



Universidad Tecnológica
de Pereira

Faculty of
Mechanical Engineering

¡Sign up!

MASTER'S DEGREE IN Mechanical Engineering

CODE SNIES: 54760

Welcome
TO A WORLD
of endless
EXPERIENCES

Expand your **knowledge** on Mechanical **Engineering** and solve **the problems** in the **Industrial sector**

*-Postgraduate program created by the Agreement No. 10 of February 27, 2009 and No. 5 of March 1, 2016 issued by the Superior Council of Universidad Tecnológica de Pereira
-Official Registration until November 17, 2022 according to Resolutions No. 18671 of November 17, 2015 and No. 02401 of February 10, 2016 by the Ministry of National Education.*

Our Master's Degree in Mechanical Engineering is a postgraduate course in the research modality, which aims to train professionals that are qualified scientifically and technologically in the fields of mechanical design, thermal sciences and material sciences, to contribute to the solution of industrial problems and to strengthen scientific research.

SNIES CODE: 54760

OFFICIAL REGISTRATION:

Resolution N° 02401 / February 10 of 2016.



Master's Degree in Mechanical Engineering



4 Semesters



Schedule

**Monday to Friday: 6:30 p.m. to 9:30 p.m.
Saturday mornings according to each semester's program**



**Number of credits
46**



**Admisión
By cohorts**



6.5 SMMLV (Minimum Monthly Legal Wage in Colombian Pesos)

Program Objectives

Provide a solid background in mechanical engineering, at the master's level, and a solid scientific and technological base in the areas of mechanical design, thermal sciences and material sciences, to contribute to the solution of industrial problems and to strengthen scientific research.

Develop skills that allow the graduate to carry out successfully, in their professional practice, research processes, as well as formulation and solution of problems both in industry and academy.

Develop certain generic and disciplinary competences, such that they allow the graduates to perform appropriately in different contexts, under ethical and moral principles, with commitment and economic, social and environmental responsibility, promoting the sustainable development of the community.

Our Mission

Is to train at the master's level mechanical engineers or professionals of related areas who are able to have a positive impact on society, through the development of research projects and the solution of engineering problems in the fields of mechanical design, thermal sciences, and material sciences.

Our Vision

Is to be in the year 2024 a high quality program, well-known and accredited nationally and internationally; integrated to the world of knowledge of mechanical engineering.

Program Profile

The graduate of the Master's program in Mechanical Engineering from the Technological University of Pereira is able to:

- Analyze, model, design, arbitrate, implement, maintain, select, and manage mechanical or thermal fluid systems, appropriately using the principles of natural sciences and engineering.
- Manage processes related to mechanical design, thermal systems or material selection.
- Manage engineering projects, industrial processes, engineering services, and human and physical resources, under a multidisciplinary teamwork environment, communicating effectively in written and oral form, in their mother tongue, and in written form, in a second language, under ethical principles, health and safety at work and economic, social, and environmental responsibility.
- Develop new knowledge, tools, techniques, and technologies, through scientific research and innovative, multilevel, and interdisciplinary processes, to meet the needs of the community.

All of these, exhibiting a critical attitude, leadership, creativity, innovation, practical ingenuity, dynamism, professionalism, and transforming spirit, to contribute as an agent of social transformation.

Learning Outcomes (Graduate Profile)

Upon completion of their program, the graduate will have acquired the following learning outcomes:

1. To communicate adequately, in research and industrial settings, orally and in writing in the native language and in a second language.
2. To design and manage a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, legal, ethical, and health, safety, and sustainability, using managerial, financial, and engineering expertise.
3. To work effectively independently and in interdisciplinary and multicultural teams, as a leader or member of the team, in the environments of the labor market and their professional performance, in national and international contexts.
4. To recognize the need to learn and update constantly, as well to have the ability to do so.
5. To formulate, model, and solve complex, innovative, and interdisciplinary engineering problems autonomously, taking into account the different context limitations, through the rigorous and integrative use of basic and engineering sciences, analytical, computational, and experimental methods, as well as others engineering resources.

6. To design quality, safe, functional, environmentally friendly, and low-cost products and machine and structural elements; to meet the needs of industry and society in general; applying norms and principles of mechanics, finite elements, engineering design and the design of complex multifactorial experiments.

7. To manage thermal facilities, machines, and equipment to meet the needs of industry and society in general, applying principles of thermodynamics, fluid mechanics and heat transfer, taking into account economic aspects.

8. To select engineering materials according to industrial requirements, to meet the needs of industry and society, taking into account their properties, microstructure, and interaction with the environment.

What you need to join to the program

Our Master's Degree is intended for professionals in Mechanical Engineering and of related areas, who wish to develop advanced industrial and academic competences in the mechanical engineering field. Also, it is intended for those who wish to incorporate research experience into their CV, with interest in activities related to university teaching, or that intend to carry out doctoral studies.

Lecturers

Our Master's program in Mechanical Engineering has 15 lecturers, of whom 12 have Ph.D. degree. They participate actively in teaching, research, and other activities. **To learn more about the our Faculty staff, visit our website: <https://mecanica.utp.edu.co/maestrias/ingenieria-mecanica/>**

Live the UTP!

SYLLABUS

Semester	Course Code	Courses	Number of Hours per Week	Number of Credits
1	DE164	Advanced Mathematics	3	4
	DE174	Optimization and Computational Methods	3	4
	DE182	Research and Management Project Seminar	3	4
2	DE224	Measurement Systems	3	4
	DE1E4	Professional Course I	3	4
	DE236	Thesis I		6
3	DE2E4	Professional Course II	3	4
	DE326	Thesis II		6
4		Professional Course III	3	4
	DE418	Thesis III		6
TOTAL				46

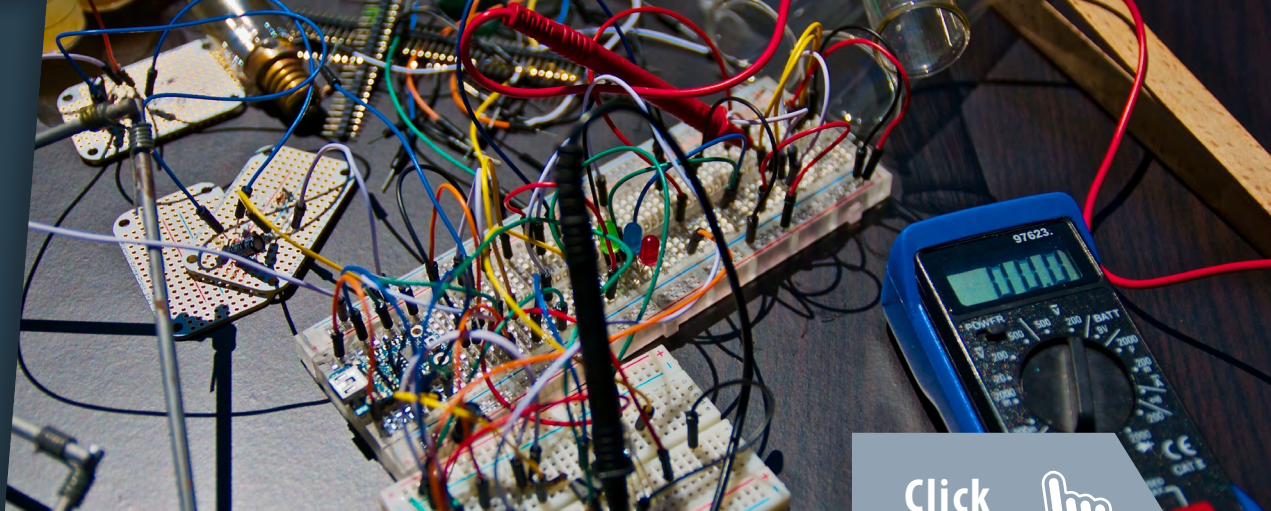
Professional Courses

Professional Course	Course Code	Courses	Number of Hours per Weer	Number of Credits
Thermal Science Area	DEF74	Exergy Analysis	3	4
	DE2E14	Combustion Theory	3	4
	DEF54	Thermal Systems	3	4
	DEF134	Energy Management	3	4
Material Science Area	DEF34	Science and Engineering of Materials	3	4
	DEE74	Electrochemical Corrosion	3	4
	DEF144	Corrosion Mechanisms	3	4
	DEE234	Tribology and Automotive and Industrial Lubrication	3	4
Mechanical Design Area	DEF14	Materials Under Stress	3	4
	DEF124	Advanced Mechanisms	3	4
	DE2E45	Fundamentals of Design	3	4
	DEE364	Introduction to Finite Elements	3	4
Transversal	DE314	Design of experiments	3	4
Other Courses	DEF154	Computer Vision	3	4
	4776B4	Electronic Processing of Images	3	4
	FH114	Welding Metallurgy and Weldability	3	4
	FH124	Welding Processes with Terminology, Defectology and Symbology	3	4
	FH215	Welding Inspection, Managing Codes, Standards and Specifications	3	4
	4775B4	Digital Signal Processing	3	4

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Official Registration 18671 / November 17 of 2015

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Sign up NOW!

Click
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For more information about the program

Faculty of Mechanical Engineering - UTP

Building N° 4 Office number 4 - 242

Address: Cra. 27 10-01 Los Álamos - Pereira-Risaralda-Colombia

Program's web page: <https://mecanica.utp.edu.co/maestrias/ingenieria-mecanica/>

Email: maestriaingmec@utp.edu.co; posgrados.mecanica@utp.edu.co

Contact us: (57) (6)313 7553 o 313 7300 Ext. 7625

Registration

Admissions, Registration and Academic Record's Office - Building 3 – UTP

Email: inscripcion@utp.edu.co

Tel: (57) (6) 313 71 39 - Switchboard (57) (6) 313 73 00

Exts: 7176 - 7177 - 7178 - 7179 - 7182 - 7183

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Resolution 12220 of 2016

Information FASUT

Do you need financing to pay your tuition?

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