Università di Genova | **DITEN** DIPARTIMENTO DI INGEGNERIA NAVALE, ELETTRICA, ELETTRONICA E DELLE TELECOMUNICAZIONI

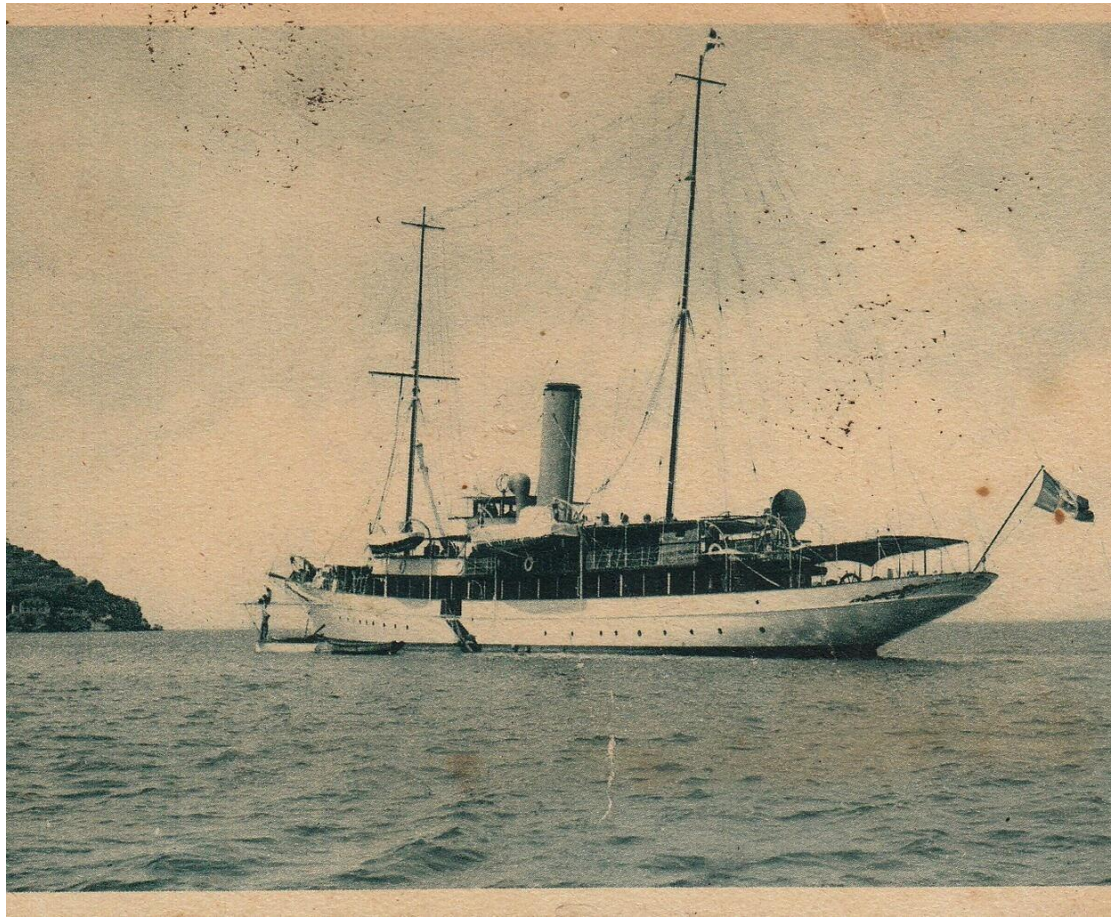
Department of Electrical, Electronic, Telecommunications Engineering and Naval Architecture

University of Genova
Polytechnic School

History

- Department DITEN is a division of the University of Genoa with the objectives, aims, rights and duties of a public entity. DITEN carries out educational activities as well as scientific activities, by promoting and supporting research work conducted by our teaching staff. Multidisciplinarity is key to all activities of our Department, through the promotion of cross-disciplinary research topics and projects.

- Naval Architecture Department (Scuola regia 1870)
- Electrical Engineering (1896)
- Electronics and Telecommunication Engineering (1970)
- DITEN since 2013



Elettra Ship of Gugliemo Marconi in 1921

Human Resources

Teaching staff

28 Full Professors

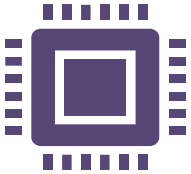
25 Associate Professors

29 Assistant Professors

i.e., 82 teaching members

Ph.D. students, post-docs, non-permanent research fellows

≈ 115 non-permanent researchers



Technical and administration staff

5 technical services: 3 technological support / laboratories; digitalization, network, data, and IT; general services

5 admin services: purchase; personnel; management, control, and budget; teaching admin service; research admin service

15 technical and 15 admin staff members

Teaching Programs

Teaching is offered in numerous engineering branches

- First level programs (B.Sc. – 3 years) – 5 Courses
- Second level programs (M.Sc. – 2 years) – 7 Courses
- Third level programs (Ph.D. – 3 years) – 3 Courses + 1 Curriculum
- Second level Master programs and advanced continuing education programs, also in cooperation with qualified industrial partners

Further teaching activities

- B.Sc. in Naval Architecture and Marine Eng. (Italian Naval Academy, Leghorn)
- Several educational programs at the Armed Forces Telecommunications School (Chiavari, Genoa)

Locations of teaching activities:

Genoa, Savona, La Spezia, Leghorn, Chiavari

B.Sc. and M.Sc. Programs

B.Sc. programs

• Electrical Engineering	(Genoa)	
• Electronic and Information Technology Engineering	(Genoa)	
• Naval Architecture and Marine Engineering	(Genoa)	
• Nautical Engineering	(La Spezia)	
• Maritime Science and Technology	(Genoa)	→ Entirely in English

M.Sc. programs

• Electrical Engineering	(Genoa)	
• Electronic Engineering	(Genoa)	
• Naval Architecture and Marine Engineering	(Genoa)	
• Yacht Design	(La Spezia)	→ Entirely in English
• Internet & Multimedia Engineering	(Genoa)	→ Entirely in English
• Engineering for Natural Risk Management	(Savona)	→ Entirely in English
• Engineering Technology For Strategy (and Security)	(Genoa)	→ Entirely in English

Ph.D. and Second Level Master Programs

Ph.D. programs

- Science and Technology for Electrical Engineering, Complex Systems for Mobility
- Science and Technology for Electronic and Telecommunications Engineering
- Interactive and Cognitive Environments – Joint Doctorate (Queen Mary University London / Universidad Carlos III Madrid)
- Naval Architecture and Marine Engineering – Marine Technology (track of the PhD program in Marine Science and Technology of the Sea Study Centre)

Second-level Master programs

- Marine Geomatics
- Cyber Security

Organization of Research within DITEN

Research activities organized in:

- Research areas
- Operational units
- Research teams
- Laboratories

Three research areas

- Electrical engineering area (26 teaching members)
- Naval architecture and marine engineering area (20 teaching members)
- ICT area (36 teaching members)

Strong focus on interdisciplinary research

Research Funding

Over 150 active projects

20 EU funded projects

All others company and technology district funded

Average DITEN net yearly income ≈ 3 M€

Data sourced from the second fiscal year accounts after department foundation

Information and Communications Technologies

Electronics

- Electronic systems
- Integrated hardware/software
- Intelligent embedded systems
- Cyber-security
- e-skin and sense of touch in prosthetics
- Machine learning
- Automated driving
- Educational technologies and Serious Games

Electromagnetics and Complex Systems

- Computational electromagnetics
- EM diagnostics
- Radar systems
- Antennas
- Modeling of materials and complex systems/network
- Embedded control systems
- Power grids and switching converters

Telecommunications

- Next Generation Nets 4G/5G/6G
- Satellite Communications and Networks
- Software- and Cognitive- Radios
- Internet of Things
- Digital Image and Signal Processing and Artificial Intelligence
- Pattern Recognition and Remote Sensing
- Sonar systems

Electrical Engineering

Power systems

- Smart-Grids and Sustainable Microgrids
- Renewable generation and system integration
- Real-time simulation and digital twin
- Electricity markets and Energy Communities
- Protection and lighting

Mobility, automation, and transport

- Innovative energy static converters for industrial applications
- Electrical drives for electrical propulsion
- Electrical system compatibility, system assurance of electrified transports and cybersecurity

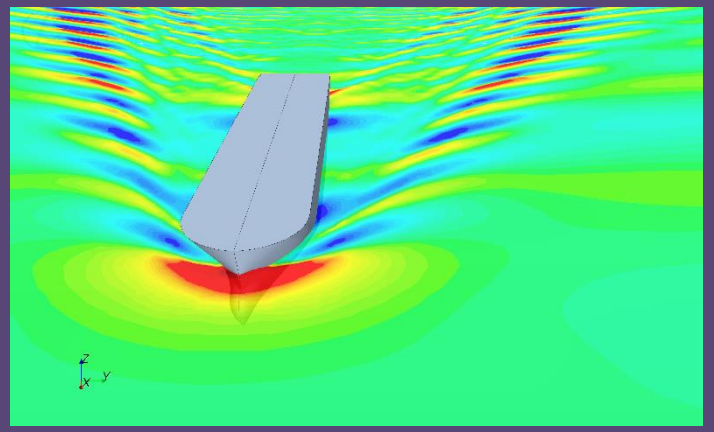
Electromagnetic and Materials

- Design of electric and magnetic devices
- HVDC terrestrial and marine electrodes
- Lightning studies
- Diagnostic for predictive maintenance

Naval Architecture and Marine Technologies

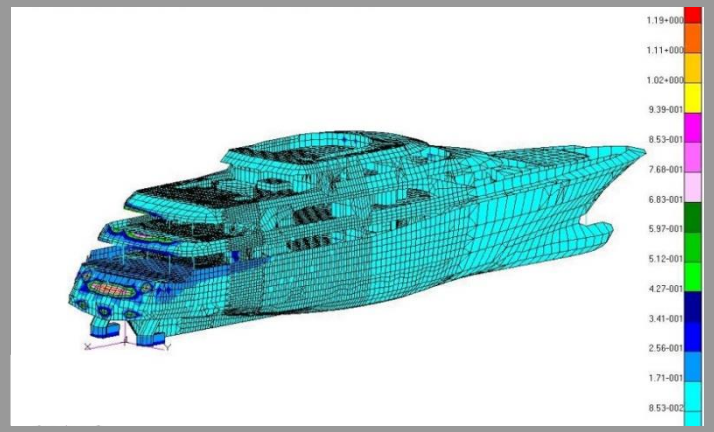
Naval Architecture - fluid

- EFD and CFD
- Ship Stability
- Resistance and Propulsion
- Seakeeping and Manouvrability
- Hydrodynamic Shape Optimization
- Underwater Radiated Noise



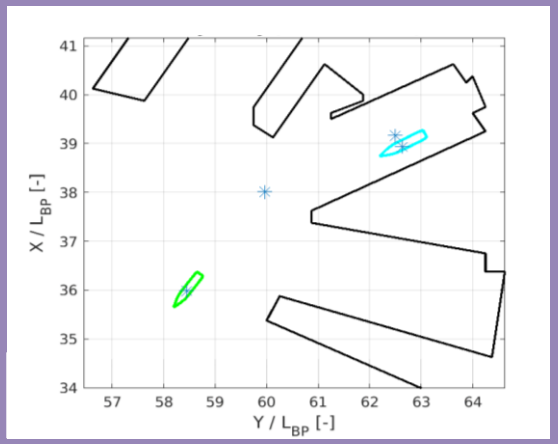
Naval Architecture - solid

- Ship structural design and analysis including vibration, fatigue, FSI, ...
- Offshore floating structures
- Shipbuilding processes
- Ship technical management
- Reliability and Risk Analysis



Marine technologies

- Ship Propulsion Plants
- Marine Plants Simulation
- Environmental impact of Ships and Marine Vehicles
- Autonomous Ships



Examples of Industrial Cooperations

ABB	Ericsson	Phase Motion Control
Accent	Esaote	Philips
Aitek	Ett	Protiveris
Alenia	Ferrari	Prysmian
AlgoWatt	Fincantieri	RFI
American Bureau of Shipping	Flexitab	RGM
AMI Semiconductor	Ford	RINA
Ansaldo	Fos	Rodriquez
Atmel	GL	RSE – Ricerca Sistema Energetico
Axpo	Hitachi ABB Power Grids	Schneider Electric
Azimut-Benetti	Hitachi-Rail	Siemens
BMW	Istituto Italiano della Saldatura	Sige
Bosch	Italian Navy	Sigeco
BV	Itc-Irst	Stellantis
CanovaTech	Leonardo	Stm
Cap	Liguria Digitale	Terna
Cedara Software Corp. (Hitachi, Toshiba Medical Systems)	Lincoln Electric	TIM
CESI	Linear	Valeo
Cetena - Fincantieri	Magneti Marelli	Volkswagen
d'Amico Shipping Company	Mestel	Vships
e-distribuzione	NIDEC ASI	Wartsila
Elcon Instruments	OSN	Xilinx
Ente Bacini	Perini Navi	ZFMarine

UniGe

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