

## Course Registration

**Send to** CAMPUS AUTOMOBILE A.S.B.L.  
campus-automobile.info@forem.be  
**Fax** +32 (0) 87 47 90 61

**Fee:**  
€1500 for one three-day course  
€2700 for two three-day courses (10% rebate/course)  
€3825 for three three-day courses (15% rebate/course)  
€4800 for four three-day courses (20% rebate/course)

**Payment:** Payment after registration and receipt of invoice.  
**IBAN:** ... BE50 0013 4821 4518 **BIC:** .....GEBABEBB  
**Bank:** ..... FORTIS **Account No.:** .....001-3482145-18  
**Account Holder:**.....CAMPUS AUTOMOBILE A.S.B.L.  
**Reason for Transfer:** ..... <Course Code(s) and Participant Name>

<b>Course Code(s):</b> Please tick the box(es) next to the course(s) you wish to register for.		
<input type="checkbox"/> <b>VLDY0611</b> Vertical and Lateral Dynamics	<input type="checkbox"/> <b>APSS0611</b> Active and Passive Safety Systems	
<input type="checkbox"/> <b>LODY0611</b> Longitudinal Dynamics	<input type="checkbox"/> <b>VEAC0701</b> Vehicle Acoustics	
Name:		
First Name:		
Company / Institute:		
Department:		
PO Box / Address:		
Country:	ZIP Code:	Town:
Telephone:		
Telephone (mobile):		
Fax:		
e-mail		
<i>Please notify me about future events at Campus Automobile. (crossout if necessary)</i>		
Date:		
Signature:		



### Competence Centre Presentation

The year 2005, 84 years after the first motor race on the Spa-Francorchamps circuit, marked the beginning of a new era of automobile education and training. A brand new automobile competence centre at the racing track will welcome you during your courses. A new series of courses will start in November 2006.

### Target Audience

The courses announced herewith primarily address engineers and well experienced technicians from the automotive sector, ranging from car manufacturers to suppliers, especially from engineering and testing departments.

Participants of these four courses will receive excellent-quality lectures and can discover new details of automobile technology, leading to in depth knowledge in automotive engineering.

### Training Team

Courses are offered by Univ.-Prof. Dr.-Ing. Henning Wallentowitz and Prof. Dr.-Ing. habil. Jan-Welm Biermann from the renowned Institut für Kraftfahrwesen Aachen (ika) of RWTH Aachen University.



Univ.-Prof. Dr.-Ing.  
Henning Wallentowitz



Prof. Dr.-Ing. habil.  
Jan-Welm Biermann

## Course Organisation

**Language:** English  
**Registration:** Participants are kindly requested to submit their registration no later than two weeks in advance.  
**Participant Limit:** A maximum of 20 participants per course will be admitted.  
**Fee:** The participation fee is €1500 per course (VAT included). A rebate is granted upon registration to more than one course.  
**Services:** The fee includes course materials, lunches and beverages.  
**Accommodation:** Advice and support upon request.

### Location

The courses will take place at Campus Automobile Spa-Francorchamps Racing Circuit: Route du Circuit, B-4970 Francorchamps

**Access:** Motorway E42 (Verviers – Trier), exit no. 11, direction Stavelot. Parking "Blanchimont".



### Contact

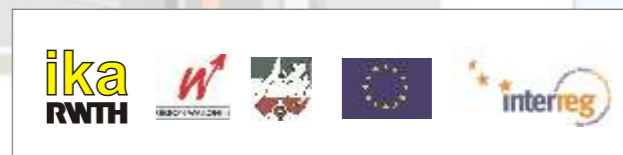
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<http://www.ika.rwth-aachen.de>



## Automotive Engineering Course Announcement 2006/07

	<b>Vertical and Lateral Vehicle Dynamics</b> Univ.-Prof. Dr.-Ing. Henning Wallentowitz
	<b>Longitudinal Dynamics</b> Univ.-Prof. Dr.-Ing. Henning Wallentowitz
	<b>Active and Passive Safety Systems</b> Univ.- Prof. Dr.-Ing. Henning Wallentowitz
	<b>Vehicle Acoustics</b> Prof. Dr.-Ing. habil. Jan-Welm Biermann



8th – 10th November 2006

## Vertical and Lateral Vehicle Dynamics

Univ.-Prof. Dr.-Ing. Henning Wallentowitz  
and qualified engineers from ika

In this course, the participants become acquainted with the basic knowledge and analysis of suspension systems as well as tyres and steering systems. The main focus during the first part of the lecture is placed on vertical vehicle dynamics. It includes the different requirements regarding the suspension itself and various other components of the vehicle's chassis. The second part of the course focuses on lateral vehicle dynamics, in which the basic structure of tyres, the suspension and steering system are explained. The theoretical background of the contents will be explained during the first two days of the course. On the third day, vehicle demonstrations will be performed on the ika test track in Aachen.

Course Schedule:

Wed., 08.11.2006	Thu., 09.11.2006	Fri., 10.11.2006
<ul style="list-style-type: none"> <li>• Demands on Suspension Systems</li> <li>• Road Excitations</li> <li>• Vertical Tyre Characteristic</li> <li>• Suspension Components</li> <li>• Vertical Vehicle Dynamics</li> <li>• Seats and Ride Comfort</li> </ul>	<ul style="list-style-type: none"> <li>• Demands on Driving Behaviour</li> <li>• Lateral Tyre Characteristics</li> <li>• Single Track Vehicle Model</li> <li>• Double Track Vehicle Model</li> <li>• Suspension Kinematics</li> <li>• Steering Systems</li> <li>• Suspension Design</li> </ul>	<ul style="list-style-type: none"> <li>• Vehicle Demonstration on Test Track</li> <li>• Optional Institute Tour</li> </ul>

Course Code: **BVDY0610**

21th – 23th November 2006

## Logitudinal Dynamics

Univ.-Prof. Dr.-Ing. Henning Wallentowitz  
and qualified engineers from ika

This course begins with outlining the significance of modern motor vehicles for passenger and freight traffic compared to other transport. Main focus for the course will then be the longitudinal dynamic of motor vehicles. It covers the relevant components and parameters, which influence "driving" and "braking" of motor vehicles. The first two days will be the presentation of the topic's theory. The third day of the course will be exercises and discussions of examples.

Course Schedule:

Tue., 21.11.2006	Wed., 22.11.2006	Thu., 23.11.2006
<p>Lectures on Power and Power train:</p> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Power and Energy Demand</li> <li>• Power train: Engines</li> <li>• Speed Converters</li> <li>• Torque Converters</li> <li>• Differential</li> <li>• Brakes</li> <li>• Vibrations</li> </ul>	<p>Lectures on Vehicle Dynamics:</p> <ul style="list-style-type: none"> <li>• Driving Performance</li> <li>• Fuel Consumption</li> <li>• Drive train Layouts</li> <li>• Driving Limits</li> </ul>	<p>Exercises:</p> <ul style="list-style-type: none"> <li>• Power and Power train</li> <li>• Vehicle Dynamics</li> </ul>

Course Code: **AVDY0611**

29th November – 1th December 2006

## Active and Passive Safety Systems

Univ.-Prof. Dr.-Ing. Henning Wallentowitz  
and qualified engineers from ika

This course focuses on safety-related vehicle systems, ranging from active to passive safety. The emphasis is hereby given on driver assistance systems. The part "on-board-systems" of the course deals with such systems. The field of "passive safety" includes accident analysis, the determination of the limits of bio-mechanic strains on the human body and the specific design of the driver's seat and position, restraint systems and appropriate car interior design.

Course Schedule:

Wed., 29.11.2006	Thu., 30.11.2006	Fri., 01.12.2006
<ul style="list-style-type: none"> <li>• Introduction to Vehicle Safety and Accident Analysis</li> <li>• Driver Assistant Systems: Introduction and Applications</li> <li>• Exercise: Driver Assistance Systems</li> <li>• Pre-Crash</li> </ul>	<ul style="list-style-type: none"> <li>• Driver Assistant Systems: Sensors and Actuators</li> <li>• Longitudinal Dynamics Control</li> <li>• Lateral Dynamics Control</li> <li>• Lighting Equipment</li> <li>• Air Conditioning</li> <li>• Glass</li> </ul>	<ul style="list-style-type: none"> <li>• Seat-, View- and Control Conception</li> <li>• Passive Safety: Vehicle Structure</li> <li>• Biomechanics</li> <li>• Pedestrian Protection</li> <li>• Restraint Systems</li> <li>• Post-Crash</li> </ul>

Course Code: **LODY0611**

23rd – 25th January 2007

## Vehicle Acoustics

Prof. Dr.-Ing. habil. Jan-Welm Biermann  
and qualified engineers from ika

This course covers the entire field of vehicle acoustics, ranging from exterior driving noise to the passenger's noise and vibration perception. It includes all acoustical mechanisms in today's vehicles, from low-frequency vibrations to high-frequency noise. Starting with acoustic basics and an overview of current measurement devices (e.g. Laser Vibrometer), the specific vehicle noise sources (e.g. Power train, brakes and tyres) are discussed in terms of noise generation and technical potentials of noise reduction. The course concludes with an introduction to the field of psychoacoustics.

Course Schedule:

Tue., 23.01.2007	Wed., 24.01.2007	Thu., 25.01.2007
<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Acoustic Basics</li> <li>• Audiology</li> <li>• Sensors and Measuring Devices</li> <li>• Test Chambers</li> <li>• Signal Analysis</li> <li>• Legislation</li> <li>• Measuring Regulations</li> <li>• Partial Sound Source Analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Combustion Engine</li> <li>• Transmission</li> <li>• Joints</li> <li>• Vibration System "Drivetrain"</li> <li>• Body</li> <li>• Tyres</li> <li>• Brake Systems</li> <li>• Steering Systems</li> <li>• Sound Transfer Analysis</li> <li>• Psychoacoustics</li> </ul>	<p>Exercises:</p> <ul style="list-style-type: none"> <li>• Basics</li> <li>• Sensors and Measuring Devices</li> <li>• Measuring Methods</li> <li>• Laser Vibrometer</li> <li>• Components</li> <li>• Methods for Interior Noise Reduction</li> </ul>

Course Code: **VEAC0701**