Modulbezeichnung: Stundenplankürzel: *(Title)*	AERODYNAMIC PRINCIPLES FOR AUTOMOTIVE DESIGN
Modulverantwortliche(r): *(Module responsibility)*	Prof. Dr. Ing. Matthias Rebhan
Dozent(in): *(Course teachers)*	Ms. Laura Brombach-Randall
Sprache: *(Language of instruction)*	English
Zuordnung zum Curriculum: *(Degree programme)*	Elective Module
Lehrform/SWS: *(Teaching method / Hours per week (SWS))*	Lecture, Class Discussion, Demonstrations, Practical Exercises 3 SWS
Arbeitsaufwand: *(Workload)*	Attendance time: 45 hours Private study, exam preparation: 75 hours
Kreditpunkte: *(Number of ECTS credits)*	4 ECTS
Voraussetzungen: *(Prerequisites)*	Engineering Mathematics (Differential Equations)
Verwendbarkeit: *(Usability)*	The module is not prerequisite for other modules. The module is open for all three bachelor programs of the FK 09 as well as for exchange students.
Lernziele/Kompetenzen: *(Course objective)*	Competence Level 2 „Understand“: • Calculate or simulate a laminar flow field for a simple shape (e.g. blunt body, cone, ball or block) at low speeds. Competence Level 3 „Apply“: • Describe and perform a simple aerodynamics experiment (designed by the students in teams) Competence Level 4 „Analyse“: • Analyse the flight properties of an object in the aerodynamics experiment • Improve the flight properties
Inhalt: *(Course content)*	Part 1 – Basics of low-speed fluid dynamics: • Do some experiments • Figure out what’s going on • Describe what’s going on mathematically • Describe what is happening verbally • Present your experiment Part 2 – Automotive Design: • Be able to discuss the ins-and-outs of wing design for automotive purposes • Heating/cooling units; underbelly of an automobile • Exterior Design with various shapes • Tour of a Car Manufacturer with an engineer as the tour guide – (hopefully, BMW or Audi)
Prüfungsform: *(Assessment method)*	modA 60% (presentation & tasks) schrP 40%

	The module is assessed by a presentation (including team project work) and an exam
Literatur: *(Recommended reading)* *(Supplementary reading)*	KATZ Joseph, ©2006, Race Car Aerodynamics: Designing for Speed, Bentley Publishers, ASIN: B00NPNUQX0 Anderson, John D., Fundamentals of Aerodynamics 5th Edition, McGraw-Hill Companies, Inc. ©2011