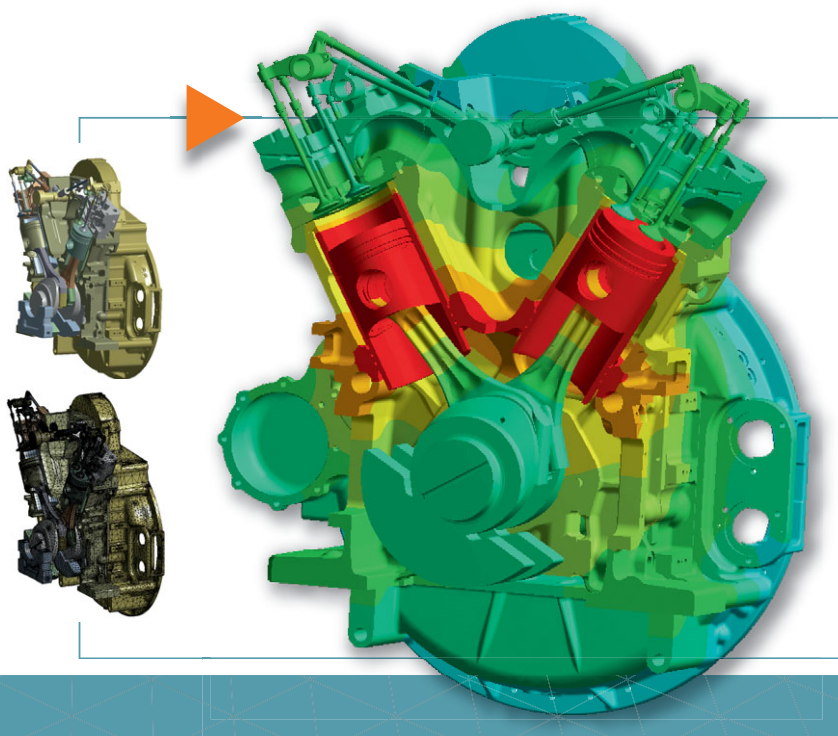


eFEM for Practitioners

Learn FEM within 3 months –
With numerous practical applications
and flexible due to e-learning



CADFEM[®]

esocaet

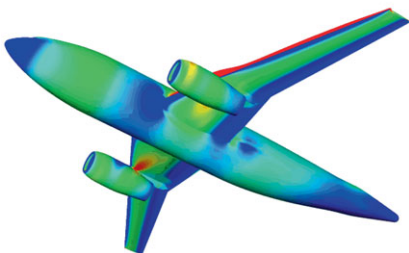
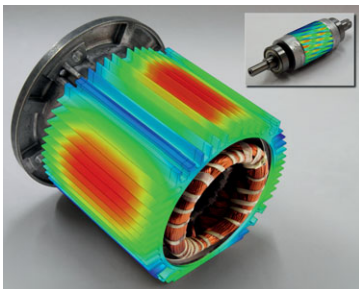
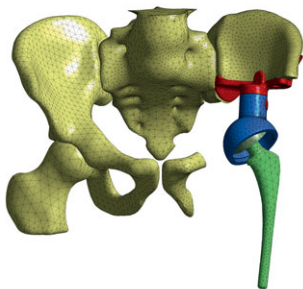
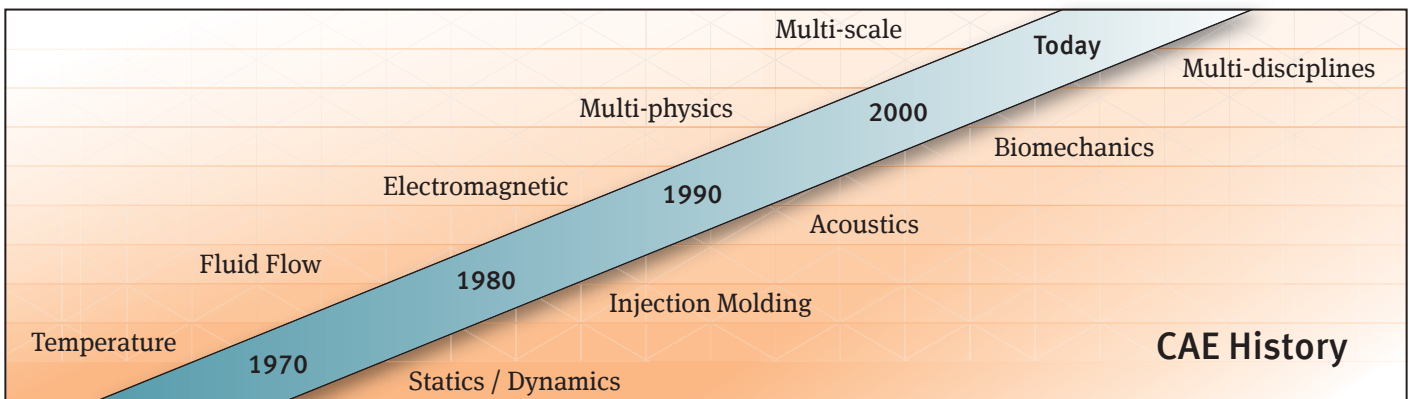
europaean school of
computer aided engineering
technology

Innovation by simulation

Today, Computer Aided Engineering is an essential tool in the product development process. The term “CAE” mainly concerns the field of numerical simulation, and includes methods such as Finite Element Method (FEM), Finite Volumes Method (FVM), and Multi Body Systems (MBS). However, it also encompasses technologies such as Virtual Reality (VR) and is strongly linked to other methods such as PLM (Product Lifecycle Management), CAD (Computer Aided Design), and PDM (Product Data Management).

Computer Aided Engineering helps to:

- cut production costs
- reduce product development times
- keep the testing of expensive physical prototypes to a minimum
- rapidly simulate multiple designs and materials
- optimize design



Boost up your career with FEM

As simulation allows huge savings in both time and money, use of this kind of technology will undoubtedly grow in the future. Hence, there will be an increasing demand for well-trained simulation engineers able to use CAE tools efficiently. The course eFEM enables you to start your career as:

- Research assistant
- CAE Analyst
- CAE Consultant
- Design Engineer
- Apply for esocaet's master study program

Key benefits of our course

- Widely accepted course with huge potential
- Opportunity to learn from international professionals and professors in the field of CAE
- Access to the course contents at any time via e-learning platform
- Individuality is provided: each student has his own login
- Also available for professionals

Special course features

- Blended learning offers classroom seminars and e-learning
- Learn 5 modules with 120 learning units in 14 weeks
- Theoretical background with numerous practical examples
- Software training in ANSYS is included
- Integrated case study



Course content



Mechanics

Objectives

- Understanding systems analysis
- Understanding failure of the materials
- Validation of simulation results

Main topics

- Operating conditions
- Definition of load cases for FEM
- Mechanical behavior (elasticity, plasticity, stability and failure)
- Free Body Diagrams for FEM
- Mechanical calculation

Main Topics

- Processing CAD models
- Discretization and approximation
 - Shape functions (linear and quadratic)
 - Element types
 - Formulation of the stiffness matrix
 - Convergence
- Stress tensor and material behavior
- Modeling loads and bearings
- Postprocessing, deformation, strains and stresses
- Verification and validation of simulation results

Introduction into ANSYS

Objectives

- Carrying out simulations in ANSYS Workbench
- Understanding how to navigate through ANSYS Workbench
- Understanding typical simulation errors and method to solve them

Main Topics

- Meshing controls
- Boundary conditions
- Applying solution algorithms
- Postprocessing

Quality Management

Objectives

- Understanding quality in technical context
- Requirement of the engineering specifications

Main Topics

- Consequences of lack of quality
- Risk analysis and NAFEMS guideline
- Specifications for FE analysis

Finite Element Analysis

Objectives

- Understanding FEM as a method of approximation
- Preparing CAD models for simulation
- Performing post processing and documentation

Case Study

Objectives

- Prove your knowledge on a real engineering problem

Main Topics

Goals of the analysis → Analysis of the system (Idealization) → Supports and loads → FEA discretization → Solver Run → Validation and interpretation → Conclusions → Documentation and archiving



About esocaet

esocaet stands for European School of Computer Aided Engineering Technology, a CADFEM division that offers life-long learning in the field of CAE independently from software manufacturers. The development of the course was funded by the European Union.

About CADFEM

ANSYS and a vast competence in FEA – this is what the CADFEM brand stands for in Germany, Austria and Switzerland since 1985. Moreover, through shares and partnerships, CADFEM is a global player in CAE, e.g. in the US, in China, India, Poland, Czech Republic, and Russia.

CADFEM offers a complete portfolio of leading software tools for numerical simulations, including all product-supporting services such as expert advice, seminars, and support.

Application - Contact

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