

Computer Aided Automotive Lighting

Trainer / Lecturer:

Member of Staff of Brandenburg GmbH Paderborn

Brandenburg GmbH (located in Paderborn, Germany) is the company behind LucidShape, the most powerful and advanced software tool for computer aided lighting design tasks. The company's field of expertise consist of (but is by no means restricted to) automotive lighting areas.

Founded in 1998 by Willi Brandenburg, Brandenburg GmbH currently has a team of 16 lighting engineers and scientific software specialists and is continuously growing. Besides constantly developing LucidShape and its several derivatives, Brandenburg GmbH's business fields are automotive lighting consulting and development and general software on demand production.

Brandenburg GmbH's profound expertise has brought the company a broad world-wide client base, including most of the well-known OEMs and lamp manufacturers as well as a significant share of the international aftermarket.

Contents:

- Mathematical Fundamentals
- Physical Fundamentals
- Types of Automotive Lighting Devices and Regulations
 - Automotive Headlamps
 - Automotive Signal Lamps (Front, Rear)
 - Automotive Interior Lamps
- Design Concepts in Automotive Lighting
 - Single Light Source Reflector Systems
 - Single Light Source Projector Systems
 - Multiple LED Reflector/Projector Systems
 - Light Guide- and Light Edge- Systems
 - Miscellaneous Applications
- Light Control Concepts in Automotive Lighting
 - Collector - Diffuser Systems (regular Geometries)
 - Poly Curve- and Procedural Surface Systems
 - FF-Surface Systems
 - FF-Macro-Focal Approach
 - Projector Systems with shielding Geometries
- Light Sources
 - Halogen-, HID-, LED- Light Sources
 - Typical Fields of Application
 - Light Source Modeling (geometric Models, Ray Files, Hybrids)

Basic Course on Mathematical Fundamentals

- Basic Linear Algebra
- Basic Analysis
- Basic Differential Equations
- Surface Mathematics

Basic Course on Physical Fundamentals

- Lighting Fundamentals
- Light Sources and Light Generation

General Concepts in Automotive Lighting

Automotive Headlamps I

- Fundamentals on Automotive Signal Lamps
- Regulations & Measurement
 - o Low Beam, High Beam, Fog Beam, (SAE- and ECE-types)
 - o Advanced Front Lighting Systems (AFS)
- Lighting Concepts I
 - o Reflector Systems
 - o Projection SystemsRegular Geometries (Parabola, Ellipsoid, Hyperboloid)

Automotive Headlamps II

- Lighting Concepts II
 - o Light Control with FF-GeometriesCreation of Cut Off Lines: Macro-Focal (MF-) Concept

Automotive Signal Lamps II

- Misc. Applications
 - o License Plate Illumination
 - o Light Guides
 - o Prism Bands
 - o Others