

Faculty of
**Mechanical Engineering
and Production Sciences**

Materials Engineering

RPC-SO-18-No.377-2020

espol[®]



Bachelor of Science in Materials Engineering



Applicant Profile

Everything around us is made of materials. Behind every cellphone, automobile, prosthetic device, package, or solar panel lies Materials Engineering. In this field, curiosity drives innovation, and education opens the door to a wide range of professional opportunities. Materials Engineers contribute to strategic sectors such as manufacturing, construction, energy, healthcare, and sustainability. Choosing this field means investing in a future with impact, purpose, and professional growth.



Employability

Upon graduation, Materials Engineers may pursue professional opportunities in areas such as:

- ▶ Manufacturing and materials processing
- ▶ Casting, welding, and materials testing
- ▶ Construction and infrastructure materials
- ▶ Materials selection, evaluation, and quality control
- ▶ Failure analysis and corrosion
- ▶ Materials development, recycling, and innovation

The program prepares students to contribute across a wide range of industrial and technological sectors, offering diverse opportunities for professional growth.

Currently, we have a **100%** employment rate among our alumni.



Professional Skills

Materials Engineers are prepared to:

- ▶ Process metallic, polymeric, ceramic, composite, and advanced materials
- ▶ Evaluate the quality and performance of materials
- ▶ Analyze failures, corrosion, and in-service degradation
- ▶ Select materials for specific applications
- ▶ Apply testing methods and support welding processes
- ▶ Develop new materials and innovative solutions
- ▶ Design materials with a focus on sustainability and recycling



In fact...

Materials Engineering is present in many of the advances that are transforming modern life. From medical devices to aerospace technology, this field connects students with a world of innovation, creativity, and solutions to society's greatest challenges.



LEARN MORE



Curriculum

N 100 - I	SINGLE VARIABLE CALCULUS	PHYSICS: MECHANICS		PROBLEM SOLVING	GENERAL CHEMISTRY	ENGLISH I
N 100 - II	VECTOR CALCULUS	PROGRAMMING FUNDAMENTALS	THERMOFLUIDS	INTRODUCTION TO MATERIALS ENGINEERING	ENGINEERING DRAWING	ENGLISH II
N 200 - I	DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA	THERMODYNAMICS OF MATERIALS	STATISTICS	FLUID RHEOLOGY	COMMUNICATION	ENGLISH III
N 200 - II	MATHEMATICS APPLIED TO ENGINEERING	PHASE TRANSFORMATIONS	STATICS	STRUCTURE AND CHARACTERIZATION OF MATERIALS	ARTS, SPORTS AND LANGUAGES ELECTIVE COURSES	ENGLISH IV
N 300 - I	HUMANITIES ELECTIVE COURSES	ENTREPRENEURSHIP AND INNOVATION	MECHANICAL BEHAVIOR OF MATERIALS	SYNTHESIS OF MATERIALS	HEAT AND MASS TRANSFER	ENGLISH V
N 300 - II	SUSTAINABILITY SCIENCE	CERAMICS ENGINEERING	METALS ENGINEERING	SYSTEMS AND PRODUCTION PROGRAMMING	POLYMER ENGINEERING	COMMUNITY SERVICE INTERSHIPS
N 400 - I	FUNCTIONAL PROPERTIES OF MATERIALS	NANOTECHNOLOGY AND NANOMATERIALS	COMPOSITE MATERIALS DESIGN	CORROSION AND DEGRADATION OF MATERIALS	WELDING AND NONDESTRUCTIVE TESTING	SELECTED ELECTIVE COURSE
N 400 - II				FAILURE ANALYSIS AND MATERIALS SELECTION	MATERIALS ENGINEERING CAPSTONE COURSE	SELECTED ELECTIVE COURSE
						PRE-PROFESSIONAL BUSINESS INTERSHIPS



Accredited Program



Did you know?

The space race would not be possible without Materials Engineering. In the Artemis II mission, every spacecraft component was designed, tested, and optimized to withstand some of the most extreme conditions encountered in space. Yet changing the world does not require reaching the Moon.

Materials Engineering is behind the innovation of the products used every day and the technologies that transform modern life. From smartphones to aerospace rockets, everything begins with materials. Creating more efficient, sustainable, and durable products starts with imagining, designing, and selecting the right material. Materials Engineering transforms curiosity into ideas that shape the future.

www.fimcp.espol.edu.ec

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International Relations

Through its External Relations Office, ESPOL promotes and develops partnerships with international cooperation organizations, academic institutions, and research centers. These partnerships create mobility opportunities for the entire ESPOL community and contribute to the excellence that distinguishes the institution.

More than 226 international agreements allow students to participate in experiences abroad, including semester or year-long exchange programs, pre-professional internships, research placements, and participation in conferences, competitions, and other academic activities.

163
universities
around the world

