2019 IEEE World Conference on Engineering Education (EDUNINE 2019)

Lima, Peru
17 – 20 March 2019

IEEE Catalog Number: CFP19EDV-POD
ISBN: 978-1-7281-1667-9

Copyright © 2019 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number: CFP19EDV-POD
ISBN (Print-On-Demand): 978-1-7281-1667-9
ISBN (Online): 978-1-7281-1666-2

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

Table of Contents

Modern Educational Paradigms for Computer and Engineering Careers.....1
Claudio R. Brito, Melany M. Ciampi, Maria Feldgen, Osvaldo Clua, Victor A. Barros, Henrique D. Santos

Integrating Concepts of Disruptive Innovation and Ideation into the Curriculum.....8
James J. Sluss Jr.

The Challenge of Innovating in the Education of Engineers in Argentina.....9
Roberto Giordano Lerena

Computing in Latin America and the CC2020 Project. Summary of a Special Plenary Session: Keynote and Panel.....10
John Impagliazzo

Promoting Creativity in Final Year Engineering Students' Project: a case study in the Smart Cities context.....15
Henrique Santos, Ricardo Santos Martins, Claudio R. Brito, Melany M. Ciampi

Digitalization of Self-Evaluation Model for the Colombian Accreditation System.....21
Jesús Alfonso Pérez Gama

Creating a Set of New Lab Experiments for a Fluid Mechanics Course in Civil Engineering.....22
Dan Budny, Frank Kremm, Jennifer Nolan-Kremm

Which visual programming language best suits each school level? A look at Alice, iVProg, and Scratch.....28
Marcos Devaner do Nascimento, Igor Moreira, Bernardo Martins Ferreira, Lucas Mendonça de Souza, Douglas Lima Dantas, Leônidas de Oliveira Brandão, Anarosa de Oliveira Brandão

Mathematics and programming: marriage or divorce?.....34
Lucas Mendonça de Souza, Bernardo Martins Ferreira, Igor Moreira Félix, Leônidas de Oliveira Brandão, Anarosa Alves Franco Brandão, Patricia Alves Pereira

A Motivation for an Image Processing Course.....39
Osvaldo Clua, Maria Feldgen

Playing the Role of Consultants and Contractors Emulating a Business Environment as Part of a Hybrid Undergraduate-Graduate Engineering Course.....45
Davies William de Lima Monteiro, Pablo Nunes Agra Belmonte, José Antonio Pow-Sang

First year undergraduate electronic engineering students from a Peruvian university learn to program with Python.....51
Carlos Sotomayor-Beltran

An ontological framework to support the creation and use of phenomenograpical knowledge.....55
Antonio Maffei, Marco Giudici, Kousay Samir

Reflective experiences in a General Chemistry course for Engineers: self-assessment; improvement and academic performance.....60
Alejandra Ratti, Mauricio Power

Teaching Software Engineering to Career-Changers.....64

Michael Dorin, Juan Manuel Machuca, Dr. Sergio Montenegro

Automated design for engineering student examinations using Matlab/Octave scripts and the Auto Multiple Choice package.....69
Milana Lima dos Santos, Hernán Prieto Schmidt, Giovanni Manassero Junior, Eduardo Lorenzetti Pellini

Research gradualness matrix for undergraduate students in computing related careers.....74
Juan Gutiérrez-Cárdenas, Nadia Rodríguez-Rodríguez

Curriculum analysis of Production Engineering courses in Brazil and their relations with the areas defined by ABEPRO.....80
Ana Luiza Souza de Lima, Fernando Duarte Junior, Viviane Madeira, Herlander Costa Alegre da Gama Afonso, Musbah Koleilat Câmara, Aruquia Peixoto

Constructing Writing Assignments For First-Year Engineering Students.....86
Beth Newborg

An Interdisciplinary Platform for Undergraduate Research and Design Projects.....90
Ali Eydgahi

Application of Cooperative Learning in E-Learning-Based Laboratory Classes.....96
Christina Andersson, Gerald Kroisandt

Proof of concept: Remote Laboratory Raspberry Pi + FPAA.....100
Alejandro Macho, Pablo Baizán, Manuel Blazquez, Félix García-Loro, Elio Sancristobal, Gabriel Díaz, Rosario Gil, Clara Perez, Manuel Castro

Implementation of Interactive and Adjustable Cloud- based e-Learning Tools for 21st Century Engineering Education: Challenges and Prospects.....104
Yakov E. Cherner, James Uhomoibhi, Garry Mullett, Maija M. Kuklja, Catherine Mkude, Leonard Fweja, Hui Wang

Identification of urgent posts in MOOC discussion forums using an improved RCNN.....110
Xia Sun, Shouxi Guo, Yi Gao, Jun Zhang, Xiaolin Xiao, Jun Feng

Tools for active methodology in Lato Sensu postgraduate courses.....115
Rodrigo Uliana Ferreira, Andrey Pelicer Tarichi

Admission to Higher Education: Difficulties felt. How to fight them?.....119
Rosa M. Vasconcelos, Magda O. Pinheiro, Luís Amaral

Distance Education as a Service System.....123
Wagner Oliveira, Luís Alfredo Martins do Amaral

PBL methodology and SME's participation as a proposal for a new teaching methodology.....129
Alexi Delgado, Betsabe Ayala

The TPACK model as the basis of a didactic proposal for the teaching-learning of Linear Programming.....135
Norka Bedregal-Alpaca, Doris Tupacyupanqui-Jaén, Víctor Cornejo-Aparicio

Capstone courses under the PBL methodology approach; for engineering.....141
Víctor Cornejo-Aparicio, Sidanelia Flores-Silva, Norka Bedregal-Alpaca, Doris Tupacyupanqui-Jaén

Strategies for Good Performance of Project Based Learning Methodology.....147
Elmer Ramirez

Application of academic strategies to strengthen intrinsic motivation and reduce the number of students who abandon engineering programs at universities in Lima - North.....152
Gabriel Tirado-Mendoza, Walter Neyra-Lopez, Avid Roman-Gonzalez, Natalia Vargas-Cuentas, David Llulluy, Ulises Lapa-Asto

Impact of the Integral Evaluation on the Professional Training Process of the Students of the Technology Professional Programs.....156
David Llulluy, Laberiano Andrade, Juan Vasquez, Gabriel Tirado, Ulises Lapa, Avid Roman-Gonzalez

The Transition from high school to university: identifying internal and external factors for a successful transition in peruvian students of Architecture and Engineering.....161
Aleixandre Brian Duche-Perez, Fanny Miyahira Paredes-Quispe, Olger Albino Gutierrez-Aguilar

University-Enterprise as Educational Space for Students. An Experience in ProCal-ProSer Project.....167
Abraham Dávila, Karin Melendez, Marcelo S. P. Pessoa

Proposal model for e-learning based on Case Based Reasoning and Reinforcement Learning.....173
Anibal Flores, Luis Alfaro, Jose Herrera

Facebook as a Didactic Instrument to Improve the Teaching-Learning Process in Programming Courses.....179
Julio Vasquez Paragulla, David Llulluy, Avid Roman-Gonzalez

Using Facebook as a pedagogical tool for helping the teaching and learning process in a Faculty of Computer Science.....185
John Trujillo-Trejo, Armando Fermin-Perez, Rosario Trujillo-Huaman, Victor Bustamante-Olivera, Armando Espinoza-Robles, Gilberto Salinas-Azaña

Mobile apps use in indigenous languaje education of pre school children of Huitoto people in Peruvian Amazon.....189
Isaac Ocampo Yahuarcani, Luis E. Campos Baca, Carlos A. García Cortegano, Edgar Gutiérrez Gómez, Rodolfo Cárdenas Vigo, Juan J. Bellido Collahuacho, Lelis A. Saravia Llaja, Angela M. Núñez Satalaya, Alejandro Reategui Pezo, Michael Güipal Tamani, Dina Violeta Pereira

Analysis from point of the view parents on mathematics learning using the grey systems theory.....194
Alexi Delgado, Betsabe Ayala

Applying grey systems to assess social impact on a mining project in Peru.....199
Alexi Delgado, Betsabe Ayala, I. Romero

Production Model for Irrigation Improvement Projects Implemented in Cusco - Peru Using System Dynamics.....204
Robert Antonio Romero Flores

Application of the Modeling Strategy for the development of essays with themes of humanities in students of engineering careers.....210
Fernando Alvarado-Rojas

Relationship Between Research Production And Funding At The Universidad de Ciencias y Humanidades.....216
Beatriz Baylón Gonzales, Ivan Iraola-Real, David Llulluy, Brian Meneses-Claudio, Avid Roman-Gonzalez

Cyber Exposed: The Social Networks And The Life Satisfaction.....221
Ivan Iraola-Real, Lesly Moreyra-Cáceres, Violeta Cristina Cáceres-Buleje, Alberto Collantes-Jarata, Edwin Iraola-Real, Milagros Iraola-Real

Management of technological development projects in the engineering undergraduate – A knowledge management approach and interdisciplinarity.....226
Julio Ernesto Quispe Rojas, Julio Enrique Quispe Tuesta

WIP Evaluating the advantages of using Didactics to teach on informatic servers an services.....230
Liliana Rodríguez Amorocho

Learning physics with virtual environment.....234
Rosalino Rodríguez Calderón, Miguel Ángel García Ruíz

Micro wind turbines to learn Physics.....239
Rosalino Rodríguez Calderón, Daniel Barriga Flores, Sergio Román López

Artificial intelligence as a support technique for university learning.....243
William Villegas-Ch, Xavier Palacios-Pacheco, Sergio Luján-Mora

Semiautomatic Extraction of Morphological Characters from a Book about Insect Vectors of Chagas Disease.....249
María Hallo, Danni Brito, Ivan Carrera, Bryan Lema, Miguel Pinto

Motivational insights about first year engineering students experimenting active learning in mathematics courses.....255
Jose Roberto Portillo Aristondo, Alberth Estuardo Alvarado Ortiz, Jorge Samayoa

Comparison of the learning curve and adaptive behavior from kids to adults using computational thinking with Block-Programming to Technology Enhanced Learning.....260
Felipe Moreno-Vera, Leonardo León-Vera, Juan Moreno-Motta, Juan Guizado-Vasquez, Michael Vera-Panez

Student Mobility Management Model in the Context of Industry 4.0.....265
Gloria Huamani, Paul Tocto, Christina Andersson

Design projects in the first three years of a Computing program.....270
Ludvik D. Medic, Javier Cieza

Academic and Technical Support for Improving Education in Engineering.....276
Jose Galarza, Bartolomé Saénz, Enrique Mucha

Work in Progress-Proposals for Improving Experimental Teaching: Structure of Laboratory Practices.....278
Jose Galarza, Bartolomé Saénz, Enrique Mucha

Analytical Data Mart for the Monitoring of University Accreditation Indicators.....280
Leonardo Ortiz, Maria Hallo,

Assessment of the Social Competence of Teamwork as Part of the Training of Civil Engineers of an Engineering School in Lima.....286
Victoria Ramirez Valdivia, Tatiana Micalay Paredes, Abraham Dávila Ramón

Psychological evaluation of university students: a data mining point of view.....292
Hugo Alatrista-Salas, Juan Lazo-Lazo, Miguel Nunez-del-Prado, Fiorella Otiniano-Campos, Jorge Pérez-Reyes-De-la-Flor

Through an Agnostic Programming Languages Methodology for Plagiarism Detection in Engineering Coding Courses.....297
Gonzalo Herrera, Miguel Nuñez-del-Prado, Juan G. Lazo Lazo, Hugo Alatrista

Undergrad Research in Control Engineering.....303
Arturo Rojas–Moreno

Evolution and development of basic science and electronics laboratories in the Licensing Process of the University of Sciences and Humanities Lima Peru.....308
Luis F. Neglia V.

Influence of the Implementation of the Flipped Classroom Pedagogical Model in Networks and Data Communications Courses in First Generation University Students.....313
Jesus Vilchez-Sandoval, Walter Neyra, Avid Roman-Gonzalez, Gabriel Tirado-Mendoza, David Llulluy-Nuñez, Laberiano Andrade-Arenas

Impact of Formative Research on Engineering students.....318
Ulises Lapa-Asto, Gabriel Tirado-Mendoza, Avid Roman-Gonzalez

Operational Research and Machine Learning: An Engineering Course.....323
Alvaro Talavera, Ana Luna

Design and implementation of a didactic module with manual interface PLC interface and PC serial interface for teaching process control techniques.....328
José Guillermo Máximo Chávez, Lucía Carolina Eliana Cuellar Díaz

Implementation of Instruments to Measure Mood and Binge Eating Disorder in Medical Undergraduate Programs Using Predictive Software.....332
Huber Nieto-Chaupis, Gustavo Villar-Mayuntupa, Hugo del Rosario, Roberto Cotrina

Are Really Young Universities in Disadvantage With Well-Established Institutions?: The Bridge of the Research to Minimize the Existent Gap in Peruvian Universities.....336
Huber Nieto-Chaupis, Carlos Campomanes-Bravo, David Llulluy, Miguel Flores-Vasquez, Hipolito Reyes, Gustavo Villar-Mayuntupa, William Cortez, Walter Huisa

Profiles of academic goals in engineering students at private universities in Peru.....340
Juan Manuel Machuca, Mario Chong

Technique of Flipped Learning; Methodology of Learning by Projects and Cooperative Learning applied to Computer Networks course of PUCP University.....344
Gumercindo Bartra Gardini, Marta Lucía Tostes Vieira, Nérida del Cármen Pastrana Díaz, Claudia Patricia Motta Villa García

Peruvian curricular meshes.....350
Jaime Minaya, Fernando Socualaya, Piero Marini, Ricardo Temoche, Gonzalo Alfaro, Jose Diaz, Johan Tanta

Advantages of Learning Factories for Production Planning based on shop floor simulation: A step towards smart factories in Industry 4.0.....354
Andrés Montoya, Álvaro Guarín, Julián Mora

Analysis of Gamification Elements in the Virtual Learning Environment Context.....360
Claudia de Armas de Armas, Isaac Guillermo Gonzales Vizcarra, Douglas Lima Dantas, Sergio Takeo Kofuji, Antonio Carlos Seabra

Dedicated and Effective: Predictive Research in Students of Elementary Education Career.....365
Ivan Iraola-Real, Lizeth Nolberto-Quispe, Jindel Bravo-Cunza, Casiano Blas-Atencia

“I Want To Be A Teacher”: Influential Factors The Teaching Self-Efficacy.....370
Ivan Iraola-Real, Jindel Bravo-Cunza, Casiano Blas-Atencia, Lizeth Nolberto-Quispe

Raising the bar:how UTEC is pushing students without letting them fall.....375
Daniel Akamine, Mauricio Power

INFOGRAPHICS. A way to increase competences.....379
Claudio Ariel Savini, Viviana Lucia Gasull, Patricia Beatriz Gimeno

Why Do I Study The Nursing Career? The Importance Of The Motivation And The Vocation.....385
Ivan Iraola-Real, Milagros Iraola-Real, William Iraola-Real, Edwin Iraola-Real, Felícita Nery Real-Torres

Predictors of Performance and of Psychological Well-Being in Engineering Career Aspirants.....389
Ivan Iraola-Real, Milagros Iraola-Real, William Iraola-Real, Edwin Iraola-Real, Felícita Nery Real-Torres, Beatriz Baylon

Analysis of the Academic Performance of the Students of Mechanical and Electrical Engineering of the UNTELS.....393
Joseph Morales-Aquise, Nadia Cahua-Carbajal, Juan Guillermo-Velasquez, Paula Manzano-Condori, Josue Espino-Condori, Erick Diaz-Chumpitaz, Omar Chamorro-Atalaya, Avid Roman-Gonzalez

Collaborative methodology and ICTs for Math Learning in undergraduate students.....397
Braulio Barzola, Alejandro Ecos, Manuel J. Ibarra, Edgar Vilca, Mario Aquino, Mariluz Castillo Cáceres

Llup'ix.....403
Jose Alfredo Díaz Leon, Wilder Ernesto Abad Jiménez, Juan Luis Barraza Ramírez, Sheyla Anaís Frontado Aldana, Astrid Tiffany Alexandra Puma Alvites, Renzo Lucciano Solórzano Pinzás

SCRATCHTON.....406
Diego Palma, Del Piero Flores, Jean Miraval, Aarón Rodríguez, Daniel Espinoza, José Díaz León

Laptop XO.....409
José Diaz León, Carlos Quintana Ponce, Claudio Saldaña Ramirez, Victor Peña Andia, Jose Martel Quispe, Dario Toribio Lopez

Perspectives on Computing Education in Latin America and the CC2020 Project.....411
John Impagliazzo, Ernesto Cuadros-Vargas, Renata Araujo, Beatriz Florian-Gaviria, Héctor Cancela

Challenges in Postgraduate thesis writing in Engineering and Computer careers. Students’ and teachers’ perspectives.....413
María Isabel Pozzo

Innovation & Engineering.....417
Mario Chong, Ana Luna

Teaching practices with VISIR remote lab: technical; educational and research fundamentals from the PILAR Project.....420
Manuel Castro, Kristian Nilsson, María Isabel Pozzo, Félix García-Loro, Ricardo Martin Fernández