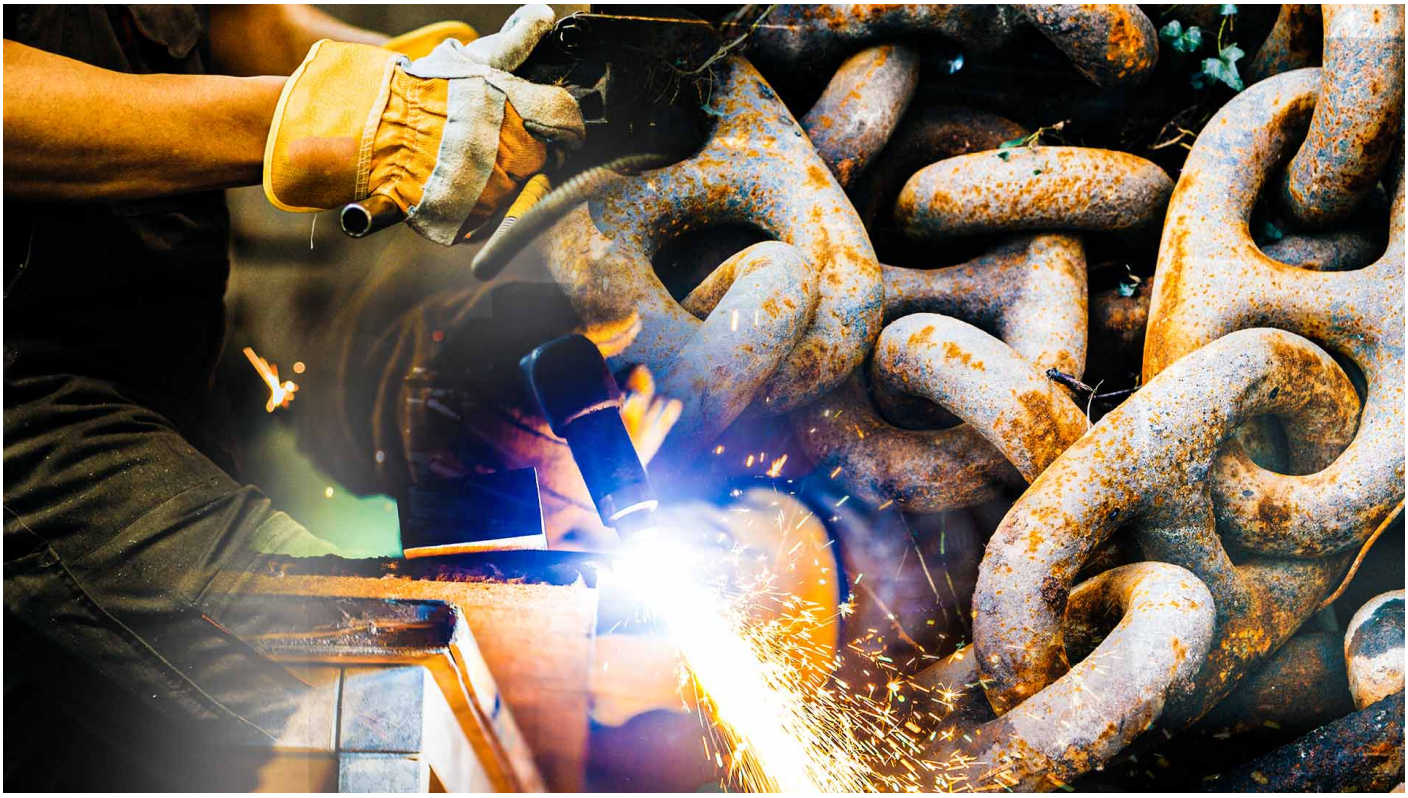
Tec inaugurates institute to create materials for a sustainable world



Tecnológico de Monterrey has presented the **Institute of Advanced Materials for Sustainable Manufacturing**, an initiative that seeks to bring together efforts to create more sustainable materials and processes.

*“We already have two institutes up and running, and today we’re launching a third: the **Institute of Advanced Materials for Sustainable Manufacturing**.*

*“Its goal is to develop technologies to be applied in different manufacturing industries and in innovative sustainable production processes, based on the development of **advanced materials**,”* said **David Garza,** Rector and Executive President of **Tec de Monterrey**.

Some of the projects already being worked on by this initiative include industrial processes that will pollute less, **reduction of environmental CO2,** and development of materials that are not only biodegradable but also benefit the environment.

This institute has **4 units** focused on technology research for the creation of materials, their processing and development, and the creation and promotion of public policies on the same subject.

David Garza compartió la importancia del instituto de manufactura width="900" loading="lazy">

Joining Tec de Monterrey's two other institutes, the **Institute of Advanced Materials for Sustainable Manufacturing** was presented during the first **International Conference on Advanced Materials for Sustainable Manufacturing**.

Juan Pablo Murra, Rector of Undergraduate and Graduate Studies at the Tec, highlighted the importance of the institution's researchers in bringing this new initiative to fruition.

*"We must remember and celebrate that we're now able to launch these three **multidisciplinary institutes** thanks to the work done in the last 10 years by Tec researchers."*

David Garza said that this is an interdisciplinary space which seeks to develop technology for application in different manufacturing industries, adding:

*"**Tec de Monterrey** **has promoted scientific work since its creation.** We're convinced that we have the potential to solve society's most pressing problems through research."*

The other two Tec institutes are the ***Institute for the Future of Education*** and the ***Institute for Obesity Research***.

Materials for a sustainable future

The ***Institute of Advanced Materials for Sustainable Manufacturing*** seeks to create research in the area of sustainable materials and sustainable production processes.

Arturo Molina Gutiérrez, director of the new institute, said that one of the reasons for the creation of this space is the need to minimize the environmental impact of industries.

*"The manufacturing industry in Mexico generates millions of tons of greenhouse gases, which is why we want to **decarbonize** the industry and contribute to achieving a carbon neutral economy.*

"Carbon emissions are a major global issue, so we decided it was important to work with industry, focusing research on the creation of advanced materials that don't generate a carbon footprint," he said.

"The manufacturing industry in Mexico generates millions of tons of greenhouse gases. We want to decarbonize the industry." - Arturo Molina.

The institute's initial focus is to work at a national level and later expand to Latin America.

Molina mentioned that the institute will be operating at various Tec campuses in Mexico: **Monterrey**, **Guadalajara**, **Mexico City,** and **State of Mexico,** as well as certain professors in **Querétaro**.

El Tecnológico de Monterrey inauguró el Instituto de Investigación en Materiales Avanzados para la Manu
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Reusable and non-polluting materials

The institute is made up of **four units** focused on the creation of new materials, their processing and development, and the promotion of related public policies.

Dora Iliana Medina, one of the leaders of the **Accelerated Materials Development Unit**, mentioned that they hope to create and develop innovative materials technology at this unit while minimizing their environmental impact.

This space seeks to create materials that use organic waste, advanced polymers, and even materials based on the carbon dioxide emitted by companies in different industries.

The academic said that **polymers**, for example, are currently being developed for food packaging, which is traditionally made of plastic and is very polluting. They hope to replace them with materials that will not only affect the environment, but also benefit it.

“It’s not a matter just of zero emissions or recycling, but also of how we’re able to ensure that the environment can reabsorb these materials,” said Alex Elías Zúñiga, another leader of the unit.

El Institute of Advanced Materials for Sustainable Manufacturing es el tercer instituto de Investigación del
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Environmentally friendly manufacturing processes

The **Process Unit** seeks to make changes not only in the final product and in the materials developed by the industry, but also in the **process of creating** them.

*“What we do is research on redesigning the processes that exist to make them more **efficient**, **greener**, and with **higher performance**,”* said Mariel Alfaro Ponce, leader of the unit.

He pointed out that they are already looking to work with industries in the foundry sector, which are some of the industries that send the most waste into the air and water.

*“We hope to make **energy** use more **efficient**, reduce **consumption**, and reduce **waste**.*

“And of course, trying to implement control and automation algorithms to optimize processes and make them more sustainable,” added **Arturo Molina**, director of the institute.

Este instituto cuenta con 4 unidades enfocadas en la investigación width="900" loading="lazy">

Enabling technologies for advanced materials

The **Enabling Technologies for Advanced Materials Unit** covers everything from processes to materials manufacturing, but with a focus on technology and how it can be applied to make them more efficient and environmentally friendly.

Some of the technologies they are looking to apply in this unit include **artificial intelligence**, **augmented reality** and **virtual reality**, **robotics**, **intelligent automation,** and **optimization** through **algorithms.**

“Two paths lie before us. One is to use the technology we already have, but we can also create ***new technologies*** *and* ***algorithms*** *that will enable greater solutions,” said* ***Pedro Ponce Cruz****, leader of the unit.*

“Manufacturing materials with less traditional methods can lead to less waste of raw materials, maximized use of resources, and new applications with less of a long-term impact,” said **Rita Quetziquel Fuentes***,* who also leads the unit*.*

Public policies for sustainable manufacturing

Public Policy is another unit at the **Institute of Advanced Materials for Sustainable Manufacturing.**

The aim of this unit is to ensure that the work carried out at the institute can translate into the creation and implementation of public policies at different governmental levels.

It also analyzes and identifies opportunities for cooperation between various public and private agencies, as well as between companies, the government, and researchers.

“What we want is to generate information that allows governments to determine the regulations and strategic investments that will encourage these transformations,” said Fernando Gómez Zaldívar, leader of the Public Policy unit*.*

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