

# International Conference on Engineering Education

Escuela Técnica Superior de Ingeniería del Diseño  
21 - 25 · July 2003 · Valencia

## CONFERENCE PROGRAMME



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## Welcome

**Dr. Justo Nieto Nieto, Vice-Chancellor of the Polytechnic University of Valencia  
Executive Chair  
IGEE 2003 Valencia**

Human beings have been innovating since we discovered, precisely through applying the results of innovations, that we had time left over from the task of food gathering, which from the beginnings of our history had required all our energies. One of the activities for which this newly-gained time could be used was, and is, thinking.

Either because, deep down, humans are conservative by nature – risking more with their mouths than with their actions – or because a great deal of time still has to be devoted to satisfying basic needs, we are less innovative than perhaps we could or should be.

If this is true in general, it is more true in universities, even though these are the places where creativity and responsiveness to needs should be paramount. I believe the traditional menu of theory (which is usually undigestible), classical problem-solving (which is usually more theory), and laboratory work should be replaced by a more collaborative and active teaching-learning environment, which fosters discussion, debate and evaluation of ideas and where the individual needs and learning styles of the students are taken into account.

However, when an institution such as the Polytechnic University of Valencia organises a meeting like the present IGEE2003 (which we are sure will be fruitful) under the guiding hand of Dr Enrique Ballester, there are reasons for hope.







## Welcome

**Dr. Enrique Ballester Sarriás, Dean of School of Design Engineering (ETSID) at UPV  
Executive Vice-Chair  
ICEE 2003 Valencia**

Dear Friends

First of all I would like to welcome all of you to this Higher Technical School of Design Engineering, which is heir to the old Industrial School of Valencia that has been training engineers in this city now since 1852.

I also wish to thank every staff member at Valencia Polytechnic University who has assisted us in the preparation of this ICEE 2003 Conference, with a special mention to the Rectorate and the members of our School.

Thanks also to Win Aung and INEER members, as well as the International Steering Committee for providing us with invaluable ideas and the necessary support so that the present Conference becomes the actual event we all witness today.

I hope that the objectives which we set up when we started working on the preparation of this Conference are successfully met.





We have been working from the School to achieve this and to organize a Conference for all of us to have time for work, for culture, for entertainment and also to speak, exchange ideas and build on the excellent working atmosphere which is at the heart of our network, among representatives from all continents.

Last, but not least, I would also like to thank all the people who offered us the support without which we would not be here now: Luis Sánchez, Ana Gimeno, Pedro Fuentes, Claudio Benavent, Miguel A. Agustín, Rafa Seiz, Susi Torralba, Juan Miguel Martínez, David Perry, Carlos Camiña, Malak Kubessi, Maika Ontiñano, José Marín, Rosa Collado, Teresa Pardo, Gabi Songel, José Armijo and many others. Thank you all for your outstanding work and dedication.

Congratulations to all of you on your key contribution to the ICEE 2003 Conference. Have a pleasant and productive time!



# Introduction

Dear ICEE2003 attendees,

This is a time to make and meet friends, this is time to learn from each other, this is another ICEE conference. Now at UPV, Universidad Politécnica de Valencia.

UPV representatives attended the very first ICEE meeting in Taipei 1994, and I have been personally involved since Chicago 1997. So we have made and met a number of friends for a number of years.

It is also time to have fun, fun for enjoying another country and another culture while exchanging ideas and learning from our friends. I hope that this fun will be visible in the delegates participation both in the presentations and in its social part.

Our university and the city of Valencia have many interesting things, as well as its surroundings, that are worth while discovering. I do encourage you to do so and get some of its Mediterranean flavour during your stay.

We hope ICEE2003 makes us progress and seek to meet again to exchange the ideas we get here by learning from each other.

Prof. Luis M. Sánchez Ruiz  
ICEE2003 Valencia General Chair  
Universidad Politécnica de Valencia, Spain









## Honorary Committee Members

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J WORCH



## Scientific and Technical Committee

### **ASSESSMENT OF STUDENT LEARNING**

Melvyn Dodridge, UK

### **WORKSHOP: CONVERGENCE OF INTERNATIONAL LEVEL IN HIGHER EDUCATION PROGRAMS - E.G. IMPLEMENTING THE BOLOGNA DECLARATION**

Melvyn Dodridge, UK

### **SHARING ONLINE LABORATORIES AND THEIR COMPONENTS**

Hamadou Saliah-Hassane

Jesús A. del Alamo

Maarouf Saad

### **ADVANCES IN CONTROL AND SIGNAL PROCESSING EDUCATION**

Jerzy Moscinski

### **DISTANCE LEARNING AND AUTONOMOUS SELF-ACCESS LEARNING - E.G. INNOVATIVE WEB-BASED TEACHING STRATEGIES AND TOOLS**

Frode Eika Sandnes

F H-L Jian

### **TECHNOLOGY AND SOCIETY: ENGINEERING EDUCATION IN THE AGE OF DIGITAL TECHNOLOGY AND GLOBALISATION**

Borek Sousedik

### **EDUCATIONAL ROBOTICS**

David J. Ahlgren

Igor M. Verner

### **UNIVERSITY - INDUSTRY COLLABORATION PROGRAMS - E.G. SHORT/MODULAR COURSES FOR INDUSTRY & PROFESSIONAL DEVELOPMENT**

Edward Chikuni

### **ENGINEERING EDUCATION IN DEVELOPING COUNTRIES**

G.S Kochhar

### **TEACHING OF ETHICS IN ENGINEERING**

Vojislav Ilic

### **WORKSHOP: MANPOWER DEVELOPMENT AND BUSINESS INFRASTRUCTURE CONSTRUCTION FOR HIGH-TECH INDUSTRY**

Shan-Hwei Ou

Yeong-Bin Yang

Wei-Chung Wang

Jing-Yang Jou

### **WORKSHOP: COALITION BETWEEN INDUSTRY AND ACADEMIA TOWARD ENHANCING ENGINEERING EDUCATION AND RESEARCH**

Tim Anderson

Shan-Hwei Ou

Yeong-Bin Yang

Max Yen

Wei-Chung Wang

### **NEW LEARNING ENVIRONMENTS - E.G. PROBLEM-BASED LEARNING IN ENGINEERING EDUCATION**

Juan Miguel Martínez Rubio

Carlos Camiña Catalá

**INTEGRATION OF BASIC SCIENCES IN ENGINEERING**

Matilde Legua Fernández

Luis M. Sánchez Ruiz

**INTEGRATION OF LANGUAGES IN THE ENGINEERING CURRÍCULA**

Ana Gimeno Sanz

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Joaquín González García

**ACCREDITATION AND QUALITY ASSESSMENT**

Pedro Fuentes Durá

Joaquín González García

Israel Quintanilla García

**HIGHER EDUCATION, LOCAL NEEDS, AND LOW-COST DESIGN PROJECTS IN DEVELOPING COUNTRIES**

Ali Khounsary

**OTHER TOPICS**

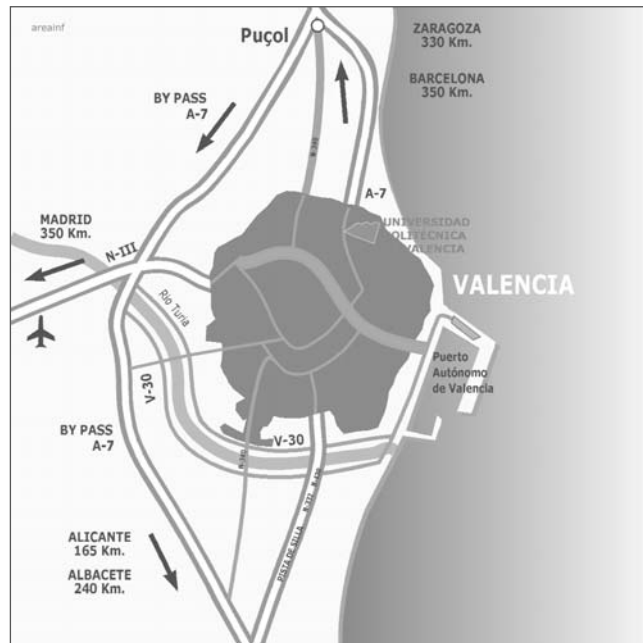
Pedro Fuentes Durá

Rafael Seiz Ortiz

David Perry

# Maps

## Access to Valencia and U.P.V



### Location of Hotels



## Conference Venues

ETSID (7B)  
Salón de Actos Edificio I-1 (6G)  
Restaurant "La Vella" (1B)



APARCAMENTOS P1 P2 P3 P4 P5 P6 P7 P8 > Parking y P. subterroeo

ORGANOS DE GOBIERNO, ÁREAS Y SERVICIOS	ÁREA	EDIFICIO
Àrea de Acció Internacional	6	6G
Àrea de Coordinació de Llengües Extranjeres / ACLE	5	5F
Àrea de Esports / Gimnàsio	7	7C
Àrea de Formació Universitària Professional	6	6G
Àrea de Informació / Oficina de Informació	3	3H
Àrea de Planificació, Evaluació i Iniciatives de Investigació	6	6G
Biblioteca General	4	4L
Centre de Cooperació al Desenvolupament / CCD	2	2E
Centre de Formació de Postgrau / CFP	6	6G
C. de Apoyo a Inves., Inv. y Transferecia de Tecnologia / CTI	6	6G
Cafeteria Belles Arts	3	3L
Cafeteria el Aguro	2	2D
Cafeteria la Redona	5	5A
Cafeteria la Vella	1	1B
Centre de Processos de Dades / CPD	4	4L
Colegio Mayor Galileo Galilei	6	6B
Consejo Social	3	3A
Cultura	3	3A
Defensor de la Comunidad Universitaria	3	3H
Delegación de Alumnos	5	5A
Editorial UPV	3	2F
Escola d'Estil	7	7C
Escola Infantil	1	1B
Fundación CEDAT	9	9E
Forum UNESCO	1	1B
Gerencia	2	2E
Instituto de Ciencias de la Educación / ICE	6	6G
Oficina Verde	6	6E

ORGANOS DE GOBIERNO, ÁREAS Y SERVICIOS (Continuación)

ORGANOS DE GOBIERNO, ÁREAS Y SERVICIOS (Continuación)	ÁREA	EDIFICIO
Organizaciones Sindicales	6	6E
Pabellón Cubierto	6	6A
Parainfo / salas de congresos / salas de exposiciones	3	3A
Piscina Cubierta	6	6F
Programas Internacionales / VIA	3	3C
Radio-Televisión UPV	6	6G
Rectorado	2	2E
Registro General	2	2E
Servei de Normalització Lingüística	3	3C
Servicio de Alumnado	2	2E
Servicio Integrado de Empleo / SIE	6	6G
Servicio de Mantenimiento / Almacenes	5	5D
Servicio Médico	6	6E
Universidad Politécnica Abierta	7	7A

ESCUELAS Y FACULTADES

ESCUELAS Y FACULTADES	ÁREA	EDIFICIO
E.T.S. Arquitectura	2	2F
E.T.S.I. Agrónomos	3	3H
E.T.S.I. de Caminos, Canales y Puertos	4	4H/4G
E.T.S.I. Geodésica, Cartográfica y Topográfica	7	7E
E.T.S.I. Industriales	5	5F/5N
E.T.S.I. de Telecomunicación	4	4D
E.U. de Arquitectura Técnica	1	1B
E.U. de Informática	1	1G
E.U.I.T. Industrial	7	7B
Facultad de Belles Arts	3	3L
Facultad de Informática	1	1E
Facultad de Administración y Dirección de Empresas	5	5H

DEPARTAMENTOS

DEPARTAMENTOS	ÁREA	EDIFICIO
Departamento de Biología Vegetal	3	3K
Departamento de Biotecnología	3	3i
Departamento de Ciencia Animal	7	7G
Departamento de Composición Arquitectónica	2	2F
Departamento de Comunicaciones	4	4D
Departamento de Com. Audiovisual, Doc. e Historia del Arte	3	3L
Departamento de Conservación y Restauración de B.C.	3	3M
Departamento de Construcciones Arquitectónicas	2	2F
Departamento de Dibujo	3	3L
Departamento de Economía y Ciencias Sociales	3	3B
Departamento de Ecosistemas Agroforestales	3	3K
Departamento de Escultura	3	3L
Departamento de Estadística e Investigación Operativa	7	7A
Departamento de Exposición Gráfica Arquitectónica	2	2F
Departamento de Exposición Gráfica en la Ingeniería	3	3B
Departamento de Física Aplicada	1	1B
Departamento de Idiomas	1	1C
Departamento de Informática de Sistemas y Computadoras	1	1G
Departamento de Ingeniería Cartográfica y Fotogrametría	7	7E
Departamento de Ingeniería de la Construcción	4	4G
Departamento de Ingeniería de Sistemas y Automática	5	5C
Departamento de Ingeniería del Terreno	4	4i
Departamento de Ingeniería e Infraestructura de los Transportes	4	4A
Departamento de Ingeniería Eléctrica	5	5E
Departamento de Ingeniería Electrónica	7	7F
Departamento de Ingeniería Hidráulica y Medio Ambiente	4	4E
Departamento de Ingeniería Mecánica y de Materiales	5	5E
Departamento de Ingeniería Química y Nuclear	5	5i
Departamento de Ingeniería Rural y Agroalimentaria	3	3B
Departamento de Máquinas y Motores Térmicos	6	6D

DEPARTAMENTOS (Continuación)

DEPARTAMENTOS (Continuación)	ÁREA	EDIFICIO
Departamento de Matemática Aplicada	7	7A
Departamento de Mecánica de Medios Continuos y T. Estructuras	5	5H
Departamento de Mecanización y Tecnología Agraria	3	3F
Departamento de Organización de Empresas	7	7D
Departamento de Pintura	3	3L
Departamento de Producción Vegetal	3	3K
Departamento de Proyectos Arquitectónicos	2	2D
Departamento de Proyectos de Ingeniería, IDOIR	5	5J
Departamento de Química	5	5M
Departamento de Sistemas Informáticos y Computación	1	1F
Departamento de Tecnología de Alimentos	3	3F
Departamento de Termodinámica Aplicada	5	5J
Departamento de Urbanismo	2	2A

INSTITUTOS, CENTROS Y SERVICIOS DE INVESTIGACIÓN

INSTITUTOS, CENTROS Y SERVICIOS DE INVESTIGACIÓN	ÁREA	EDIFICIO
Instituto de Biología Molecular y Celular de Plantas	6	6C
Instituto de Hidrología	4	4B
Instituto ITACA	9	9B
Instituto de Tecnología Química	6	6C
Instituto Tecnológico Valenciano	9	9B
Instituto de Creación y Desarrollo de Empresas / IDEAS	6	6G
Instituto de Tecnología Eléctrica	6	6D
Instituto Tecnológico de Informática	6	6D
Instituto Centro de Mantenimiento del Transporte	6	6D
Instituto Tecnológico del Agua	5	5C
Centro Tecnológico de Ondas, CSIC-UPV	6	6D
Servicio de Microscopía	2	2E
Servicio de Radiaciones	5	5i
Laboratorio de Calibración	5	5L





## Conference Programme of Events

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3.30pm	Bus departs from Hotel NH Las Artes for UPV
4.00pm	INEER Workshop
6.00pm	Bus departs from Hotel NH Las Artes for UPV
6.30pm	Registration and Poster registration
7.30pm	Concert of traditional music and dance (Conference Halls 1 and 2, UPV)
9.00pm	Dinner in the open air (UPV campus gardens)
11.00pm	Bus returns from UPV to Hotel NH Las Artes

## Tuesday, 22nd July 2003

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8.30am	Bus departs from Hotel NH Las Artes for UPV
9.00am	Registration
10.00am	Welcome Address
11.00am	Poster Session 1 and coffee break
12.00noon	Plenary 1: The future of engineering  Chair: Concepción Maroto  Speakers: Antonio Hervás Scott Fogler Vic Ilic Win Aung
2.00pm	Lunch on campus in 'La Vella' Restaurant
3.30pm	Bus returns from UPV to Hotel NH Las Artes  Free time
7.00pm	Bus departs from Hotel NH Las Artes for UPV
7.30pm	Concert of choral music (Conference Halls 1 and 2, UPV)
9.00pm	Dinner in the open air (UPV campus gardens)
11.00pm	Bus returns from UPV to Hotel NH Las Artes

### Wednesday, 23rd July 2003

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- 8.30am Bus departs from Hotel NH Las Artes for UPV
- 9.00am 7 Parallel Sessions
- 11.00am Poster Session 2 and coffee break
- 12.00noon Plenary 2: Progress through partnerships: first session
- Chair: Luis M. Sánchez Ruiz
- Speakers: Wayne Johnson  
Ramiro Jordan  
Luiz Scavarda  
Tim Anderson  
W. Zielinski
- 2.00pm Lunch on campus in 'La Vella' Restaurant
- 3.30pm Bus returns from UPV to Hotel NH Las Artes
- Free time
- 8.15pm Bus departs from Hotel NH Las Artes and Hall of Residence Galileo Galilei for the Gala Dinner
- 9.00pm Gala Dinner (Huerto de Santa Maria, El Puig)
- 12.00pm Bus returns to UPV to Hotel NH Las Artes and Hall of Residence Galileo Galilei

### Thursday, 24th July 2003

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8.30am	Bus departs from Hotel NH Las Artes for UPV
9.00am	7 Parallel Sessions, Workshop “Building Remote Laboratories for Education”, Workshop “Evaluating, Selecting, and Using Computer- Enhanced Learning Technologies and Digital Learning Materials in Engineering Education”
11.00am	Poster Session 3 and coffee break
12.00noon	7 Parallel Sessions + Workshop “Building Remote Laboratories for Education”, Workshop “Evaluating, Selecting, and Using Computer- Enhanced Learning Technologies and Digital Learning Materials in Engineering Education”
2.00pm	Lunch on campus in ‘La Vella’ Restaurant
3.30pm	Bus returns from UPV to Hotel NH Las Artes
4.00pm	“L’Oceanogràfic” and “Museu de les Ciències Príncipe Felipe” (Ciutat de les Arts i les Ciències), Valencia
8.15pm	Bus departs from Hall of Residence Galileo Galilei for dinner Walk depart from Hotel NH Las Artes for dinner
9.00pm	Dinner (‘Museo Fallero’, Valencia)
10.30pm	Bus returns from ‘Museo Fallero’ to Hall of Residence Galileo Galilei Walk return from ‘Museo Fallero’ to Hotel NH Las Artes

## Friday, 25th July 2003

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- 8.30am Bus departs from Hotel NH Las Artes for UPV
- 9.00am 7 Parallel Sessions
- 11.00am Poster Session 4 and coffee break
- 12.00noon Plenary 3: Progress through partnerships: second session
- Chair: Ana Gimeno
- Speakers: Peter Hicks  
Che-Ho Wei  
Ramon Vasquez Espinosa  
Peter Lee  
Vaclav Roubicek
- 2.00pm Lunch on campus in 'La Vella' Restaurant
- 3.30pm Bus returns from UPV to Hotel NH Las Artes

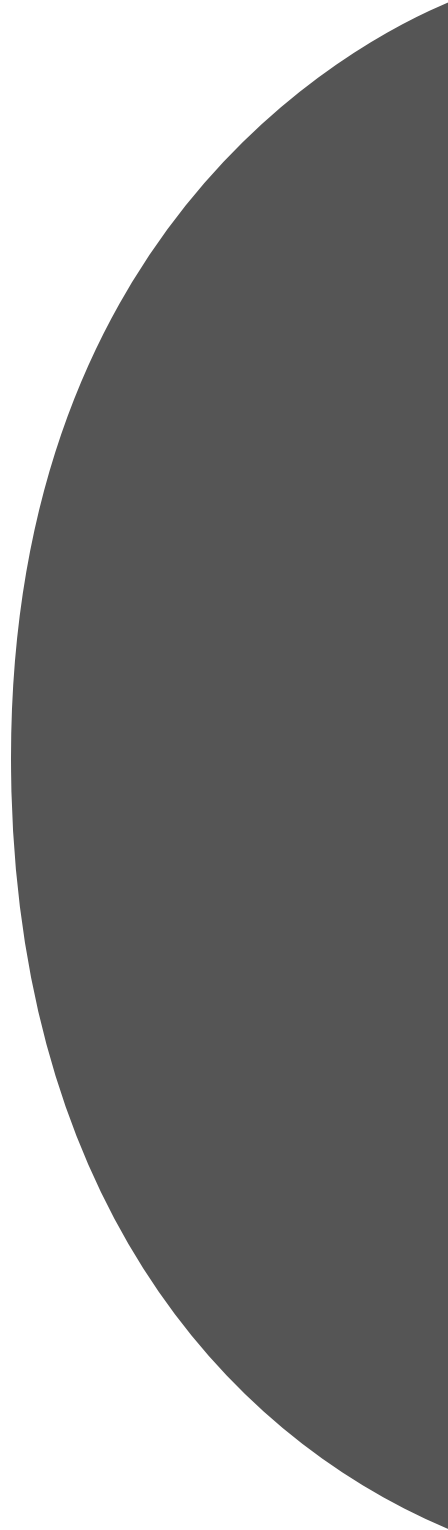


## Information for presenters

- Presenters should be present in their designated room 5 minutes prior to of their session start time, and they also should be available for questions during the discussion time. Please be puntual and limit your presentation time to 10 minutes. Presenters are also asked to be available to answare questions. Please be punctual and stick to the designted 15 minutes.
- There will be two open-access rooms with internet connection in “Aula S05” and “Aula S06” (1st floor, South side) available for Conference participants. To acces Internet please type in: Usuario/User:Invitado, Contraseña/Password:(Leave blank), Dominio/Domain:upvnet









# Presentation Programme

Wednesday, 23rd July 2003

Area 1: Assessment of Student Learning

Room S01	Chair: Peter Hicks
9:00am	<b>Key Skills Assessment (4593)</b> Steve Lloyd; Eleri Bowen; Steve Thomas (UK)
9:15am	<b>Alignment of Assessment Methods and Learning Objectives (1575)</b> Sew-Ming Low (Malaysia)
9:30am	<b>Creativity Test Applied in Engineering (5001)</b> M. Angeles Cavia Soto; Luis Ignacio Eguíluz Morán; José C. Lavandero (Spain)
9:45am	<b>Assessing Creativity Aspects in Engineering Students' Project Work (4072)</b> Shlomo Waks (Israel); Moti Merdler (Israel)
10:00am	<b>Integration of a Professional Presentation Test as a Source of Motivation for University Students (4996)</b> M. Angeles Cavia Soto; Luis Ignacio Eguíluz Morán; Paulino Sánchez; Mario Mañana (Spain)
10:15am	<b>University Entrance Examination of Pontifícia Universidade Católica do Rio Grande do Sul: how socioeconomic and cultural variables explain the performance of candidates to Engineering courses (4501)</b> Fernando Lang da Silveira; Carlos Eduardo da Cunha Pinent (Brazil)
10:30am	<b>Assessment Procedures and Student Appeals (4525)</b> Vidar Gynnild (Norway)
10:45am	<b>Learning to Integrate Technology, Analysis, and Design in Materials Handling Engineering Education: Developing Multimedia Tools (929)</b> Sunderesh Heragu; Sybillyn Jennings (USA)
11:00am	<b>Supplemental instruction in math courses: a success story (3379)</b> Hasan Sevim; Kathy Pericak-Pector (USA)

**Area 2: Workshop: Convergence of International Higher Education Programs. Implementing the Bologna Declaration**

**Wednesday, 23rd July 2003**

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<b>Room S02</b>	<b>Chair: Ken Hill</b>
9:00am	<b>Internationalisation and the Bologna process at the UPV (4447)</b> Concepción Maroto Álvarez (Spain)
9:15am	<b>Trans-world recognition of engineering/technology programmes in higher education (4683)</b> Melvyn Dodridge (United Kingdom)
9:30am	<b>Implementing the Bologna Process in Germany - Fiction and Reality (5359)</b> Michael Hoffmann (Germany)
9:45am	<b>Experience to the gradual approach to the ECTS credits (4747)</b> Jesus Irigoyen; Jose-Carlos Martinez; Eloina Coll (Spain)
10:00am	<b>Bologna: What do we need to change to be competitive? (5452)</b> Emilio Camahort (Spain)
10:15am	<b>New approaches for Higher Education in Industrial Design in Spain (5023)</b> Gabriel Songel (Spain)
10:30am	<b>THEIERE Thematic Network: new technologies and harmonisation of curricula in Europe (3503)</b> José V. Benlloch (Spain); Maria Joao Martins (Portugal); Michael Hoffmann (Germany); Michel Robert (France)
10:45am	<b>Integration of management and engineering (4400) Józef Antoni Haber; Czes_Aw Sajdak; Remigiusz Sosnowski (Poland)</b>
11:00am	<b>Double Degree Programmes in Industrial Engineering: future prospects (4791)</b> Maria Dolores Forés López; Enrique Ballester Sarrias; Pedro Fuentes Durá; Claudio Benavent Montoliu; Vicente Mata Almela; Maria Carmen Ontiñano Abadias (Spain)

**Wednesday, 23rd July 2003**

**Area 3: Sharing Online Laboratories and Their Components**

<b>Room "Brest"</b>	<b>Chair: Hamadou Saliah-Hassane</b>
9:00am	<b>Online Laboratory Brokerage System for Education and Research (3728)</b> Hamadou Saliah-Hassane; Maarouf Saad; Ileana De La Teja; Gilbert Paquette; Louis Villardier (Canada)
9:15am	<b>7 Years Experience with Web Laboratories (3078)</b> Jim Henry (USA)
9:30am	<b>Synchronous Tele-tutorial Support in a Remote Laboratory for Process Control (1920)</b> Andreas Böhne; Nils Faltin; Bernardo Wagner (Germany)
9:45am	<b>An Online Microelectronics Device Characterization Laboratory with a Circuit-like User Interface (5771)</b> Jesus A. del Alamo; David Zych; Victor Chang; James Hardison; Lisa Hui (USA)
10:00am	<b>Evaluation of a Web-based Training Environment for Hands-on Experimentation (3664)</b> Denis GILLET (Switzerland)
10:15am	<b>Telepresent vs. Traditional Learning Environments: A Field Study (1590)</b> Tuttas Joerg; Wagner Bernardo; Rütters Klaus (Germany)
10:30am	<b>Traditional Laboratory Exercises and Remote Experiments in Electrical Engineering Education (2337)</b> Ingvar Gustavsson (Sweden)
10:45am	<b>The Need of Stability and Reliability: An Analysis for Online Tests of Picture-Phone Solutions for Remote Scales (2273)</b> Hong Wu; Gunnar Andersson (Norway)

**Wednesday, 23rd July 2003**

**Area 19: Other Topics**

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<b>Room S03</b>	<b>Chair: Ramon Vasquez Espinosa</b>
9:00am	<b>The Biomedical Engineering Education in Italy (6243)</b> Marcello Bracale (Italy)
9:15am	<b>Counselor's Attitudes and Knowledge About Engineering (1535)</b> Howard Kimmel; Ronald Rockland; Joel Bloom; Siobhan Gibbons (USA)
9:30am	<b>An introductory course in electronic engineering using a collaborative problem based learning approach in a studio environment (1868)</b> Robin Bradbeer (China)
9:45am	<b>The Magic of Dynamic Programming (3933)</b> Atif Alvi; M. Ashraf Iqbal (Pakistan)
10:00am	<b>Global Trend of Engineering Education in Taiwan - Lessons Learned from a Recent Engineering Education Conference (4513)</b> Yeong-Bin Yang; S. H. Ou; C. T. Wang (Taiwan)
10:15am	<b>An "Engineering" Course for Non-Majors (4708)</b> Sheryl Sorby; Douglas E. Oppliger (USA)
10:30am	<b>Funding of Research Activities at Czech Technical Universities (5108)</b> Andrea Samolejova; Vaclav Roubicek; Jiri Bilik (Czech Republic)
10:45am	<b>Development of new materials by combinatorial techniques (5312)</b> Jose Manuel Serra; Avelino Corma; Vicente Botti; Estefania Argente; Soledad Valero (Spain)

**Area 5: Distance Learning and Autonomous Self-Access Learning  
- e.g. Innovative Web-based Teaching Strategies and Tools**

**Wednesday, 23rd July 2003**

<b>Room S04</b>	<b>Chair: Frode Eika Sandnes</b>
9:00am	<b>Reusable, interactive learning objects in an engineering digital library: the grow-ncerl project (1700)</b> Muniram Budhu (USA)
9:15am	<b>The engineer's meeting point (4785)</b> Joaquin Gonzalez; Ignacio Orero; Julian Garza (Spain)
9:30am	<b>E-learning Courseware as a Supplement to a Circuits Course: Additional Results (5170)</b> Ana Pavani; Luiz A P Gusmão; Maria C O Costa; Fernando C Ebner; Beatriz M Saavedra; Sílvia A Motta; Bruno R Hedler; Guilherme P Temporão (Brazil)
9:45am	<b>Interactive Courseware for Teaching Field Theory (4649)</b> Johannes Goerke; Ravinder Beemagani; Michael Hoffmann; Wolfgang Strasser (Germany)
10:00am	<b>Authoring for adaptive presentation (5618)</b> Adam Moore; Tim Brailsford (UK)
10:15am	<b>Development of distance communication and virtual teamwork skills through online-based teaching (3813)</b> Erik Bohemia (Australia)
10:30am	<b>Online quizzes for enhancing student learning in a first year engineering course (2879)</b> Mahfuz Aziz (Australia)
10:45am	<b>Educational material on Electromagnetics on the Web: development, interest of students and future approaches (1298)</b> Iztok Humar; Edi Bulja; Anton Sinigoj (Slovenia)



**Wednesday, 23rd July 2003**

**Area 17: Accreditation and Quality Assessment**

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**Room “Salón de Grados”**

**Chair: Wojciech Zielinski**

- 9:00am            **Accreditive systems in Poland (1425)**  
Wojciech Zieliński (Poland)
- 9:15am            **The Implementation of a Quality Management System in the University of Pecs (2234)**  
Janos Barsony; Dr. Tibor Kukai (Hungary)
- 9:30am            **Quality Assessment and Improvement of an Engineering Department (3877)**  
Suraj Alexander (USA)
- 9:45am            **ABET's Engineering Criteria 2000: Our Efforts in a Nutshell (3887)**  
Anand Sharma; Isadore Davis; Ramon Vasquez; Lueny Morell (USA)
- 10:00am           **Accreditation Trends Around the World (4012)**  
Russel C. Jones (USA)
- 10:15am           **Implementation of curriculum change, academic quality and administration in a new school (4944)**  
Alan McPhail; Chin Leo; Steven Riley; Surendra Shrestha (Australia)
- 10:30am           **Quality Assessment in Technical Studies (5100)**  
M. Pilar Bonet Espinosa; Miguel Ferrando; Bernardo Martínez Mut; Amparo Fernández March; Elvira Bonet Salom (Spain)
- 10:45am           **Accreditation Agency for Technical Universities in Poland (5827)**  
Jerzy Swiatek (Poland)

**Area 13: New Learning Environments – e.g. Problem-Based Learning in Engineering Education**

**Wednesday, 23rd July 2003**

<b>Room “Marcela Miró”</b>	<b>Chair: Joaquín González</b>
9:00am	<b>EUROPA Project: Education for Learning (6046)</b> Eliseo Gómez-Senent Martínez (Spain)
9:15am	<b>Learning Styles in Engineering Education (4629)</b> Anna Cristina B. Dias de Carvalho; Arthur José Vieira Porto (Brazil)
9:30am	<b>Establishing a CPD Programme for Professional Engineers in New Zealand (896)</b> Des Tedford (New Zealand)
9:45am	<b>New perspectives in engineering teaching (6054)</b> Beatriz Serra Carbonell; Ruben Ruiz Garcia; Joan Fons Cors; Juan Manzano Juárez; Silvia Falcó Giaccaglia; María de Miguel Molina; Nicolás Laguarda Miró (Spain)
10:00am	<b>From traditional to distance education: improvements and implications (5085)</b> Carla Di Pierri D. (Venezuela)
10:15am	<b>Design-Based Learning in the Curriculum of Computing Science; a Skilful Struggle (1933)</b> Jacob Perrenet; Ad Aerts; Jaap van der Woude (Netherlands)
10:30am	<b>eLearning Activities for Teaching Manufacturing Systems (5516)</b> Muhammad Ahmed; Nancy Baskin; Gregory Tonkay ; Emory Zimmers (USA)
10:45am	<b>ECHO: A Configurable Remote Training and Monitoring Real-Time Environments (5543)</b> Hamadou Saliah-Hassane; Louis Villardier; Wilfried Probst (Canada)

**Wednesday, 23rd July 2003**

**Area 14: Integration of Basic Sciences in Engineering**

<b>Room “Japón”</b>	<b>Chair: Luiz Antonio Gargione</b>
9:00am	<b>Creativity Cultivation through Early Design/Build Opportunities for Freshman Engineering Students (4047)</b> Tze-Chi Hsu (Taiwan)
9:15am	<b>The study of sea waves as an encouraging application for the teaching of undulatory processes (5742)</b> Giménez Marcos H.; Sánchez-Carratalá Carlos R. (Spain)
9:30am	<b>Finite elements software for electromagnetics applied to electrical (6354)</b> A. Usón; J. Mur; M. Samplón; J. Letosa; J. S. Artal (Spain)
9:45am	<b>NeuroEngineering - The Integration of Neuroscience and Engineering (4325)</b> Jack Judy; Allan Tobin (USA)
10:00am	<b>Virtual Laboratory (2790)</b> José Antonio Gómez Tejedor; Germán Moltó Martínez; Fernando Gigante Valencia (Spain)
10:15am	<b>Simulation of a varactor diode. A final exercise for Laboratory of Mathematics (1469)</b> José Luis Hueso; Damián Ginestar (Spain)
10:30am	<b>Integration of Molecular Science and Biomedical Education with Mechanical Engineering (3846)</b> Che-Wun Hong; Cheng-Hsien Liu (Taiwan)
10:45am	<b>Mathematics and physics in civil engineering education: an integrated teaching approach (4657)</b> Lluís Miquel Garcia-Raffi; Sandra Oltra; Enrique Alfonso Sánchez-Pérez; Juan Vicente Sánchez-Pérez; Oscar Valero (Spain)
11.00am	<b>Preuniversitarios Project (5871)</b> Ana Celia Tarazona Tornero; Antonio Hervás Jorge; Eliseo Gomez-Senent Martínez; Manuel Esteve Domingo (Spain)

**Thursday, 24th July 2003****Area 1: Assessment of Student Learning**

<b>Room S01</b>	<b>Chair: Che-ho Wei</b>
9:00am	<b>Tracking the student online learning through a tree of objective questions (3496)</b> Luciana Zaina; Graca Bressan; Wilson Ruggiero (Brazil)
9:15am	<b>Autonomous Web-based learning of Operations Research (5412)</b> Ruben Ruiz García; Concepción Maroto Álvarez; Javier Alcaraz Soria; Eva Vallada Regalado (Spain)
9:30am	<b>Analyzing and Assessing Collaborative Learning Activities in a Web-Based Environment (2455)</b> Hugo Fuks; Leonardo Magela Cunha; Marco Aurelio Gerosa; Carlos José Pereira de Lucena (Brazil)
9:45am	<b>A university videoconference experience (5138)</b> Salvador Ivorra; Francisco Javier Pallarés; Antonio José Jiménez (Spain)
10:00am	<b>Project with a contract: evaluation without surprises (5378)</b> Miguel Angel Mateo Pla; Julio Pons Terol; Agustí i Melchor Manuel (Spain)
10:15am	<b>Following the Thread: Assessment and Meta-assessment of the TFE Industry Student Mentoring Program (4667)</b> Mary Lynn Reaff; Joseph Hoey; Meredith Frazer; Denise Gardner (USA)
10:30am	<b>Identifying the Dominant Personality and Attitudinal Traits in Computer Science Students (2346)</b> Ian Benest; Janet Carter; Jane Chandler (UK)
10:45am	<b>Methodology of multicriterion evaluation in the subject of Cartographic (5404)</b> Jose-Carlos Martinez; Jesus Irigoyen; Eloina Coll (Spain)
11.00am	<b>A new environment for teaching and learning Mechanics for engineering students (5730)</b> Enrique Covián; Miguel Celemin (Spain)

**Thursday, 24th July 2003**

**Area 19: Other Topics**

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<b>Room “Brest”</b>	<b>Chair: Israel Quintanilla</b>
9:00am	<b>The Engineering Scholars: Program at FAU (5530)</b> Sharon Schlossberg; Sam Hsu; Karl Stevens (USA)
9:15am	<b>Critical Evaluation: Overcoming the Barriers (6062)</b> Ken Hill (UK)
9:30am	<b>Engineering education in the republic of Yugoslavia- identification of problems and proposals for solution (5012)</b> Vojo Andjus; Dragoslav Stojic (Yugoslavia)
9:45am	<b>A Study of Employment-Need Technological Competency of Graduates of Electronic Technology Programs from Colleges in Taiwan (2552)</b> Liang-Te Chang (Taiwan)
10:00am	<b>Electronically tracking engineering students, a positive aid to achievement and progression (2390)</b> Walter Middleton (UK)
10:15am	<b>Constructing the Teaching Strategy for Technique Course of Digital Signal Processor Implemented with Scaffolding Learning Theory (4007)</b> Chun-Liang Hsu; Cheng Fu-Shieng (Taiwan)
10:30am	<b>Supporting Mathematics Education in UK Engineering Departments (5150)</b> Sarah Williamson; Pam Bishop; Christine Hirst; Tony Croft (UK)
10:45am	<b>Humanistic Enhancement of Engineering: Liberalizing the technical Curriculum (5367)</b> Erik Fisher; Roop L. Mahajan (USA)

**Area 5: Distance Learning and Autonomous Self-Access Learning  
– e.g. Innovative Web-based Teaching Strategies and Tools**

**Thursday, 24th July 2003**

<b>Room S02</b>	<b>Chair: Ramiro Jordan</b>
9:00am	<b>Towards an e-learning community on precision machinery and engineering in Taiwan (3956)</b> Jhy-Cherng TSAI; Wen-Long Li; Chung-Kou Sung; Jinnie Wu (Taiwan)
9:15am	<b>Use of web-based review of prior course material to increase the intellectual challenge of an engineering course (4709)</b> Karen Schmahl (USA)
9:30am	<b>Distance and Autonomous Self-Access Learning: The Necessity of Closeness and Authoritative Organizing (2255)</b> Hong Wu; Gunnar Andersson (Norway)
9:45am	<b>Animation-Based Explanation of Basic Data Communication Principles (2889)</b> Drago Hercog (Slovenia)
10:00am	<b>A Concept Maps-based Approach for Knowledge Visualization and Autonomous Self-Assessment in Distance Learning Environments (5755)</b> Ashraf Saad (USA)
10:15am	<b>Network Based Project Learning for Engineering Education (5372)</b> Domenico Ponta; Giuliano Donzellini (Italy); Hannu Markkanen (Finland)
10:30am	<b>A Novel Distance Learning Trial: The Integrated Networks Lecture (4979)</b> Jose-Esteban Garcia; Klaus Jobmann; Marc Krüger (Germany)
10:45am	<b>Mimic: a multimedia course for teaching the operation of communications equipment (1127)</b> Carmen Bachiller; Miguel Latorre; Francisco Ramos; Carlos Alberto Hernández; Jorge Gosálbez (Spain)

**Area 6: Technology and Society: Engineering Education in the Age  
of Digital Technology and Globalisation**

**Thursday, 24th July 2003**

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<b>Room S03</b>	<b>Chair: Marc Hoit</b>
9:00am	<b>The interactive knowledge model and cooperative learning environment (5625)</b> Patrick-Yves Badillo; Dominique Bourgeois (France)
9:15am	<b>IT &amp; Society Studies within computing curricula: a modernist sociological approach (2239)</b> Salvador Seguí-Cosme (Spain)
9:30am	<b>Control of laboratory experiments in INTERNET environment (5879)</b> Vladimír Kebo (Czech Republic)
9:45am	<b>Information and Communication Technology for Supporting Civil Engineering Education (3357)</b> Maria Helena Lima Baptista Braz (Portugal); Sean Wolfgang Matsui Siqueira; Rubens Nascimento Melo (Brazil)
10:00am	<b>One for all and all for one: Making engineering learning technology accessible for all (1428)</b> Marie Bassford (UK)
10:15am	<b>New ways of knowledge distribution in the digital era. A University based global/local radio television project (5859)</b> Ignacio Despujol Zabala; Antonio Hervás Jorge; Amparo Carbonell Tatay (Spain)
10:30am	<b>Should design codes still be taught in engineering courses? (2982)</b> Leung C F (Singapore)

**Thursday, 24th July 2003** **Area 7: University – Industry Collaboration Programs – e.g. Short/Modular Courses for Industry & Professional Development**

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<b>Room S04</b>	<b>Chair: G. S. Kochhar</b>
9:00am	<b>Industrial Affiliates Program At Uprn: An Undergraduate Research Program (6572)</b> Colom Ustáriz José; Manuel Toledo-Quiñones (USA)
9:15am	<b>Combining Undergraduate Research and Industrial Practice: A successful Approach to University Industry Relationship (5179)</b> Rogelio Palomera-Garcia (USA)
9:30am	<b>A Space Engineering Summer School for European students: Training on a Real Space Project (5275)</b> Amalia Ercoli Finzi; Franco Bernelli Zazzera; Marco Molina; Giovanni Annoni; Luigi Crocco; Giuseppe Danilo Morea (Italy)
9:45am	<b>Report: A Capstone Project involving 100 Students, for an Industrial Partner (2403)</b> Daniel Stearns; Clark Turner; John Dalbey (USA)
10:00am	<b>HP and Higher Education - Partners for the Long Haul (3853)</b> Dan Marcek; Wayne Johnson (USA)
10:15am	<b>Integrating Software Competences and Managerial Skills from Humanistic Background: a case study on University-Industry Higher Education Programs (5500)</b> Emilio Bellini; Gerardo Canfora; Gioia Panza; Aaron Visaggio (Italy)
10:30am	<b>From skilled worker to an engineer (4366)</b> Per Inge Norbech (Norway)



**Thursday, 24th July 2003**

**Area 8: Educational Robotics**

**Room “Salón  
de Grados”**

**Chair: David J. Ahlgren**

- 9:00am      **A Project-based Approach to Learning Digital Logic Design using Simple Mobile Robots (5783)**  
Ashraf Saad (USA)
- 9:15am      **BRiCS - An Indian Experiment in Educational Robotics (4939)**  
Nikhil Sinha; Amitabha Mukerjee (India)
- 9:30am      **Learning through Explorations in Robot Sensing and Navigation (2069)**  
David Ahlgren (USA); Igor Verner (Israel)
- 9:45am      **A Modular Educational Robotic Toolbox to Support University Teaching Efforts in Engineering (4671)**  
Uwe Gerecke; Bernardo Wagner; Patrick Hohmann (Germany)
- 10:00am     **Robot Manipulations and Development of Spatial Imagery (2153)**  
Igor Verner (Israel)
- 10:15am     **A multimedia environment for teaching and learning robotics systems (5718)**  
José Celso Freire Junior; Rodrigo Azevedo Neves; Ricardo Bispo Kina (Brazil)
- 10:30am     **A Hands-On Approach in Teaching Programming Skills using the MARCO Robot Device (2331)**  
Efthimios Malliris (UK)
- 10:45am     **Computer supported educational robotics in a collaborative distance learning context (1676)**  
Sebastien George (France)
- 11:00am     **Robot Project as an Engineering Practice in ABU Robot Contest (1718)**  
Hiroshi Iino (Japan)

**Thursday, 24th July 2003**

**Area 15: Integration of Languages in the Engineering Curriculum**

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<b>Room “Japón”</b>	<b>Chair: David Perry</b>
9:00am	<b>Bridging the gap between traditional classroom materials and Internet-based learning resources for telecommunications engineering (4093)</b> María Carbonell Olivares (Spain)
9:15am	<b>Scientific Poster in ESP Curriculum for PhD Candidates (4611)</b> Emilia Mironovova (Slovakia)
9:30am	<b>A software application for text analysis (4356)</b> Keith Stuart (Spain)
9:45am	<b>English Language Courses for Engineering Students in European Universities (5127)</b> David Perry; Marisa Carrió (Spain)
10:00am	<b>A Combined Course in Engineering, Languages and Business (6081)</b> Des Jenkinson; Colin McKie (United Kingdom)
10:15am	<b>French for five engineerings: cooperation and interaction practices (5658)</b> Brisa Gómez Ángel (Spain)
10:30am	<b>SPEKTRUM - a Project Awarded the European Label for Innovative Initiatives in Language Education (4624)</b> Juraj Mistina; Emilia Mironovova (Slovakia)

**Area 13: New Learning Environments – e.g. Problem-Based  
Learning in Engineering Education**

**Thursday, 24th July 2003**

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<b>Room “Marcela Miró”</b>	<b>Chair: Vaclav Roubicek</b>
9:00am	<b>teleWISE: Online Process-Oriented Mathematics Learning for Engineering Courses (3251)</b> Jörn Loviscach; Barbara M. Grüter; Thomas Risse; Heide-Rose Vatterrott; Ulrike Wilkens (Germany)
9:15am	<b>Development of an it-based visualization classroom for enhanced engineering learning (4338)</b> Tara Hutchinson; Falko Kuester; Sung-Jin Kim; Rui Lu (USA)
9:30am	<b>Factors Influencing the Successful Implementation of Videoconferencing in Instructional Settings (1851)</b> Nai-Cheng Ou; Fu-Yun Yu (Taiwan); Luann Hinker (USA)
9:45am	<b>Technological challenges on Satellite Virtual Classrooms: the TELDE Project (5299)</b> Carlos Turró; Miguel Ferrando; Manuel Jiménez López; Meira Jovana Aguas Triana (Spain)
10:00am	<b>Web-based training system of automation (5608)</b> Jussi Horelli; Matti Väänänen (Finland)
10:15am	<b>Strategies for Development of Web-Based Engineering Case Studies (4478)</b> Donald Falkenburg; Diane Schuch Miller (USA)
10:30am	<b>The Development of a Multimedia Based Learning Environment for Manufacturing Systems Engineering Students (903)</b> Des Tedford; Martin McCarthy; Rainer Seidel (New Zealand)
10:45am	<b>Expert System for e-Training (3160)</b> Jitendra M More Jitendra; Ajit M More Ajit (India)

**Area 11: Workshop: Manpower Development and Business  
Infrastructure Construction for High-Tech Industry  
Area 18: Higher Education, Local Needs, and Low-cost Design  
Projects in Developing Countries**

**Thursday, 24th July 2003**

<b>Room S01</b>	<b>Chair: Wei-Chung Wang and Ali Khounsary</b>
12:00noon	<b>Nurturing Human Resource for SoC Design in Taiwan (3673)</b> Chein-Wei Jen (Taiwan)
12:15pm	<b>From Invention to Industrial Competitiveness: Building Business Infrastructure for Inventors' Innovation in Taiwan (3921)</b> Hui-Yun Yu; Chyuan-Yuan Wu (Taiwan)
12:30pm	<b>Preparing a Skilled Work Force in Engineering, Science and Technology a Tri-fold Approach (4888)</b> Thomas Juliano; Ronald Rockland; Joel Bloom; George Gonzalez (USA)
12:45pm	<b>Manpower Development of the Opto-Mechatronics Education Program for Optoelectronic Industry in Taiwan (2932)</b> Jeng-Ywan Jeng; An B. Wang; L. S. Huang; C.K. Lee; Ming Chang (Taiwan)
13:00pm	<b>Integrated system for the support of teaching, design and manufacturing of antennas (4701)</b> Olivier Vidémé Bossou; Juan Ramon Mosig (Switzerland); Emmanuel Tonye (Cameroon)
13:15pm	<b>Cost-Effective Multi-User Micro Avionics System Laboratory (MASL) Project (1411)</b> Tzong-Shyng Leu; Yei-Chin Chao; Yun-Che Wen; Yu-Jane Wu (Taiwan)
13:30pm	<b>Open forum discussion: A Road Map for the Future.</b> Moderator: Ali Khounsary (USA)

**Area 12: Workshop: Coalition Between Industry and Academia  
Toward Enhancing Engineering Education and Research**

**Thursday, 24th July 2003**

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<b>Room S02</b>	<b>Chair: Tim Anderson</b>
12:00noon	<b>A NICE-Program to Promote Communications Engineering Education in Taiwan (2180)</b> Jin-Fu Chang; Shyue-Win Wei (Taiwan)
12:15pm	<b>NICE- Report From the Task Force of Wireless Transmission and Networking (3438)</b> Wen-Thong Chang; Yu-Te Su (Taiwan)
12:30pm	<b>The Communication Device Project in the NICE program (2547)</b> Hue-Ming Hsin; Yi-Jen Chan (Taiwan)
12:45pm	<b>A Teaching Enhancement Program for Broadband Networks (3065)</b> Nen-Fu Huang; Wei-Kuan Shih (Taiwan)
13:00pm	<b>A Real-time Electromagnetic Analysis of Electric Machines for Educational Purposes and Laboratory Implementation (1818)</b> O. A. Mohammed; Jorge Castro; Abd A. Arkadan (USA)
13:15pm	<b>An Innovative Teaching Program for Network Applications and Services (2894)</b> Ren-Hung Hwang; Chung-Ming Huang (Taiwan)
13:30pm	<b>Reform Program for Optical Communications System Education in Taiwan (3013)</b> San-Liang Lee; Hen-Wai Tsao (Taiwan)
13:45pm	<b>The Role of University in the Development of Shipping Industry, Education and Training of Seafarers (4221)</b> Josip Orovic; Enco Tireli (Croatia)

**Area 13: New Learning Environments – e.g. Problem-Based Learning in Engineering Education**

**Thursday, 24th July 2003**

<b>Room “Marcela Miró”</b>	<b>Chair: Alberto Lozano</b>
12:00noon	<b>Project-Based Learning in Engineering Education: an approach used by Monash University Malaysia (1596)</b> Kok-Soo Teoh (Malaysia)
12:15pm	<b>An innovative proposal for the Industrial Computer (6064)</b> Houcine Hassan Mohamed; Juan Vicente Capella Hernández; Angel Perles Ivars; Juan Miguel Martínez Rubio; Carlos Domínguez Montagud; José Albaladejo Meroño (Spain)
12:30pm	<b>Problem-based Learning: Computer Programming for Engineers in the Internet Age (4284)</b> Marilyn Smith; Narayanan Komerath (USA)
12:45pm	<b>Notebook-Seminar (2439)</b> Marc Krueger; Klaus Jobmann; Kyandoghere Kyamakya; Silke Feldmann (Germany)
13:00pm	<b>A Comprehensive Model for Student Design Team Formation and Performance in the Engineering Classroom (5571)</b> Stephanie Adams; Gul Okudan (USA)
13:15pm	<b>Model for the main engine problem based training for marine engineering students (2898)</b> Vedran Jelavic; Zeljko Kurtela (Croatia)
13:30pm	<b>Towards Integrating Research and Education Using "Internal Internships" (4129)</b> Jordan Berg; Mark Holtz; Y. Su; R. Bunuan; Shubhra Gangopadhyay; Jennifer Wilhelm; T. Dallas; R. Gale; Lauren Gollahon; H. Temkin (USA)
13:45pm	<b>Teaching Advanced Programming Concepts in Introductory Computing Courses: A Constructivism Based Approach (5045)</b> Kleanthis Thramboulidis (Greece)

**Thursday, 24th July 2003**

**Area 14: Integration of Basic Sciences in Engineering**

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<b>Room S03</b>	<b>Chair: Kenneth Hill</b>
12:00noon	<b>Integration of the Basic Sciences and Engineering through Nanotechnology (1048)</b> Mel Mendelson; Rafiq Noorani; Gary Kuleck; James Roe; Jeff Sanny; John Bulman (USA)
12:15pm	<b>Distance Learning: Teaching Probability and Statistics to Petrochemical Engineering Students (5437)</b> Lori Viali (Brazil)
12:30pm	<b>Using image processing and visualisation to teach object oriented programming in C++ (3600)</b> Cecilie Rolstad (Norway)
12:45pm	<b>Mathematica: A powerful tool in engineering mathematics classrooms (4602)</b> Macarena Trujillo Guillén (Spain)
13:00pm	<b>Calculus for Engineers: An Applications Approach (4607)</b> Igor Verner; Shuki Aroshas; Avraham Berman (Israel)
13:15pm	<b>New perspectives of engineering graphics as international language (3830)</b> Lidia Zakowska (Poland)
13:30pm	<b>A Pedagogical Approach to the Mathematical Basis of the Finite Element Method (4139)</b> Sebastian F. Colomar; Lucas A. Jodar (Spain)
13:45pm	<b>Understanding Partial Differential Equations (4149)</b> Sebastian F. Colomar (Spain)
14:00pm	<b>Knowledge, perception and representation in engineering graphics (2423)</b> Ion Stiharu; Muthukumaran Packirisamy; Subhash Rakheja (Canada)

**Thursday, 24th July 2003**

**Area 15: Integration of Languages in the Engineering Curriculum**

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<b>Room S04</b>	<b>Chair: Ana Gimeno Sanz</b>
12:00noon	<b>Building good engineering vocabulary : adopting technical terms in non-English speaking countries (1790)</b> Frode Eika Sandnes (Norway); H-L Jian (Taiwan)
12:15pm	<b>An Innovated ESP Course in Reading Skills for Technical Students- Tertiary Education (4068)</b> Marcela Borecká (Czech Republic)
12:30pm	<b>Teaching Technology-Based Translation (2536)</b> Archana Hinduja (Canada)
12:45pm	<b>Use of new teaching strategies in learning foreign languages (2554)</b> Yuliya Sobol (Ukraine)
13:00pm	<b>English for Engineering - a model for improving professional prospects of placement (3142)</b> Donald Baerg (Germany)
13:15pm	<b>Theoretical considerations in creating a language learning web-delivered authoring tool (3716)</b> Ana Gimeno (Spain)
13:30pm	<b>What do they actually need? (4064)</b> Dagmar Malíková (Czech Republic)



**Area 16: International Cooperation and Student and Staff  
Exchange Programs**

**Thursday, 24th July 2003**

<b>Room “Salón de Grados”</b>	<b>Chair: Melvyn K. L. Dodridge</b>
12:00noon	<b>International Collaboration in Teaching Science and Engineering in English (1938)</b> Bland Tomkinson; Angus McDougall (United Kingdom); Xinyu Yang (China)
12:15pm	<b>Optoelectronics Workshops: A Triple Alliance of Concepts and Experiences (5750)</b> Joe Allen (United Kingdom); Heinz Döring (Germany)
12:30pm	<b>The Continuing Globalization efforts of the Purdue Aviation Technology Department: The China Experience (977)</b> Ronald Sterkenburg; David L. Stanley; James E. Lampe (USA)
12:45pm	<b>Student Exchange Programs (Academic, Practical Placements) in Europe (1723)</b> Peter Moson (Hungary)
13:00pm	<b>An Undergraduate/Graduate Research Collaboration Between Umass And Upm (6571)</b> Jose G. Colom (USA)
13:15pm	<b>TELDE: Tele Education for Development (4461)</b> Miguel Ferrando; Vicent M. Rodrigo; Carlos Turró; Manuel Jiménez; Mariano Baquero; Alejandro Valero (Spain)
13:30pm	<b>Translation of Credits and Grades in Student Exchange programs: The experience of an Istitution cooperating with three other Institutions with different Credit and Grading system (2281)</b> Marios Kassinopoulos (Cyprus); Melvyn Dodridge (UK)
13:45pm	<b>The Bologna Declaration put into practice by the creation of the Thematic Network Eegecs (European Education In Geodetic Engineering, Cartography And Surveying) (4081)</b> Inma Tomás Estellés; Francisco García García (Spain)

**Thursday, 24th July 2003**

**Area 3: Sharing Online Laboratories and Their Components**

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**Room "Brest"**

**Chair: Michael Hoffmann**

12:00noon

**On-line experimentation and simulation in a signal processing virtual laboratory (3362)**

Mihaela Albu (Romania); Keith Holbert (USA); Florin Mihai (Romania)

12:15pm

**Animations for a Computer Networks Course - Practice and Experience (4227)**

Rainer Oechsle (Germany)

12:30pm

**A Web-Accessible Heat Exchanger Experiment (5801)**

Clark Colton; Marc Knight (USA); Richard West (UK); Sarah Ibrahim (USA)

12:45pm

**A Web-based remote design laboratory with modelling machine (2941)**

Tatsuya Kikuchi; Shuichi Fukuda; Hideyoshi Yanagisawa; Keizou Nagaoka; Takashi Kenjo (Japan)

13:00pm

**LabomatWeb: A Web laboratory based on Reconfigurable Computing Technology (3025)**

Francisco J. Gomez; Ivan Gonzalez; Ruben Cabello; Javier Martinez (Spain)

**Area 6: Technology and Society: Engineering Education in the Age  
of Digital Technology and Globalisation**

**Thursday, 24th July 2003**

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<b>Room "Japón"</b>	<b>Chair: Borek Sousedik</b>
12:00noon	<b>The Digital Economy and the "Rise of Knowledge Workers" (3713)</b> A. Raj Chowdhury; Mahbub Uddin (USA)
12:15pm	<b>Working in the dark (5724)</b> John Monk (UK)
12:30pm	<b>Directions and Challenges in Engineering Education under Complex Approach towards Knowledge Society (3935)</b> Clara Amelia de Oliveira (Brazil)
12:45pm	<b>Globalization: Meanings, challenges and opportunities for engineering education (969)</b> Juan Lucena (USA)
13:00pm	<b>Engineering and Society: Developing and Applying a Scholarship of Practice (2787)</b> Stephen Johnston (Australia)
13:15pm	<b>Broadening the Engineering Curriculum and Infrastructure (3161)</b> John Uhran, Jr; Eugene Henry (USA)
13:30pm	<b>Optical imagery in mystery of an uncertainty V. Vision Communication or From "Guess what you get" to "What you see is what you get" (1285)</b> Borek Sousedik (Czech Republic)
13:45pm	<b>Multidisciplinary Education for the Professions that Underpin Environmentally Sustainable Infrastructure in a Modern Regional Economy: the case of South Australia (3913)</b> Robin King (Australia)

**Area 5: Distance Learning and Autonomous Self-Access Learning  
– e.g. Innovative Web-based Teaching Strategies and Tools**

**Friday, 25th July 2003**

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<b>Room S01</b>	<b>Chair: Vittal Rao</b>
9:00am	<b>A Debate on Protecting the Intellectual Property of Teaching and Learning Objects (4614)</b> Ian Benest; Dale Taylor (UK)
9:15am	<b>Evaluating Quality in Computer-Enhanced Learning Materials in Engineering Education (5875)</b> Joseph Tront; Brandon Muramatsu; Flora McMartin (USA)
9:30am	<b>Wireless Enabling Education and Research Activities (3301)</b> Henry Jerez; Ramiro Jordan; Johann Van Reenen; Christos Christodoulou; Chaouki Abdallah (USA)
9:45am	<b>Tele-Interactive Teaching for Distance Learning /e-Education (1568)</b> Sew-Ming Low (Malaysia)
10:00am	<b>JFMoD: a new System for Media on Demand Presentations on Education (5122)</b> Ángela Belda; Juan José Cermeño; Juan Carlos Guerri; Ana Pajares; Carlos Palau (Spain)
10:15am	<b>A virtual verification and execution of Grafcet by using VRML (6077)</b> Mohamed Mhamdi; Mohamed Moalla (Tunisia)
10:30am	<b>Training teachers for non-presential university studies (5866)</b> Ana Celia Tarazona Tornero; Antonio Hervás Jorge; Enrique de Miguel Fernández; Rafael J. Villanueva Micó (Spain)
10:45am	<b>Mobile phones in the lecture theatre - Using wireless technology as a pedagogical aid (3988)</b> Frode Eika Sandnes; Olav Talberg (Norway)

**Area 7: University – Industry Collaboration Programs – e.g.  
Short/Modular Courses for Industry & Professional Development**

**Friday, 25th July 2003**

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<b>Room S02</b>	<b>Chair: Edward Chikuni</b>
9:00am	<b>Introduction of Student Mentors into a programme of Industry Linked Projects (1367)</b> Peter Willmot (UK)
9:15am	<b>Chipskills Project - A Unique Partnership Between University, Industry and Government (2543)</b> Jugdutt Singh; Akhtar Kalam (Australia)
9:30am	<b>Integrated Product and Process Design: Current Practices and Future Directions (3492)</b> R. Keith Stanfill; Suleyman Tufekci (USA)
9:45am	<b>The Pharmaceutical Engineering Program at NJIT: a Working Example of Industry-University Collaboration in a Novel and Fast-Growing Engineering Field (3821)</b> Piero Armenante; Joseph Manfredi (USA)
10:00am	<b>Student's Participation in Industrial Research Projects (4301)</b> Fred Awad (Canada)
10:15am	<b>Highly Automated Manufacturing System (HAS-200) to meet the Challenges of the 21st Century (5550)</b> Lakshmi Munukutla (USA)
10:30am	<b>Industry-based Engineering Education in a Small Island State (5843)</b> Clement Imbert; Gurmohan Kochhar (Trinidad and Tobago)

**Friday, 25th July 2003**

**Area 9: Engineering Education in Developing Countries**

<b>Room S03</b>	<b>Chair: Luiz Scavarda</b>
9:00am	<b>The Regional Conferences and Engineering Education - The IAS (4722)</b> Luiz Carlos Scavarda do Carmo; Marcos Azevedo da Silveira; Jorge Dalledonne; Luiz Antonio Gargione; Heitor Gurgulino de Souza (Brazil); Oswaldo Micheloud (Argentina); Teofilo Tramos (Mexico); Lueny Morell; Tim Anderson (USA)
9:15am	<b>Internatinal Collaborations in Engineering Education: Some opportunities and Challenges (4404)</b> Gajanana Prabhu-Gaunkar (India)
9:30am	<b>Improving the engineering education for ethnic minorities in Norway: a study of the situation at Oslo University College (1510)</b> Ann Mari Torvatn; Frode Eika Sandnes (Norway)
9:45am	<b>The Paradigm of Civil Engineering Education within the Colombian Context (1114)</b> Silvia Caro Spinel (Colombia)
10:00am	<b>Engineering students as educational researchers: a case of group mediation (3247)</b> Ernandes Rocha de Oliveira; Zulind Luzmarina Freitas; Lizete Maria Orquiza de Carvalho (Brazil)
10:15am	<b>Implementing a web-based e-learning environment for Electrical &amp; Computer Engineers (5213)</b> Konstantinos Markellos; Nicholas Avouris; Konstantinos Goutis; Penelope Markellou; Athanasios Tsakalidis (Greece)

**Friday, 25th July 2003**

**Area 10: Teaching of Ethics in Engineering**

**Room “Salón de Grados”**

**Chair: Vojislav Ilic**

9:00am

**Sustainability and ethics (2046)**

Vojislav Ilic (Australia)

9:15am

**Engineering and philosophy. Insertion of social and anthropological contents (5675)**

Francisco Mata Cabrera (Spain)

9:30am

**Decision-Making: A flaw in engineering education? (5192)**

Rogelio Palomera-Garcia (USA)

9:45am

**The Formation of Ethical Criteria for the sociable responsible engineer (5588)**

Alessandro La Neve; Marly Pirozelli N.Silva (Brazil)

10:00am

**Ethical Responsibility in Engineering: A fundamentation and Proposition of a Pedagogic Methodology (4776)**

J. Félix Lozano (Spain)

10:15am

**A course in computer ethics for engineering students (3583)**

Cecilie Rolstad (Norway)

10:30pm

**Experiences Teaching Profession Ethics to Chemical Engineering Students (2050)**

David Shallcross (Australia)

10:45pm

**Developing Teaching Methods for an Engineering Ethics Curriculum (2655)**

Keita Sugihara (Japan)

**Area 12: Workshop: Coalition Between Industry and Academia  
Toward Enhancing Engineering Education and Research**

**Friday, 25th July 2003**

<b>Room "Brest"</b>	<b>Chair: Radim Farana</b>
9:00am	<b>A Concept for Minerals Engineering Education and Research in Cooperation with Industry (3655)</b> Paul Chugh; Satya Harpalani (USA)
9:15am	<b>From 'Seat of the Pants' to CAE for Injection Molding: The Formation of a Technological Paradigm in Taiwan (1810)</b> Chyuan-Yuan Wu (Taiwan)
9:30am	<b>An Evaluation on the Education Reform Program in Precision Machine Technology Promoted through Strategic Alliance (2665)</b> C. K. Sung; Wei-Chung Wang (Taiwan)
9:45am	<b>A model for synergistic interaction between industry and universities with a focus on undergraduate education (4852)</b> Stephanie Farrell; Mariano Savelski; James A. Newell; Robert Hesketh; C. Stewart Slater (USA)
10:00am	<b>Weaving Close Bonds: The TFE Georgia Tech Industry Student Mentoring Program (4674)</b> Mary Lynn Realff; Joseph Hoey (USA)
10:15am	<b>GENERATOR, an entrepreneurship program for college students in Norway (5535)</b> Bjørn Gittle Hauge; Bjørn Winther Johansen (Norway)
10:30pm	<b>Østfold Innovation Ltd. Development and Implementation of a business incubator at the Østfold College of Engineering, Norway (5512)</b> Bjørn Gittle Hauge (Norway)
10:45pm	<b>Design Research and Design Education connected by Design Management (4800)</b> Gabriel Songel (Spain)



**Area 13: New Learning Environments – e.g. Problem-Based  
Learning in Engineering Education**

**Friday, 25th July 2003**

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<b>Room “Marcela Miró”</b>	<b>Chair: Peter Lee</b>
9:00am	<b>Using Handheld Devices as Alternatives to Inspire Students Innovation in Designing New Information Technology (4057)</b> Yo-Ping Huang; Tsun-Wei Chang (Taiwan)
9:15am	<b>New Methodology on Circuit and Electronic System Design (5181)</b> Joaquin Cerdá Boluda; Rafael Gadea Gironés; Miguel Angel Larrea Torres; Ricardo Jose Colom Palero; Marcos Martínez Peiró (Spain)
9:30am	<b>Interactive applets for introductory courses on Computer Architecture (4963)</b> Alberto González; Juan Carlos Martínez (Spain)
9:45am	<b>Improving Civil Engineering Education Using Structured Digital Content (3317)</b> Sean Wolfgang Matsui Siqueira (Brazil); Maria Helena Lima Baptista Braz (Portugal); Rubens Nascimento Melo (Brazil)
10:00am	<b>Model of teaching of environmental engineering and energy engineering at Silesian University of Technology at Gliwice, Poland (1347)</b> Ryszard Kazimierz Wilk (Poland)
10:15am	<b>Synchronized specification of adaptive multimedia documents in Smart-learning (5457)</b> Youssef Belqasmi (Morocco)
10:30pm	<b>New Method of University Education in Physics via Internet (5228)</b> Miroslava Ozvoldova (Slovakia)
10:45pm	<b>Teachers - Students - Industry: Inspired by reality (5041)</b> Birte J. Sjursnes; Steinar Hurrød (Norway)
11:00pm	<b>Project/problem based learning in civil engineering in the university of Castilla La Mancha (Spain) (5641)</b> Jose Maria Coronado; Jose Maria de Ureña; Jose Maria Menéndez (Spain)

Friday, 25th July 2003

Area 4: Advances in Control and Signal Processing Education

Room "Japón"	Chair: Jerzy Moscinski
9:00am	<b>Learn2Control: A System for Project-Oriented Learning in Control Engineering Education (2882)</b> Andreas Liefeldt; Marten Völker; Kai Dadhe; Sebastian Engell; Christian Schmid (Germany)
9:15am	<b>Innovative didactic concepts and tools for system dynamics and control (5265)</b> Herman Mann; Michal Sevcenko (Czech Republic)
9:30am	<b>Integration of Control and DSP for Vehicle Navigation System with GPS/INS/GSM Modem Linking (1310)</b> Lin Jium-Ming (Taiwan)
9:45am	<b>Soccer-playing robots for advanced control course teaching (3459)</b> Israel Muñoz; Ningsu Luo; Josep Lluís De la Rosa (Spain)
10:00am	<b>Teaching Digital Signal Processing with Matlab and DSP Kits (5546)</b> Alessandro La Neve (Brazil)
10:15am	<b>Active Learning Environments for automatic control courses (1037)</b> Alain Gauthier; Mauricio Duque (Colombia)
10:30pm	<b>Design, Development and Evaluation of a Low Fidelity Web-based Simulation to Support Process Control Education (4959)</b> Gilles Doiron; Rajagopalan Srinivasana; Melvyn Song (Singapore)
10:45pm	<b>Internet Technologies in Adaptive Control Teaching (5114)</b> Jerzy Moscinski (Poland)



# Posters

## (Numerical order)

### Area 1: Assessment of Student Learning

#### **942-Student Usage of Supplemental Study Materials**

Edsard Anderson (United States of America)

Roman Taraban (United States of America)

M .P. Sharma (United States of America)

#### **1067-On-Line Assessment of Student Daily Work**

Vladimir Zakharov (Russian Federation)

#### **1103-One Minute Professor and Continuous Program Improvement**

Swami Karunamoorthy (United States of America)

#### **1552-Transformation of the Teaching Methodology in a Laboratory Course of the**

Industrial Biotechnology Curriculum in Response to the Student Profile

Lorenzo Saliceti-Piazza (United States of America)

Rosa Buxeda (United States of America)

Juan López-Garriga (United States of America)

Ruth Pietri (United States of America)

Evys Collazo (United States of America)

#### **1752-Dilemma: Who is Responsible for a Student's Performance?**

Romanas Krivickas (Lithuania)

Brunonas Dekeris (Lithuania)

#### **1793-Successful Strategies for the Incorporation of Remote Sensing and Geographical Information Systems Technology into the Freshman Year Experience for STEM Students**

Rosa Buxeda (United States of America)

Luis Olivieri (United States of America)

**4432-Searching for the Optimal Curriculum of Telecommunication**

Engineering Graduates

Jaromir Hrad (Czech Republic)

Tomas Zeman (Czech Republic)

Jiri Vodrazka (Czech Republic)

**4633-The quantum jumps of the learning**

Carlos Corrêa (Brazil)

Elizabeth Rodrigues (Brazil)

Miriam Pacheco (Brazil)

Fernando Corrêa (Brazil)

Geny Corrêa (Brazil)

**5162-One experience as tutor at the Industrial Engineering School of Valencia**

M. Carmen Juan-Lizandra (Spain)

**5354-The process of learning the Methodology of the Design in engineering**

Guillermo Filiponne (Spain)

Alberto López (Spain)

Rafael Orihuela (Spain)

**5467-Learning and teaching improvement by students participation in class**

Nicolas Laguarda Miro (Spain)

Antonio D. Rodríguez López (Spain)

José García Garrido (Spain)

Esperanza García Castelló (Spain)

**5601-Visualization of the operation of electric machines with the program 3dmax study**

Elias Hurtado Perez (Spain)

**5678-A new assessment model of student learning for the Industrial Computer**

Networks discipline

Juan Vicente Capella Hernández (Spain)

Rafael Ors Carot (Spain)

**Area 2: Workshop: Convergence of International Higher Education Programs. Implementing the Bologna Declaration**

**3226-Engineering Education Trends in Globalization Era and Post- USSR Countries**

Place in Education Problems

Alexander Makarenko (Ukraine)

**6609-Analysis of the situation of the “Higher Technical School of Geodesy, Cartography and Surveying in Valencia” towards its way to the European dimension of Higher Education.”**

Israel Quintanilla (Spain)

Francisco Garcia (Spain)

Manuel Chueca (Spain)

### **Area 3: Sharing Online Laboratories and Their Components**

#### **997-Electronic Business Excellency Center - An International Resource Center Advancing Theoretical and Technical EB Education**

Jiang-Liang Hou (Taiwan)

Amy Trappey (Taiwan)

#### **3171-eMerge: An European educational network for dissemination of online laboratory experiments**

Javier Martinez (Spain)

Tor A. Fjeldly (Norway)

Francisco Gómez (Spain)

Kjell Jeppson (Sweden)

Thomas Zimmer (France)

Herman Mann (Czech Republic)

Michel Billaud (France)

Nikolaos Asimopoulos (Greece)

Didier Geoffroy (France)

Zoltan German-Sallo (Romania)

Hans Effinger (Germany)

Ruben Cabello (Spain)

Wilhelm Seifert (Germany)

Ivan Gonzalez (Spain)

Reinhold S. Jaeger (Germany)

#### **3209-Remote Accessing Laboratories Process Control**

Hamadou Saliah-Hassane (Canada)

Ernesto Cornieles (Venezuela)

Maarouf Saad (Canada)

Guy Gauthier (Canada)

#### **4109-Building Remote Laboratories for Education (Workshop)**

Nils Faltin (Germany)

Andreas Böhne (Germany)

Jörg Tuttas (Germany)

Denis Gillet (Germany)

Lambertus Hesselink (Germany)

Nalin Navarathna (Germany)

#### **4244-An internet-based chemical process control laboratory project**

Valentín Pérez Herranz (Spain)

Anna Igual Muñoz (Spain)

José García Antón (Spain)

Salvador Cardona Navarrete (Spain)

**4293-Virtual microscope application to metallography and materials science**

Fatima Romero Sanchis (Spain)  
David Busquets Mataix (Spain)  
Angel Vicente Escuder (Spain)  
Vicente Amigo Borrás (Spain)  
M.Dolores Salvador Moya (Spain)

**5283-Simulation and virtual lab experiments across the Internet**

Herman Mann (Czech Republic)  
Michal Sevcenko (Czech Republic)

**5837-On-line Optical Microscopy Laboratory for the Characterization of Polymer Crystallization**

Daniel Talavera (United States of America)  
Gregory Rutledge (United States of America)

**7160-A didactic simulator for acquisition data cards in the industrial computer educational innovation project**

Ángel Perles Ivars (Spain)  
Houcine Hassan Mohamed (Spain)  
Juan Vicente Capella Hernández (Spain)  
Juan Miguel Marínez Rubio (Spain)  
Carlos Domínguez Montagud (Spain)  
José Albaladejo Meroño (Spain)

**5330-Low cost equipment for laborato**

Carlos Ricolfe Viala (Spain)  
Raúl Simarro Fernández (Spain)

**5728-On the Utilization of a Decision Tree Concept in Virtual Laboratory Experiments**

Edsard Anderson (United States of America)  
Javad Hashemi (United States of America)

**6365 Integrated Multi-Media with Experiment for Mechanics of Composite materials**

Gwo-Chung Tsai (Taiwan)



#### **Area 4: Advances in Control and Signal Processing Education**

##### **1187-A MATLAB Toolbox for Teaching Model Order Reduction Techniques**

Ali Eydgahi (United States of America)

Jalal Habibi (Iran)

Behzad Moshiri (Iran)

##### **1387-Control and Signal Processing in a Structural Laboratory**

George Pincus (United States of America)

Weining Feng (United States of America)

Alberto Gomez-Rivas (United States of America)

##### **3675-Interdisciplinary teaching in the area of control and management systems**

Radim Farana (Czech Republic)

##### **4730-Simulation and real control of industrial processes in a real-time systems curriculum**

Patricia Balbastre (Spain)

Silvia Terrasa (Spain)

Alfons Crespo (Spain)

##### **5284-Practical Control Engineering Education through Internet**

Ramón Pedro Neco García (Spain)

José María Sabater Navarro (Spain)

José María Azorín Poveda (Spain)

Luis Payá Castello (Spain)

Nicolás García Aracil (Spain)

Carlos PérezVidal (Spain)

##### **5507-Control design tool for algebraic digital controllers**

Ramón Pedro Neco García (Spain)

José María Azorín Poveda (Spain)

Óscar Reinoso García (Spain)

José María Sabater Navarro (Spain)

Javier López de Merlo (Spain)

Nicolás M. García Aracil (Spain)

##### **6252-WCONTROL - Program System for Control Theory Laboratory Education**

Michal Bliznak (Czech Republic)

Dagmar Janacova (Czech Republic)

**Area 5: Distance Learning and Autonomous Self-Access Learning – e.g. Innovative Web-based Teaching Strategies and Tools**

**3543-An Innovative Distance Learning Course on the Introduction of Aviation Technology**

Dar-Yun Chiang (Taiwan)

**3873-Self Learning Guide for Environmental Impact Assessment**

Alfonso Garmendia S. (Spain)

Adela Salvador A. (Spain)

**4428-Smart WWW Portal for Support of Education**

Jaromír Hrad (Czech Republic)

Tomas Zeman (Czech Republic)

**5614-WHURLE - an adaptive remote learning framework**

Adam Moore (United Kingdom)

Mohamed Ramzy Zakaria (United Kingdom)

Tim Brailsford (United Kingdom)

Craig Stewart (United Kingdom)

**5500-Integrating Software Competences and Managerial Skills from Humanistic Background: a case study on University-Industry Higher Education Programs**

Emilio Bellini (Italy)

Gioia Panza (Italy)

Gerardo Canfora (Italy)

Aaron Visaggio (Italy)

**5671-A Collaborative Learning System Based On A Shared Interactive And Virtual Laboratory Practice**

Israel Quintanilla (Spain)

Aurea Gallego (Spain)

Jose Luis Berne (Spain)

**5620 SSIPS - the shared source interactive publishing system**

Adam Moore (United Kingdom)

**5703-Teaching experiences on structural mechanics using interactive didactic tools oriented to the autonomous apprenticeship**

Agustín Pérez-García (Spain)

**6075-An Intelligent learning portal for distance learning**

Yong Lian (Singapore)

Bei Hu (Singapore)

**Area 6: Technology and Society: Engineering Education in the Age of Digital Technology and Globalisation**

**1092-Multimedia teaching for siberian engineers**

Vladimir Konyukh (Russian Federation)

Andrew Mikhaylishin (Russian Federation)

**2088-Introducing the Study of Programmable Logic Devices and Hardware Description Languages in a Technical Industrial Engineering Degree**

Miguel Alcañiz (Spain)

Joaquín Polo Molero (Spain)

Rafael Masot Peris (Spain)

Germán Martínez (Spain)

Almudena Robert Flors (Spain)

**5579-The PI-Plus Engineering Educational System for Special Track Students**

Kwang Sun Kim (Korea)

Man Seong Choi (Korea)

**Area 7: University - Industry Collaboration Programs - e.g. Short/Modular Courses for Industry & Professional Development**

**6327-Development of Innovative 3D Dental Measurement Technique and Manpower for Tooth Model Restoration Through University-industry Collaboration Programs**

Dr. Liang-Chia Chen (Taiwán)

**Area 8: Educational Robotics**

**4738 A PC- based autonomous guided vehicle**

Roberto Guzman (Spain)

Ranko Zotovic (Spain)

**5726 Development of a robotic arm for didactic utilization**

José Celso Freire Junior (Brazil)

Rodrigo Azevedo Neves (Brazil)

Ricardo Bispo Kina (Brazil)

## **Area 9: Engineering Education in Developing Countries**

### **1613-Maximising Learning Opportunities in Kinematic Analysis**

Jacek Uziak (Botswana)

B. Mokgothu (Botswana)

John D.G. Foster (Botswana)

### **1756-Assistant strategy for human resource development in an African country**

Chi-Cheng Chang (Taiwan)

### **2925-An Experience of Teaching Basic Sciences in Engineering in Cuba**

Pedro Fernandez de Cordoba Castella (Spain)

Juan A. Monsoriu (Spain)

Ismael Orquín Serrano (Spain)

Maria del Carmen Acuña Salcedo (Cuba)

Ignacio Estévez Valdes (Cuba)

### **4909 Integral Model for the Education of Electronics Engineers in Mexico**

Edgar Ortiz-Loyola (Mexico)

Luis Miguel Martinez (Mexico)

Bernard Vander Mersch (Mexico)

Santiago Martinez (Mexico)

### **4986 On the search for new teaching-learning strategies in massive classes of industrial engineering**

Ariana Csilino (Argentina)

Daniela Gomez (Argentina)

Sandra Fulgueira (Argentina)

**Area 10: Teaching of Ethics in Engineering**

**3081-An engineering ethical system for engineering education. A project for a framework of analysis and development**

António Betâmio de Almeida (Portugal)

**3947-Engineering Education and Human Development**

Mariana Ruiz Morales (Mexico)

**5289-Ethics criteria in technological learning**

Ma. Àngels Adrià-Casas (Spain)

Ricard Torres-Cámara (Spain)

Pere Surià-Lladó (Spain)

**5931-Ethics and ideology in engineering curricula**

Rui Ferreira (Portugal)

**Area 11: Workshop: Manpower Development and Business Infrastructure Construction for High-Tech Industry**

**2704-VLSI Education Improvement Programs for Technological and Vocational Colleges in Taiwan: Opportunities and Challenges**

Yin-Tsung Hwang (Taiwan)

**3441-The VLSI Circuits and Systems Educational Program in Taiwan**

Yao-Wen Chang (Taiwan)

Liang-Gee Chen (Taiwan)

Chein-Wei Jen (Taiwan)

Man-Chi Lan (Switzerland)



**Area 12: Workshop: Coalition Between Industry and Academia Toward Enhancing Engineering Education and Research**

**1740-The Structure of Academic Research Services from Industries to National Cheng Kung University**

Yun-Che Wen (Taiwan)

**2020-Cultivating senior design projects through internship programs: the nasa-umes experience**

Ibibia Dabipi (United States of America)

Warren Dufrene, Jr. (United States of America)

**2661-Student Han-on Competition in the Design of Medical Mechatronic Systems: Taiwan Experience**

Ming-Yih Lee Lee (Taiwan)

Chung-Hsien Kuo Kuo (Taiwan)

**5116-Adapting university education to the labour market**

Malak Kubessi Perez (Spain)

Arturo Gil Gil (Spain)

Rafael Seiz Ortiz (Spain)

**5142-The opinion of graduate students about their studies at polytechnic university of valencia**

Rafael Desantes Fernandez (Spain)

Jose Carlos Ayats Salt (Spain)

Pedro Zamora Suarez (Spain)

**5147-The professional incorporation process for graduate engineering students at upv**

Rafael Desantes Fernandez (Spain)

Jose Carlos Ayats Salt (Spain)

Pedro Zamora Suarez (Spain)

**5893-Particulate technology in the chemical engineering curriculum at the university of coimbra in Portugal**

Maria Graça Rasteiro (Portugal)

**Area 13: New Learning Environments – e.g. Problem-Based Learning in Engineering Education**

**1022-Organizational Learning- Learning Motivation of employee in Mainland China organization**

Kris Law (China)

K.B Chuah (China)

**1161-Application of the philosophy of quality in the Digital Electronic matter**

Inmaculada Plaza (Spain)

Mariano Ubé (Spain)

Carlos Medrano (Spain)

Alfonso Blesa (Spain)

**1398-An Integrated Class/Laboratory Engineering Technology Program**

George Pincus (United States of America)

Alberto Gomez-Rivas (United States of America)

**3139-Knowledge Based Expert System for On-Line Examination for Deemed University**

Jitendra M More Jitendra (India)

Ajit M More Ajit (India)

**3148-Virtual Laboratory**

Jitendra M More Jitendra (India)

Ajit M More Ajit (India)

**3237-Handheld Computer as a Tool for Interactive Learning in Engineering Courses**

Fernando Rios-Gutierrez (United States of America)

Rocio Alba-Flores (United States of America)

**3469-Education for learning**

Andrés Boza García (Spain)

Maria del Mar Eva Alemany Díaz (Spain)

Llanos Cuenca González (Spain)

Angel Ortiz Bas (Spain)

**3801-A Study of Standardization of Traditional Teaching Materials**

Shian-Shyong Tseng (Taiwan)

Jun-Ming Su (Taiwan)

Chun-Han Chen (Taiwan)

Yu-Chang Sung (Taiwan)

Tong-Hsin Su (Taiwan)

Wen-Nung Tsai (Taiwan)

**4014-From teaching to learning, a new approach in engineering education. The case of thermal and electrical engineering**

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Cristina Alonso Tristán (Spain)

María Jesús González Fernández (Spain)

Fernando Aguilar Romero (Spain)

Montserrat Diez Mediavilla (Spain)

**4035-Cooperative Learning in the Digital Electronics Course at the EPSC-UPC**

Francesc Josep Sánchez-Robert (Spain)

**4050-Multimedia design of self-learning material for a control subject**

Ángel Cuenca (Spain)

Carlos Camiña (Spain)

Julián Salt (Spain)

Enrique Ballester Sarrias (Spain)

**4409-Structural concrete teaching coordination in the formative itineraries of the integral civil engineering study plan at the Polytechnic University of Valencia**

J.R. Martí Vargas Jose (Spain)

J.L. Bonet Senach José Luis (Spain)

M.C. Castro Bugalloegori Carmen (Spain)

Juan Navarro Gregori Juan (Spain)

M.A. Fernández Prada Miguel Ángel (Spain)

Pedro F. Miguel (Spain)

**4425-Use of active methodologies and evaluation system improvements in structural concrete teaching within the framework of the Polytechnic University of Valencia Europe's project**

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**4570-An educational MATLAB based software for a better understanding of Radio Frequency Modulations**

David Moratal-Pérez (Spain)

Antonio Cebrián (Spain)

Francisco Castells (Spain)

José Millet-Roig (Spain)

Francisco José Mora-Mas (Spain)

**4780-Insights and experiences using groupal techniques in engineering education**

Julian Garza (Spain)

Ignacio Orero (Spain)

Joaquin Gonzalez (Spain)

**5082-The lecturer-tutor experience in the higher technical school of civil engineering of UPV**

Miguel Angel Eguibar Galán (Spain)

Ester Giménez Carbó (Spain)

Ramón Bellido Boda (Spain)

**5121Development of the Undergraduate Mechanical Design and Practice Curriculum**

Shean-Juinn Chiou (Taiwan)

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**5208Web-Based Models of University Training for Teachers of Science and Technical Subjects**

Martin Bilek (Czech Republic)

Antonin Slaby (Czech Republic)

Pavel Cyrus (Czech Republic)

**5259-Proposal of a new academic frame for the civil engineering education in construction safety and health**

Eugenio Pellicer Armiñana (Spain)      Leopoldo J. Jordá Guijarro (Spain)  
José Bernardo Serón Gáñez (Spain)  
Joaquín Catalá Alís (Spain)

**5383-The importance of the final year project as a way of completing an education in engineering**

J. Javier López (Spain)      Pablo Olmeda (Spain)  
Bernardo Tormos (Spain)      Carlos Guardiola (Spain)  
José M. García (Spain)

**5449-Integration of WebLab Systems in Engineering Studies**

Juan Ignacio Larrauri (Spain)  
Javier García (Spain)  
Evaristo Kahoraho (Spain)

**5597-Adaptive Teaching for Large Class**

Yong Lian (Singapore)

**5764-Educational Innovation in Industrial Computer Networks discipline: A learning oriented methodology**

Juan Vicente Capella Hernández (Spain)  
Rafael Ors Carot (Spain)

**5985-Virtual University as a New Learning Environment**

Eva González Romera (Spain)      Enrique Romero Cadaval (Spain)  
Diego Carmona Fernández (Spain)  
Juan Antonio Álvarez Moreno (Spain)

**6085-Art And Engineering: Interdisciplinarity in Education and Industry**

Maria Carmen Ontiñano (Spain)      Claudio Benavent (Spain)  
Pedro Fuentes (Spain)  
Hugo Merle (Spain)

**6240-APRENDER – Educational Software**

Leydier Argüelles Torres (Cuba)

#### **Area 14: Integration of Basic Sciences in Engineering**

##### **1492-Computer simulations in quantum physics**

Pedro Fernandez de Cordoba Castella (Spain)

Juan A. Monsoriu (Spain)

Javier Urchueguia Scholzel (Spain)

Ismael Orquín Serrano (Spain)

##### **2261-Computer Aided Laplace Transforms Calculus**

Luis M. Sánchez Ruiz (Spain)

Matilde Pilar Legua Fernández (Spain)

José Antonio Morano Fernández (Spain)

##### **2365-Didactic materials to introduce Measurement Techniques for Noise and Musical Vibrations**

Erika Macho-Stadler (Spain)

Maria Jesus Elejalde-Garcia (Spain)

Jesus Janariz-Larumbe (Spain)

Angel Franco-Garcia (Spain)

##### **3073-An Application of Design and Teaching Method on the Platform-Based SOC Design System**

Yu-Wen Chu (Taiwan)

##### **3451-An online laboratory in Optical Instrumentation: The Compound Microscope**

Carlos Javier Zapata-Rodríguez (Spain)

Amparo Pons (Spain)

Manuel Martínez-Corral (Spain)

##### **4251-An application of matrix diagonalization in engineering: stress matrix**

Antonio José Jiménez Mocholí (Spain)

Fernando Giménez Palomares (Spain)

Paz Arroyo Jorda (Spain)

##### **4453-The Importance of the Integration of Knowledge: A Brazilian Project in a Curriculum of Chemical Engineering**

Rubem Mário Figueiró Vargas (Brazil)

Gerti Weber Brun (Brazil)

**4819-Optical interference and diffraction laboratory: a practical guide**

Amparo Pons (Spain)

Juan Carlos Barreiro (Spain)

Genaro Saavedra (Spain)

**4840-A simple experimental procedure for the determination of the heat capacity of metals under the premises of a lumped model and natural convection**

Antonio Campo (United States of America)

Graham Spencer (United States of America)

Branimir von Turkovich (United States of America)

**5089-Spreadsheets use in engineering education. An application to analytical chemistry instruction to freshman engineering students**

Gerardo León-Albert (Spain)

José Antonio Cascales-Pujalte (Spain)

Juan Ignacio Moreno Sánchez (Spain)

Enrique Solano-Oria (Spain)

**5295-Science and engineering courses at the Czech universities of technology**

Petr Dub (Czech Republic)

Miroslav Doupovec (Czech Republic)

**5390-Development of didactic material in order to introduce the students into the dangers of the chemical laboratory**

M<sup>a</sup> Teresa Pardo Vicente (Spain)

M<sup>a</sup> Luisa Gabernet Marti (Spain)

M<sup>a</sup> Dolores Esteve Rodriguez (Spain)

Teresa Vidal (Spain)

**5934-Computer Modelling Wave Propagation**

Carlo Cattani (Italy)

Luis M. Sánchez Ruiz (Spain)

**5939-Technology of materials art manufacturing**

Lubov Zhukova (Russian Federation)

**Area 15: Integration of Languages in the Engineering Curriculum**

**1399-Addressing students' needs in foreign language learning for Engineers**

Jesus Garcia Laborda (Spain)

**4088-Multimedia Annotator for Language Learning**

Alexander Nakhimovsky (United States of America)

**4846-MIT-UPV Exchange: A Web-based project for learning language and culture between the MIT and the ETSID of Valencia**

Rafael Seiz Ortiz (Spain)

Enrique Ballester Sarrias (Spain)

Douglas Morgenstern (United States of America)

**4895-Innovation projects for teaching and learning English to engineers at the ETSID of Valencia**

Rafael Seiz Ortiz (Spain)

Marisa Carrió (Spain)

David Perry (Spain)

**4920-Developing academic and critical literacies among English as a Second Language engineers**

Gavin melles (Australia)

**5025-Two Years Teaching Electronics in English: evaluation and results**

Segui Salvador (Spain)

Miguel Alcañiz (Spain)

Trenor Beatriz (Spain)

Salvador Coll (Spain)

Rafael Masot (Spain)



## **Area 16: International Cooperation and Student and Staff Exchange Programs**

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Yuko Hoshino (Japan)

Masakazu Obata (Japan)

L Wayne Sanders (United States of America)

Keiichi Sato (Japan)

### **3134-MENU: Model for a European Networked University for e-learning**

Vicent Miquel Rodrigo Peñarrocha (Spain)

Miguel Ferrando (Spain)

Mariano Baquero Escudero (Spain)

Alejandro Valero Nogueira (Spain)

Carlos Turró (Spain)

### **3187-North-South America Collaboration on Nano-technology Education**

Idalia Ramos (United States of America)

Rogério Furlan (United States of America)

Ana Neilde Rodrigues Da Silva (Brazil)

Jorge J. Santiago Aviles (United States of America)

### **4279-ALFA program - Mobility of students and teachers between Europe and Latin America**

Sampaio Alcínia Zita (Portugal)

Henriques Pedro Gameiro (Portugal)

### **6011-International Cooperation and Innovation in Industrial Chemistry Studies**

Pedro Fuentes Durá (Spain)

Antonio Dobón López (Spain)

Elena Mansilla Díaz (Spain)

### **Area 17: Accreditation and Quality Assessment**

#### **5426-The environmental bet of the Escuela Tecnica Superior de Ingeniería del Diseño**

Esperanza García Castelló (Spain)

Enrique Ballester Sarrias (Spain)

Begoña Chirivella Chulví (Spain)

José García Garrido (Spain)

#### **5634-The education-learning process: Activities of Quality in the formation of Engineers**

Juan Viguri (Spain)

Alberto López (Spain)

Guillermo Filiponne (Spain)

#### **5936-Accreditation: a step ahead in University Quality Management**

Carlos Miguel Rubió (Spain)

Enrique Ballester (Spain)

Pedro Fuentes (Spain)

Rafael Seiz (Spain)

Ricardo Pérez (Spain)

#### **5477-Tutorials for Engeneering students**

Pilar Vélez (Spain)

Alberto López (Spain)

Rosario Rubio (Spain)

Arturo García (Spain)

### **Area 18: Higher Education, Local Needs, and Low-cost Design Projects in Developing Countries**

#### **3927-The status and future development of the international cooperation in aviation technology education in Taiwan**

Chuan-Sheng Liu (Taiwan)

S.-Y. Yang (Taiwan)

## **Area 19: Other Topics**

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Lung-Sheng Steven Lee (Taiwan)

### **3426-Software Design Education for Junior Undergraduate Students**

Kazuya Takemata (Japan)

Tetsuro Furukawa (Japan)

Masakatsu Matsuishi (Japan)

Shigeo Matsumoto (Japan)

Noriyuki Abe (Japan)

### **3555-An attempt to help university students gain theoretical and experimental knowledge of production**

Tetsuro Furukawa (Japan)

Shigeo Matsumoto (Japan)

Takumi Sakamoto (Japan)

Kazuya Takemata (Japan)

Masakatsu Matsuishi (Japan)

### **3564-Aviation Power Electronics Education in Taiwan**

Chuan-Sheng Liu (Taiwan)

Liang-Rui Chen (Tajikistan)

### **3604-PBLE - Guidelines for Project Based Learning in Engineering**

Adam Moore (United Kingdom)

Alan Howe (United Kingdom)

Ban Seng Choo (United Kingdom)

Edward Williams (United Kingdom)

### **6002-Utilization of Rule Expert System in Teaching of Technological Subjects**

Andrea Samolejova (Czech Republic)

Jiri Bilik (Czech Republic)

### **6809-New Methods for the Implementation of Devices for Improving Efficiency in Three-wire Three-phase Power Systems**

Roser Sabater i Serra (Spain)

Joaquin Montañana (Spain)

Vicente Donderis Quiles (Spain)

Vicente León Martínez (Spain)

### **8787-Package MASTER. Visualization During Simulation of Dynamic Processes Vladimir Rudenko**

Mikhail Shaburov (Russian Federation)



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