SELECTED PROCEEDINGS FROM THE 15TH INTERNATIONAL CONGRESS ON PROJECT ENGINEERING

HUESCA, JULY 2011



IPNA international project management association









SELECTED PROCEEDINGS FROM THE 15TH INTERNATIONAL CONGRESS ON PROJECT ENGINEERING

HUESCA, JULY 2011









Selected Proceedings from the 15th International Congress on Project Engineering, AEIPRO 2011

Edited by AEIPRO (Spanish Association of Project Engineering)

ISBN-13: 978-84-615-7674-6

©AEIPRO, 2012

The works published here are "open access literature". This means that it is freely available on the public internet, permitting any user to read, download, copy, distribute, print, search, or link to the full texts of these articles, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and to ensure that they are properly acknowledged and cited.

The Publishers are not resposible for any statement made in this publication. Data, discussion, and conclusions developed by authors are for information only and are not intended for use without independent substatianting investigation on the part of potential users. Opinions expressed are those of the Author and are not necessarily those of AEIPRO (Asociación Española de Ingeniería de Proyectos).





INDEX

INTRODUCTION	5
TOPIC AREA: PROJECT MANAGEMENT)
LEADERSHIP IN EXECUTIVE WOMEN FROM THE VIEWPOINT OF PROJECT MANAGEMENT COMPETENCES: A STUDY IN THE REGION OF MADRID	1
Sastre, S., De los Ríos, I.	
TASTING ROOMS: ANALYSIS OF COMPLIANCE WITH STAKEHOLDERS EXPECTATIONS IN A R&D INFRASTRUCTURE PROJECT23	3
Vergara, E., Otaño, L., Nájera, P., López, LM.	
CONCEPT OF PROJECT: LEARNING LESSONS	9
Morales, J., Trueba, I.	
USING AN ANT COLONY OPTIMIZATION ALGORITHM FOR RESOURCE OPTIMIZATION4	9
Areces, P., Alba, C., Balsera, J., Gómez, A.	
TOPIC AREA: ENVIRONMENT AND NATURAL RESOURCES MANAGENENT	;
NEW CERAMIC TECHNOLOGY FOR CATALYSIS AND THE REDUCTION OF EMISSIONS AND PARTICULATE POLLUTANTS INTO THE ATMOSPHERE	5
Cusidó, JA., Cremadre, LV., González, M.	
ANALYSIS OF THE HOMOGENEITY OF THE SURFACE DOSE APPLIED BY BOOM SPRAYERS IN CIRCULAR TRAJECTORIES	5
Boné, A., Vidal, M., Serreta, A., Guillén, J.	
LANDSCAPE AND SOILS FEATURES THAT BEAR ON THE LAND MANAGEMENT OF GALLOCANTA LAKE, SPAIN9	1
Raquel, R., Castañeda, C., Maestro, M., García-González, MT.	
THE ECOLOGICAL FOOTPRINT OF TRANSPORTING WASTE IN THE PROVINCE OF CASTELLON	3
Moliner, E., Muñoz, C., Garrián, D., Franco, V., Vidal, R.	
WASTE MAP OF THE PROVINCE OF CASTELLON	7
Moliner, E., Muñoz, C., Guasch, C., Garrián, D., Vidal, R., Rubio, V.	
TOPIC AREA: ENERGY EFFICIENCY AND RENEWABLE ENERGIES)
MODELING OF A WIND ENERGY CONVERSION SYSTEM OF VARIABLE SPEED CONSIDERING THE BUCKLING PHENOMENON OF THE TOWER13	1
Sánchez, P., Aros, N.	
TOPIC AREA: RURAL DEVELOPMENT AND COOPERATION PROJECTS143	;
SOCIAL INVOLVEMENT FOR COMMUNITY DEVELOPMENT IN RURAL AREAS OF CUENCA, SPAIN14	5

Díaz-Puente, JM., Vidueira, P.



IPMA^{*} international project management association

COUNTING, SCORING AND CLASSIFYING HUNGER TO ALLOCATE RESOURCES TARGETED TO SOLVE THE PROBLEM	159
Afonso, A., Trueba, I., Tarancón, M.	
TOPIC AREA: PRODUCTION PROCESS ENGINEERING	171
ADJUSTMENT IN THE PROCESS OF STEEL PRODUCTION TO DECREASE THE ENVIRONMENTAL IMPACT ASSOCIATED WITH SLAG GENERATION	173
Andrés, S., Álvarez, JV., Villanueva, J., Rodríguez, F.	
TOPIC AREA: PRODUCT ENGINEERING	183
EVALUATION OF THE PERCEPTION OF SENSORY AND EXPERIENCE LEVELS FOR CHEWING GUM PACKS	185
Lidón, I., Rebollar, R., Serrano, A., Martín, J.	
MICROENCAPSULATED FRAGANCES IN AUTOMOBILE UPHOLSTERY TEXTILES.	193
Oliveras, V., González, MM., Justes, MJ., Baosa, D.	
APPLYING NANOTECHNOLOGY IN EASY-TO-CLEAN HYDROPHOBIC FABRICS AND ITS USE IN AUTOMOBILES.	203
Oliveras, V., González, MM., Justes, MJ.	
APPLYING NEW BLOW-FORMING PROCESSES TO OBTAIN NEW STRUCTURAL COMPONENTS FOR AUTOMOTIVE INDUSTRY: A-PILLAR	211
Oliveras, V., Agustí, X., Frestl, M., Zahinos, A., Cula, V.,	
KANSEI ENGINEERING AND THE INFLUENCE OF GENDER IN HUMAN PERCEPTION	223
Beitia, A., Vergara, M., González de Heredia, A., Beitia-Amondarain, A.	
DESIGN OF ACCESORIES FOR THE COPUPLING IN FORKLIFT TRUCKS: CRANE GIBS AND PALLET BOX LOCK	233
Miralbes, M., Malon, H., Castejón, L.	
CAR LOAD SECURITY TEST ("CITY CRASH") INSTALLATION	247
Edo, M., Oliveras, M., González, M.	
TOPIC AREA: TRAINING IN PROJECT ENGINEERING	257
USE OF LOGISTIC REGRESSION FOR THE PREDICTIVE ASSESSMENT OF THE QUALITY OF PROJECTS COMPLETED BY GROUPS OF STUDENTS	259
Rebollar, R., Lidón, I., Cano, JL., Martín, J., Castejón, M.	
TRAINING PROJECT MANAGEMENT COMPLEXITY IN POSTGRADUATE AND CONTINUING EDUCATION PROGRAMS: A LEARNING STRATEGY IN THE ESHE (EUROPEAN SPACE OF HIGHER EDUCATION) FRAMEWORK	267
De llos Ríos, I., Marínez-Almela, J., Knoepfel, M.	





INTRODUCTION

The Spanish Association of Project Engineering is pleased to publish the following selection of the best papers presented at the 15th International Congress on Project Engineering. After having organized an annual Congress with an array of universities over the last 17 years —first at the national and then at the international level— by the end of 2008 the AEIPRO Directive Board decided to establish a Scientific Committee to evaluate the papers presented at the Congress. The Scientific Committee has also chosen the works to be published in the selected proceedings of the Congress. The procedures to establish the Scientific Committee and evaluate the submitted papers are explained below in detail. It is the hope of the Committee that the compiled works contribute to the improvement of project engineering research and improve the transfer of results to the job of Project Engineers.

The Spanish Association of Project Engineering (Asociación Española de Ingeniería de Proyectos — AEIPRO) is a non-profit organization founded in September 1992. It is an entity for the professionalization of Project Engineering with the following goals: to facilitate the association of scientists and professionals within the Project Engineering area; to serve as a tool for improving communication and cooperation amongst these professionals; to improve experts' knowledge in the different fields of Project Engineering; to promote the best professional practices in these fields; to identify and define the needs that may arise in the every day development of these activities; and finally, to adopt positions in order to orientate society when faced with differences within the fields of action. At present it is a National Association within IPMA (International Project Management Association), an international association that brings together more than 45,000 members and represents about half a million professionals from 47 countries.

From its beginnings, AEIPRO has been holding an annual Congress with growing concern for the improvement of the evaluation process of the presented papers. This consideration has led to the establishment of a scientific approach capable of adopting the evaluation criteria of the scientific activity. These criteria, specific to each scientific field, were defined by the Presidency of the CNEAI¹ in its Resolution of 11/11/2008. The key issues in the area of Project Engineering are presented in subfield 6.3. In paragraph 3.b) of the mentioned subfield, one of the relevant types of contributions is:

"The works published in the proceedings of congresses that are peer reviewed, whenever these proceedings serve as a vehicle to knowledge diffusion similar to prestigious international journals".

Taking the preceding statement into consideration, during the 15th International Congress of Project Engineering, held in Huesca in July of 2011, a scientific procedure was developed so that the works published in the proceedings of this Congress would meet these requirements. Tasks to create a Scientific Committee and design the action procedures for the evaluation of the presented papers at the Congress were developed in order to meet these goals. The results of these tasks are described in the following sections.

¹ Comisión Nacional Evaluadora de la Actividad Investigadora (National Commission for the Evaluation of Research Activities) in Spain. The Royal Decree 1086/89, of August 28th, concerning the retribution of professors defines two independent systems to evaluate teaching and research in Spain. The first is defined as an exclusive competence of the University, while the evaluation of research is the responsibility of the State entrusted to the CNEAI. The Commission's role is to carry out the evaluation of the research activities of university professors and the scientists within the Spanish National Research Council (*Consejo Superior de Investigaciones Científicas — CSIC*). Application for a Research Incentive Award (known as a *Sexenio*), requiring an evaluation of research activity over a six-year period according to the requirements of the Decree 186/1999 of August 28th and its following modifications, is voluntary. The purpose of providing benefits for productivity is to improve the quality of academic research activities, along with the diffusion of the work on a national and international level. CNEAI applies the advice of scientific community members; and for each evaluation a committee of advisers is created according to 11 scientific fields.





Creation of the Scientific Committee

AEIPRO gathers prestigious Project Engineering professionals as well as university professors involved in Project Engineering and related areas. The first step in creating the Scientific Committee was to agree on criteria of excellence for the two groups that are to be represented in the Committee. For university professors to be considered, they must have at least one Research Incentive Award (known as a *Sexenio*) granted by the CNEAI after a positive evaluation of their research activity over a six-year period.

The criteria for a professional is to have a Certification in Professional Competences level C according to the criteria established by IPMA for the international Certification system in Project Management.

Members of the Scientific Committee in the 15th International Congress on Project Engineering, Huesca 2011

Role	Name	Institution
President	Adolfo Cazorla Montero	Universidad Politécnica de Madrid
	Agustín Molina García	Universidad Politécnica de Madrid
	Andrés Pastor Fernández	Universidad de Cádiz
	Angel Mena Nieto	Universidad de Huelva
	Antonio Gallardo Izquierdo	Universitat Jaume I
	Carlos José Álvarez López	Universidad de Santiago de Compostela
	Dante Guerrero Chanduví	Universidad de Piura (Perú)
	Eliseo Gómez Senent	Universidad Politécnica de Valencia
	Eliseo Pablo Vergara González	Universidad de La Rioja
	Fco. Javier García Ramos	Universidad de Zaragoza
	Fco. Javier Martínez de Pisón Ascacibar	Universidad de La Rioja
	Fernando López Rodríguez	Universidad de Extremadura
	Francisco José Gallego Moreno	Instituto de Desarrollo Comunitario de Cuenca
	Francisco Ortega Fernández	Universidad de Oviedo
	Ignacio de los Ríos Carmenado	Universidad Politécnica de Madrid
	Isabel Ramos Román	Universidad de Sevilla
	Javier Contreras Sanz	Universidad de Castilla la Mancha
	Javier Pajares Gutiérrez	Universidad de Valladolid
	Jesús Guillén Torres	Universidad de Zaragoza
Vocals	Jesús Martínez Almela	Fundación Intercoop
	Joaquín Lloveras Macia	Universidad Politécnica de Cataluña
	Jorge Cadena Íñiguez	Colegio de Postgraduados de México
	José Luis Ayuso Muñoz	Universidad de Córdoba
	Jose Luis Salmeron	Universidad de Pontevedra
	José Luis Yagüe Blanco	Universidad Politécnica de Madrid
	José Ramón Otegi Olaso	Universidad del País Vasco
	Luis Amendola	Universidad Politécnica de Valencia
	Luis Ortiz Marcos	INSA
	Manuel de Cós Castillo	Universidad Politécnica de Madrid
	Manuel Fco. Marey Pérez	Universidad de Santiago de Compostela
	Martín Barrasa Rioja	Universidad de Santiago de Compostela
	Pablo Aragonés-Beltrán	Universidad Politécnica de Valencia
	Rosario Vidal Nadal	Universitat Jaume I
	Rubén Rebollar Rubio	Universidad de Zaragoza
	Salvador Capuz Rizo	Universidad Politécnica de Valencia
	Tibaire Depool	PMM Institute for Learning
	Vicente Rodríguez Montequín	Universidad de Oviedo
Secretary	José María Díaz Puente	Universidad Politécnica de Madrid





The Scientific Committee then had to be formed by professionals and university professors that meet these requirements of excellence, and are willing to assume the commitments as members of the Committee. These commitments include the participation in the evaluation of the presented papers and selection of the works that will be awarded by the Committee each year. Additionally, the Scientific Committee members are expected to demonstrate confidentiality during the evaluation process. Taking into account the described criteria and commitments, the Scientific Committee of the 15th International Congress of Project Engineering was established as detailed in the following table.

The members of the Scientific Committee were organized into different topic areas within the Congress depending on their curricula. Each member of the Committee participated in three areas. The topic areas represented in the AEIPRO annual Congresses are: AT1 Project management; AT2 Land management, urbanism, architecture and civil engineering; AT3 Food and forest industries; AT4 Environment and natural resources management; AT5 Energy efficiency and renewable energies; AT6 Rural development and cooperation projects; AT7 Production process engineering; AT8 Product engineering; AT9 Information and communication technologies and software engineering; AT10 Training in project engineering.

Evaluation of Submitted Papers

Paper submitted to the conference underwent a blind peer-review process in which the evaluators had to score the papers from 0 to 100. Then, during the conference, two members of the Scientific Committee attended each presentation of the papers and gave a similar score from 0 to 100. Implementing this protocol, 35 submissions that scored more than 80 points out of 100 in the mean of the two scores given to each paper, were selected at the end of the 15th International Congress of Project Engineering in Huesca. The authors of the selected works were contacted by the AEIPRO Directive Board an invited to undergo a second blind peer-review process and — if passing the second review — to have their works translated into English and published online.

Authors of 35 selected papers expressed interest to participate in the second peer-review. In order to evaluate these, additional criteria needed to be defined — in addition to the original parameters used to define the Scientific Committee— to select a Subcommittee for the subsequent peer-review. The members of this Subcommittee were required to have at least two Research Incentive Awards (*Sexenios*) granted by the CNEAI or to hold a level A or B of the IPMA certification. The selected members of the Subcommittee are presented in the following table.

Role	Name	Institution
President	Adolfo Cazorla Montero	Universidad Politécnica de Madrid
Vocals	Agustín Molina García	Universidad Politécnica de Madrid
	Eliseo Gómez Senent	Universidad Politécnica de Valencia
	F. Javier García Ramos	Universidad de Zaragoza
	Fernando López Rodríguez	Universidad de Extremadura
	Francisco Ortega Fernández	Universidad de Oviedo
	Isabel Ramos Román	Universidad de Sevilla
	Javier Contreras Sanz	Universidad de Castilla la Mancha
	Jesús Guillén Torres	Universidad de Zaragoza
	Jesús Martínez Almela	Fundación Intercoop
	Joaquín Lloveras Macia	Universidad Politécnica de Cataluña
	José Luis Ayuso Muñoz	Universidad de Córdoba
	Jose Luis Salmeron	Universidad de Pontevedra
	Luis Amendola	Universidad Politécnica de Valencia
	Manuel De Cós Castillo	Universidad Politécnica de Madrid
	Salvador Capuz Rizo	Universidad Politécnica de Valencia
Secretary	José María Díaz Puente	Universidad Politécnica de Madrid

Members of the Scientific Subcommittee for the second peer-review in the 15th International Congress of Project Engineering, Huesca 2011



IPMA^{*} international project management association

The procedure followed for the second peer–review by the Scientific Subcommittee coincided with the previous protocol and resulted in the selection of 24 papers. The authors of the selected works were then requested (and most of them did) to translate their works into English in order to publish them on line, both by AEIPRO and IPMA. The following publication is the final result of the entire process and includes 24 selected, peer-reviewed papers.

A blind peer–review process was established to ensure independence between evaluators and those evaluated. The complete action protocol is presented in the following chart.

