

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 design and manufacturing, 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.

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 and manufacturing, 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 the academy and in industry.

Develop the generic and disciplinary competences embodied in the graduation profile, in such a way that they allow them 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 design and manufacturing, energy and fluids, and material sciences.



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

Admisión By cohorts



6.5 SMMLV (Minimum Monthly Legal Wage in Colombian Pesos)

Our Vision

Is to be in the year 2021 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 manufacturing, machine design, thermal systems, mechanical power and energy, or materials science.

- Manage engineering projects, industrial processes, engineering services, and human and physical resources,

under a multidisciplinary teamwork environment, communicating effectively in written, oral, and graphic form, in their mother tongue and 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)

Generic competences:

1. Identify, formulate, and solve problems

2. Abstract (form a mental idea), analyze, and synthesize (integrate)

3. Manage (organize, plan, make decisions, etc.) systems, processes, and engineering projects

4. Use information and communication technologies and engineering software

5. Communicate adequately orally and in writing in the native language, in a second language, and in formal, graphic, and symbolic languages

6. Search, process, and analyze information from various sources

7. Design a system, component, or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturing, and sustainability
8. Work in interdisciplinary and multicultural teams in national and

international contexts

9. Think critically and with self-criticism

10. Act with ethical, social, and environmental commitment and with professional responsibility, responding with sustainable solutions to local and global needs that contribute to the quality of life

11. Demonstrate initiative and innovative spirit

12. Apply knowledge in practice

13. Recognize the need for life-long learning, as well as have the ability to do so

14. Learn and work autonomously

15. Apply leadership skills

16. Formulate and manage projects

Disciplinary or professional competences:

17. Model and solve engineering problems independently, through the use of mathematics, numerical methods, optimization techniques, and computational tools

18. Solve complex and interdisciplinary engineering problems involving the simultaneous application of mechanics, electronics, and control of electromechanical systems integrated with the computer

19. Solve complex and interdisciplinary engineering problems, through the rigorous use of innovation processes and scientific research **20.** Design products and structural and machine elements that are safe, functional, environmentally friendly, and low-cost, to meet the needs of industry and society in general; applying rules and principles of mechanics, finite elements, engineering design, and design of multifactorial and complex experiments

21. Manage facilities, machines, and thermal 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

22. Select engineering materials in accordance with 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 incorporate research experience into their curricula, 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	
- 10	DE164	Advanced Mathematics	3	4	
	DE174	Optimization and Computational Method	ls 3	4	
- 25	DE182	Research Seminar	2	2	
	DE224	Measurement Systems	3	4	
	DE1E4	Professional Course I	3	4	
	DE236	Thesis I	5	б	
	DE2E4	Professional Course II	3	4	
	DE326	Thesis II	5	6	
		Profaccional Cource III	2	Λ	
- 4.	DE418	Thesis III	5	8	
1		TOTAL	35	46	

Professional Courses

Professional Course	Course Code	Courses	Number of Hours per Weer	Number of Credits
Thermal Science Area	DEF74 DE2E14 DEF54 DEF134 DE2E24	Exergy Analysis Combustion Theory Thermal Systems Energy Management Thermodynamics	3 3 3 3 3	4 4 4 4 4
Material Science Area	DEF34 DEF94 DEE74 DEF144 DEE234	Science and Engineering of Materials Material Science Theoretical Tools Electrochemical Corrosion Corrosion Mechanisms Tribology	3 3 3 3 3	4 4 4 4 4
Manufacture and Design Area	DEF14 DEF124 DE2E45 DEE364 DE314	Materials Under Stress Advanced Mechanisms Fundamentals of Design Introduction to Finite Elements Design of Experiments	3 3 3 3 3	4 4 4 4 4
Other Courses	DEF154 4776B4 FH114 FH124 FH215 4775B4	Computer Vision Electronic Processing of Images Welding Metallurgy and Weldability Welding Processes with Terminology, Defectolo and Symbology Welding Inspection, Managing Codes, Standar and Specifications Digital Signal Processing	3 3 ogy 3 ds 3 3	4 4 4 4 4 4

Master's degree in Mechanical Engineering

Sign up NOW!

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; 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 UTP Adress: Cra. 27 № 10 - 02 Los Álamos - Pereira - Risaralda -Colombia

www.utp.edu.co/inscripciones/

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Information FASUT Do you need financing to pay your tuition?

Visit: www.utp.edu.co/fasut Email: fasututp@utp.edu.co - icetex@utp.edu.co Tels: (57) (6) 321 0029 - 313 7405

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