

# A factory in the classroom! Immersion using MIT technology



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.



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## 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.*

<https://www.facebook.com/escueladeingenieriayciencias/posts/pfbid0Ewe9TXZqybBcpxb9RiFKWG8W542>

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.*



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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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