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IT-ENHANCED LABORATORY EXPERIENCE WITHIN A MODERN UNDERGRADUATE ENGINEERING CURRICULUM
   EL-Sayed Aziz, Sven Esche, Constantin Chassapis

SESSION T2G - SPECIAL SESSION S1. E-Learning for Architectural Design, Product Design and Engineering Design (I)
   A VISUAL METAPHOR REPRESENTATION OF A DESIGN PROCESS MODEL
      Graham Oakes, Amal Oraifige, Anthony Felton, David Heesom
THE ROLE OF SPATIAL VISUALISATION ABILITY IN ARCHITECTURAL CURRICULA - NEW TENDENCIES IN TEACHING GEOMETRY AND GRAPHICS
SESSION T2H - SPECIAL SESSION S3. Education and Training for the Forestry Based Industries

PILOT PROJECT: TO LEARN BY TEACHING
Carlos Negro, Angles Blanco

AN ENGINEERING COURSE FOR FRESHMEN: SIMULATING A MANAGEMENT COMPANY
Therezinha da Costa, Isnard Martins, Marcos da Silveira

THE GAP BETWEEN ACADEMIC SKILLS AND THE SKILLS NEEDED FOR THE INDUSTRY
Fernando Torgal

POSTGRADUATE EDUCATION ON PULP AND PAPER ENGINEERING IN SPAIN
Angels Pèlach, Pere Mutjé, Antonio Torres, José F. Colom

DESIGN AND DEVELOPMENT OF A LOW COST PROGRAMMABLE LOGIC CONTROLLER WORKBENCH FOR EDUCATION PURPOSES
Abd Almotaleb Kheiralla, Osama Siddig, Ahmad A. Elhaj Mokhtar, Montasir Esameldeen, Osama Abdalla

SESSION T3A - THE CHALLENGES OF RESEARCH – Emerging Engineering Areas

ENGINEERING EDUCATION AS AN AREA OF THE SCIENTIFIC KNOWLEDGE
Vanderli Fava Oliveira, Danilo Pereira Pinto

INTRODUCTION TO SYSTEMS APPROACH USING BIO-ENERGY RESOURCES AS A TOOL FOR FRESHMAN ENGINEERING EDUCATION
Kumar Mallikarjunan, Anand Lakshmikanth, Mary Leigh Wolfe, Vinod Lohani, Jeff Connor

USING OF THE TECHNOLOGY OF PARALLEL PROGRAMMING FOR SOLVING APPLIED PROBLEMS
Gulnar Balakayeva, Galymbek Seralin

THE PROGRESS OF THE STUDY BRANCH BIOMEDICAL TECHNOLOGY AT VSB TECHNICAL UNIVERSITY OSTRAVA VIA THE EUROPEAN SOCIAL FUND
Jindrich Cernohorsky, Hana Sochorova, Marek Penhaker, Petr Tiefenbach

THE TECHNICAL REHEARSALS IN THE PREPARATION OF THE OFFICIAL PARADE OF SAMBA SCHOOLS IN THE CARIOCA CARNIVAL: A CONTRIBUTION ON PERFORMANCE MANAGEMENT FOR THE ENGINEERING
Mirian Martins da Motta Magalhães, José Antonio Assunção Peixoto, Leydervan de Souza Xavier, Antonio Marcos Muniz Carneiro

SESSION T3B - THE CHALLENGES OF RESEARCH – Encouraging Creativity

ATTITUDES AND VALUES IN ENGINEERING STUDENTS: THE HUMAN DEVELOPMENT SCALE
Mariana Ruiz Morales

CREATIVE ENGINEERING EDUCATION IN COLLABORATION WITH LOCAL COMMUNITY
Kazuya Takemata, Masakatsu Matsuishi, Shigeo Matsumoto, Tetsuro Furukawa, Taketo Yamakawa

A CREATIVITY COURSE FOR ENGINEERS
Victor Valqui Vidal

IMPROVING PROBLEM SOLVING AND ENCOURAGING CREATIVITY IN ENGINEERING UNDERGRADUATES
Jonathan Adams, Stefan Kaczmarczyk, Phil Picton, Peter Demian

AN ATTEMPT TO GET MORE CREATIVITY TO THE TRAINING PROGRAMME OF ENGINEERS
Jukka Tuohi
SESSION T3C - THE CHALLENGES OF RESEARCH – Electrical Engineering

ACCEPTANCE OF 3D VISUALIZATION METHODS BY LEARNING AND TRAINING IN THE AREA OF ELECTRICAL ENGINEERING
Angel Nikolaev Angelov, Tomasz Smieja, Zbigniew Styczynski

SEEDING ENQUIRY-BASED LEARNING IN ELECTRICAL AND ELECTRONIC ENGINEERING: CASE STUDY 1 – OPTOELECTRONICS
Norman Powell, Tony Peaker, William Truscott, Peter Hicks, Brian Canavan

CHANGING TOOLS AND METHODS IN ENGINEERING EDUCATION
Jerzy Moscinski

ELECTRICAL TWO-PORTS: A MAPLE APPROACH
Amir Hossein Khanshan

TROUBLESHOOTING EXERCISES USING CIRCUIT SIMULATOR SOFTWARE: SUPPORT FOR DEEP LEARNING IN THE STUDY OF ELECTRONIC CIRCUITS
George Banky, Kwong Wong

SESSION T3D - PARTNERSHIP – Challenges of Globalization

HIGHER EDUCATION IN THE GLOBALIZATION ERA
Wojciech Zielinski

FOSTERING INTERNATIONAL PARTNERSHIPS TO ENHANCE ENGINEERING EDUCATION AND RESEARCH: CASE STUDIES ON EFFECTIVE RELATIONSHIPS
Patricia Fox, D. Jan Cowan, Stephen Hundley, J.P. Mohsen, Kay Wilding

GLOBAL EXPERIENCES FOR AVIATION STUDENTS
Ronald Sterkenburg, Sergey Dubrovoski

THE MOTIVATION AND ROLE OF PERSONAL STRATEGY FOR STUDYING FOREIGN LANGUAGES IN TECHNICAL COLLEGES
Barbara Danilova, Oleg Moroz, Julije Svabova

THE THREE AXES OF ENGINEERING EDUCATION
E. Dan Hirlman, Eckhard Groll, Dianne Atkinson

SESSION T3E - WHAT DEGREES FOR WHAT JOBS? – Defining the Levels of Engineering Practice

COOPERATIVE EDUCATION IN BRAZIL: COORDINATING WORK TERMS
Claudio Roberto De Freitas Pacheco

A GRADUATE CURRICULUM FOR ENGINEERING LEADERSHIP
Stephen McKnight, John Beaty, Philip Cheney, Michael Silevitch

TEACHING GEOTECHNICAL WORKS USING PROFESSIONAL PRACTICE
Teresa Santana, Ana Quintela

USING TREND ANALYSIS TO INFLUENCE NEW COURSE PRODUCTION
Phil Picton

INDUSTRIAL DESIGN EXPOSURE TO THE ENGINEERING STUDENTS IN INDIAN CONTEXT
Amarendra Das

SESSION T3F - WHAT DEGREES FOR WHAT JOBS? – The Bologna Process (II)

ECTS EVALUATION IN THE FACULTY OF COMPUTER SCIENCE OF THE POLYTECHNIC UNIVERSITY OF VALENCIA
Antonio Molina Marco, Andrés Terrasa Barrena, Eduardo Vendrell Vidal, Emilio Sanchis Arnal

ABILITIES REQUIRED FOR THE FORESEEABLE FUTURE AND THEIR DEVELOPMENT IN HIGHER EDUCATION OF SCIENCE AND ENGINEERING
Ryunosuke Kikuchi

RE-THINKING THE CURRICULA FOR ELECTRICAL ENGINEERING EDUCATION IN SERBIA – CASE OF THE AUTONOMY PROVINCE OF VOJVODINA
Djuro Kutlaca, Vojin Senk

SOME REFLECTIONS ON THE NEEDS OF MATHEMATICS EDUCATION FOR ENGINEERING STUDIES: THE CASE OF ISEP
Alcinda Barreiras
SESSION T3G - WHAT DEGREES FOR WHAT JOBS? – Assessment of Engineering Education (I)

ASSESSMENT TO IMPACT ENGINEERING RETENTION
Susan Haag

THE IMPROVEMENT OF THE ENGINEERING EDUCATION - ANALYSIS OF A CASE STUDY RELATED TO AN INQUIRY ABOUT STUDENTS’ PERCEPTION
António Betâmião de Almeida, Susana Sequeira

THE USE OF QUALITATIVE INDICATORS TO EVALUATE PROFESSORS FROM AN ENGINEERING COURSE OF A PUBLIC UNIVERSITY IN SÃO PAULO
Ana Cecília Pontes Rodrigues, Cecília Carmen Cunha Pontes, Dirceu da Silva

ENGINEERING GRADUATES’ ASSESSMENT OF ACADEMIC PREPARATION FOR NEXT STEPS
Patricia Schmolze, Francisco Chang, Melora Sundt

QUALITY ASSURANCE AND ASSESSMENT IN TECHNICAL EDUCATION SYSTEM: A WEB BASED APPROACH
Pallapa Venkataram, Anandi Giridharan

SESSION T3H - WHAT DEGREES FOR WHAT JOBS? – Assessment of Engineering Education (II)

COMPUTERIZED DYNAMIC ASSESSMENT
Nirmal Khandan

ASSESSMENT OF PROGRAM OUTCOMES BY USING POMAS
Sema Oktug

WORK IN PROGRESS – QUALITATIVE ANALYSIS OF THE DIFFERENT ASSESSMENT IMPLEMENTATION METHODS IN A SCHOOL OF ENGINEERING. PRELIMINARY RESULTS
Amparo Camacho, Javier Paez, Javier Visbal

DESIGNING INDICATORS TO MEASURE THE QUALITY OF ENGINEERING COURSES: THE CASE OF ESCOLA POLÍTÉCNICA DA UNIVERSIDADE DE SÃO PAULO
Osvaldo Nakao, José Grimoni

ELIMINATING CORRELATIONS AND REDUNDANCY IN ACADEMIC EVALUATION QUESTIONNAIRES THROUGH MULTIVARIATE ANALYSIS
José Carlos Grizendi, Francisco José Gomes

SESSION W1A - REDISCOVERING THE FOUNDATIONS – Mathematics

GEOMETRY - AIMS, TASKS AND METHODS
Stanislaw Sulwinski, Krzysztof Tytkowski

PHYSICAL MODEL IN DESCRIPTIVE GEOMETRY – GOOD IDEA?
Monika Sroka-Bizon

GEOMETRY AND ENGINEERING GRAPHICS IN ENGINEERING EDUCATION ILLUSTRATED BY EXAMPLE OF ADVANCED 3D MODELING COURSE
Monika Sroka-Bizon, Krzysztof Bizon

OFFSETTING THE OBJECTS USING SEGMENTATION
Amod Tiwari, A. Chatterjee, V. Phatak, S. G. Dhande

ENHANCING THE TEACHING & LEARNING OF DIFFERENTIAL EQUATIONS VIA WRITING REFLECTIONS - A CASE STUDY
Azizan Zainal Abidin

CONTRIBUTION TO POSTCRITICAL NON-LINEAR BEHAVIOUR OF ELASTIC PLANE TRUSSES DISCRETISED BY FEM - COMPARISON RESULTS OBTAINED BY “EXACT METHODS” WITH NEWTON-RAPHSON METHOD
Milada Hlaváčková, Dagmar Juchelkova

SESSION W1B - REDISCOVERING THE FOUNDATIONS – New Competencies - Soft Skills

DEVELOPING SOFT SKILLS IN ENGINEERING STUDIES – THE EXPERIENCE OF STUDENT’S PERSONAL PORTFOLIO
Artur Silva, José Tribolet

THE TEAMWORK IMPACT ON LABORATORY SESSIONS AND ITS CONTRIBUTION TOWARDS GRADUATE ATTRIBUTES
Daniela Ionescu

STUDENT PERCEPTIONS OF “SOFT” SKILLS IN MECHANICAL ENGINEERING
SESSION W1C - REDISCOVERING THE FOUNDATIONS – Entry Level
A YEAR-LONG ENTRY-LEVEL COLLEGE COURSE SEQUENCE FOR ENHANCING ENGINEERING STUDENT SUCCESS
Tony L Mitchell, Angelitha Daniel

PROMOTION OF ENGINEERING PROFESSION AND EDUCATION IN ELECTRONICS
Ilmars Slaidins, Marite Treijere

EFFECTIVE RETENTION STRATEGIES FOR ENGINEERING STUDENTS
Kerri Sleeman, Sherly Sorby

SESSION W1D - SPECIAL SESSION S2. New Tech in Math for Engineering and other Sciences (I)

NEW CHALLENGES, NEW APPROACHES: A NEW WAY TO TEACH MATHEMATICS IN ENGINEERING
Agustin De La Villa, Felix Alonso, Gerardo Rodriguez

APPLIED MATHEMATICS AND COMPUTATIONAL MODELING IN ENGINEERING
Zuzana Krivá, Karol Mikula

IMPLEMENTATION OF IDP TECHNIQUE BY THE USE OF MATLAB SOFTWARE AS A TOOL FOR THE CHEMICAL ENGINEERING EDUCATION
Paulo Roberto Alves Pereira, Ana Maria Frattini Fileti

INCREASING THE LEARNING OUTCOME IN MATHEMATICS BY USE OF COMPUTER PROGRAMS LIKE MATHEMATICA
Ivar Johannesen

SESSION W1E - SPECIAL SESSION S5. Involving Engineering Schools and Universities in Technical and Scientific Education for School Outreach (I)

EXPOSITORY PROGRAMS: AN EFFECTIVE APPROACH TO ENHANCE K-12 ENGINEERING EDUCATION
Juan Lopez-Garriga

ASSESSMENT OF HIGH SCHOOL STUDENTS’ EXPOSURE TO ENGINEERING VIA A SUMMER CAMP
Karinna Vernaza, Theresa Vitolo, Scott Steinbrink, Barry Brinkman, Frank Bogacki
INCREASING ENROLLMENT OF FIRST-TIME-FULL TIME FRESHMAN (FTFTF) IN STEM MAJORS
Joel Bloom, Kathryn Kelly

UNIVERSAL DESIGN IN COMPUTER SCIENCE EDUCATION AND SYSTEMS DEVELOPMENT
Kirsten Ribu, Miriam Nes

DEVELOPMENT AND IMPLEMENTATION OF A COMPREHENSIVE NANO-EDUCATION PROGRAM
Nancy Healy, Diana Palma

MANUFACTURING TECHNOLOGY IN MIDDLE SCHOOL CLASSROOMS: A COLLABORATIVE APPROACH
Constance Ziemian, John Aument

SESSION W1F - SPECIAL SESSION S10 – Professionalism and Ethics in Engineering Education
ENGAGING TWENTY-FIRST CENTURY LEARNERS
Peter Willmot, Tony Sutton, Sarah Bamforth

ENGINEERING ETHICS
Helena Pálková, Veronika Svobodová

AVOIDING PLAGIARISM AND COLLUSION
Dana Dobrovská, Pavel Andres, David Vanecek, Antonín Pokorný

DEVELOPMENT OF A COURSE ON ENVIRONMENTAL SUSTAINABILITY, ETHICAL DECISION-MAKING AND COMMUNICATION SKILLS IN ENGINEERING
Abbas El-Zein, David Airey, Peter Bowden, Henriikka Clarkeburn

TEACHING ETHICS FOR URBAN PLANNERS AND ARCHITECTS
Tadeusz Kuczynski, Alicja Kuczynska

ENGINEERING ETHICS EDUCATION IN CHINA: AN EFFECTIVE WAY TO INTEGRATE HUMANITIES EDUCATION INTO ENGINEERING EDUCATION
Chui-qian Kong

SESSION W1G - SPECIAL SESSION S11 – Addressing Emerging Technologies in an Engineering Curriculum
ARE THE CURRICULA ABLE TO FOLLOW THE DEVELOPMENT TRENDS IN BROADBAND DATA COMMUNICATIONS?
Tomáš Vrba, Aleš Kumpera, Tomáš Zeman

A SATELLITE COMMUNICATIONS COURSE IN UNDERGRADUATE ELECTRICAL ENGINEERING CURRICULUM: AN ENDEAVOR TO COPING WITH THE CHANGING DISCIPLINE BOUNDARIES
Habib Rahman

EDUCATION IN DATA TRANSMISSION LABORATORY RESPECTING THE PRINCIPLES OF ELECTROMAGNETIC COMPATIBILITY
Tomas Zeman, Jaromír Hrad, Tomas Vrba

TRANSMISSION AND SWITCHING SYSTEMS: TRENDS OF TECHNOLOGY IN EDUCATION
Jiří Hájek, Tomáš Vrba

NEW EDUCATION TRENDS IN THE INTERDISCIPLINARY AREAS OF ELECTROMAGNETIC COMPATIBILITY
Jaroslav Svoboda, Jaromír Hrad, Tomas Zeman

IMPORTANCE OF LABORATORY EXPERIENCE IN GENERAL SUBJECTS
Jaromír Hrad

SESSION W1H - Teaching Practice and Exposing Students to the Nature of Engineering
A CASE STUDY IN USING THEORY OF CHANGE TO IMPROVE TEACHING PRACTICE IN A CONTROL DEPARTMENT
John Anthony Rossiter, Linda Gray, Gabi Diercks O'brien

BRINGING ENGINEERING INTO K-12 SCHOOLS: A PROBLEM LOOKING FOR SOLUTIONS?
Howard Kimmel, John Carpinelli, and Ronald Rockland
STUDENTS EVALUATING SIGNIFICANT FACTORS ON RETENTION: A STATISTICAL ANALYSIS
Fernando Tovia, Yan Liu

WORK SITES AS A HALFWAY THROUGH TEACHING AND RESEARCH
Cristina Tudela Andreu, Concepción López González, Jesús Mene Aparicio, Mª Luisa Navarro García

LOW-COST MINIATURIZED CHROMATOGRAPHIC COLUMNS FOR TEACHING
Rodrigo Amorim Motta Carvalho, Alexandre Tressino de Carvalho, Esteban Fachini, Maria Lúcia Pereira da Silva

THE LIFELONG EDUCATION – A SOCIAL TREND OR COMPETENCE NEED
Hong Wu, Pierre-Olivier Lombarteix

SESSION W2A - NEW APPROACHES AND TOOLS – Virtual Laboratories (II)
A VIRTUAL PLATFORM TO TEACH CHEMICAL PROCESSES
Maria da Graça Rasteiro, L. Ferreira, J. Teixeira, F.P. Bernardo, M.G. Carvalho
EVALUATING FERMOPT AS A TOOL FOR TEACHING FERMENTATION AND OPTIMATION PRINCIPLES
Mark Lay, Janis Swan
TEACHING HEAT TRANSFER TO ENGINEERING STUDENTS — A COURSE OF COMPUTER-BASED HANDS-ON ACTIVITIES
Colm O’Sullivan
FEASIBILITY STUDY: USING A VIRTUAL SURVEYING INSTRUMENT IN SURVEYOR TRAINING
Hui-Lung Kuo, Shih-Chung Kang, Cho-Chien Lu, Shang-Hsieh Hsieh, Yong-Huang Lin
DEVELOPMENT AND INTERACTION OF WEB LABS AND LMS
Manuel Castro, Elio Sanristobal, Sergio Martin, Gabriel Diaz, Juan Peire

SESSION W2B - NEW APPROACHES AND TOOLS – Virtual Laboratories (III)
A PARADIGM FOR VERTICALLY INTEGRATED CURRICULUM INNOVATION - HOW CURRICULA WERE DEVELOPED FOR UNDERGRADUATE, MIDDLE AND HIGH SCHOOL STUDENTS USING UNDERWATER ROBOTICS
Lesl Hotaling, Rustam Stolkin, Elizabeth McGrath, Costas Chassapis, Keith Sheppard
A LABORATORY SUPPORT FRAMEWORK BASED ON A NETWORKED KNOWLEDGE REPRESENTATION
Cédric Boey, Vincent Raman, Marc Jaumain, Frédéric Robert
SHOULD ENGINEERING FRESHMEN HAVE AN ENGINEERING LABORATORY IN THE FIRST SEMESTER?
Klaus Wuersig
ENGINEERING EDUCATION USING A LONG-DISTANCE-CONTROLLED ROBOT SYSTEM TO ENHANCE STUDENTS’ MOTIVATION
Akiyuki Minamide, Kazuya Takemata, Nobuyuki Naoe, Hirofumi Yamada, Suat Hoon Pee
AN ONLINE TOOL FOR TEACHING DESIGN TRADE-OFFS IN COMPUTER ARCHITECTURE
Azam Beg

SESSION W2C - NEW APPROACHES AND TOOLS – Problem Based Study Projects (I)
PROJECT-BASED LEARNING IN FIRST YEAR ENGINEERING CURRICULA: COURSE DEVELOPMENT AND LEARNING EXPERIENCES IN TWO NEW COURSES AT MIT
Monica Rush, Dava Newman, David Wallace
USING GAMES IN LECTURES TO IMPROVE STUDENT LEARNING
John Anthony Rossiter
MOTIVATING STUDENTS USING IN-CLASS QUESTION SESSIONS
Elizabeth Laws
THE RELEVANT FACTORS IN THE TEACHING–LEARNING PROCESS OF DESIGN OF EXPERIMENTS
Juan Sillero, Esa Rocio Balmori
ADOPTING PROBLEM-BASED LEARNING IN THE TEACHING OF ENGINEERING UNDERGRADUATES: A MALAYSIAN EXPERIENCE
Berhannudin Mohd Salleh, Hussain Othman, Ahmad Esa, Abdullah Sulaiman, Hasyamudin Othman

W2D - NEW APPROACHES AND TOOLS – Problem Based Study Projects (II)
EXPERIENCE WITH PRACTICAL PROJECT BASED LEARNING IN A DEVELOPING UNDERGRADUATE ENGINEERING DEGREE PROGRAM
Tiim Anderson, Rob Torrens, Mark Lay, Mike Duke
MODEL FOR ENGINEERING EDUCATION TO DEVELOPMENT OF COMPETENCES AND ABILITIES
Gilson Morales, Clarissa Unica Morales
A SYNTHESIS COURSE OF PROJECT-BASED AND KNWPLEDGE-BASED IN ENGINEERING PROGRAM
Chen Xu, Ang Haisong, Tong Mingbo
THE STUDY OF "FREE-RIDER" IN PROBLEM-BASED LEARNING SITUATION
Hui-Chin Huang, Yu-Tsen Kuo, Shang-Tsung Yang
ALTERNATIVE AND AUGMENTATIVE COMMUNICATION AS UNDERGRADUATE ENGINEERING PROJECTS
Anil Prabhakar, Namita Jacob

SESSION W2E - NEW APPROACHES AND TOOLS – Problem Based Study Projects (III)
THE ANALYSIS OF PROBLEM LEVEL AND KNOWLEDGE CATEGORY IN PROBLEM-BASED PEDAGOGY APPLIED TO DESIGN EDUCATION: TO TAKE OFFICE DESIGN AS AN EXAMPLE
Shau-Thou Yang, Yu-Ting Lin, Yi-Xin Zhang
THE CURRICULUM DESIGN AND IMPLEMENTATION OF PROBLEM-BASED LEARNING IN GRAPHIC COMMUNICATIONS
Tsu-Ming Wu, Jon-Chao Hong, Shin Liao, Li-Ting Chen
WHAT ARE THE PERCEPTIONS OF CIVIL ENGINEERING LECTURERS TOWARDS USING COOPERATIVE LEARNING?
Aoife Ahern
BASIC CIRCUITS ANALYSIS LEARNING: A COIMBRA UNIVERSITY CASE STUDY IN THE ELECTRICAL AND COMPUTERS ENGINEERING DEPARTMENT
Pedro Faia
EXPERIMENTA@FEUP
Maria Teresa Restivo, José Couto Marques, Tito Vieira

SESSION W2F - SPECIAL SESSION S1. E-Learning for Architectural Design, Product Design and Engineering Design (II)
E-LEARNING: SUPPORTING THE TRANSITION FROM SKILLS TO A KNOWLEDGE BASED LEARNING APPROACH TO DESIGN
David Heesom, Anthony Felton, Kevin Garner
E-LEARNING ENVIRONMENT OF BUILDING AUTOMATION
Matti Väänänen, Jussi Horelli, Jari Jussila, Juha Katajisto
ADAPTIVE MECHANISM IN VIRTUAL EDUCATION ENVIRONMENT
Marek Bober, Radoslav Fasuga, Jana Sarmanova
APPLICATION OF TAM MODEL ON E-LEARNING SYSTEM IN USING INTENTIONS AND AFFECTING FACTORS FOR LEARNERS
Kuei-Chih, KC Chuang

SESSION W2G - SPECIAL SESSION S2. New Tech in Math for Engineering and other Sciences (II)
STUDENT EVALUATION OF THE LEARNING MANAGEMENT SYSTEM FRONTER FROM AN HCI PERSPECTIVE
FrodEiika Sandnes, Hua-Li Jian, Simen Hagen, Olav Talberg
ENGLISH AS A LINGUA FRANCA: A TOOL FOR ENGINEERS
Jaana Suviniitty
UML BASED EMBEDDED DOCUMENTATION FOR SEMI-AUTOMATIC SOFTWARE DEVELOPMENT
Nenad Marovac
A PROBLEM BASED APPROACH TO OPTIMIZATION: APPLIED CASES, FROM BASIC CYCLES TO ENGINEERING EDUCATION  
João Miranda, Casquilho Miguel

TRANSPORT MODELLING FOR IMPROVED ENVIRONMENT: ENGINEERING EDUCATION STUDIES OF ENVIRONMENTAL IMPACT AND CUSTOMERS ATTITUDE  
James Uhomoibhi, Dailin Huang

SESSION W2H - SPECIAL SESSION S12 – Technology and Society  
UNDERGRADUATE COURSE COLLABORATION BETWEEN INDUSTRIAL TECHNOLOGY AND COMPUTER INTEGRATED MANUFACTURING TECHNOLOGY AT PURDUE UNIVERSITY  
Sorraya Khiewnavawongsa, Edie Schmidt

COOPERATIVE EDUCATION: THE KNOWLEDGE OF COMPETENCES  
Patricia Lara dos Santos Matai, Shigueharu Matai

COOPERATIVE EDUCATION: THE PHYSICAL ENVIRONMENT  
Patricia Lara dos Santos Matai, Shigueharu Matai

INCORPORATING PARTICIPATORY ACTION DESIGN INTO RESEARCH AND EDUCATION  
Dan Ding, Rory Cooper

AN EMPIRICAL EMISSION ANALYSIS MODEL FOR HEBEI PROVINCIAL INDUSTRIES IN CHINA  
Dezhi Liu, Hong Wu, Haibiao Cai

PLENARY SESSION 3 - QUALITY, ACCREDITATION AND ENGINEERING EDUCATION FOR A NEW GENERATION  
Invited Speakers: António Salgado de Barros, Giuliano Augusti, Oleg Boev

SESSION R1A - SPECIAL SESSION S2. New Tech in Math for Engineering and other Sciences (III)  
USING THE CONCEPT OF GOOGLE’S PAGERANK TO ENHANCE STUDENT MOTIVATION IN MATHEMATICS  
Francisco Pedroche

E-LEARNING IN SPACE SCIENCES AND TECHNOLOGIES: “STATES OF ARTS AND DEVELOPMENT STRATEGIES” IN AFRICA  
Souad Elharrassi, Abderrahmane Touzani, Samir Bennani

A SELF-PRACTICE ONLINE TOOL FOR TEACHING AND LEARNING COMPUTATIONAL SKILLS IN ENGINEERING CURRICULA  
Abbas El-Zein, Tim Langrish, Nigel Balaam

MEANINGFUL LEARNING THROUGH IDENTIFYING DIFFERENCES AND SIMILARITIES BETWEEN CERTAIN PROBLEMS AND ALGORITHMS  
Malik Jahan Khan, Ashraf Iqbal, Yasser Hashmi

MEANINGFUL LEARNING OF PROBLEM TRANSFORMATIONS FOR A GRID GRAPH  
Munazzah Abdul Ghaffar, Ashraf Iqbal, Yasser Hashmi

SESSION R1B - SPECIAL SESSION S5. Involving Engineering Schools and Universities in Technical and Scientific Education for School Outreach (II)  
HIGHER/SECONDARY EDUCATION: A SUCCESSFUL PARTNERSHIP  
Célina Leão, Filomena Soares, José Machado, Eurico Seabra

A U.S. WORKING MODEL FOR THE K-16 ENGINEERING PIPELINE  
Howard Kimmel, John Carpinelli, Rosa Cano, Angelo Perna

A PROPOSED MODEL CURRICULUM FOR PRE-ENGINEERING DEGREE PROGRAMS  
Xin-Ran Duan

THE IMPACT ON UNIVERSITY STUDENTS PARTNERED WITH SECONDARY TEACHERS WHEN DEVELOPING AUTHENTIC LEARNING ACTIVITIES  
Anant Kukreti, Daniel Oerther, Thaddeus Fowler, Suzanne Soled

AN INNOVATIVE K-12 SCIENCE AND ENGINEERING INITIATIVE  
Joseph Cocozza

SESSION R1C - SPECIAL SESSION S6 – Curriculum Development Adapting to Globalization  
ENGINEERING PRACTICE: A DRIVER FOR CURRICULUM CHANGE
Vojislav Ilic
A NEW PARADIGM FOR UNDERSTANDING COMMUNICATION THAT CAN TRANSFORM ENGINEERING COMMUNICATIONS LEARNING AND TEACHING
Rick Evans, Jerry Gabriel

PROMOTING CULTURAL AWARENESS AND UNDERSTANDING IN ENGINEERING EDUCATION CURRICULUM
Yuko Hoshino, Wayne Sanders

INTEGRATION OF RESEARCH AND TEACHING IN ENGINEERING AND COMPUTER EDUCATION - RESEARCH PROJECTS AS A SOURCE FOR CURRICULUM DEVELOPMENT IN RESPONSE TO GLOBALIZATION CHALLENGES
Clara Amelia de Oliveira, Maria do Socorro Marcia Lopes Souto
DEVELOPING THE CREATION EDUCATION OF THE INTEGRATION OF CURRICULUM ON THE LIVING CULTURE AND TECHNOLOGY IN NEW CENTURY
Kuei-Chih, KC Chuang

SESSION RID - SPECIAL SESSION S7 – Education and Research on Sustainability

CYBERWORK IN ENERGY PLANNING AND SUSTAINABLE DEVELOPMENT
Ricardo Gimenes, Miguel Udaeta, André Gimenes, Aquiles Grimoni

E-LEARNING INSTRUCTION FOR THE IMPLEMENTATION OF A RENEWABLE ENERGY ENGINEERING PROFILE IN AN INTERNATIONAL PROJECT
Eduardo Montero, María Jesús González, Montserrat Diez, Ricardo Pizarro, Margarita Ortega

QUALITY SYSTEM FOR EXCELLENCE IN ENGINEERING EDUCATION
Shiena Shekhar, Arun Arora

TEACHING OF CLEAN ENERGY PRODUCTION IN THE SILESIAN UNIVERSITY OF TECHNOLOGY IN GLIWICE, POLAND
Ryszard K. Wilk

SESSION RIE - SPECIAL SESSION S8 – Humanitarian Engineering

HUMANITARIAN ENGINEERING PROGRAM – CHALLENGES IN THE EXECUTION OF REMOTE PROJECTS
Catherine Skokan, David Munoz

ENGINEERS WITHOUT BORDERS – USA, LEARNING THROUGH HUMANITARIAN SERVICE TO UNDERDEVELOPED COMMUNITIES
Willard Nott, Peter Bosscher, Adam Christensen, Cathy Leslie, Doug Edwards

RENEWABLE ENERGY PROJECTS FOR TEACHING HUMANITARIAN ENGINEERING
Pritpal Singh

THE ROLE OF INTERNATIONAL PROJECTS IN ENGINEERING EDUCATION: BIOFUEL ELECTRIFICATION IN ORISSA, INDIA
Maren Somers, Stephanie Bogle, T. Patrick Walsh, Benjamin Barnes, Sean Poust

UNIVERSITY, SOCIETY AND NON-PROFIT ORGANIZATIONS: THE DEVELOPMENT OF A PARTNERSHIP
Samuel Toffoli, Silvio Burratino Melhado, Maria Inês Piffer, Tereza Carvalho

SESSION RIF - SPECIAL SESSION S9 – Innovation and Entrepreneurship in Engineering Education

ENTREPRENEURSHIP IN BIOMEDICAL ENGINEERING, FROM CLASSROOM TO CORPORATION: A MODEL AND CASE STUDY
Vikki Hazelwood, Arthur Ritter, Helena Wisniewski

THE GENERATOR II PROJECT - AN INTERNATIONAL ENTREPRENEURSHIP COLLABORATION BASED ON THE VENTURE CUP CONTEST AND FINANCED BY THE EUROPEAN UNION INTERREG PROGRAM
Bjørn Gitle Hauge

SOCIAL CAPITAL FOR ENTREPRENEURS
Celso Massatoshi Furukawa, Jose Antonio Lerosa de Siqueira

TEAMWORK AND INNOVATION COMPETENCIES: A FIRST SEMESTER ENGINEERING STUDENTS HANDS-ON COURSE
Maria Catalina Ramirez, Nestor Alexander Jimenez, Jose Tiberio Hernandez

A STUDY ON THE TALENTS’ COMPETENCY AND THE NEED AND IMPLEMENT OF EDUCATING AND TRAINING AT THE MANUFACTURERS IN TAIWAN
Ming-Ta Wu, Yu-Shan Cheng, Pei-Wen Liao
SESSION R1G - SPECIAL SESSION 15 – Assessment of Research and Education (I)
THE EXCELLENCE SYSTEM APPLICATION IN HIGHER EDUCATION
Radim Farana
ANALYSIS OF ACADEMIC PAPERS IN THE FIELD OF MATERIAL SCIENCE AMONG UNIVERSITIES AND COLLEGES IN IN TAIWAN, HONG KONG, SINGAPORE, AND CHINA
Mu-Hsuan Huang, Pei-Shan Chi
SW3A: WEB-BASED SYSTEM FOR ACADEMIC ASSESSMENT AND FOLLOW-UP
José Celso Freire Junior, Edson Luiz França Senne, Galeno José de Sena
ON ADDRESSING THE VARIATION IN INTELLECTUAL DEMAND OF ENGINEERING UNDERGRADUATE RESEARCH PROJECTS
Andrew Kilpatrick, Joe Petrolito, Katherine Legge, Daniela Ionescu
EVALUATION OF ENGINEERING EDUCATION: A CASE OF STUDY BASED ON THE EXPERIENCE OF THE POLYTECHNIC SCHOOL OF THE UNIVERSITY OF SÃO PAULO
Giuliano Olguin, Henrique Gaspar, Ana Cecília dos Santos, Haydeé Svab, Clarice Aiello

SESSION R2A - REDISCOVERING THE FOUNDATIONS – Biology and Biotechnology
WHY ENGINEERING BIOLOGY MATTERS
Wee Ling W
BIONICS IN ENGINEERING - DEFINING NEW GOALS IN ENGINEERING EDUCATION
Ralf Neurohr, Cristian-George Dragomirescu
UTILIZATION OF BIOMASS AND MIXTURES FOR THE GAS PRODUCTION
Dagmar Juchelková, Tomasz Wiltowski, Vaclav Roubicek
A COMPREHENSIVE REVISION OF THE INDUSTRIAL BIOTECHNOLOGY UNDERGRADUATE PROGRAM IN RESPONSE TO ESTABLISH A BIO-BASED ECONOMY
Rosa Buxeda, Lorenzo Saliceti-Piazza
BIOMEDICAL ENGINEERING UNDERGRADUATE COURSES
Jose Carlos Moraes

SESSION R2B - REDISCOVERING THE FOUNDATIONS – Design
EDUCATION OF SPATIAL THINKING AND AESTHETICS - TOWARD HUMANISATION OF BUILT SPACE
Lidia Zakowska
DESIGN AND PRODUCTION ENGINEERING. SOME MOVING FRONTIERS OF THE ENGINEERING EDUCATION IN BRAZIL
Beany Monteiro, Roberto Bartholo
DISTRIBUTED EXPERTISE AND AUTHENTICITY IN THE DEVELOPMENT OF DESIGN EXPERTISE
Vanessa Svihla, Anthony Petrosino, Kenneth Diller, Taylor Martin
DESIGN EDUCATION IN BRAZIL
Regina Celia de Souza Pereira, Ricardo Manfredi Naveiro

SESSION R2C - NEW APPROACHES AND TOOLS – e-Learning (III)
A BLENDED LEARNING APPROACH TO TEACHING FIRST YEAR ENGINEERING DEGREE STUDENTS
Peter Bullen, Mark Russell
VIRTUAL LEARNING APPROACH IN VOCATIONAL INITIAL TEACHER TRAINING
Peter Toth
IMPLEMENTING ADVANCED E-LEARNING FACILITIES. CASE STUDY FOR BABES-BOLYAI UNIVERSITY, CLUJ-NAPOCA, ROMANIA
Alina Andreica
E-LEARNING PLATFORM FOR TEACHING COURSES OF DYNAMICS AND FLUID MECHANICS BY X3D
J. F. Tsai, J. S. Kouh, C.W. Chen
NEW APPROACH TO DISTANCE LEARNING WITH USING OF GRID-COMPUTING
Olga Dolinina, Dmitry Kintsel

SESSION R2D - THE CHALLENGES OF RESEARCH – Student Integration in Research Projects
ENGAGING UNDERGRADUATE STUDENTS IN RESEARCH PROJECTS
Maria da Graça Rasteiro
NSF CENTERS’ APPROACH TO THE INTEGRATION OF RESEARCH AND EDUCATION
Anne Donnelly
EDUCATION ACROSS LENGTHScales
Graham Harrison, Christopher Cox, Gary Lickfield, Amod Ogale
STUDENTS RESEARCH TRAINING AND CURRICULUM DEVELOPMENT THROUGH SCIENTIFIC RESEARCH
Mia Eeckhout, Filip Van Bockstaele
RESEARCH EXPERIENCES FOR UNDERGRADUATE STUDENTS IN STRUCTURAL ENGINEERING
Anant Kukreti

SESSION R2E - NEW APPROACHES AND TOOLS – Laboratory Integration (I)
DESIGN AND DEVELOPMENT OF A HYDRAULIC CIRCUIT BENCH FOR EDUCATION PURPOSES
Abd almotalab Kheirallaa, Omer Adam Rahamab, Dina Mahmoud Abd-Ikareemb, A.bu baker
Adam Saadnoorb, Ghada Mustafa Nasrb
EXPERIMENTAL MODULES CONSTRUCTION: AN IMPORTANT METHODOLOGY TO PREPARE FUTURE ENGINEERS
Paulo Roberto Alves Pereira, Fabio Henrique Salvalaio, Mauro de Paula Moreira, Adão da Silva
DESIGN AND DEVELOPMENT OF A PNEUMATIC CIRCUIT BENCH FOR EDUCATION PURPOSES
Abd Almotaleb Kheiralla, Mohamed Abdel-Monaemb Abdel-Monaemb, Mohamed Ibrahim Ahmed Ahmed
THE ESTABLISHMENT OF AN INTERACTIVE E-LEARNING SYSTEM FOR ENGINEERING FLUID FLOW AND HEAT
Tzu-Chen Hung, Chun-Chieh Liu, Chih-Tzung Hung, Hao Ku
VISUALIZATION OF CATALYZED COMBUSTION ZONE BY TIME-RESOLVED INFRARED THERMOGRAPHY
Rafael M. Digilov

SESSION R2F - NEW APPROACHES AND TOOLS – Laboratory Integration (II)
LEARNING AUTOMATION BY DOING IT – A CASE-STUDY
Pedro Silva,Paulo Oliveira, Nuno Carvalho,Celina P. Leão, Filomena Soares
A LABVIEW APPLICATION IN A MINI POWER SYSTEM MODEL ALLOWING REMOTE ACCESS
José Grimoni, Vinicius Lopes, Osvaldo Nakao
SENSORS AS AN ALTERNATIVE WAY FOR TEACHING EMBEDDED SYSTEMS AND MICROELECTRONICS
Thiago de Faria, Wesley Becari, Javier Ramirez-Fernandez
VIRTUAL LABORATORY OF MICROELECTRONIC MOUNTING AND PACKAGING TECHNOLOGIES
Cyril Vasko, Marek Novotny, Ivan Szendiuch
VIRTUAL NANOTECHNOLOGY WORKBENCH FOR ENGINEERING EDUCATION
Ante Munjiza

SESSION R2G - SPECIAL SESSION S4. Multidisciplinary/Institutional Senior Design (I)
MATERIALS, MARKETING AND THE ENVIRONMENT - AN INTERDISCIPLINARY APPROACH FOR STUDENTS
Dale Palmgren
MQP IN CHINA: DOING PROJECTS AND BEYOND
Yiming Rong, Grettar Tryggvason, Richard Vaz, Liang Gao, Changlin Wu
PRACTITIONER DRIVEN SENIOR DESIGN CAPSTONE COURSE
Anant Kukreti, Raviteja Chalasani
CAPSTONE DESIGN PROJECT ON OPTICAL MEMS: A VEHICLE FOR INTERDISCIPLINARY RESEARCH AND LEARNING
Eniko Enikov, Stanley Pau
MEANINGFUL LEARNING AT THE INTERFACE OF COMPUTING AND MOLECULAR BIOLOGY
Ashraf Iqbal, Yasser Hashmi, Muhammad Aurangzeb

INTERDISCIPLINARY ASPECTS IN MICRO(NANO)ELECTRONICS TECHNOLOGY EDUCATION
Ivan Szendiuch, Cyril Vaško .

SESSION R2H - SPECIAL SESSION S5. Involving Engineering Schools and Universities in Technical and Scientific Education for School Outreach (III)
AN ASSESSMENT OF A HIGH SCHOOL BME ENGINEERING OUTREACH PROGRAM
Anna Koo, Melora Sundt, Joe Cocozza

AN INTEGRATED STEM RESEARCH AND PROFESSIONAL DEVELOPMENT PROJECT FOR TEACHERS
Anant Kukreti, George Sorial, Mingming Lu, Heng Wei, Thaddeus Fowler

NAVIGATING THE OBSTACLES IN SCIENCE EDUCATION FOR SCHOOL OUTREACH
Diana Rincon, Dawn Elliott

USING AN EXPECTED LOSS FUNCTION TO IDENTIFY BEST HIGH SCHOOLS FOR RECRUITMENT
Sonia Bartolomei-Suárez, David González-Barreto, Antonio González-Quevedo

INTEGRATION OF RESEARCH AND EDUCATION IN A MULTI-INSTITUTIONAL CENTER
Elizabeth Tranter

“SPAZIO PER TUTTI”: A HANDS-ON EXPERIENCE TOWARD SPACE ENGINEERING
Amalia Finzi, Marco Molina

SESSION R3A - WHAT DEGREES FOR WHAT JOBS? – Assessment of Engineering Education (III)
REENGINEERING CHEMICAL ENGINEERING EDUCATION FOR THE FUTURE
Pedro Saraiva, Lino Santos, Rosa Quinta-Ferreira

COMPARING CHALLENGE-BASED AND TRADITIONAL INSTRUCTION IN BIOMEDICAL ENGINEERING
Taylor Martin, Stephanie Rivale, Kenneth Diller

A STRATEGIC APPROACH TO INDUSTRIAL ENGINEERING CURRICULUM IN BRAZILIAN PRIVATE SCHOOLS
Santoro Miguel Cezar, Mesquita Marco Aurélio de

DEVELOPING MINING ENGINEERING FOR AFRICAN COUNTRIES - THE MOZAMBIQUE CASE STUDY
Peter Knottenbelt

A SURVEY OF COURSE ASSESSMENT AT “POLITEHNICA” UNIVERSITY OF BUCHAREST
Irina Postelnicu, Mihaela Albu

SESSION R3B - WHAT DEGREES FOR WHAT JOBS? – Engineering Accreditation
ACCREDITATION OF ENGINEERING EDUCATION FOR THE MASTER’S DEGREE IN TAIWAN
Mandy Liu, Pei-Fen Chang, Yeong-Bin Yang

EUR-ACE AND ENAEE: A PROPOSAL AND A TOOL FOR A EUROPEAN SYSTEM FOR ACCREDITATION OF ENGINEERING EDUCATION
Giuliano Augusti, Borri Claudio, Elisa Guberti

TITLE: CONTRIBUTIONS TO QUALITY ASSURANCE OF ENGINEERING EDUCATION IN ROMANIA
Dan-Maniu Duse, Carmen Sonia Duse

A NEW FRAMEWORK FOR MEASURING QUALITY IN ENGINEERING EDUCATION AND RESEARCH IN SLOVAK REPUBLIC
Tatiana Čorejová, Maria Rostášová, Matilda Drozdová

DEVELOPMENT OF AN EFFECTIVE LEARNING CURRICULUM FOR FE/EIT EXAMINATION
Uksun Kim, David Cheng, Othoniel Rodriguez-Jimenez, Ning Fang.
SESSION R3C - SPECIAL SESSION S4. Multidisciplinary/Institutional Senior Design (II)

ENGINEERING DESIGN PROCESS – AN INTERDISCIPLINARY APPROACH
Tanya Domina, Maureen MacGillivray, Terry Lerch, Patrick Kinnicutt

ENGINEERING EDUCATION SOLUTIONS TO A GLOBAL ECONOMY
Alexandru Mihail Morega, Juan Carlos Ordonez, Jose Viriato Coehlo Vargas, Cesar Luongo, Chiang Shih

ON CHALLENGES OF DESIGN-BASED CURRICULUM
Peter Bofah

ORGANISATIONAL ASPECTS OF THE EVICAB – A VIRTUAL EUROPEAN CAMPUS FOR BIOMEDICAL ENGINEERING
Jiri Jan

COMBINED BIOMEDICAL AND ECOLOGICAL ENGINEERING – INITIAL EXPERIENCE FROM REALISATION
Jiri Jan

SESSION R3D - SPECIAL SESSION 15 – Assessment of Research and Education (II)

MODELS FOR RESEARCH-BASED TEACHING IN ENGINEERING COURSES: A CASE-STUDY AT THE UNIVERSITY OF AVEIRO (PT) AND SAN JOSÉ STATE (USA)
Isabel Huet, Nikos Mourtos, Nilza Costa, Oswaldo Pacheco

TOWARDS A HELPING SYSTEM FOR A GOOD ASSESSMENT IN E-LEARNING
Nour-eddine El Faddouli, Mohammed Khalidi Idrissi, Fayssal Smawi, Youssef Belqasmi

LEARNER TRACKING: WHICH SYSTEM?
Mohammed Khalidi Idrissi, Nour-eddine El Faddouli, Nadia Nechchad, Samir Bennani

ASSESSMENT OF CURRENT ENGINEERING EDUCATION IN GREECE - UNIVERSITIES AND TECHNOLOGICAL INSTITUTES
Asterios Liolios, Anastasios Boglou

DEVELOPING PROCESS OF SPECIAL PROJECT COURSE AT DEPARTMENT OF MECHANICAL AND ELECTRO-MECHANICAL ENGINEERING OF NATIONAL I-LAN UNIVERSITY IN TAIWAN
Gwo-Chung Tsai

SESSION R3E - SPECIAL SESSION 16 – Curriculum Development and Practical Placement (I)

TWO COMPREHENSIVE U.S. STUDIES OF ENGINEERING EDUCATION REFORM
Ernest Smerdon, Jeffrey Russell

THE COMPARISON OF PROBLEM-BASED LEARNING (PMBL) MODEL AND PROJECT-BASED LEARNING (PTBL) MODEL
Jon-Chao Hong, Chan-Li Lin, Hui-Chin Huang

PRACTICAL CHALLENGES WITH A PBL IMPLEMENTATION IN ENGINEERING EDUCATION
Raija Tuohi, Janne Roslöf

WHY THE IDEA OF SPECIALIZATION OF UNIVERSITIES AND UNIVERSITY DEPARTMENTS SEEMS TO BE OUTDATED
Ali Amirfazli, Mohammad Hassan Saidi, M. Yaarahmadi

SESSION R3F - SPECIAL SESSION S17 – Problem-Oriented Study Projects

SOME RESULTS FROM MANAGING THE PROCESS OF GROUP FORMATION AND EVALUATION IN STUDENT PROJECTS
João Falcão e Cunha, José Luís Borges, Teresa Galvão

LEARNING ASPECTS OF PROCEDURES FOR SHIP CONCEPTUAL DESIGN BASED ON FIRST PRINCIPLES
Hernani Brinati, Mardel de Conti, Oscar Augusto

EVALUATION PROCESSES IN TUNE WITH NEW PERSONAL AND PROFESSIONAL PERSPECTIVES
Osvaldo Nakao, Hernani Brinati

CREATIVE USE OF SHAKE TABLE EXPERIMENTS FOR EDUCATION AND UNDERGRADUATE RESEARCH
Lisa Wang
A STUDY ON THE LEARNING ASSESSMENT OF A SANDWICH PROGRAM BASED ON CONSTRUCTIVISM
H.P. Feng, H.H Tsai, Y.R. Yang

SESSION R3G - SPECIAL SESSION S18 – Engineering Education Policies and Practice - Theory and Case Studies
OVERVIEW AND BRIEF ANALYSIS OF FINANCING OF INNOVATIVE ACTIVITIES AND RESEARCH IN RUSSIA
Yury Chebotarevsky

IMPROVING STUDENT RETENTION – A SEQUEL TO A RECENT UWS REVIEW
Graham Bishop, Vojislav Ilic

EXPERIENCES IN COOPERATIVE COMPUTER ENGINEERING COURSE AT THE UNIVERSITY OF SÃO PAULO – Brazil
Paulo Sérgio Cugnasca, João Batista Camargo Junior, Jorge Rady Almeida Junior

RESEARCH INSTITUTIONALIZATION EFFORTS AT THE UNIVERSITY OF PUERTO RICO – MAYAGÜEZ
Yuri Rojas-Ramírez, David Suleiman-Rosado

PEDAGOGICAL COMPUTATIONAL ENVIRONMENT ABOUT THE BEHAVIOR AND DIMENSIONING OF COMPOSITE BEAMS
Maria Aparecida Costa, Walnório Ferreira, Rodrigo Camargo, Elisa Boina

SESSION R3H - SPECIAL SESSION S19 – Increasing the Participation in Industry, Education and Research of Minorities and Women
INCORPORATING ETHICS AND SOCIAL RESPONSIBILITY IN UNDERGRADUATE ENGINEERING EDUCATION
Jessica Tucker, David Ferguson

LINKING INTERNSHIP PROGRAMS AND SCHOLARSHIP DONATIONS: ASSESSING INDUSTRY REINVESTMENT IN ENGINEERING EDUCATION
Susan Haag, Trina Corbin

BEING A FEMALE ENGINEER STUDENT: LESSONS FROM THE INDUSTRIAL ENGINEERING
Celina P. Leão, Carina Pimentel, Cristina S. Rodrigues

"WHAT REALLY MATTERS?": A CRITICAL RESEARCH STUDY OF THE ORGANIZATIONAL AND PERSONAL FACTORS INFLUENCING UNDERREPRESENTED ENGINEERING STUDENTS’ RETENTION
Sharoni Little, Donna Buchanan, Jermaine Upshaw, Melora Sundt

FOSTERING THE ENGINEERING EDUCATION OF WOMEN UNDERGRADUATES
Chiejina E. Ottah

SESSION F1A - WHAT DEGREES FOR WHAT JOBS? – Entrepreneurship and Management
LEVERAGING A RESEARCH CENTER OF EXCELLENCE TOWARDS THE EDUCATION OF ENGINEERING LEADERS
Michael Silevitch, Stephen McKnight, Mariah Nobrega

COOPERATIVE EDUCATION AS AN UNDERGRADUATE FEEDER INTO A GRADUATE LEVEL ENGINEERING LEADERSHIP PROGRAM
David Potter, Stephen McKnight, Michael Silevitch

THE STUDY OF SEMICONDUCTOR INDUSTRY MANAGER’ MANAGEMENT COMPETENCY AND TRAINING AND DEVELOPMENT IN TAIWAN
Ming-Ta Wu, Pei-Wen Liao, Yu-Shan Cheng

E-NETWORK FOR INCUBATION AND INNOVATION
Juan Villalvazo-Naranjo, Fernando Aldrete-Lozano, Luis-Enrique Montes-Haro

SESSION F1B - NEW APPROACHES AND TOOLS – Learning Computer Programming
LEARNING TO PROGRAM - DIFFICULTIES AND SOLUTIONS
Anabela Gomes, António José Mendes
PROPOSAL FOR A MULTILANGUAGE TEACHING PROGRAMMING ENVIRONMENT
Rafael Fontao, Gustavo Goñi, Guillermo Kalocai, Gustavo Ramoscelli
THE IMPACT OF LEARNING STYLES IN INTRODUCTORY PROGRAMMING LEARNING
Lilian Carmo, Maria José Marcelino, António José Mendes
LEARNING STYLES IN AN E-LEARNING TOOL
Anabela Gomes, Álvaro Santos, Lilian Carmo, António José Mendes
LEARNING TO PROGRAM WITH PROGUIDE
Cristiana Areias, António Mendes, Anabela Gomes

SESSION F1C - NEW APPROACHES AND TOOLS – Electrical, Electronics and Control Engineering
REMOTE PROCESS CONTROL AND MONITORING USING MATLAB
Martin Sysel, Ivan Pomykacz
INTERACTIVE EDUCATIONAL SOFTWARE FOR DYNAMIC SYSTEMS CONTROL
José Luis Lima, José Carvalho Gonçalves, Paulo Gomes Costa, António Paulo Moreira
PLC TRAINING BASED ON A 3D VIRTUAL MAQUETTE CONTROL: AN EDUCATIONAL EXPERIENCE IN Automation
José Luis Lima, José Carvalho Gonçalves
ROLE OF PSPICE IN THE ENGINEERING TEACHING ENVIRONMENT
Paul Tobin
COOPERATIVE LEARNING STRATEGY IN THE IMPROVEMENT OF AN ELECTRICAL POWER SYSTEM COURSE
Manuel Travassos Valdez, Cristina Faustino Agreira, Carlos Machado Ferreira, Fernando Maciel Barbosa

SESSION F1D - REDISCOVERING THE FOUNDATIONS – Physics
CURRICULUM INTEGRATION IN THE TEACHING OF PHYSICS TO FIRST YEAR ENGINEERING STUDENTS
Paulo Coelho de Oliveira, Francislé Neri de Souza, Nilza Costa, Cristina Gaspar de Oliveira
INTRODUCTORY PHYSICS COURSE FOR CIVIL ENGINEERING STUDENTS: A CURRICULAR PROPOSAL BASED ON PHYSICS EDUCATION RESEARCH
Filipe Amaral, João Carvalho, Helena Caldeira
THE QUALITY OF PHYSICS TEACHING IN ENGINEERING COURSES IN THE BOLOGNATRANSITION PERIOD: UNIVERSITY TEACHER’S CONCEPTIONS
Cristina Gaspar de Oliveira, Nilza Costa, Francislé Neri de Souza, Paulo Coelho de Oliveira
INVOLVING STUDENTS TO INDUSTRIAL PROJECTS
Andrzej Szlek
REAL WORK IN PHYSICS CLASSROOM: IMPROVING ENGINEERS STUDENTS COMPETENCES
Clara Viegas, Bernardino Lopes, José Paulo Cravino

SESSION F1E - REDISCOVERING THE FOUNDATIONS – Physics
A PREDICTIVE MODEL OF CHLORINATION BY-PRODUCTS FORMATION IN THE OZONATION/CHLORINATION PROCESSES
E-E Chang, Pen-Chi Chiang, I-Shu Li
STABILITY, DISPLACEMENT AND MODERATION OF CHEMICAL EQUILIBRIUM: REDISCOVERING LE CHATELIER’S PRINCIPLE
Claudio Olivera-Fuentes, Coray M. Colina
CHEMICAL PRODUCT ENGINEERING AND DESIGN: ACTIVE LEARNING THROUGH THE USE OF CASE STUDIES
Fernando P. Bernardo, Raquel Costa, Pedro M. Saraiva, Geoff D. Moggridge
FOUNDRY PROPERTIES OF BACKING SAND: SOME ENGINEERING STUDIES AND IMPROVEMENTS
P.A.O. Adegbuyi, J.O. Uomoibhi

SESSION F1F - NEW APPROACHES AND TOOLS – e-Learning (IV)
FIXED-BED REACTOR MODELLING AND SIMULATION WITH E-LEARNING TOOLS
SESSION FIG - NEW APPROACHES AND TOOLS – e-Learning (V)
AUTOMATIC GENERATION OF PARAMETRIC DRAWINGS USING DXF AND VISUAL BASIC
Sampaio, Alcínia Zita, Antonio Costa
THE USE OF FREeware IN THE TEACHING OF ENGINEERING DESIGN GRAPHICS
Liang-Yee Cheng, Carolina Chaves Barbosa
THE USE OF INTERNET IN ENGINEERING EDUCATION IN BRAZIL
Elizabeth Marques, Carlos Augusto Oliveira
"VIRTUAL ASSEMBLY" - A WEB-BASED STUDENT LEARNING TOOL FOR THERMODYNAMICS CONCEPTS RELATED TO MULTISTAGING IN COMPRESSORS AND TURBINES
Sushil Chaturvedi, Tarek Abdel-Salam, Omkar Kasinadhuni
INTRODUCING SHEET METAL DESIGN AND MANUFACTURING USING CATIA V5 AND CNC EQUIPMENT IN AN AIRCRAFT MATERIALS COURSE
Ronald Sterkenburg, Ronald Sterkenburg

SESSION F1H - SPECIAL SESSION 16 – Curriculum Development and Practical Placement (II)
PRACTICUM IN ENGINEERING CLASSROOM- A GRADUATE COURSE
Vinod Lohani, Hayden Griffin, Jenny Lo
A CASE STUDY ON THE PATH FROM ACADEMIC PRACTICES TO COMMERCIALIZATION IN STUDENT PROJECTS
Gunnar Andersson, Sissel Larsen, Frode Aamodt
TOWARDS THE DESIGN OF THE PROFESSIONAL PROFILES IN AN INDUSTRIAL ENGINEERING CURRICULUM
Néstor Jiménez, Roberto Zarama, Catalina Ramírez, Pinzón Luis
FIND LEARN STRATEGIES USING MULTIPLES INTELLIGENCES: CASE STUDY IN A DISCIPLINE AT ESCOLA POLITÉCNICA UNIVERSITY OF SAO PAULO
Sergio Brandi

PLENARY SESSION 4 - THE FUTURE OF COMPUTING – UTILITY COMPUTING AND THE IMPACT ON ENGINEERING EDUCATION
Invited Speaker: Michel Benard

CLOSING SESSION