**Research and Development at IST**

Research and Development (R&D) activities play a strategic role in interdisciplinary and crosscutting areas of Architecture, Engineering, Science and Technology, with a great impact on society.

Research at IST is organised in Centres and Institutes that pursue challenging research programmes with a strong social impact in the fields of Architecture, Engineering, Science and Technology. The 23 Centres and Institutes of IST, working in several areas of scientific knowledge, are recognised at national and international level and address a multidisciplinary research in an international and multicultural atmosphere.

Furthermore, 8 of our Research Centres have the statute of Associate Laboratory. The title of Associate Laboratory is granted to scientific research selected to collaborate in pursuing specific objectives within the Government’s science and technology policy, combining three key aspects:

* a strategic research agenda;
* research excellence;
* the necessary dimension to address research challenges with a global dimension.

R&D Centres work cover different research areas:

1. Basic Sciences, with 12 Research Centres involved, covering topics such as Physics, Mathematics and Chemistry.
2. Applied Life Sciences, with 8 Research Centres involved, covering topics such as Bioengineering, Cell Biology, Biotechnology, Biomedical Engineering, Genomics and Systems Biology and Modelling of Biological Systems.
3. Energy, Environment and Mobility, with 10 Research Centres involved, it covers topics such as Sustainable Development, Energy and Environmental Engineering, Territorial Management, Urban Planning and Construction and Transportation Systems.
4. Engineering and Production Technologies, with 6 Research Centres involved, it covers topics such as Aerospace, Process Engineering, Manufacturing and Marine Technologies.
5. Technology Management and Entrepreneurship, with 3 Research Centres involved, it covers topics such as Decision and Risk Analysis, Management and Economics, Innovation and Entrepreneurship and Public Policies.
6. Materials, Microtechnology and Nanoscience, with 7 Research Centres involved, it covers topics such as Electronic, Biological and Biomedical Devices, Micro and Nano Technologies, Applied and New Materials and Nanoscience
7. Information and Communication Technologies, with 5 Research Centres involved, it covers topics such as Computing, Computer Engineering, Computer Systems, Systems and Robotics and Telecommunications

These areas are common to all activities at Técnico: training, research and innovation.

IST has also been developing research and innovation pioneer projects, contributing decisively to economic and social development of the country.

The projects cover all levels of research, from the more fundamental such as CENTRA, focused on the study of black holes, gravitational waves and other theories of the universe, to more applied research and student driven projects. Some examples are the Polar Lodge, aiming to develop, at minimum cost, a sustainable modular building for research development in the Antarctic, the Solar Boat aiming to develop a vessel powered simply by solar energy, or the MOnarCH project, focused on social robotics using networked heterogeneous robots and sensors to interact with children, staff and visitors, engaging in edutainment activities in the Paediatrics infirmary at the Portuguese Institute of Oncology – Lisbon (IPOL). The student projects include the FST aiming to design, build and compete with a formula car at Formula Student competition, the PSEM, aiming to build a highly efficient single-seat electric vehicle prototype, or the Balua aiming to study high altitude balloons and to build a new kind of high altitude platform, with new features and capabilities.

Some figure of ST Research and Development: 23 R&D Units; 8 Associate Laboratories; 2.237 Scientific publications in ISI Web of Science, of which 14 highly cited papers, 1 hot paper and 1 highly cited researchers; UL is rank among the world top 50 according to the Shanghai Ranking’s Global Ranking of Academic Subjects 2019 in 3 subjects directly linked to IST.