Tec professors win award for AI and digital thinking project

Teachers from **Tec de Monterrey's Institute for the Future of Education (IFE)** at have won the **Tecnos Nuevo León 4.0 Award** for their Education for Change and Computational Thinking (E4C&CT) project.

This project is a **digital education platform** that helps students, teachers, and professionals develop **computational thinking**.

The project was one of three winners in the "**Society in Smart Cities**" category of the award's 2024 edition presented by the **government of Nuevo León**.

Rasikh Tariq, a research professor at IFE, shared how this initiative stemmed from the need to **innovate in a rapidly evolving environment.**

*"We live in a world of artificial intelligence (AI), where **AI and algorithms are present across all disciplines.** It's no longer just a computing field; it's for everyone, and that implies a need to democratize knowledge,"* he said.

Applied computational thinking for the future

Education for Change and Computational Thinking (E4C&CT) was launched in 2022 under the initial leadership of the now-retired **María-Soledad Ramírez-Montoya**, a Tec researcher who was then leader of the **IFE Research Lab**, as part of the **Challenge-Based Research Funding Program**.

This proposal was conceived as a plan to develop **key skills** for the **future labor market**, with an immersive approach focused on important global issues.

With Tariq joining as co-leader and the collaboration of the Department of Computer Science at the **School of Engineering and Sciences, as well as other researchers**, the project continued to grow until it became an established **online platform**.

E4C&CT is presented as two levels of AI competency development, Tariq explained**:**

- *The first is **computational thinking**, which will help us **understand algorithms** regardless of our discipline.*
- *The second is **application**: programming and executing computational processes to **solve real-life problems** or cases.*

This platform is currently aimed at fostering computational thinking by analyzing **global AI-related challenges**through interactive scenarios linked to areas such as **health, water, energy, education, and inequality**, the professor explained.

"*The platform is currently free and openly accessible (...) people who complete it and work through it for a certain amount of time have the opportunity to* ***generate a micro-credential*****,"** he explained.

Premio Tecnos en diferentes países

"We live in a world of artificial intelligence, where AI and algorithms are present across all disciplines."

Tecnos Award recognizes multi-axis transformation proposal

The **route to winning the Tecnos Award**, a recognition presented by the **Government of Nuevo León** to projects demonstrating significant technological impact, particularly in areas related to the environment and society, **proved to be a challenging process**, said the professor.

According to the researcher, participating involved meeting numerous requirements and submitting detailed documentation on the project's impact in the **context of Nuevo León** and its relationship to **Industry 4.0 technologies**.

"*The most important thing they required in the call was to not only demonstrate the technological impact but also its connection to other aspects of society (...) We also wanted to highlight this* ***self-sustainability axis***."

In the category in which this **IFE proposal** participated, projects had to stand out in at least one of five areas. The project was recognized in the fourth:

1. ***Urban Design and Development****: Functional, utilitarian, and aesthetic human environment.*
2. ***Life and Wellbeing:*** *Human physical, emotional, and mental wellbeing, safe environments.*
3. ***Digital Inclusion and Regulatory Improvement:*** *Justice and equity in the public, private, and social spheres.*
4. ***Education and Culture:*** *Educational quality and ethics of humans in technological environments.*
5. ***Ecosystems and Communities:*** *Diagnosis, remediation, and prevention in ecosystems.*

“Receiving this award is entirely ***due to the great team that has worked on this whole project*** *(...) It also opens up opportunities to continue developing the platform and* ***participate in similar contests***,” Tariq said.

This recognition has also enabled the project to expand into other contexts, such as a possible collaboration with **King’s College London**, where the aim is to **replicate the method to address electric mobility challenges**.

An ecosystem for empowering youth and generating networks

Tariq emphasized that the project’s approach seeks to strengthen key skills such as **abstraction, pattern identification, and algorithmic thinking.**

“*The platform addresses issues such as* ***breaking down large, complex, and multidisciplinary problems****, asking us how we can break this complex problem down into smaller, simpler parts in order to solve it,”* he explained.

*“Then there’s the algorithmic design: If I’ve figured out there’s an algorithmic process that works on this problem, then how can I eliminate it? And we wanted it all to be an **iterative process that fosters this way of thinking in young people**.”*

Inspired by **methods used at the Massachusetts Institute of Technology (MIT),** Tariq said the project needed to incorporate **gamification or simulation** elements that were not only engaging but also empowering.

*“A very important part of the project is that it’s also **based on the special needs of the youth who will use it**, so they can benefit from the program and make it their own,”* he said, using the example of adaptations for**dyslexia**.

E4C&CT integrates **gamification, interactive forums, case studies**, open educational resources, and instructional videos to promote **dynamic and collaborative learning.**

Thanks to its continued development, the platform has been adapted to various regions, including **Guatemala, Peru, Colombia, Argentina, Spain, and El Salvador**, to build collaborative innovation networks and take the experience to other languages.

What is the Tecnos Award?

According to the **call for applications**, the **Tecnos Award**, established in 1993 by the Government of Nuevo León, seeks to **foster and promote the development and application of solutions** aligned with **Industry 4.0** technologies.

The award’s mission is to foster, promote, and acknowledge the development and implementation of **solutions that transform the state** and wellbeing of citizens within the framework of the **Strategic Plan and the SDGs for 2030.**

It’s aimed at **scientists, researchers, entrepreneurs, SMEs, leading companies, institutions, and local governments** in the state with innovative proposals in the following categories:

- *Society in Smart Cities*
- *Industrial Development and Transformation*
- *Applied Case Studies focused on Sustainability*
- *Development*
  Tec de Monterrey’s Institute for the Future of Education (IFE) is an open and collaborative platform dedicated to creating, disseminating, and applying research-based educational innovation to improve higher education and lifelong learning.

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