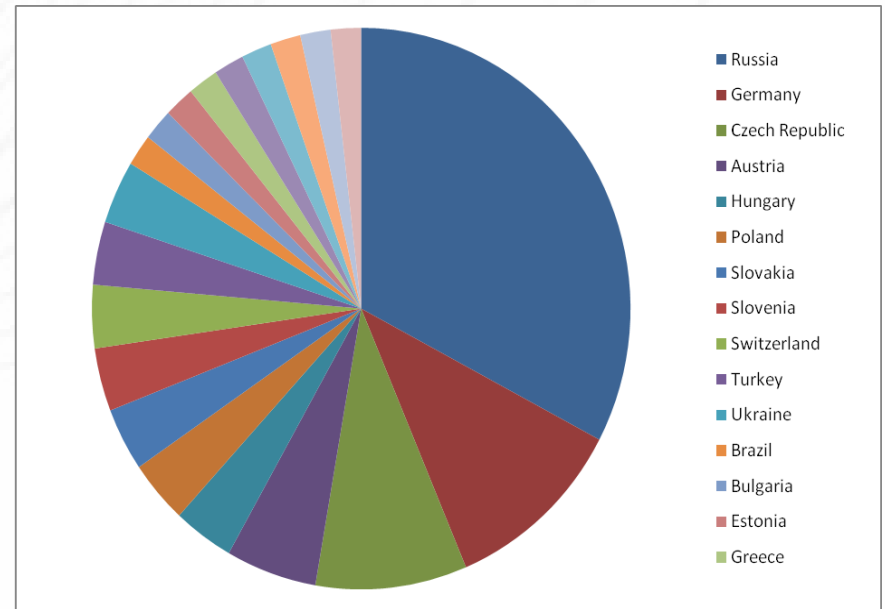
The practice modules consists of

- oral communication skills,
- scientific writing,
- working with projects,
- media,
- e-learning, and computer aided technologies and a
- module free for additional topics.

About 1.700 Members of IGIP



586 Individual Members



55 Institutional Members

More than 1.100 Affiliate Members



IGIP Leadership – Executive Committee

Michael E. Auer President, Austria

Viacheslav M. Prikhodko VP Membership and Regional Affairs, Russia

Melany Ciampi VP International Relations, Brazil

Pavel Andres VP Educational Affairs, Czech Republic

Adolf Melezinek IGIP Honorary Life President, Austria

Roman Hrmo, Slovakia

Tatiana Polyakova, Russia

Teresa Restivo, Portugal

Tiiia Rüütman, Estonia

Axel Zafoschnig, Austria

Dana Dobrovská, President International Monitoring Committee, Czech Republic

Ralph Dreher, Director of Research, Germany

Herbert Kleber, Secretary General, Austria



IGIP Scientific Board and IMC

Scientific Board

Norbert Kraker, Chair, Austria

Martin Bilek, Czech Republic

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Univ. of Porto, Portugal

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National Monitoring Committees

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Jordan
Kazakhstan
The Netherlands

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Portugal
Romania
Russia
Slovakia
Slovenia
Switzerland
Turkey
Ukraine
USA
Uzbekistan



IGIP Working Groups

- Curriculum Development
- International Aspects of Engineering Education
- Knowledge Management and Computer-aided Technologies
- Language and Humanities in Engineering Education
- Mathematics and Natural Sciences in Engineering Education
- People and Technology
- Postgraduate Education and Qualifications Framework
- Technical Teacher Training
- Women in Technical Careers
- Working with Projects
- Research in Engineering Pedagogy and Engineering Education



IGIP Scientific Journal

Publication of scientific results of our members in an own IGIP open access journal .

“International Journal of Engineering Pedagogy”;

www.i-jep.org

1.2011

iJEP

International Journal:
Engineering Pedagogy

Papers

- Challenges of Utilizing E-Learning Systems In Public Universities in Jordan
- An Automated Feedback System** Based on Adaptive Testing: Extending the Model
- A Platform of Constructivist Learning in Practice: Computer Literacy Integrated into Elementary School
- Sharing Resources in Educational Communities
- Technical Appliance in E-Learning: Student's Perception on the Usage of Online Learning
- Metadata and Knowledge Management Driven Web-based Learning Information System towards Web/e-Learning 3.0
- Using Video Lectures to Make Teaching More Interactive

Reports

- E-Learning Adoption Inside Jordanian Organizations From Change Management Perspective
- ICT and Lifelong Learning: Hong Kong's Experience for Elderly Learners

Application Note

- Social Networking to Support Collaborative Interactions in Special Education

IGIP Cooperation Partners

- **IFEES**



IFEES

INTERNATIONAL FEDERATION OF ENGINEERING EDUCATION SOCIETIES

- **IEEE Education Society**



IEEE

- **SEFI**



European Society for Engineering Education
Europäische Gesellschaft für Ingenieur-Ausbildung
Société Européenne pour la Formation des Ingénieurs

- **ASEE**

AMERICAN SOCIETY FOR
ENGINEERING EDUCATION



- **IELA**



IELA

The International E-Learning Association

- **2011 IGIP Conference Santos, Brazil, 28-30 March 2011**
- **2012 Twin Conferences Villach, Austria (40 Years IGIP), 26-28 Sept. 2012**
 - International Conference on Engineering Pedagogy (**ICP**)
 - International Conference on Interactive Collaborative Learning (**ICL**)

- **Special Tracks/Sessions 2011**

- **IEEE Educon 2011** Amman, Jordan, 4-6 April
- **REV2011** Brasov, Romania, 28-30 June
- **ICL2011** Piestany, Slovakia, 21-23 Sept.
- **IFEES Global Summit** Lisbon, Portugal, 1-2 Oct.
- **FIE2011** Rapid City SD, USA, 12-15 Oct.
- **Online Educa** Berlin 2011, 1-3 Dec.



- **IGIP Regional Conferences 2011**

- **Moscow, Russia, March**
- **Bratislava, Slovakia, September**
- **Dresden, Germany, October**
- **Lisbon, Portugal, November**



Definition of Engineering

Engineering is the discipline, art and profession of acquiring and applying scientific, mathematical, economic, social, and practical knowledge to design and build structures, machines, devices, systems, materials and processes that safely realize a solution to ***the needs of society***.

Short definition of engineering: exploiting basic principles of science to develop useful tools and objects for the society.



Link between the Sciences and the Society

New Aspects in Engineering Education

- **Social Position of Learning**

According to some estimates, more than 80% of all learning occurs on the job rather than in tertiary and post-tertiary education!

- **Engineers' Interaction with Others**

Engineers tend to spend the majority of their working week (around 60%) engaged in activities which involve interaction with others (meetings, supervision, writing reports etc) and only around 40% is devoted to technical engineering activity.

- **New Organizational Aspects in Engineering Education**

On one hand, engineering issues, either in industrial products or in engineering projects, become very complicated and most of them are cross disciplinary ones.
On the other hand, the working environment is getting more and more internationalized due to the globalization of the world economy

- **Improvement of the Agility of Engineering Education**

One of the approaches in this direction is the creation of virtual educational units.

New Questions

- What learning approaches have to be used to give an effective response to these changes?
- What are the pedagogies that enable 21st Century learning in engineering?
- What learning skills in engineering education need to be developed and in what ways have been shown to be successful in achieving them?
- What pedagogical approaches have been found to support the different phases of the life-long learning continuum or is there also a pedagogical continuum?
- What are the learning approaches that enable competence in leadership skills in a multi-cultural working environment to be delivered?
- Ambient technology is becoming a reality – what does ambient learning in Engineering Education look like? How can it be designed, delivered and assessed?



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