Become a CAE specialist in 3½ weeks
Intensive training course for automotive engineers

In collaboration with our partner Tecosim GmbH and experts from education, industry and research carhs.training GmbH offers a unique training programme for simulation engineers in the automotive industry.

Focused on the development process

The training programme focuses on theoretical backgrounds, skilled handling of CAE processes and the application of simulation within automotive development. Professional usage of common simulation software packages is part of the training, but not the main objective. Experienced simulation engineers must be able to use standard software tools but only sound and up-to-date knowledge on technology, methods and processes allow to successfully use simulation in automotive development.

Fundamentals - Methods - Tools

Within the framework of the 3½ week intensive training course the participants will refresh the fundamentals of technical computations. They will learn to professionally use common simulation software like ABAQUS, NASTRAN, OPTISTRUCT, LS-DYNA, PAM-CRASH and pre and postprocessors like HYPERMESH, ANSA and Animator. Finally they will be made familiar with the use of CAE within car development.

Ideal learning environment

The training programme will be conducted in our modern training rooms in Cologne, Munich and Ruesselsheim. For the duration of the course the participants will – free of charge – receive powerful note books which enable them to study theory and application even outside the course times.

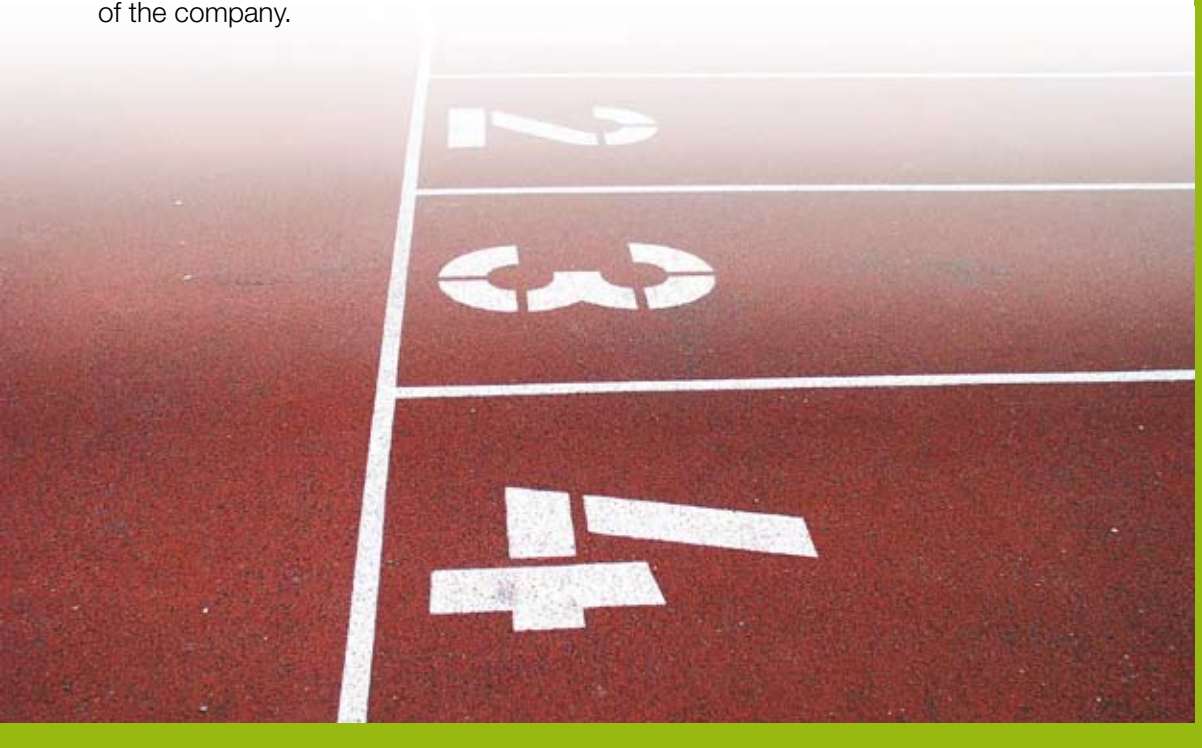
Simulation professionals as trainers

The trainers of this course are simulation professionals who work on CAE projects every day and who are familiar with the CAE requirements within automotive development.

Your advantages

Our goal is to make graduates and job changers in the shortest possible time fit for a simulation job in the automotive industry. The participants benefit from the professional experience of the trainers, the exercises from industrial simulation projects and the exchange with the participants from other enterprises.

For the employer our compact training programme is definitely the most efficient way to train new employees: The programme is fast, intensive and does not employ other staff of the company.



In collaboration with:

TECOSIM
best partner for simulation

Dates:
06.05.2008
03.06.2008
05.08.2008
07.10.2008
04.11.2008
06.01.2009
03.03.2009
07.04.2009
Additional courses will be held upon demand

Venues:
Cologne, Munich, Rüsselsheim (Germany)

Price (excl. VAT):
EUR 7.560,-

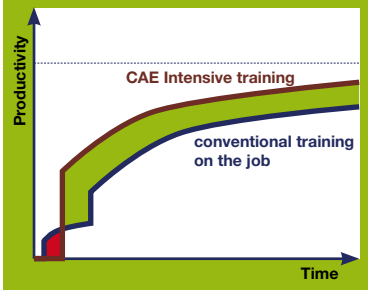
„With the intensive CAE training we significantly increased the productivity of our new employees. The training also increased the satisfaction of our new colleagues about their start in the company and for choosing our company. The professional concept containing theory, software training and project work provides the participant exactly the knowledge and skills they need to successfully work in numerical simulation. Trainers with many years of professional experience, excellent training material and a pleasant learning environment are the key ingredients of this success. Companies that need to qualify graduates or job changers in a short time for working in their computational departments will highly appreciate this training.“

Sandra Bonow
Manager Human Resources
TECOSIM GmbH

Programme CAE intensive training course

Introduction CAE driven car development ■ Typical development processes of the automotive industry ■ CAE driven product development ■ Data management, product life cycle management **Introduction Finite Element Analysis** ■ Basic theory of Finite Element Methods ■ Element formulations, material description	1 Day	1
Meshing of complex parts and car body structures with ANSA ■ Import and cleaning of CAD data ■ Introduction FEA modelling ■ Meshing guidelines ■ Mesh quality checking and enhancement ■ Software training ANSA ■ Hands on exercises, examination	4 Days	2
Basics of implicit Finite Element Analysis ■ Application of FEA in Statics, Dynamics and NVH ■ Load cases implicit FEA - Statics, Dynamics, NVH ■ Special considerations meshing for implicit analysis ■ Model building and assembly for implicit analysis ■ Result evaluation	1 Day	3
Application training implicit FEA software (Software training ABAQUS, NASTRAN or OptiStruct) ■ Basic concepts and special features of implicit codes ■ Input formats and options, solution procedures and program control ■ Results analysis and evaluation ■ Hands on exercises, examination	3 Days	4
Model building, Pre- and Postprozessing (Software training HyperMesh, HyperView und Animator) ■ Basic concepts and special features of the codes ■ Model building for implicit and explicit Analyses ■ Result evaluation and display with HyperView and Animator ■ Report generation, documentation and data management	4 Days	5
Basics of explicit Finite Element Analysis ■ Application of explicit FEA for the analysis of highly nonlinear dynamic problems - crash and Safety ■ Load cases explicit FEA - Crash, Safety ■ Special considerations meshing for explicit FEA ■ Model building explicit FEA ■ Results evaluation	1 Day	6
Application training explicit FEA software (Software training LS-DYNA, PAM-CRASH or Radioss) ■ Basic concepts and special features of explicit codes ■ Input formats and options, solution control ■ Results analysis and evaluation ■ Practical exercises, examination **Summary, discussion, feed back training course**	4 Days	7

The investment in this intensive CAE training course - in terms of time and money - pays off directly through productivity gains during the integration phase of new team members: Thanks to the concentrated time schedule and the comprehensive content engineers participating in the training can be put on real projects after one month.



The training includes:

- Comprehensive course materials on CD
- Notebook during the course
- Certificate
- On demand: Examination

Registration

Fax +49 (0) 6023 - 96 40 70

Yes, I will attend the

CAE - Intensive Training

- ☐ **starting on 06.05.2008**
- ☐ **starting on 03.06.2008**
- ☐ **starting on 05.08.2008**
- ☐ **starting on 07.10.2008**
- ☐ **starting on 04.11.2008**
- ☐ **starting on 06.01.2009**
- ☐ **starting on 03.03.2009**
- ☐ **starting on 07.04.2009**

at a price of EUR 7.560,-- (excl. VAT).

Name, Family Name

Department

Phone

Email

Company

Address

Invoicing Address

Date, Signature

With my signature I agree to the terms & conditions of carhs.training gmbh.

carhs.training gmbh, Siemensstrasse 12, D-63755 Alzenau

Terms & Conditions

Registration
You can register for seminars directly via our webpage www.carhs.de or send us the completed and signed registration form by mail or fax. By signing the registration or by transmitting the e-mail/internet-registration the participant accepts the terms of participation. Your registration data are saved electronically for internal purposes.

Confirmation of registration/Invoice
Immediately after receipt of the registration you obtain a written confirmation of registration and an invoice. Invoices need to be paid within 30 days from the issuing date of the invoice, however, not later than 7 days before the beginning of the seminar, without deductions. We reserve the right to exclude participants who have not paid in time from the participation in the seminar.

Participation fee
The participation fee for one seminar is in Euro per person plus VAT and includes training material and participation certificate. Since the place of provision of seminars held in Germany is inland, participants from abroad have to pay VAT too (it may however be possible to apply for a refunding of the purchase tax at the Federal Tax Office). A partial participation in our seminars does not entitle to a reduction in the participation fee.

Number of participants
The number of participants is limited in order to ensure an efficient realization of the seminar. Registrations are considered in the order of their arrival. An early registration is thus recommended. In the case of additional registrations we try to set an alternative date.

Cancellation
The cancellation of the registration is possible free of charge until 30 days before the beginning of the seminar. In the case of a cancellation until 7 days before the beginning of the seminar we have to charge a fixed charge of EUR 100. In the case of a later cancellation or if the participant does not attend the seminar, the full amount has to be paid. The participant has in this case the right to participate in the next seminar without further cost.

Replacement participant
It is possible at any point to register a substitute participant for the registered participant. The same terms of participation as for the registered participant apply for him or her.

Cancellation or postponing of a seminar
We reserve the right to cancel or postpone seminars for organisational reasons (e.g. if the minimum number of participants is not achieved). In the case of a cancellation we try to book you to another date and/or location, if you should wish so. Otherwise you obtain a refund for the fees already paid, further entitlements are excluded.

Liability
Naturally the lecturers express their personal opinions, and information and data are published or made available. We cannot assume liability for the content of the information given, or for the data, or for the success of the seminar. We are not liable for the loss of or damage to objects brought to the seminar, unless the damaging of this object can be ascribed to deliberate or negligent behaviour by our employees or other auxiliary persons. We thus kindly ask you to not leave valuables or important materials in the seminar room during breaks. We do not guarantee that the products, procedures and names mentioned in seminars and manuals are free from industrial property rights.

Copyright
The manuals distributed within our seminars are copyrighted and must not – not even in extracts – be copied or used commercially without the consent of carhs.training gmbh and the respective lecturers.

Applicable law/Jurisdiction
The contract is subject to German law.
For businessmen in the sense of HGB (German Commercial Code) the following applies: Jurisdiction for all claims and litigations resulting from the contractual relationship, including special procedures deciding claims arising out of a bill of exchange or summary procedures, is Aschaffenburg.

In High-Tech industries like the car industry not only products are undergoing continuous development, but also the tools used in the development process. This also holds for numerical simulation. Few other technologies have developed in the past years as rapidly as simulation. To keep up with these changes even experienced specialists need continuous education.

The importance of initial formation and continuous education has been confirmed by the European Research Project AUTOSIM. In AUTOSIM 32 companies and institutions collaborate to improve and disseminate „Virtual Product Development“ within the European Automotive Industry. One important finding of AUTOSIM is: „Staff training could be improved by independent organisations … Managers need to be made aware of the necessity of training …“

Under the headline “Staying ahead of competition” carhs.training offers - in collaboration with experts from industry, research and education a series of training courses to refresh basic knowledge and to stay up to date with latest developments.

We currently offer the following seminars „from experts for experts“:

CAE for Safety
Prof. Dr.-Ing. Erich Schelkle (Porsche)

Introduction to Numerical Simulation
Dr.-Ing. Dirk Ulrich (carhs.training)

Material Models for Crash Simulation
Dr.-Ing. Helmut Gese (MATFEM)

Simulation of Plastics and Foams
Dr.-Ing. Stefan Kolling (Daimler)

Introduction to Occupant Simulation and Validation
Dipl.-Ing. Torsten Gärtner (TECOSIM)

Airbag Simulation
Dipl.-Ing. Torsten Gärtner (TECOSIM)

Methods and Algorithms of Numerical Simulation
Prof. Dr.-Ing. Detlev Maurer (FH Landshut)

Applied Mechanics for Analysis Engineers
Prof. Dr.-Ing. Detlev Maurer (FH Landshut)

Computational Intelligence & Machine Learning
Dr. Andreas Kuhn (Andata)

Advanced Complexity-based Robust Design
Dr. Jacek Marczyk (Ontonix)

Design of Experiments (DoE)
Dr.-Ing. Karl Siebertz

TRIZ - Creativity and Innovation - Workshop
Ralf Schmierer

Dates, prices and detailed information:
www.carhs.de/training