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Undergraduate Research Program	
Project Name	A pragmatic story of a control engineering course
Campus & Location in Mexico	Monterrey
Faculty	Architecture and Design; Humanities and Education; Engineering
Research Area	Educational Innovation
Research Responsible	David Alejandro Sotelo Molina
Description of the Project	<p>It is widely recognized that in any attempt to teach control engineering, it is important to create an “impedance match” between the speaker and audience. However, nowadays, in times of crisis due to the COVID-19 pandemic, it turns into a difficult task due to the mathematical complexity. For example, in a typical control engineering lecture taught via remote, in the computer monitor the Professor presents either a control problem involving long mathematical solution steps or a plot from their last conference paper and uses terms such as stability, optimality, adaptation, and robustness without ever defining these for the students. The observed effect is that many students appear to tune out until the end of the class, looking at their smart phones instead of listening to the speaker. When it happens, the Professor lost an opportunity to inspire a new generation, which represent an academic risk. For that reason, the present proposal contemplates a research work that will lead us to seek innovative ways of exposing students to the nature of theory and professional practice in control engineering. Thus, animated short stories based on two interactive characters explains the main control theory concepts such as: Laplace, transfer function, state space representation, etc. in an attractive way. Meanwhile, the students could interact with the animated characters via mobile (chatbots) for specific concept doubts along the story. Here, professional cartoon design, artificial intelligence, deep learning, augmented reality, etc. could be applied.</p> <p>Along the project you will be continuously advised by us to empower your knowledge and to achieve the following goals:</p>

Training Provided	Article publication;Teamwork;Writing and reading of essays / articles
Modality	Hybrid
Offered During	Summer (5 weeks);Winter (5 weeks);Semester

Student

Tasks/Responsibilities	Innovative proposal.
Required Language Proficiency	Spanish (Basic);Spanish (Medium);Spanish (Advanced);English (Basic);English (Medium);English
Required Skills and Abilities	Research and teamwork.
Other Documents Required to APPLY for an Internship	<ol style="list-style-type: none"> 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