Tecnológico de Monterrey

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Undergraduate Research Program

Project Name	Decarbonization roadmaps for energy systems; Life Cycle Assessment (LCA) of energy-transport technologies
Campus & Location in Mexico	Ciudad de México
Faculty	Engineering
Research Area	Energy and Climate Change
Research Responsible	Edgar Santoyo Castelazo
Description of the Project	The research aim of this project is to develop a novel integrated research framework to address and to identify the most sustainable energy technology options for the road transport sector in Mexico; and includes policy recommendations required for the energy transition and for sustainable mobility, from today to 2050. The project is based on the fact that in the country fossil fuels account for 99.9% of the total energy consumption in the transport sector, which generates above one-third of the total emissions that cause environmental damage and contribute to global climate change. Although it is not still possible to totally stop depending on these fuels, it is necessary to progressively replace them with sustainable and affordable energy technologies. For the country, in the long term (2050), this means facing a huge challenge that requires a multidisciplinary and comprehensive approach. Thereby, this project develops a research framework that, in different scenarios; qualitatively and quantitatively evaluates and analyzes viable sustainable energy alternatives for this sector, which can be used as an instrument for decision making and planning directed towards sustainable mobility.
Training Provided	Elaboration of theoretical framework;Planning and efficient search strategies and management of specialized databases;References and bibliographic analysis
Modality	Hybrid
Offered During	Winter (5 weeks);Semester

Student	
Tasks/Responsibilities	The task required by the undergraduate student consist of assisting and support of the research activities of this project, by carrying out an extensive literature review regarding international, regional, and national strategies, plans, and policies on sustainable mobility (emissions, energy, vehicle fleet, technology, safety, and security, among others). The research activities also include the identification of qualitative and quantitative targets of road transport sector and key sustainability indicators; besides the written documentation of results. The literature review (from 2013 towards 2050) must comprises government and institutional official websites, databases, and documents (such as reports and technological roadmaps); as well as peer-review scientific journals.
Required Language Proficiency	English (Medium);English (Advanced)
Required Skills and Abilities	Good writing and presentation skills in english; environmental engineering or related background; experience in the use of any energy/environmental modelling software; good time management for delivering project outcomes; critical thinking when revising research literature.
Other Documents Required to APPLY for an Internship	1) Being at least in your 2nd year of bachelor 2) Accumulative grade point average (GPA) 2.5 3) Official Transcript 4) 2 letters of recommendation of faculty members 5) Resume 6) Letter of intention explaining the reason why you would like to participate in the research program