

AMC Seminar Series: 'Lightweight Design for a Lighter World'
Series of lectures featuring leading speaker Rainer Kurek

»SUSTAINABLE AUTOMOTIVE DESIGN«



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Preamble

As a highly qualified provider of technology, training and further education in the field of disruptive innovations in sustainability and lightweight construction, AMC GmbH has developed a series of seminars entitled '**Lightweight Design for a Lighter World**', dedicated to further professional development in industry, academia and politics – spanning countries, sectors, technologies and materials: for the entire world of international mobility. This seminar series draws on the 25 years of practical experience and expertise of AMC and its speakers from various mobility sectors.

As part of this innovative seminar series, a diverse range of internationally renowned—including engineers, natural scientists, technologists, materials scientists and economists, as well as experts from business and sport—will present innovative, disruptive and sustainability-oriented solutions to key and pressing issues of our time and generation, with the aim of successfully tackling major challenges such as optimising the CO₂e footprint, the SUSTAINABILITY VALUE and global warming potential – always drawing on practical experience for practical application.

The initiator of the seminar series is Dipl.-Ing. (FH) Rainer Kurek, managing sole shareholder of AMC GmbH and a consultant in industry, science and politics. With seven specialist books on management and technology, as well as more than 200 monographs, journal articles and interviews, Kurek is one of the most widely read authors in the German-speaking automotive industry.

Furthermore, during his career in industrial management and academia, Kurek was responsible for various complete vehicle projects in industry and manufacturing. All these vehicle projects were and are characterised by outstanding resource and energy efficiency, sustainable (and ultra-) lightweight construction, innovative vehicle architectures and responsible safety concepts, advanced material selection and the highest quality of execution. Kurek combines tradition with modernity, sustainability with progress, and technology with measurable and assessable management expertise.



Kurek GT-5 (© AMC GmbH)

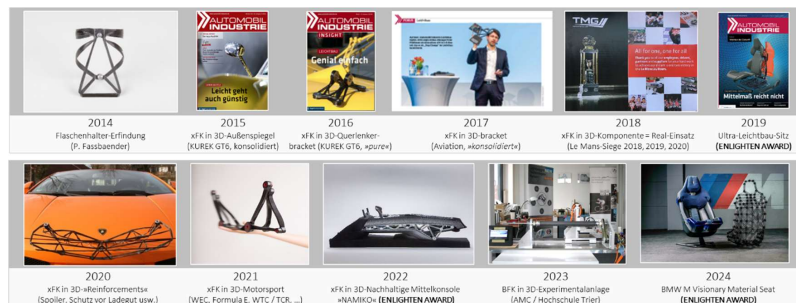
Kurek's new flagship seminar, **'SUSTAINABLE AUTOMOTIVE DESIGN'**, presents resource- and energy-efficient technology, product and process solutions for which AMC GmbH has received numerous international awards – including the world's most prestigious ENLIGHTEN AWARD in Traverse City, Michigan, and NASDAQ in 2019, 2022 and 2024, New York.

Against the backdrop of growing demand for resources and energy for electricity, heating and mobility, as well as sustainability requirements resulting from climate change and the need to protect the environment, Kurek focuses his new seminar **'SUSTAINABLE AUTOMOTIVE DESIGN'** on practical innovations in sustainability and lightweight construction, which he presents in both theory and practice in a manner that is as inspiring, self-reflective and motivating as it is deliberately direct and clearly articulated, whilst always being based on facts and experience.

Programme

Day 1: 3.00 pm to 7.30 pm

- Welcome and introduction of participants
- Brief introduction to AMC speaker Rainer Kurek
- Programme overview (Learning objectives and methodology)
- Introduction: 'Rethinking sustainability' (situation analysis)
- Potential for turbulence in the international automotive industry – 'quo vadis?'
- Automotive management in a phase of profound transformation
- **'SUSTAINABLE AUTOMOTIVE DESIGN'** – achieving more together



A chronology of outstanding AMC innovations (© AMC GmbH)

Day 2: 8:30 am to 12:30 pm

- Review of Day 1 (feedback session with the seminar team)
- Changes in competitive factors in the international automotive industry:
 - CO₂ e footprint (net zero)
 - Design for circularity (circular economy)
 - Market saturation in the Triad (mature industries)
 - Reduction of complexity (e.g. single-material requirements)
 - Upstream process chain ('frontloading')
 - Usage phase and customer requirements (market demand)
 - Recycling ('2nd / 3rd life')
- Lunch break.

Day 2: 2.00 pm to 6.00 pm

- Management Navigator **'SUSTAINABLE AUTOMOTIVE DESIGN'** (impact framework)
- Strategy, process and structural development (company, supply chain) with regard to climate neutrality and CO₂ taxonomy / certifications
- Efficiency: Viable System Model ('VSM', according to S. Beer)
- Sustainable product development processes (platform strategies, modularisation, production volumes)
- Customer and technology value
- Relative sustainability quality, relative sustainability price
- Discussion, learning diary, 'Come together'



*NAMIKO sustainable centre console
(© AMC GmbH, DITF, BMW)*

Day 3: 8.30 am to 12:30 pm

- Day 2 review (feedback session with the seminar team)
- Sustainable USPs, IP and innovative strength in the automotive industry
 - 'Outside-in / Inside-out' strategy
 - Legal regulations (laws, standards, guidelines)
 - Process technologies: yesterday – today (Green Future)
 - Material selection: use of materials in line with their strengths
 - Joining and fastening technology: options (assembly / disassembly)
 - Digitalisation (limitations of 'AI' and practical experience)
 - Market and technology studies (examples)



Day 3: 2.00 pm to 6.00 pm

- Software-based sustainability value analysis in the early design phase
- Functional strategies (differentiation of brand messages)
- 'Shifts in the playing field' – transport and logistics (BRIC, ...) and positioning
- Costs, prices, productivity: 'a new international contest'
- The innovation race and cognitive traps – magic and reality
- Cooperation, communication and effectiveness
- Discussion, certificates
- Closing remarks



For the first time, in response to specific requests, AMC GmbH is offering an **optional two-day extension to the 'SUSTAINABLE AUTOMOTIVE DESIGN'** seminar, which is specifically dedicated to the far-reaching cultural factors driving transformation in the automotive industry (drawing, amongst other things, on Kurek's one-to-one coaching sessions).

On the fourth and fifth days, Kurek presents key cultural leadership principles which, alongside scientific, technical and methodological skills, are necessary to boost the motivation, commitment and sense of responsibility among young specialists and managers in a positive and sustainable manner. In doing so, he explains why communication, cooperation and teamwork are among the key success factors in the context of the resource, energy, climate, transport, environmental and economic transitions. Kurek also calls for the targeted development of intercultural skills, ethical guiding principles and empathetic conflict resolution skills, amongst other things. "Ecology, the economy and sustainable social justice also require a cultural rethink," says Kurek, who has been managing international sites for more than three decades and draws inspiration from the timeless wisdom of Far Eastern cultures.



Facts, figures and information about the seminar 'SUSTAINABLE AUTOMOTIVE DESIGN'

(programme focus can be tailored jointly, if desired)

Seminar prerequisites:	Basic technical and methodological knowledge
Seminar duration:	3 or 5 days – depending on requirements (as requested)
Seminar language:	German / English or bilingual
Seminar capacity:	up to 40 participants (in-person seminars only)
Seminar costs:	to be defined (depending on joint adjustments & seminar duration)

The seminar content (programme) is structured across the

- knowledge and learning level (course notes),
- reflection and transfer level (learning diary) and
- work and application level ('best practice')

Technological innovations, products and exhibits are demonstrated using hardware, whilst management systems, methods and tools are taught using software.

Independent references regarding the lecturer and his work on innovation

Academic field:



Media:

"...In this issue of *Industrieanzeiger*, we introduce Rainer Kurek, an automotive engineering expert who is both a practitioner and a visionary. Kurek has developed racing cars, led engineering firms, advises OEMs and teaches management – and he has a practical, well-honed perspective on how the industry can transform itself and continue to succeed, despite a truly challenging market environment. In a series of articles in *Industrieanzeiger*, he proposes 'rethinking lightweight construction' – specifically in the context of management."

Olaf Stauß, Editor, *Industrieanzeiger*

"... The time is ripe for this. Sending people on a journey to Mars is much more difficult. We have materials we could only dream of in the past, and we have digitalisation. This book focuses our attention on this: legions of engineers are now using the finite element method to determine the load paths in intricately shaped components. The Munich Olympic Roof stands as an enduring paradigm of this. At the same time, there are ever more lightweight plastic components (composites) in which fibres made of carbon, basalt or other high-tensile materials handle almost the entire force transmission along the calculated load paths. What could be more natural than to slim down such components and reduce them to nothing but these high-strength fibres? They would then weigh hardly more than 'nothing'.

Easy to say, but difficult to put into practice. Many have tried and given up. It took an engineer who is at once a visionary, a manager and a facilitator to 'manage' this idea and bring it to fruition with experts and the right partners. Rainer Kurek is that engineer – and the author of this specialist book.

As a passionate engineer, he was responsible for the development of complete vehicles, assisted his father in building extremely lightweight sports prototypes and headed a major development service provider for many years. He has been a technology consultant to the automotive industry, running his own company, for even longer.

One of his most brilliant achievements, however, was discovering the 'xFK-in-3D' technology – which had previously been only vaguely outlined – recognising its significance and bringing it out of obscurity.

With partners and interdisciplinary expertise, Rainer Kurek drove the technology forward to the point where 'xFK-in-3D' is now on the cusp of series production. It produces components that can bear loads of tonnes yet weigh only a few grams. It is the lightest way to build anything at all."

Olaf Stauß, Editor, *Industrieanzeiger*

Industry:

"The result is breathtaking. I've never seen anything better."

Peter Sander, Vice President, AIRBUS Operations, finalist for the 2016 German Future Prize

"In my opinion, this process will unlock entirely new potential (technological, economic, environmental and social) in lightweight construction."

Prof. Dr.-Ing. Peter Eyerer, founder and long-standing director of the Fraunhofer ICT

"I have been working with carbon fibres since my early youth and must say, with great admiration, that you have – using simple means – optimised this technology and extracted everything that is possible from this material."

OEM Manager, Advanced Engineering, leading car manufacturer

For further information, please contact

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