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We're Talking Ourselves out of a New Generation of Engineers

Times are tough for university professors whose departments specialize in combustion engines, because young people are finding this discipline increasingly unattractive. The combustion engine has become a painful joke and is now associated only with the history of technology.

In the past, automotive engineering courses of this kind focused on understanding the thermodynamic behavior of the engine and on explaining the physical and chemical connections between charge cycles, flow fields, energy conversion, heat transfer, emissions, and exhaust gas treatment. The lectures also covered wider-ranging subjects, but the basic physical and chemical principles rightly lay at the heart of these courses. Now they have hardly any appeal at all.

Of course, it has always been necessary to adapt the content of the courses to include the latest developments in areas such as fuel injection, turbocharging, electronic regulation systems, and hybridization, plus new legislative requirements.

Now marketing measures are being used to increase the attractiveness of these courses, with subjects such as “the drive systems of the future” being advertised. These lectures introduce other important technologies, including fuel cells and battery electric powertrains. However, this strategy is certain to lead to conflict with academic colleagues who

believe that these related subjects fall into their domain.

The competition for the brightest young people is becoming tougher and, while cooperating with colleagues could help, it is clear that mechanical engineering and engine design are losing their attraction.

The strategies of the major carmakers indicate that between 30 and 70 % of the new vehicles they produce up to 2050 will have a powertrain which includes a combustion engine. The percentage is even higher for commercial vehicles, ships, power stations, construction and agricultural machinery, motorcycles, and aircraft engines.

Against this background, we should all be making an effort in our public communications to avoid using phrases such as “we still need the combustion engine” or “the last combustion engine will...” because this sends out disastrous signals.

It is enough simply to say: “We need the combustion engine!” Any other approach would be wrong and also unfair to the universities and other educational institutions. In addition, statements of this kind give the impression of a desire to greenwash at the expense of the combustion engine.

There is one thing that we should not forget. When running on synthetic fuels, the combustion engine is politically correct and more relevant than ever in environmental terms.