3rd Seminar on Innovation, Science and Technology for Energy-Efficient Development: Green Buildings

Profile of Participants

COUNTRY: PANAMA

Name: **Jimmy Chang Liu**
Nationality: **Panamanian**
Current position: **Professor and Coordinator of Career**
Institution: **Universidad Tecnológica de Panamá**

Address: **Campus Central Dr. Víctor Levi Sasso, Ave. y Ave. Ricardo J. Alfaro, Ciudad de Panamá, República de Panamá.**

Small biography

Eng. Jimmy Chang, Mechanical Engineer graduated from the Universidad Tecnológica de Panamá (UTP) on April 26, 1996; since then he began his career as a full-time Professor in the Department of Energy and Environment, Faculty of Mechanical Engineering of the UTP. In his graduate studies in UTP, obtained the title of Graduate in Plant Engineering on April 12, 2000 and a Masters in Plant Engineering on August 17, 2006. Currently he is a doctoral candidate in the doctoral program in environmental science of the Universidad Politécnica de Madrid (UPM, Spain).

It is noteworthy that in his career as a teacher in the UTP, has dictated the following courses: Thermodynamics, Fluid Mechanics, Heat Engines, Thermofluids Sciences, Heat Transfer, Turbomachinery, Power Plants, Steam Plant, Environmental Engineering and Computing in Mechanical Engineering; for Bachellor Degrees in: Mechanical Engineering, Industrial- Mechanical Engineering, Electromechanical Engineering, Civil Engineering, Industrial Engineering, Food Engineering, Computer Systems Engineering, Refrigeration and Air Conditioning and Industrial Mechanics.

Moreover, in his administrative work, he has served as Coordinator of the Heat Transfer Laboratory and of the Refrigeration and Air Conditioning Laboratory. He is currently coordinator of the Bachelor Degree in Aeronautical Engineering and the Bachelor Degree in Refrigeration and Air Conditioning in the Faculty of Mechanical Engineering of the UTP.

Finally, in his research work, he has made several researches on energy, in which we highlight "Distribution of velocity and temperature of air in unventilated attics" in 1996 for his bachelor thesis; and " Review of the Efficient Windows Design of Green Buildings in Panama according to the LEED Standard" in 2011 as the Advanced Study Defense of doctoral program in Environmental Science at UPM.

Impact of their work of teaching and / or research

Panama's energy policy is aimed at ensuring the rational and efficient use of energy resources in a sustainable manner, according to the National Development Plan and within the economic, competitive parameters, with a established environmental quality.

On relation to the National Strategic Plan for Science, Technology and Innovation (PENCYT) 2010-2014, the theme of the research we're currently doing is within the priority areas of education, specifically in the energy sector, such as energy economics, efficiency energy management, energy efficiency, renewable energy, sustainable buildings and energy policy for sustainable development.

Therefore, with the research we will know what type of glasses are best suited for designing efficient windows in buildings under the climatic conditions in Panama. It could also contribute to the development of the generation and use of renewable energy in buildings and reduce emissions of CO2, SO2 and NOx in buildings in Panama, using efficient windows and reducing high consumption of electricity in the air conditioning systems and lighting of buildings.

Furthermore, efficient windows can isolate solar energy entering through the windows of the buildings, and therefore reduces the electric energy consumption in the air conditioning systems and lighting, as well as lower CO2 emissions in Panama .

Moreover, a minimum initial investment of 2% of typical construction costs for green building, can produce a life cycle savings of over 10 times the initial investment (Kats, et al, 2003.) in order to contribute to the country's economy.