



During **Challenge: FrED Factory**, [Monterrey campus](#) students could gain real work experience in different factory processes.

Challenge: FrED Factory is a project designed by the **Massachusetts Institute of Technology (MIT)** to provide students with hands-on experience of production lines.

"It's what we call an immersive learning experience. It's important for students to have this type of experience, to learn about the equipment in a factory," said Erick Ramirez, the Tec professor coordinating this activity.

During the semester's closing ceremony on June 12, the students shared what they had learned during this experience.



Creating a production line

The students participating in the challenge were studying **Manufacturing Systems Automation** on the [Mechatronics Engineering](#) program.

In the final session, they presented the five stations they had built, which made up the **FrED** production line; a **fiber extrusion machine** developed jointly by **Tec and MIT students**.

“The entire class group worked together at stations within manufacturing cells to assemble the machine and create this production line.

*“**FrED** is a fully mechatronic educational device, which on this occasion resulted in the construction of five stations,” Ramirez said.*

The five stations included the **base assembly, electronics, cooling, base cover, linear axis, and winding system.**

Through this activity, students could **monitor the operation** of a production line in real-time, **analyze** bottlenecks, **and experience** how maintenance shutdowns were performed at a station when necessary.

The students highlighted the importance of participating in this challenge. As Arik Gómez said, *“We gained theoretical knowledge and practical skills, very close to the real context we are about to experience.”*

The professors for this class were **Adriana Vargas Martínez, Alexandro Antonio Ortiz Espinoza, David de Jesús Mastrascusa González, Cesar Armando Cantú Cavada, and Erick Guadalupe Ramírez Cedillo.**

At the end, the students presented the production line located in the **CETEC** building.

“It’s what we call an immersive learning experience.”- Erick Ramirez

FrED, a practical experience for students

Among those attending the presentation was **Brian Anthony**, Associate Director of [MIT.Nano](#) who explained that **FrED** provides the university with a factory where students can experience real-world challenges.

He added that institutions should think about how to add value to this and other educational projects.

“The big challenge for us is to empower students to think like Tec and MIT, to have a real, functional factory that keeps improving in design and automation year after year.

“However, at the end, we’ll be able to create and operate a device that we can then use as an educational tool to share with others,” he said.



This is the third edition of the **FrED Factory** challenge at the **Monterrey campus**. The activities have been different each year.

FrED, short for *Fiber Extrusion Device*, is an intelligent desktop fiber extrusion system designed specifically for educational purposes.

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