



Virtual Prototyping technologies and methodologies for innovation of the design process

A pioneering European company active since the end of the '70s, EnginSoft is a key player in Computer-Aided Engineering (CAE) and intelligent Digital Prototyping (iDP), as well as in process simulation and design chain optimization.

Since its early days, EnginSoft has been involved in defining best practices for a variety of industries, ranging from aerospace to bio-mechanics. Boasting close ties and collaboration with the most prestigious universities and industrial research centers in Europe, EnginSoft prides itself with the expertise and know-how necessary for choosing the right CAE and iDP tools for its customers, using them only when, how and where necessary.

Today the company is the partner of choice for leading industrial groups in the field of virtual prototyping, boasting a staff of over 80 technical experts, more than 1000 installation licenses for commercial software packages, and 800+ clients world-wide (and growing): all of this makes EnginSoft Italy's major organization (and Europe's number 2) in the CAE/iDP segment.

EnginSoft's key characteristic is the multidisciplinary nature of its technical skills, a feature that qualifies it as the ideal partner for companies seeking expertise in CAE and iDP, both in the use of commercial software and for developing tailored, ad-hoc solutions.

EnginSoft also offers a wide range of educational and training programs in their areas of expertise.

EnginSoft is keenly aware that the maximum benefit from a new technology depends on its fitting on the client's innovation roadmap and long-term goals: this is why EnginSoft offers a 'CAE/iDP assessment' service, motivating the development of a tailored software deployment plan.

Automotive

Structural analysis capabilities: static, linear, non-linear, transient dynamics, buckling, fatigue, vibrations, natural frequencies, impact, durability, crashworthiness. Acoustics and aero-acoustics. Structural analysis of mechanical components. Vehicle dynamics optimization. External aerodynamics, engine and brake cooling, cabin climate, thermal comfort, formation and disposal of condensate in headlamps, intake and exhaust analysis in combustion systems, design for CO₂ and NO_x reduction, prediction of pollutant emissions.

Aerospace and Defense

Turbines and combustors analysis for jet engines, design for CO₂ and NO_x reduction, turbine tip cooling, turbine heat transfer, aero-acoustics, liquid oxygen turbopumps, thermal shocks for marine / torpedo applications, fan blade out analysis, bird strike, fan blade machining, dynamics of rotors and gears, blast analysis, ballistics.

Metallurgy and Manufacturing

Design chain optimization including foundry, forging, injection molding, machining, stamping, sheet metal forming. High-pressure die-casting, gravity die-casting, metal matrix composites casting, heat and surface treatments, residual stress calculation, tear/defects predictions, micro-structural evolution, fatigue. Non-ferrous metal forging, brass forging, open die forging, hot and cold steel forging. Metallurgy of welding processes.

Power Generation

Flame simulation from industrial and fixed burners for multi-phase flow, gas turbines, design for CO₂ and NO_x reduction, boilers, heating towers, modeling of high performance combustors with preheating chambers.

Turbomachinery

Structural and CFD simulations of pumps, fans, blowers, compressors, as well as steam, gas and hydraulic turbines. Tension and deformation analysis of turbines, pumps and compressors.

Oil and Gas

Structural Design and fatigue analysis of onshore and offshore connectors, buoyancy tanks, platform decks, pressure vessels, pipe racks, piping, piping supports, jacket connectors. Submerged pipes impact analysis. Revamping, strengthening and repairing for safety and reliability assessment of existing offshore platforms. Sloshing analysis for storage tanks, single and multi-phase flow simulation, piping systems active dynamic control.

Appliances

Structural analysis and optimization of refrigerators, ovens, freezers, washing machines. Linear and nonlinear structural analysis, dynamics, vibration control, natural frequencies, acoustics, durability, impact and coupled thermal-structural analysis.

Civil Engineering

Structural calculation of industrial and high rise buildings, roller coaster structures, sport facilities, wind turbines, nuclear power plants, thermal and hydro-electric power plants, offshore and marine structures, pre-stressed and non-linear concrete structures, tunnel design, dams, bridges, seismic calculations, fire behavior of structures.

Environmental & HVAC

Simulation of HVAC systems, fans, air insufflators, blowers; evaluation of environment thermal comfort, cooling towers, and plate, shell, and tube heat exchangers. Simulation of liquid pollutants in porous media, gas diffusion in open and confined environments, ventilation.



EnginSoft is the partner of choice in the interdisciplinary supply of:

Technology

- Third party commercial software systems for CAE and iDP covering a wide range of engineering applications, including mechanical engineering, fluid dynamics, acoustics, process simulation, fast dynamics, crashworthiness, and electromagnetism.
- modeFRONTIER software system for design integration, multi-objective optimization and decision support and analysis. EnginSoft is a co-founder of ESTECO - modeFRONTIER's developer: www.esteco.com.
- Grapheur software system for data mining and interactive visualization: www.grapheur.com.

Services

- 'CAE/iDP assessment', i.e. identification of a client's specific needs and demands.
- Integration of off-the-shelf technologies with client`s proprietary software.
- On-demand applications, backed by more than 20 years of experience.
- Projects outside EnginSoft's specialties can be accomplished through the TechNet Alliance, of which EnginSoft is a founding member, with its 600+ specialists world-wide: www.technet-alliance.com.

Training

- Software Training: 60+ courses in Europe throughout the year.
- Vocational training and education as part of the TCN consortium, which was co-founded by EnginSoft: www.consortiotcn.it.
- Online learning: www.improve.it/en.

Research and technology transfer

- Officially recognized by the Italian Ministry of Education, Universities and Research as a laboratory for technology transfer in the CAE/iDP market segment : www.miur.it.
- Member of the Thermal and Fluid Sciences Affiliates and Sponsors Program at Stanford University, USA : www.stanford.edu/group/ffsa.
- Collaborations with universities and research centers at a global level.

Education

- Organization of workshops, seminars and conferences.
- Publication of a quarterly newsletter.
- Active participation in the trade press and promotional activities within professional networks.
- Founding member of Nafems Italia: www.nafems.org/regional/italia.
- Publication of specialized texts and booklets.

