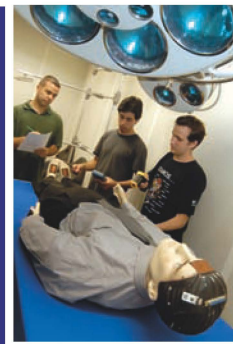


POLI USP

**ESCOLA POLITÉCNICA
DA UNIVERSIDADE
DE SÃO PAULO**



Escola Politécnica of the Universidade de São Paulo

In Brazil, a world class educational and research institution.

The Escola Politécnica of the Universidade de São Paulo (Poli/USP) celebrates its 120th anniversary in 2013. Founded in 1893, the then denominated Escola Politécnica de São Paulo was integrated to USP in 1934. Turned into a national reference, it is considered the most complete engineering school in Latin America and dedicates its best efforts towards consolidating as a world class institution. By combining tradition and modernity, Poli has always been a synonym for quality and competence.

Its alumni stand out not only in their professional expertise, but also as leaders in the management of corporations and public bodies.

Founded on basic sciences, the researches conducted at Poli are marked by their ability to be readily applied, both in process modernization and in product and service innovation.

By means of extension activities, Poli guides its faculty and students towards the solution to problems for the population, configuring what could be called "citizenship engineering".

For exerting these virtues, Poli counts on qualified human resources and adequate infrastructure.

Its 482 faculty members hold a PhD degree and 74% work in full-time dedication regime at Poli. They have published over 23 thousand papers in Brazilian journals and over seven thousand in international ones. They also account for 17 undergraduate courses and 11 graduate courses, congregating 5,800 students. The Poli technical and administrative activities are conducted by about 500 employees.

Poli is spread over 9 buildings in the Cidade Universitária (University City), in São Paulo, totaling 150,000 m² of built area. In 2012, it also started its activities in the city of Santos, on the coast of the State of São Paulo, by offering the Petroleum Engineering course.

The school is organized into 15 departments, accounting for teaching, and research activities, as well as extension of services to the community. The departments count on scores of laboratories, dedicated to teaching and research activities.

There are 8 libraries at Poli. The collection holds 625 thousand volumes and 23 thousand titles of electronic journals. Users have access to 115 databases.

The physical dimensions of Escola Politécnica support intense and qualified academic activity, always in the search for Brazilian and global engineering advancement.



{ Poli has always been a synonym
for quality and competence. }

The Dean's foreword



Escola Politécnica of USP was founded in 1893. It is a centennial school, which shaped the tradition of steadily seeking quality and modernity, besides valuing meritocracy over its existence.

Its actuation is structured upon a solid basic formation and on modern professional capacity building, which favors the most recent techniques for the practice of high-quality engineering.

Along their academic career, our students are stimulated to assume a creative and leading role, since engineering work is conducted in teams, which currently requires different abilities rather than solely technological instruction.

To face the challenges of globalization, our students are introduced to a broad internationalization program, by means of which they interact with researchers and students from the most renowned teaching and research institutions in the world. With this internationalization, students acquire knowledge of other countries culture, religion as well as of political and economic systems, which provide added competencies, allowing them to skillfully lead multidisciplinary and multiracial teams.

The contact with students and researchers from other excellence centers, who come in large numbers to Escola Politécnica of USP, prepares them to face the most daring challenges, which makes of Escola Politécnica a convergence point for society to solve its most sophisticated technological demands. Besides getting in touch with these demands, our students are made aware of their social responsibility. Several social projects are developed for poor communities and for people with special needs, which makes our students aware of their importance as citizens in a country in which there is a lot to be done to improve its people's quality of life.

The most relevant indicator of the relevance of Escola Politécnica of USP to society is its participation in the most complex and detached Brazilian engineering designs. There is no major Brazilian design without the participation of Escola Politécnica. The large dams of the Itaipu Power Plant, the São Paulo metro, deep-water oil exploration, the Pro-Ethanol program, the national information industry, among others, have the Escola Politécnica DNA.

The set of texts as follows mirrors the effort made by a community of faculty, researchers, collaborators and students of Escola Politécnica of USP to lead our country to the detached place we so determinedly seek.

José Roberto Cardoso
Dean of Escola Politécnica of USP

Undergraduate program

Quality and tradition, combined to form the best Engineering professionals

Each year, 870 new students enter the Escola Politécnica of the Universidade de São Paulo. Independently of their background or each one's expectations, all of them are sure of the faculty quality, the wide range of experiences along the course, the solid scientific basis and that the Poli excellence tradition keeps a place for them in the competitive global work market.

Besides being prepared to face engineering challenges, those graduated at Poli are also enabled to hold leadership positions in their professional life. The courses are semester-based, except for two of them, Computer Engineering and Chemical Engineering, organized in quarterly periods, alternating between courses at Poli and internships in associated companies. Computer Engineering, by the way, has two modalities: semestral (Electrical Engineering - Computer) and quarterly (Computer Engineering).

As to the other courses, as from the third year, students have to cope with an internship load. Hence, they combine their academic formation with professional experience in companies, public bodies or research institutions. Besides the compulsory curriculum, Poli students count on different alternatives to improve. One of them is the Double Degree Program, instituted with the Faculty of Architecture and Urbanism (FAU) of USP. In the program, Poli Civil Engineering students take disciplines at FAU and vice-versa. This program lasts seven years, a longer period, but students broaden their knowledge and expand their network. They have a more comprehensive professional view, furthering their knowledge of design, aesthetics and human sciences issues, characteristics of Architecture and Urbanism.

Poli students may also take part of their studies abroad, from six months to a year, incorporating the credits obtained to their curriculum. For this, Poli keeps programs and agreements allowing their students access to universities in countries such as Germany, Argentina, Belgium, Chile, Colombia, Korea, Spain, United States, Finland, France, Italy, Panama, Peru, Portugal and Venezuela. There is also the Double Degree modality, whereby students, after attaining their minimum credits at Poli, are transferred for two years to an associated foreign school. When they graduate, they are granted two certificates, one from Poli and one from

the foreign university, totaling six years of studies.

Poli also has partnership agreements with the other public universities in the State of São Paulo (Universidade de Campinas - UNICAMP - and the State University of São Paulo - UNESP), which allows students to take some undergraduate disciplines at any of the institutions. Besides being able to use the credits, students have a wider range of options to expand their knowledge base within the course chosen. Engineering studies along the undergraduate period can also be complemented by means of the Scientific Initiation Program. This program aims to stimulate the vocation for research and the emergence of new talents, who may be granted scholarships to develop their activities under the supervision of a professor.

Poli has 4,300 undergraduate students in 17 Engineering courses

- Environmental
- Civil
- Computer
- Electrical - Automation and Control
- Electrical - Computer
- Electrical - Electric Power and Automation
- Electrical - Electronic Systems
- Electrical - Telecommunications
- Materials
- Mechanical
- Mechatronics
- Metallurgy
- Mining
- Naval
- Petroleum
- Production
- Chemical



{ Poli students may also take part of their studies abroad }

Graduate programs

A real team of lecturers and researches is formed at Poli/USP

Forming high-level university lecturers, researchers and professionals besides conducting researches that contribute to the scientific and technological development of Brazil. The Escola Politécnica of the Universidade de São Paulo graduate programs are guided by these principles and hence contribute to advancing knowledge in Engineering in Brazil and to the qualification of personnel for universities, corporations and science and technology institutions.

Poli master's, professional master's and doctoral courses are distributed among 11 programs that, in turn, are subdivided into 20 concentration areas. Overall, they have 1,600 students, coming from different regions in Brazil and abroad.

Poli graduate history started in the mid-1950s, being that a large share of its courses are pioneers in Brazil. Since then, about 2,600 doctoral e 6,000 master degrees have been granted, numbers that place the Escola Politécnica as one of the largest Brazilian graduate program centers and the largest in the Engineering area.

A national and international reference in Engineering research, the Escola Politécnica graduate program is marked by the never-ending increase in quality. For this, the Graduate Program Committee stipulates guidelines, establishes and controls minimum performance standards.

Poli tradition in graduate programs gives rise to great competition for its places. Applicants undergo a rigorous selection, which includes curriculum analysis, interview, qualification exams and an English language

proficiency exam.

Graduate students count on a large support infrastructure. There are scores of laboratories in the most different areas of Engineering, considered some of the most complete and modern in Brazil. There are 8 libraries, separated per area, with a collection of over 625 thousand volumes, 23 thousand electronic journal titles and 115 databases.

Poli also keeps partnerships with renowned universities both in Brazil and abroad, in which graduate students go on exchange programs and enrich their curricula. They may, for example, start at Poli, go to a university abroad and then return to finish their doctoral program ("sandwich" doctorate). There is the co-advised course, in which the student has an advisor from Poli from another university. In the Double Degree category, students take disciplines and accumulate credits from two institutions: from Poli and from a foreign university.

To complete a favorable graduate program environment at Poli, there are 95 research groups and the fact that all its faculty members hold a doctoral degree, and that 74% of them work in full-time dedication regime for the Escola Politécnica.

Poli also offers post-doctoral programs, with the possibility of internship abroad. For the market professionals, there are MBA, specialization, capacity-building, updating and diffusion courses. These courses have about one thousand students a year.



{ Poli has one of the largest
Brazilian graduate program }



The Poli graduate programs contemplate the following Engineering areas:

- Civil
- Electrical
- Mechanical
- Metallurgic
- Mining
- Naval and Ocean
- Production
- Chemical
- Logistic Systems
- Transportation
- Automotive (Professional Master's Program)

Assisting with the expansion of Engineering boundaries

The Escola Politécnica has always been acknowledged for its scientific and technological research vocation. This characteristic was instituted ever since its foundation, when, in 1889, it built its first building, specifically to host laboratories. Since then, Poli has been a protagonist in the scenario within which the Engineering boundaries lie.

Today, the support to research practices at Poli is provided by 95 research teams and a library with 625 thousand volumes. The Escola Politécnica counts on a Research Committee, which, among other actions, stimulates and proposes strategies and guidelines for conducting advanced and multidisciplinary investigations. The results of these efforts are translated in the number of papers published by its faculty members: over 23 thousand papers in Brazilian journals and over seven thousand in international ones.

One important research landmark at Poli is its applied aspect. A considerable part of its investigations has readily usable character, both in process modernization and in the innovation of products and services. In the list of those benefiting from the scientific and technological research of the Escola Politécnica, one can mainly find industrial and service corporations along with public bodies. The ongoing agreements today total 70.

The research activities have always helped Poli to play the role of society partner and development agent in Brazil. It was due to this disposition that Poli has been present in important landmarks of Brazilian engineering, such as the development of the first national computer in 1972; in the construction of the São Paulo Metro, which started operating in 1974; in the formation of the color television standard in Brazil in the early 1970s; and in the construction of the Itaipu hydropower plant, the largest in the world at the time, inaugurated in 1982. More recently, Poli researchers' works contributed to introducing the digital system in television broadcast in the Country and to the discovery and exploration of petroleum in the pre-salt layer.

All of the 482 Poli faculty members hold a doctoral degree and 74% work in full dedication regime at the Escola, which allows them to have research as a substantial part of their work routines.

For forming researchers, Poli/USP offers 11 graduate courses, besides scientific initiation programs for undergraduate students. Poli/USP 95 research teams, formed by faculty members, post-doc, graduate and undergraduate students, cover a wide range of research into engineering.

Regarding the international context, Poli has a marked actuation. For example, it integrates the Cluster.org, consortium of engineering schools that stimulates joint works with universities and large European corporations; the TIME (Top Industrial Managers for Europe), which congregates leading engineering schools to promote student exchange; and the UGPN (University Global Partnership Network), a network formed by USP, and the Surrey (England) and the North Carolina State (USA) Universities for project and student exchange.



{ Poli has been a protagonist in the scenario within which the Engineering boundaries lie }

Culture and Extension

Qualified activities and services return the society investment

The Culture and University Extension area of Escola Politécnica has different programs and projects that bring the institution closer to society. It is a way for Poli to pay for the investment made by the population in the University by means of taxes that finance public higher education. Among other initiatives, the Culture and Extension Committee defines directives, fosters and oversees the actions developed in these areas, besides analyzing, forwarding and approving contracts and agreements related to the activities.

Extension actions also count on the intense participation of Poli students. They are not converted into credits in their academic curriculum, but they help the student to better know and to find solutions to the different problems of society. Thereby, Poli students improve their skills for the work market while exerting citizenship.

These are some of the Poli Culture and Extension actions:

Arts and Culture Project – at Poli, events such as talks, painting and sculpture exhibitions, different shows and music presentations are promoted, with Poli or invited artists. The events may be suggested by students, faculty, employees and also by the external public.

POLIPEx – financially supports culture and extension

projects proposed by undergraduate students. There is always a professor in charge of providing support to students in the project.

University and Professions – this program conducted by USP counts on the participation of Poli in the dissemination of its projects and in guiding secondary school students towards choosing their professional careers.

Open University for the Elderly – program conducted by USP, with the participation of different Poli departments to offer courses directed to this segment of the population.

Extension Courses – Poli offers MBA, specialization, improvement, updating and diffusion courses, which aim to contribute to professionals from the most different areas investing in their formation and updating their curricula or improving their corporate activities. The courses are attended by about two thousand students a year.

Another undergraduate program that conducts extension activities is **Poli Cidadã** (Poli Citizenship), which stimulates students and faculty members to develop social projects in their Graduation Projects and to bring the University closer to society. Visits to poor communities in the search for solutions to their problems, and the production of monographies focused on social projects are two action alternatives.

Poli faculty and students projects are financially supported by the Fostering Fund for Culture and Extension Initiatives of the USP Provost Office, for conducting the activities of culture and extension projects or events, such as symposiums, meetings and forums suggested by students and faculty members.



{ Extension actions also count on the intense participation of Poli students. }

International relations

World vision guides all the actions for professional training

Besides forming engineers technically capable of exercising their profession, the philosophy and structure of Escola Politécnica of the Universidade de São Paulo are directed to internationalization. Established in 1893, the education provided by Poli has always met the technical and technological competencies of the engineering profession practice. However, for the XXI century engineer profile, from the market and society demands point of view, it is essential for engineers to have an international view of their job.

As from 1998, Poli has provided opportunities for its students to conduct part of their courses abroad. With this, they can have a differentiated vision of what Engineering is about, broadening their technical competence by being in contact with different visions, approaches and development levels, besides the opportunity of incorporating mobility values that, since the undergraduate courses, insert the professional in a different environment from the cultural and political point of view. Poli seeks to form the engineers of the future, open to internationalization and willing to leave their home places to face the challenges posed by technology, relationship and mobility.

The large number of agreements with foreign institutions is one of Poli's differentials, an advantage both for Brazilian and for foreign students. Poli has agreements with over 50 teaching and research institution from different countries, such as France, Italy, Germany, Portugal, Spain, the United States and Korea. Currently, with an agreement policy valued worldwide, it elects the universities with the best engineer courses in the

world to implement its agreements, using the excellence criterion to select them. The participation in Exchange networks such as Time, Cluster and Magalhães, ensures the Exchange excellence.

Poli offers three exchange modalities: double degree, use of credits and open exchange. The double degree programs, established by means of agreements, allows students to be granted a degree by Escola Politécnica and another from a foreign institution, besides having access to all the training agreements of Poli.

Escola Politécnica provides all the conditions necessary for exchange. Students from universities all over the world, for example, count on a large number of agreements executed by the institution, as well as places and programs to receive them. The development momentum experienced by Brazil is also a differential that attracts students from all over the world, as does the acknowledged high level of excellence of Escola Politécnica.

Poli counts on an International Relations Committee (CRInt/Poli) which advises the head office in issues related to agreements and contracts with academic and research institutions abroad. By means of this policy, up to 2018, it had sent 3.074 students to Exchange programs and received 1.578 foreign students. Overall, there are more than 900 Brazilian students who graduated under the double degree program.

The philosophy and structure of Poli are directed to internationalization.



Partnerships

Hand in hand with public and private entities.

The Escola Politécnica has a long list of services rendered to the economic and social development of Brazil. Ever since its foundation, Poli went beyond its purposes of being exclusively a good engineer producer, also seeking to make its relationship with both public and private sectors closer. From this vision and by means of several kinds of partnership, it has always promoted knowledge transfer and technological development in the Country.

Poli regularly holds 300 agreements and contracts with both public and private corporations, with independent public authorities, mixed-economy entities and non-governmental organizations in the most different areas. In these partnerships, research and development projects are developed, personnel training, technical advisory, expert reports and technical opinions conducted by the Escola Politécnica professionals.

These activities are a two-way route, since through them, faculty members end up creating and acquiring and furthering new knowledge, later disseminated to students. For this, the Escola Politécnica, aware of its work excellence, has always established strict criteria to accept or to reject a partnership proposal.

The relationships between the University and the productive sector are made closer as laws stimulating research, technological development and innovation grow in number. Corporations that still invest in research and development, when establishing partnerships with Poli, count on tax exemptions and public stimulus programs that ensure a balanced and just relationship between the University and the corporation.

Moreover, Poli partnerships contemplate government bodies, at federal, state and municipal level. Activities conducted by Poli contribute to the formulation of public policies, as well aiding the public sector to provide services of interest to society.

So as to accelerate its approximation to other institutions, Poli counts on a sector called Partnership Service,



which provides the necessary operational support to the formalization of agreements. It also facilitates the contact between companies and faculty and accelerates the formalization of future contracts. This sector accounts for making legally viable the participation of professors in full dedication regime to teaching and research. Hence, all the necessary conditions for partnership activities to be developed are met.

Among the large Brazilian corporations which Poli keeps partnerships with are Petrobras, Vale, Embraer and the banks Bradesco and Itaú. Among the foreign ones are Thyssenkrupp, Rhodia and PSA Citroën Peugeot. The Ministry of the Cities, Ministry of Science, Technology and Innovation, at federal government level, the State of São Paulo Government and the Municipal Government of São Paulo are detached in the public sector.

The United Nations and the European Union have also resorted to partnerships with the Escola Politécnica.

Again, Poli keeps close relationships with support foundations, the actuation of which favors the proximity between the Escola Politécnica and corporations, public bodies and civil society entities for conducting different activities.

{ Poli has always promoted knowledge transfer and technological development in the Country }

Extra resources to ensure excellence both in teaching and in research.

Respected as one of the largest and most traditional Engineering teaching institutions in the world, the Escola Politécnica of the Universidade de São Paulo is constantly incrementing and qualifying its activities. For this, it constantly seeks resources that complement the budgets normally destined to it by the government, guaranteeing the conduction of new projects and the improvement of its courses. One of the means it resorted to in order to count on a financial contribution was the establishment of a fund, denominated the Escola Politécnica Endowment.

The Poli Endowment is fed by voluntary deposits, by any individual or company, in a bank account especially created to this end. The value and the periodicity of deposits do not matter. Therefore, there is a permanent fund of resources, the yields of which are used in the conservation and expansion of the Poli activities.

The project is inspired on a model used in acknowledged world class universities for decades, such as Harvard, Oxford, Cambridge, Stanford, Yale and Tokio. The asset generated by this system is managed and supervised by a council, formed by representatives from Escola Politécnica, from Grêmio Politécnico, an entity that represents the students' body and from the Poli Engineers Association, formed by alumni.

- Stimulating the development of new technologies;
- Expansion of resources destined to existing projects for granting scholarships, which contributes to greater democratization for low-income students;
- Maintenance and modernization of the physical structure of Poli – equipment, classrooms, laboratories –, always focusing on the improvement of the teaching quality;
- Sponsoring awards that stimulate researches, projects, academic exchange and other social benefit initiatives.

The spirit of the Escola Politécnica Endowment advocates it be fed mainly by resources deriving from donations by alumni, by students' parents and by entrepreneurs.

In case the donors so wish, they can direct the resources to departments, laboratories, courses or projects towards which they have greater affinity. Twenty percent of the amount remains in the common fund that Poli may direct according to each year needs, and 80% are destined to the project chosen by the donor.

The return of investments is long-term and must provide continuous flows of resources in favor of Escola Politécnica. At the same time, it must allow the increase or at least the preservation of the real value of the accumulated assets.

The Poli Endowment counts on a Redemption Regulation. This standard establishes parameters for using resources so as to make Poli present and future needs compatible.

The yields of which are used
in the conservation and expansion
of the Poli activities

Implemented at Poli in 2011, the Endowment may be used for different ends:

- Financing research, extension programs and academic projects, selected for their potential to impact and benefit the academic community or society in general;



Poli engineers are also formed outside the classroom

Poli engineers' formation is not restricted to the good satisfaction of curricular requirements. Outside the classroom, students are involved in different activities, such as in robot competitions, participating in sports teams and in the management of a consulting company. Despite not granting them credits for their academic records, these activities help students to integrate and to improve techniques they will use in their professional career.

This tradition started in 1903, when the Poli students created the Grêmio Politécnico (students' association). At the time, their aim was to ensure a representation instrument at the Escola and of counting on a means to participate in events at that time. Today, Poli students also have the Grêmio as a reference in service rendering and in integrating colleagues. Language courses, theater group, preparation for the University entrance exam and even aid to find places in students' residences are among the benefits provided. As Poli expanded over the years, academic centers linked to the different courses were also established, and are Grêmio partners in several activities, including welcoming freshmen, June traditional folk celebrations and other meetings.

Poli students also have sports as a means for integration. For this, they count on the Associação Atlética Acadêmica Politécnica (Polytechnical Academic Athletic Association). Established in 1956, it is one of the largest university sports entities in the State of São Paulo. It forms teams, organizes internal competitions and represents Poli in different championships. In the competitions, it counts on the support of Rateria – a percussion group similar to that of a samba school, formed exclusively by Poli students.

In 1989, students established Poli Junior, to improve academic education and to provide students with the chance to experience professional reality. It works as



an independent not-for-profit corporation, which renders consulting services and develops engineering projects for small and medium-sized companies. Poli Junior also organizes workshops and fairs, aiming to even more enrich students' curricula.

The activities out of class contemplate those who advocate solidarity, as well. Established by Civil Engineering students in 1953, the Pilot Office, or the Poli-USP Interdisciplinary Laboratory of University Extension, congregates the Poli community along with those of other USP units for discussing projects and practical actuation in the search for solutions to society problems. Projects related to environmental protection and technical assistance to poor communities are among the works conducted by the participants.

The International Poli Office, or iPoli, focuses its activities on the Poli students who are abroad. iPoli gives them the opportunity of participating in a network which provides residence options, reception at airports, cultural trips, exchange programs, tourist guides, professional placement and support to Poli programs, among other services. The service also seeks to integrate foreign students to the Poli community.

{ The Grêmio is a reference
in service rendering and
in integrating colleagues }

Departments

Pieces that fit to form a global engineering school

In the Escola Politécnica organization, the departments are the bodies accounting for the elaboration and development of the university teaching, research and extension programs. There are 15 departments:

Computer and Digital Systems Engineering

Accounts for the Computer knowledge area and for the technology deriving from it, investigating the foundations, design, development and application of computer systems and of information technology to the different segments of society. It counts on 12 research laboratories.

Civil Construction Engineering

Focuses on the civil construction productive chain, seeking to solve the technological bottlenecks of the sector, particularly concerning productivity, sustainability and the quality of its products and processes. It counts on five laboratories.

Electric Power and Automation Engineering

Acts in two segments: electric power, emphasizing production, transport, distribution and end-use; and automation in the electric system in buildings, port installations and industrial processes. With nine laboratories, it acts in the domestic scenario and in cooperation with international institutions.

Structural Engineering and Geotechnics

Concentrates on the design, construction method and maintenance of structures, focusing on sustainability, environment preservation and recovery. Its three laboratories are dedicated to physical, mathematical and computational modeling of structural and geotechnical systems, to the study of the properties of the materials composing them.

Hydraulics and Sanitary Engineering

Accounts for the teaching and research in the hydric resources, hydraulic works, river works, marine works, basic sanitation and environmental engineering areas.

Mechanical Engineering

Comprises the mechanical sciences and technology knowledge areas and their specialties, such as dynamic and control of mechanical systems, machine design and structures, power and thermofluid systems as well as surface phenomena and materials. It has twelve laboratories or research teams.

Mechatronics and Mechanical Systems Engineering

Its activities are connected to the infrastructure, industrial and service sectors. It coordinates research activities into modeling, control and decision, robotics, sensors and actuators, biomechatronics, manufacturing processes, machinery design, solid mechanics and impact on structures, among others. It has twelve laboratories.

Metallurgical and Materials Engineering

Accounting for the formation of materials and metallurgical engineers, it stands out in the ferrous metallic and non-ferrous materials areas, polymeric and ceramic materials and extraction and transformation metallurgy, with 20 laboratories available.

Mining and Petroleum Engineering

These two courses are strongly designed conceptually and scientifically, and aimed at resolving engineering practical problems. This department is equipped with seven laboratories, works closely with the industry through P&D-related projects, training courses and consulting, with the participation of students, valuable actions that contribute to future professional training.

Naval and Ocean Engineering

This course is focused on port design and construction, logistics and planning. With its nine laboratories, research centers and groups, this department acts in naval and ocean technology, design, construction, dynamics and hydrodynamics of ocean systems, review and structural design, water transport and planning of ports.

Production Engineering

This course is based on industrial and service sectors. It also combines production activities with logistics, innovation, product design, engineering management and market research. The activities offered by this course comprise engineering, economics, sociology, statistics and operational research, among others.

Chemical Engineering

This course has a cooperative framework with classroom modules and supervised internship modules. Special attention is given to technology innovation projects supported by six laboratories. It also features a number of activities oriented to the application of Chemical Engineering in the environment.

Electronic Systems Engineering

Supported by three laboratories – Microelectronics, Signal Processing and Integrating Systems –, this course comprises four major areas of activities: micro and nano systems, signal processing, integrated system projects, and information and processing systems.

Telecommunication and Control Engineering

This course stands out for its various activities. Supported by three laboratories, the course offers multiple-nature activities such as industrial process management, manufacturing robotics and automation, communication systems, applied electromagnetism, digital signal processing, and biomedical engineering.

Transportation Engineering

It is structured into three areas: Transportation Planning and Operation; Transportation Infrastructure; and Spatial Information. It counts on eight laboratories and is dedicated, among others, to studies into passenger and load transportation systems; traffic engineering; logistics; route design, construction and maintenance; remote sensing and geoprocessing.

Adequate support to teaching, research and extension activities.

Associated to the quality of its faculty and the well planned discipline content, the Escola Politécnica counts on modern infrastructure to conduct its activities concerning teaching, research and extension of services to society. In this scenario, three pillars are detached: its laboratories, its libraries and information service.

The scores of Poli laboratories are among the most complete and modern in Brazil. They are distributed over the 15 departments and are used in didactic and research activities. In the investigation field, they serve both for basic research and for those of technological and applied nature. Hence, the Poli laboratory infrastructure directly or indirectly contributes to the technological advance of the Brazilian companies.

The second pillar is represented by the set of eight libraries – a central one and seven sectorial ones. They take up a total of 5,500m² of physical area. The Poli library service is centenary; it was started in 1895, when its collection counted on exactly 668 books. Today, Poli makes available to its community over 625 thousand volumes, 23 thousand titles of electronic journals and 115 databases. The Poli libraries are an integral part of the USP Integrated Library System.

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The Central Library holds works on Engineering in general, reference works and others destined to the 1st and 2nd year students. Publications of Poli itself, theses and dissertations

produced at the Escola Politécnica are also found there, along with older works, of less frequent use.

The sectorial libraries are specialized in certain areas. They concentrate their service to meet the demands of the Poli community. They are seven:

- Civil Engineering Library “Prof. Telemaco Van Langendonck”
- Electrical Engineering Library “Prof. Dr. Luiz de Queiroz Orsini”
- Mechanical, Naval and Ocean Engineering Library “Prof. Dr. Alfredo Coaracy Brazil Gandolfo”
- Metallurgy Engineering Library
- Mining Engineering Library
- Production Engineering Library
- Chemical Engineering Library

Another piece of strategic importance to the Escola Politécnica activities is the Information Technical Service, responsible for the computer network and for the management systems. This service also provides support to equipment acquisition processes, to information programs and develops systems, besides maintaining equipment. In this area, it is worth highlighting the Center of Electronic Computing (CCE), a USP body located near Poli. It is a service rendering center, accounting for the executive information coordination and for the University data communication.

Poli students can also count on the Universidade de São Paulo infrastructure, such as the USP central restaurant, the University Hospital and the Center for Sports Practice.

**{ The Poli library service
is centenary; it was
started in 1895 }**





ESCOLA POLITÉCNICA DA USP

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