



Summer School

July 1 - 10, 2013

Patras, Greece

*The T.E.I. of Patras with other partner
Universities, Institutions and Social Partners*

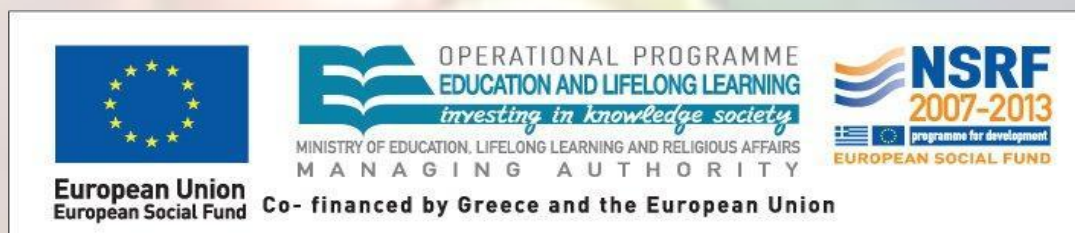
**Organize
an International Event:
The Innovation Week on R.E.S.**

**10 Days Intensive Learning
& Exhibition of Innovation**

on

***PV Systems Engineering
& the other Renewable Energy Systems
through the Entrepreneurship spirit***

**T.E.I. of Patras
Unit of Innovation & Entrepreneurship**



This project is implemented through the Operational Program "Education & Lifelong Learning" and is co-financed by the European Union (European Social Fund) and Greek national funds (National Strategic Reference Framework 2007-2013)

Arrival Day: 30th June 2013, Accommodation arrangements

Monday 1 July, 2013

Venue: The Conference Centre of the TEI of Patras and the RES Laboratory

08:30 Registration

09:00 Opening Address

The Innovation Week and related events within the frame of the Innovation week and the entrepreneurial spirit on PV Systems Engineering & the other Renewable Energy Systems

Prof. S. Kaplanis, Technological Institute of Patras, Greece

Representatives from: University of Patras and Hellenic Open University

-PV Added Value, by Mr. Pitarokilis, HELAPCO Council Member, Athens

(Κεντρικός Ομιλητής, μέλος του ΔΣ του Συνδέσμου Εταιριών Φωτοβολταϊκών Επιχειρηματικότητα)

- Electricity production from PVs and the changes in the wholesale market, Mr. Stelios Loumakis, President of Hellenic Association of Photovoltaic Energy Producers (SPEF) , Athens

- Address by Mr. Makris Dimitrios, HLIOS, Athens

(Μέλος του Πανελληνίου Συνδέσμου Μελετητών – Εγκαταστατών Οικιακών & Κτιριακών Φωτοβολταϊκών)

Session I: Fundamentals of Solar Radiation

09:30 The energy Policy in Greece and the RES component.

Mr. Sp. Mylonas, Regional Director of the Hellenic Electricity Board.

(Ομιλητής, Μέντορας)

10:30 Solar Geometry and Solar Radiation aspects; Polar Charts: Useful tools

Prof. S. Kaplanis, Technological Institute of Patras, Greece

(Ομιλητής, Μέντορας, Επιστημονικός Υπεύθυνος της Inno Week)

11:00 Break

11:30 Solar Radiation: Direct & Diffuse; Measurements, Determination of Solar Radiation on any Inclined Surface. A prerequisite competence toward innovate studies on R.E.S.

Prof. S. Kaplanis, Technological Institute of Patras, Greece

(Ομιλητής, Μέντορας, Καινοτομίες, Επιστημονικός Υπεύθυνος της Inno Week)

-Discussion

Session II: Solar Thermal Engineering Applications: Innovations on energy savings

12:00 Solar Cooling

Prof. A. Argyriou, University of Patras, Greece

(Ομιλητής, Επιστημονικός Σύμβουλος και Μέντορας, Καινοτομίες)

12:30 Passive cooling of buildings - Bioclimatic Architecture Principles

Prof. A. Argyriou, University of Patras, Greece

(Ομιλητής, Επιστημονικός Σύμβουλος και Μέντορας)

13:00 Lunch

14:00 Saving Energy in protected buildings innovative approaches; new challenges
Prof. D. Roubien, Technological Institute of Patras, Greece
(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας, Καινοτομίες, Επιχειρηματικότητα)

15:00 Discussion: Arrangements for the R.E.S. Exhibition on Innovations
-Personal study and preparation in the RES Lab & Library

20:00 Dinner

Tuesday 2 July, 2013

Session III: Solar Technologies in the Domestic sector (I)

08:30 Registration

09:00 Domotics related to Energy and R.E.S. Management: A Case Study how to innovate on the power consumption & management in buildings
Prof. P. Borza, Transylvania University in Brasov, Romania
(Ομιλητής , Μέντορας, Αξιολογητής Καινοτομιών και Επιχειρηματικών Προτοβουλιών)

09.45 Representative of TRIAINA Ltd and ATRINIA Co
The policy and implementation of modern buildings regarding a competitive technology in the market of Management of Buildings.
G.Danos and D.Mofridis
(Επιχειρηματικότητα, Προοπτικές εφαρμογών των ΑΠΕ στα κτήρια)

10:30 PV+Thermal Systems: Design and performance aspects for building integration
Prof. Y. Tripanagnostopoulos, University of Patras, Greece
(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας)
Discussion on Innovative RES applications in various domains

11:00 Break

11:30 Hybrid Renewable Energy Systems: Design and Performance towards EU target for nearly zero energy buildings from 2020
Prof. Y. Tripanagnostopoulos, University of Patras, Greece
(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας)

12:15 Environmental Management & Sustainability: A new field related to RES; An outline of Case Studies
Prof. M. Dassisti, Politecnico di Bari, Italy
(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας, Καινοτομίες)

Discussion: continued

13:00 Lunch

Session IV: Solar Technologies in the Domestic sector (II)

14:00 Experience from PV system performance including comparison of on roof and facade systems: Case Study on BIPV systems.

Projects which draw the attention of authorities & professionals for a proper design

Prof. V. Benda, Prague Technical University, Czech Republic

(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα με Επιχειρήσεις σε συνεργασία με ΑΕΙ))

15:30 Discussion

Assignments to participants related to Innovations in the field of RES

Personal study & preparation in RES Lab & Library

20:00 Dinner

Wednesday 3 July, 2013

Session V: PV cell technology & Applications

08:30 Registration

09:00 PV cells: Physics of PV cells, fabrication; operation characteristics: New technological developments in the PV technology. Need for improvement and innovation.

Prof. V. Benda, Prague Technical University, Czech Republic

(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα με Επιχειρήσεις σε συνεργασία με ΑΕΙ))

09:45 Diagnostics of large area PV systems operating.

Prof. V. Benda, Prague Technical University, Czech Republic

(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα με Επιχειρήσεις σε συνεργασία με ΑΕΙ))

10:30 Nanotechnology and Materials Chemistry in New and Emerging Solar Cell and Lighting Technologies-I

Prof. C. Varlikli, Solar Energy Institute, Ege University, Izmir, Turkey.

11:00 Break

11:30 Nanotechnology and Materials Chemistry in New and Emerging Solar Cell and Lighting Technologies-II

Prof. Dr C. Varlikli, Solar Energy Institute, Ege University, Izmir, Turkey.

Discussion

13:00 Lunch

Session VI: Biomass Energy & Innovations

- 14:00 Biomass: Basics, Bio-conversion, crop and sewage treatment (Part I)
Dr. Sp. Alexopoulos, University of Applied Sciences Aachen, Germany
(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα με Επιχειρήσεις σε Ελλάδα και Γερμανία)
- 14:30 Biomass: Basics, Bio-conversion, crop and sewage treatment (Part II):

Innovative & pilot projects on co-generation
Dr. Sp. Alexopoulos, University of Applied Sciences Aachen, Germany
(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα με Επιχειρήσεις σε Ελλάδα και Γερμανία)
- Discussion on possible viable projects especially in Rural areas. Representatives from local authorities are welcome to present large scale plants scheduled in the area of W. Greece.
-Municipality of Iliada, Innovations and modern designs
Presented by the Mayor of Iliada, Mr. J Lyberis.
- Representative from GEFYRA A.E.
- 15:00 a. Participants/Students oral presentation on R.E.S. Innovation & Intelligent Application
b. Exhibition Room: Poster Presentation (Initiatives from graduates)
- 16:00 Personal study & project preparation in the RES Lab & Library
Invited speaker from the market on R.E.S. & SMEs: Good practice projects
(to be specified)
- 20:00 Dinner

Thursday 4 July, 2013

Session VII: Advancements & new materials in the RES domain

- 08:30 Registration
- 09:00 Selected issues related to PV applications.
Prof. S. Kaplanis, Technological Institute of Patras, Greece
(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα με Επιχειρήσεις σε συνεργασία με ΑΕΙ. Η διεθνής συνιστώσα)
- 09:30 Batteries, inverters and chargers as parts of a stand-alone PV system
Prof. S. Kaplanis, Technological Educational Institute of Patras, Greece
(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα με Επιχειρήσεις σε συνεργασία με ΑΕΙ. Η διεθνής συνιστώσα)

- 10:00 Place of TiO₂ in organic and dye sensitized solar cells: General overview
Assoc. Prof. Dr C. Varlikli, Ege University, Izmir, Turkey.
- 10:30 High efficient Dye sensitized and Organic solar cells: A new perspective to the solar energy:
A challenge for new market on PV cells
Prof. E. Stathatos, Technological Institute of Patras, Greece.
(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα με Επιχειρήσεις σε συνεργασία με ΑΕΙ. Η διεθνής συνιστώσα)
- 11:00 Break
- 11:30 -Discussion on possible entrepreneurial initiatives:

Experience of a young final year student *Mr. J. Efstathiou*, team member of a PV company (Neon Energy) -An open look on the entrepreneurship

Session VIII: Simulation Techniques in Solar Thermal & PV Systems

- 13:00 Lunch
- 14:00 PV cell performance under medium to high irradiation levels:
Study on innovative design towards high power and thermal energy delivery from the PV cells.
Prof. S. Kaplanis, Technological Institute of Patras, Greece
Dr. E. Kaplani, Technological Institute of Patras, Greece
(Ομιλητής ,Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτομίες επί των ΑΠΕ)
- 14:30 a. Discussions with PV market representatives: Entrepreneurship challenges & perspectives for development & employment
Dipl. Ing. P. Fragkos, MSc, Aleo Solar Hellas
Dr. Ast. Bouzoukas, RENEVOL Co, Piraeus
Other companies are invited, too (invitation open)
Επιχειρηματικότητα, Σύμβουλοι
- b. Students oral presentations on R.E.S. Innovation & Intelligent Applications
Eco-paving innovation project presented by *Prof. E. Stathatos, and Technological Institute of Patras team*
- c. Exhibition Room: Innovation Design & Products related to R.E.S. (Student Initiatives)
Καινοτομίες και Επιχειρηματικότητα στην πράξη
- 20:00 Dinner

Friday 5 July, 2013

Session IX: Wind Energy & Applications

- 08:30 Registration

- 09:00 Regulation Framework on R.E.S. in Hellenic territory. Simplification of the bureaucracy.
Gkionis Dimitrios, General Manager, RENEVOL Co, Piraeus
- 09:45 Integrated management and maintenance system improving the energy efficiency in biomass manufacturing
Assoc. Prof. Dr. Nikolinka Christova, dept of Automation of Industry, University, Sofia Bulgaria
- 10:30 R.E.S. Technologies in Buildings, Agro-economy, Industry.
Case Studies with innovative designs to improve energy performance and savings
Prof. An. Majchrycka, Poland
-Discussion on RES Technologies as a major contribution to Sustainability

Session X: Applications of RES technologies (PV & Bio-tech) to energy savings

- 11:00 Break
- 11:30 PV Sizing procedures; Simulation studies and L.C.A.:
Case Study to a cost-effective PV SA installation
Prof. S. Kaplanis, Technological Institute of Patras, Greece
- 12:15 Size Optimization of Hybrid (Wind-PV) Systems using advanced techniques
Prof. F. Onur Hocaoglu, Afyon Kocatepe University, Turkey
(Ομιλητής, Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτομίες στα Υβριδικά)
- 13:00 Lunch
- 14:00 Energy consumption of public sector, Energy audits and the Intelligent network
Prof. P. Kadar, Obuda University, Budapest, Hungary
(Ομιλητής, Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα Ανεμογεννητριών)
- 14:30 The Parts of a Wind turbine, Construction and Integration
Prof. P. Kadar, Obuda University, Budapest, Hungary
(Ομιλητής, Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα Ανεμογεννητριών)
- 15:00 Measurements of small wind turbines
Prof. P. Kadar, Obuda University, Budapest, Hungary
(Ομιλητής, Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα Ανεμογεννητριών)
- 15:30 -Discussion with experts from the PV technologies market: The Solar Cells Hellas contribution.
Potentialities and Future markets
Mr. D. Varvitsiotis, Solar Cells Hellas Group
Επιχειρηματικότητα, τομέας Φ/Β κατασκευή, συντήρηση, μετρήσεις
Other companies are invited to present experience and perspectives in the RES market
-Discussion on the application of new technologies to the Building and other sectors
- Student oral presentation on R.E.S. Innovation & Intelligent Application
Exhibition Room: Innovation Design & Products related to R.E.S. (Student Initiatives)
- 20:00 Dinner

Monday 8 July, 2013

Session XII- 1: Applications of PV & Solar Thermal & Biomass systems in the Domestic, Agricultural & Industrial sector

08:30 Registration

09:00 PV module performance at S.T.C. and field conditions

Dr. E. Kaplani, Technological Institute of Patras, Greece

Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα Φ/Β συστημάτων και του νέου τομέα της γήρανσης των Φ/Β

09:30 Ageing effects in PV cells and modules

Dr. E. Kaplani Technological Institute of Patras, Greece

Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα Φ/Β συστημάτων και του νέου τομέα της γήρανσης των Φ/Β

10:00 Efficiency and stability issues in dye sensitized solar cells.

New developments in the market

Dr P. Falaras, Head of the Physics-Chemistry Lab, Democritus Research Center, Athens

Member of the Council of the TEI of Patras

Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα Φ/Β συστημάτων και του νέου τομέα της γήρανσης των Φ/Β

-Discussion on problem solving and diagnostics in PV performance degradation

10:45 Break

11:00 Solar Radiation Prediction; the need and effectiveness of a delicate issue

Serttaş Fatih, MSc student in Afyon Kocatepe University, Turkey

11.30 Case Based Reasoning Control of Biological Waste Water Treatment Intended to Biogas Production.

Atanas Atanasov, Professor in Informatics, University of Chemical Technology and Metallurgy, Bulgaria

(Επιστημονικός Σύμβουλος και Μέντορας σε Καινοτομίες ICT στα Φ/Β συστήματα)

12:30 Experimental demonstration on PV i-V curves

Dr. E. Kaplani, Technological Institute of Patras, Greece

Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτόμα έργα Φ/Β συστημάτων και του νέου τομέα της γήρανσης των Φ/Β

-Discussion: Entrepreneurial Initiatives: The go ahead issue

Representatives from banks and other Institutions

(invitation open)

13:00 Lunch

Session XII- 2: Applications of PV and Solar Thermal systems

- 14:30 a. Student oral presentation on R.E.S. Innovation & Intelligent Application
- A project for innovative products based on nanotechnology applied to buildings
Prof. S. Kaplanis and Technological Institute of Patras Students Project Team
- b. Exhibition Room: R.E.S. Innovations & Intelligent Application
-A poster presented by University of Patras Students Project Team
- 16:00 Personal study & preparation for project defense: RES Lab & Library
Entrepreneurial Initiatives:

(invitation open)
- 20:00 Dinner

Tuesday 9 July, 2013

Session XIII: Fuels & Environment

- 08:30 Registration
- 09:00 Using Biofuels with CCHP technology in pursuit of “Nearly Zero Energy Buildings”
Dr. M. Ratcliffe, Brunel University, UK
Καινοτομίες και Επιχειρηματικότητα στον τομέα των ενεργειακών κτιρίων. Εμπειρία από Μ.Βρετανία
- 09:45 Towards clean energy supply: Hydrogen powered fuel cells,
Dr. Irma Aleknaviciute, T.G. Karayiannis and M.W. Collins, Brunel University, UK
Επιστημονικοί Σύμβουλοι και Μέντορες ειδικοί σε Καινοτόμα έργα του νέου τομέα Υδρογόνου και Στοιχείων Καυσίμου. Αποτελεί τη μεγάλη Καινοτομία
- 10:30 Hydrogen production including using plasmas,
Dr. Irma Aleknaviciute, T.G. Karayiannis and M.W. Collins. Brunel University, UK
-Discussion
- 11:00 Break

Session XIV: Measurements of PV cell Performance

- 11:30 Measurements of Solar Radiation; Calibration of PV cells: An innovative competitive
Design & construction
Dr. D. Cotfas, Dr. P. Cotfas, Transylvania University in Brasov, Romania
Επιστημονικός Σύμβουλος και Μέντορας ειδικός σε Καινοτομίες στα Φ/Β στοιχεία και τη μετρολογία.
Αμφότεροι παρουσιάζουν καινοτόμες κατασκευές και εισαγωγή νέων τεχνολογιών στις μετρήσεις των Φ/Β
- Determining the Parameters of the Solar Cells
Dr. D. Cotfas, Transylvania University in Brasov, Romania

-Data acquisition and Noise in Solar Cells

Dr. D. Cotfas, Dr. P. Cotfas, Transylvania University in Brasov, Romania

12:00 Discussion on the needs to high quality products to measure PV cell/ panel parameters

13:00 Lunch

Session XV: Biomass & H₂ technology: Applications

14:00 A reliable cost-effective PV powered irrigation system a path optimums control based on temperature, humidity, luminary

N. Panagopoulos, final year student of dept. Mechanical Engineering

15:00 Discussion with experts from the PV technologies market: (to be specified)
Potentialities and Future markets

20:00 Dinner

Wednesday 10 July, 2013

Session XVI: Fuel cell technology

08:30 Registration

09:00 Oral presentations by young participants on R.E.S. Innovation & Intelligent Application:
Students present and defend the projects assigned to them.

10:15 Break

10:45 Continued

Exhibition Room: R.E.S. Innovations & Intelligent Application (Student Initiatives)

Οι Έλληνες και ξένοι Επιστήμονες και εκπρόσωποι φορέων συμμετέχουν στην αξιολόγηση των έργων, των παρουσιάσεων και των επιδείξεων Καινοτόμων και επιχειρηματικών σχεδίων.

12:00 -Discussion on Innovative Product Design: Requirements & Needs

Representative of Chamber of Achaia

Needs for improvement & tools for competitiveness: Response of young graduates.

(invitation open)

13:00 Lunch

14:00 Conclusions

Award ceremony: Certificates & Innovations Awards

Farewell

For your information.

The Inno Week review committee according to the level and quality of the presentations discussion and the exhibition of innovative products may ask the speakers to submit a full papers of their presentations for peer review process.

The coordinator of the Inno Week 2013 will make the necessary arrangements so that the best papers are published in a high impact Journal.

SPONSORS

- **GEFYRA SA**
- **RENEVOL**
- **HELAPCO**
- **ALEO**
- **SOLAR CELLS**
- **TRIAINA SA**
- **NEON ENERGY**