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GUEST EDITORIAL: SPECIAL ISSUE FOR THE 8º CONGRESO NACIONAL DE INGENIERÍA TERMODINÁMICA-8 CNIT-2013 (THE 8TH NATIONAL CONGRESS OF ENGINEERING THERMODYNAMICS)

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As Chairs of the Organizing Committee of the 8th National Conference of Engineering Thermodynamics 8CNIT-2013 (8º Congreso Nacional de Ingeniería Termodinámica 2013, 8CNIT), we want to acknowledge the Editorial Board of the Journal of Technology and Science Education (JOTSE) for publishing this special issue on Innovations in Education in Engineering Thermodynamics.

The 8CNIT-2013 was hosted by the University of Burgos (Spain) by 19-21 June 2013. It was the 8th edition of a series that started in 1999, and now the CNIT series has become a regular research + development conference in Spain. Topics of the conference are devoted to engineering thermodynamics in several fields: energy efficiency in buildings and the industry, renewable energies, new fluids for engines and processes, energy and exergy analysis, fuels and biofuels, refrigeration and air-conditioning, simulation of energy processes, etc. The scientific level of the conference is quite good, contributions are peer reviewed and proceedings of the conferences are published.

Moreover, from the very first edition in 1999, the conference always includes a section on education in engineering thermodynamics. Innovation and research contributions on teaching methodologies, new laboratory or multimedia developments, as well as e-learning experiences, are common topics presented at the CNIT conferences. Some of the authors are also regular contributors to engineering education journals. As we thought the conference has got a qualified level in the field of engineering education, we addressed a proposal to the Editorial Board of JOTSE in order to publish a special issue. And the proposal was kindly accepted.

A set of 23 papers on education in engineering thermodynamics were accepted for the Conference. 28 reviewers of the Scientific Committee of the 8CNIT participated in the review process. Every paper was peer-reviewed by at least two reviewers. The Scientific Committee of the 8CNIT has selected 6 papers from the set of educational contributions presented at the 8CNIT-2013.

The work of Carrillo et al. at the University of Málaga is focused on considering graphics tablet technology for interactive teaching. The paper provides useful information and guidance by sharing experiences made using a graphics tablet for lecturing an undergraduate course on Thermal Engineering.

At the University of Navarra, Rodríguez-García et al. present a prototype test bench to perform practical lectures on thermoelectric generation and refrigeration. Using this prototype students learn the most effective way of cooling systems and thermal power generation as well as basic concepts associated with thermoelectricity. The bench provides students with tools to test and apply the theory in real applications, and it leads to a better understanding of the topic. Carrascal and Sala, at the University of Basque Country, present an innovative lecturing use of a Ranque-Hilsh vortex tube bench. A compressed air flow is divided into two streams at a lower pressure, one hot and one cold, without thermal interaction with any energy reservoirs, showing experimentally the basis of the First and Second Law of Thermodynamics.

A case study of Project Based Learning approach at Master level is presented by Arce et al., at the University of Vigo. The topic Building Energy Efficiency is taught by means of such methodology within the Master on Research on Thermal Engineering. The experience can be of value for interested readers in applying this active learning strategy.

The work of González-Fernández et al., at the University of Burgos, deals with the development of teamwork skill as a self-building process of the student. The paper presents the fundamentals of the learning strategy adopted to promote teamwork, describes the context and challenges faced up in the case studies and, finally, discusses the student's achievement and perception. The topics involved in this experience are energy related

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topics such as electrical installations, heat transfer, engineering thermodynamics or theory of circuits.

Finally, the paper of Sánchez et al., at the University Jaume I, presents the project called CO2LD, which was developed to introduce the future technology in High Degree Vocational Training in Refrigeration. The objective of the project consisted in introducing more efficient and more sustainable refrigeration systems, and in creating a collaborative framework among students, secondary schools, refrigeration technicians, refrigeration companies, and the University in order to facilitate the transfer of know-how.

We want finally to acknowledge Dr. Ana Cadenato (Universitat Politècnica de Catalunya), to whom we are very grateful for helping and supporting the 8CNIT-2013 Organizing Committee to collaborate with JOTSE for this special issue.

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Members of the Scientific Committee of the 8CNIT-2013 and other contributors that participated in the Conference and JOTSE peer-review.

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