The Department of Mechanical Engineering (PME) is one of the 15 departments that comprise the Polytechnic School of the University of São Paulo (Poli/USP) and is committed to its vocation for education, research and technological development. The PME aims at a constant development, through undergraduate and graduate projects, programs and courses consolidating the Polytechnic School’s status as a center of excellence in the formation and qualification of its teaching staff and student body.

Aware of and integrated to the productive sector, the Department has leading research lines of academic, economical, social and environmental interest, in several areas of knowledge. Both in Brazil and worldwide, its teaching staff hold expressive scientific production and outstanding performance in education, research and university extension courses in Mechanical Engineering, committed to the sustainable and innovative technological development.

Laboratories and Research Centers of the Mechanical Engineering Department

- Center of Automation and Design Technology (CAETEC)
- Automotive Engineering Center (CEA)
- Research Group on Refrigerating, Air Conditioning and Thermal Comfort (GREAC)
- Applied Acoustics Laboratory (ACAPLI)
- Laboratory of Dynamics and Control (LDC)
- Laboratory of Dynamics and Instrumentation (LADIN)
- Thermal and Environmental Engineering Laboratory (LETE)
- Surface Phenomena Laboratory (LFS)
- Fluid-Structure Interaction and Offshore Mechanics Laboratory (Life & MO)
- Alternative Energy Systems Laboratory (SISEA)
- Laboratory of Fluid Mechanics Applied to Environmental Science and Biomedical Engineering (MFAAEB)
- Fluid & Dynamics Research Group (NDF)

PME Mission

PME’s mission is to form Mechanical Engineers with comprehensive knowledge, sound basic education, both systemically and analytically, based on knowledge from Basic Sciences, always learning and endeavoring. These objectives are complemented by the continuing improvement of the graduate engineers’ knowledge through post-graduation and extension courses.
Undergraduate Education
PME runs the Mechanical Engineering course and offers disciplines for other courses, such as General Mechanics, Fluid Mechanics and Thermodynamics.

Extracurricular activities are conducted in order to enable the students to participate in competition events, such as the ones promoted by SAE Brasil (Aerodesign, Formula and Mini Baja).

The Department houses one of the 17 groups of the Tutorial Education Program (PET) for USP’s undergraduate students.

It is also part of Poly Júnior, the first Brazilian Junior Company on Engineering, and of Poli Cidadã, a program that stimulates the students and professors for the development of social activities.

Mechanical Engineering’s students have been showing outstanding performances in international undergraduate exchange programs.

Graduate Education
PME has relevant participation in the Graduate Program in Mechanical Engineering at Poli/USP, in charge of the stricto sensu courses of MSc and PhD degrees, one of the best in Brazil, Capes rate 6. The program’s primary objective is to form teaching staff for college grade courses and researchers for the technical-scientific area, in addition to specialized professionals for the productive area.

The program has 53 professors holding a PhD degree. Besides, over 500 and 180 students have already obtained their MSc and PhD degrees, respectively. It involves two Departments of the Polytechnic School: Mechanical and Mechatronics Engineering.

Teaching Staff
51 professors, 48 holding a PhD degree

Student Body
350 undergraduate students
223 graduate students
600 students in extension courses
20,000 students in undergraduate research projects
2,000 students from other disciplines at EPUSP

Research
PME leads and integrates several projects supported by governmental agencies, such as FAPESP, CNPq and FINEP, in addition to projects supported by sector funds (Proinfra and CT-PETRO) and Thematic Projects. PME has also been promoting and participating in cooperative research projects, which include working with institutions in foreign countries, such as Germany, Argentina, Colombia, Cuba, England, Japan and the USA.

Thirteen Research Groups act in PME, all registered in CNPq, with 34 participant professors developing 36 research lines, with active involvement of undergraduate and graduate students. PME has also been performing technological researches, through agreements with private companies, aiming at the development of processes and products.

PME collaborates with professional associations, such as: ABM, ABENDE, ABENG, ABIMAG/SINDIMAG, ABM, ABNT, ABRAMAM, AEA, ANPRAC, ASHRAC, NACE, SAE-BRAZIL and SMACNA.

Graduate Education
The Department of Mechanical Engineering has a comprehensive performance in terms of Culture and Extension, complementing the education and research actions. Its call is to be a gathering link and an open channel of communication with the society.

Still within the extension activities, professors coordinate four specialization courses of the University of São Paulo:

- Renewable Energy, Distributed Generation and Energy Efficiency
- Automotive Engineering
- Quality Management and Engineering MBA/USP
- Product Development Management and Engineering MBA/USP

Double Diploma, Exchange and International Relations
Polytechnic School has agreements with dozens of education and research institutions abroad, e.g., in France, Germany, Italy, Korea, Spain and USA; providing the opportunity for the students to attend an international exchange program. Poli offers three modalities of exchange programs: open, credit transfer and double diploma.

The Double Diploma’s differential characteristic is that it allows the student to graduate by obtaining two diplomas: Polytechnic School’s certificate and the certificate of the foreign institution where part of the education was performed.

Didactic Laboratories:
- Control Engineering and Mechanical Automation
- Mechanical Engineering of Fluid Power
- Mechanical Engineering of Manufacturing Project
- Dynamics - Classes of microprocessors, measures of physical units, simulation of control systems, experiments with maneuvers of flexible structures.
- Hydraulic Machines - Study of pumps and hydraulic turbines of different types, tracing of characteristic curves, pumps in series/parallel association.
- Thermal Machines - Experiments with fans, compressors, internal combustion engine, tracing of characteristic curves. Experimental evaluation of refrigeration cycles and steam engines.
- Fluid Mechanics - Experiments with water under laminar, turbulent flow, evaluating head loss and measurement of flow and velocity.
- Pace - Pace Partners for the Advancement of Collaborative Engineering Education – GM. Conception, design and analysis of machines and equipments.
- Wind tunnels - Experiments with six didactic wind tunnels operating with variable flow, enabling the measurement of variables associated to flow around models, such as wings, cylinders, and velocity mapping with pitot tube.

Library
“Prof. Dr. Alfredo Coaracy Brazil Gandolfo” Library is located on the first floor of the Mechanical Engineering building and serves Mechanical, Mechatronics, and Naval and Oceanic Engineering Departments. The library has one of the most complete contents specialized in these areas. There are approximately 16,000 books, 53,000 bound journals and almost 2,000 theses.

Users can access electronic resources available at the SIBNet Services Portal, which includes 171 databases, 22,900 electronic journals (complete text) and 253,000 E-Books. These resources encompass the several areas of knowledge.

Users can access the content of all libraries in USP following the implementation of the Unified Lending System. DV/BIBL also provides resources for obtaining documents non-existent in USP’s content, both locally and worldwide.