Tecnológico de Monterrey



INA
B.S. Nanotechnology and Materials Engineering

Master the nano. Impact the macro.

Why study this degree at Tec?

You'll learn how to manipulate matter at its most fundamental level to transform entire industries. You'll be trained in science, engineering, and technology to design materials and products with extraordinary properties.

- **You combine chemistry, physics, and mathematics with creativity, innovation, and technology.**

Is this your path?

If you're passionate about science, chemistry, and materials, and you dream of developing products and solutions that improve people's quality of life...

INA at Tec is your platform to make it happen!

Imagine this:

Developing lightweight, high-strength materials for electric vehicles, designing controlled-release pharmaceuticals, collaborating with companies like CEMEX, Pfizer, and Clarios, or creating sensors that detect diseases by analyzing a single drop of sweat.

At Tec, that future starts today.



What makes this degree unique at Tec:

- A strong focus on innovation, sustainability, and social impact.
- Concentrations such as Biopharmaceuticals, Semiconductors, and Advanced Materials.
- Early participation in research alongside leading professors in the field.
- Dual degree options with universities such as Twente, Hull, Essex, and Queensland.
- Strong industry and institutional partnerships with MIT, Harvard, Rice, Ternium, Metalsa, CEMEX, and AGP Group.

You'll be part of something bigger:

- Dual degree programs with universities in Europe and Australia
- Research stays at institutions such as Harvard, MIT, Rice, and McGill
- Partnerships with companies leading industrial innovation
- Check which campuses offer this program at tec.mx

Your career field is full of possibilities. Some of them include:

You can work in the design and manufacturing of materials and products for the chemical, energy, pharmaceutical, cosmetic, automotive, metallurgical, construction, environmental, and technology industries—or launch your own science-based innovative ventures.



The voices of those already making an impact:

Natalia Nevárez collaborates at Limina on the development of biosensors that detect compounds in sweat.

Benjamín Betancour won CEMEX Hacks 2023 with an emissions-reduction project.

María Paula García received the 2023 Rómulo Garza Award for her research in nanotechnology.

A glimpse of how our community makes an impact with its talent.



Skills you will develop:

You'll design and manufacture materials with specific properties, develop nanotechnological chemical products, evaluate molecular systems, lead innovation projects, and solve industrial challenges with a sustainable, ethical, and global mindset.

Innovation at the nanoscale starts with you. Here, you learn how to scale your impact.

Take the first step toward the engineering that turns the invisible into real-world

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Curriculum
B.S. Nanotechnology and Materials Engineering

1ST SEMESTER
- Elective Course Mathematics and Science
- Differential and Integral Calculus
- Biology and Sustainability
- Algorithmic Thinking
- Innovative Perspectives in Engineering
- The Laws of Motion and Conservation
- Tec Week: Induction to the Social Service
- Tec Week Elective I

2ND SEMESTER
- Elective Course Humanities and Fine Arts
- Multivariable Calculus
- Linear Algebra
- Chemistry Fundamentals
- Exploration Topic
- Statistics and Data Handling
- Fundamentals of Thermodynamics
- Foreign Language
- Tec Week Elective II
- Tec Week Elective III

3RD SEMESTER
- Elective Course Social and Behavioral Sciences
- Fundamentals of Organic Compounds
- Organic Synthesis
- Fundamentals of Chemical Analysis
- Fundamentals of Differential Equations
- Applied Engineering Economics
- Materials and Nanomaterials Chemistry
- Tec Week Elective IV
- Tec Week Elective V

4TH SEMESTER
- Elective Course Leadership, Entrepreneurship and Innovation
- Materials Characterization Techniques
- Quantum Mechanics for Nanotechnology
- Physicochemical Properties of Nanomaterials
- Scaling-up and Reactor Engineering Introduction
- Measurement of Physicochemical Properties
- Disciplinary Tec week
- Tec Week Elective VI

5TH SEMESTER
- Elective Course Ethics and Citizenship
- Fundamentals of Electromagnetism and Waves
- Project Management
- Fundamentals of Solid-State Matter
- Molecular Systems Modeling
- Machine Learning Applied to Chemistry and Nanotechnology
- Synthesis and Characterization of Nanomaterials
- Tec Week: Professional Life Planning
- Tec Week Elective VII

6TH SEMESTER
- Research and Innovation Methodologies
- Structure and Properties of Biomolecules
- Nanomedicine and Nanobiotechnology
- Sensors and Nanodevices
- Nanomaterials Science and Engineering
- Design of Nanotechnology-based Products
- Polymer Science and Engineering
- Application of Molecular Devices in Sensors
- Tec Week Elective VIII
- Tec Week Elective IX

7TH SEMESTER
- TEC SEMESTER

  You'll be able to customize your career through:
  - Concentrations
  - Internships
  - International experience
  - Elective training units
- Tec Week Elective X
- Tec Week Elective XI

8TH SEMESTER
- Elective Multidisciplinary Professional
- Integrative Project in Nanotechnology
- Tec Week: Strategies and Guides for the Final Degree Exam
- Tec Week Elective XII

● You'll be able to customize your learning experience by choosing from the different available options.

*The curriculum may vary. Contact an admissions advisor or visit **tec.mx** for more information.

Want more info?

Scan this QR to know more about this program.
tec.mx/ina

Your future in NANOTECHNOLOGY AND MATERIALS ENGINEERING starts here.

WHY NOT?

RVOE: DEC-520912