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Undergraduate Research Program	
Project Name	Process Intensification 4.0 for industrial water treatment using Sargassum seaweed as biosorbent
Campus & Location in Mexico	Monterrey
Faculty	Engineering
Research Area	Water, Science and Technology
Research Responsible	Enrique Alfonso Lopez Guajardo
Description of the Project	The project seeks to develop an experimental intensified semi-continuous system for industrial water treatment using either, treated Sargassum seaweed or Biochar from Sargassum seaweed. The system proposed consists of a Rotatory Packed Bed adsorber which its design will depend on the performance analysis through multiphysics modelling. This model could be combined with different AI algorithms and methods (neural networks, machine learning, etc) to determine the suitable design and operational parameters of the RPB adsorber. A model pollutant will be used for the characterization experiments.
Training Provided	Academic manuscript development; Design of experiments; Participation in laboratories
Modality	In Person
Offered During	Semester

Student	
Tasks/Responsibilities	1) Proposal and development of the Rotatory Packed Bed experimental set-up 2) Sargassum seaweed treatment (drying, functionalization and transformation to biochar); 3) Carry out mixing characterization experiments (pulse and step injections); 4) Carry out pre-eliminary adsorption of pollutants with a model system; 5) Aid in the design and development of a prototype of the reaction system; 6) Write a manuscript for further publication of the results.
Required Language Proficiency	English (Medium); English (Advanced)

Required Skills and Abilities	<p>The student is required to have knowledge or experience in:</p> <p>1) Experimental work, 2) CFD ; 3) 3D printing or additive manufacturing techniques; 4)Sensors and Data Analysis .</p> <p>Additionally, the student has a great sense of responsibility and teamwork capacity with a lot of enthusiasm to work in a highly innovative group and to provide out-of-the box ideas. There will be no wrong answers, we require creativity at its best to provide solutions!</p>
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