

Course Description – summer 2023

Title	Automotive Drive Systems
Faculty	Mechanical Engineering
Professor	Prof. Dr. Georg Weidner
ECTS	5
Level	Bachelor
Requirements	-
Add. Information	https://www.hs-schmalkalden.de/hochschule/fakultaeten/fakultaet-maschinenbau/internationales/englische-kurse.html
Content	<p>On the completion of this course the students should be able to give a quantitative contribution to the environmental discussion on motor vehicles. They will do calculations to the longitudinal dynamics and the demand for energy of cars. They can evaluate conventional and alternative drive systems concerning the demand for energy.</p> <ol style="list-style-type: none"> 1. Rolling resistance and adhesion to road surface 2. Aerodynamic drag 3. Empirical determination of air- and rolling resistance 4. Climbing resistance 5. Acceleration and deceleration 6. Translatory and rotatory inertia 7. Demand for energy and power at several test cycles 8. Maps of combustion Engines 9. Tractive force/speed diagram 10. Calculation of fuel consumption 11. Efficiency maps of DC- and AC-motors 12. Batteries 13. Adaption of electric motors to vehicles 14. Calculation of driving range of electric cars 15. Layouts of hybrid drive systems 16. Calculation of consumption of hybrid drive Systems 17. Transmission systems