Educational and Research Partnership between Audi Hungaria Motor Ltd. and Széchenyi István University

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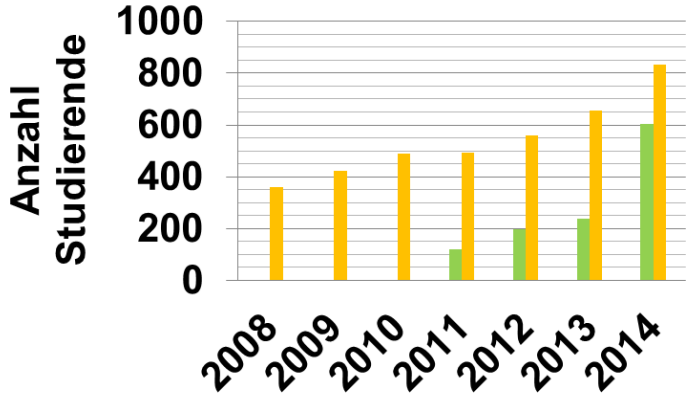
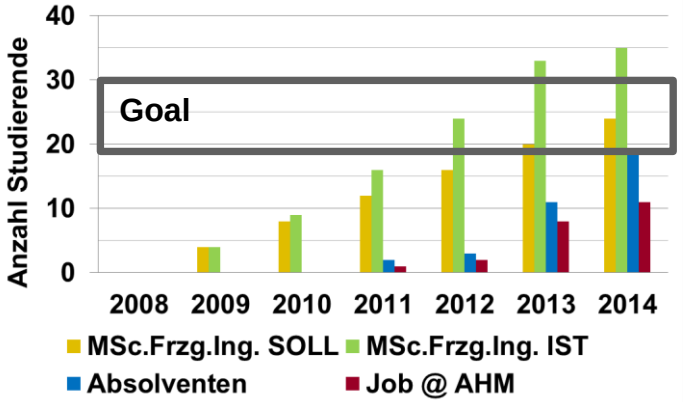
Széchenyi István University

Overview of Széchenyi István University (as of Fall 2014):

Number of students	11 617
Faculty of technical sciences	7 508
Mechanical engineering major	1 553
ME with emphasis on IC engines + Automotive enginnering (B.Sc.)	831
Automotive engineering major (B.Sc.)	603
Automotive engineering major (M.Sc. Deutsch)	19





- ca. 3/4 of the graduates find a job at AUDI Hungaria Motor Kft.
- ca. 2/3 Automotive Engineering major M.Sc. Are coming from Győr

AUDI Hungaria Faculty of Automotive Technologies

Internal combustion engines major M.Sc. Curriculum

Education

1st SEMESTER	2nd SEMESTER	3rd SEMESTER	4th SEM.
MATHEMATICS Analysis I.	MATHEMATICS Analysis II.	MATERIAL SCIENCE Selected chapters	FINAL YEAR THESIS
APPLIED MECHANICS	MATHEMATICS Differential equations	FUZZY - SYSTEMS	
ELECTRONICS	AUTOMATIC CONTROL	FEM ANALYSIS	
SIGNALS AND SYSTEMS	SENSORS AND ACTUATORS	TRAFFIC SAFETY ANALYSIS	
CAD	MACHINE DYNAMICS	INTERNAL COMBUSTION ENGINES III.	
DECISION MAKING PROCESSES	ENGINEERING GERMAN	SEMESTER PROJECT	
ERGONOMY – WORK SAFETY	INT. COMBUSTION ENGINES I	ENGINE TESTING	
ENGINEERING GERMAN		SIMULATION OF PROCESSES IN ENGINES	
VEHICLE SYSTEM TECHNOLOGY	INTERNAL COMBUSTION ENGINES II.	MAJOR RELATED ELECTIVE COURSE	

AUDI Hungaria Faculty of Automotive Technologies

Strategy Research

Vision – World wide recognized Competence cluster for Tribology

Department of Material Science and Technology

1. Development of triblologicaly optimized material combinations (Materials, Surface coatings, and lubricants /Nano-additives/)
2. Chemical and topological analysis of surfaces

Department of Automotive Pruduction Technologies

3. Effect of manufacturing technologies on frictional partners (Engine components and tools)
4. Mechanical and geometrical evaluation of contact surfaces

Department of Internal Combustion Engines

5. Tribological behaviour of engine components under chemi-phiisical influances
6. Optimisation cal of tribologifriction partners under real life conditions

Department of Vehicle Development

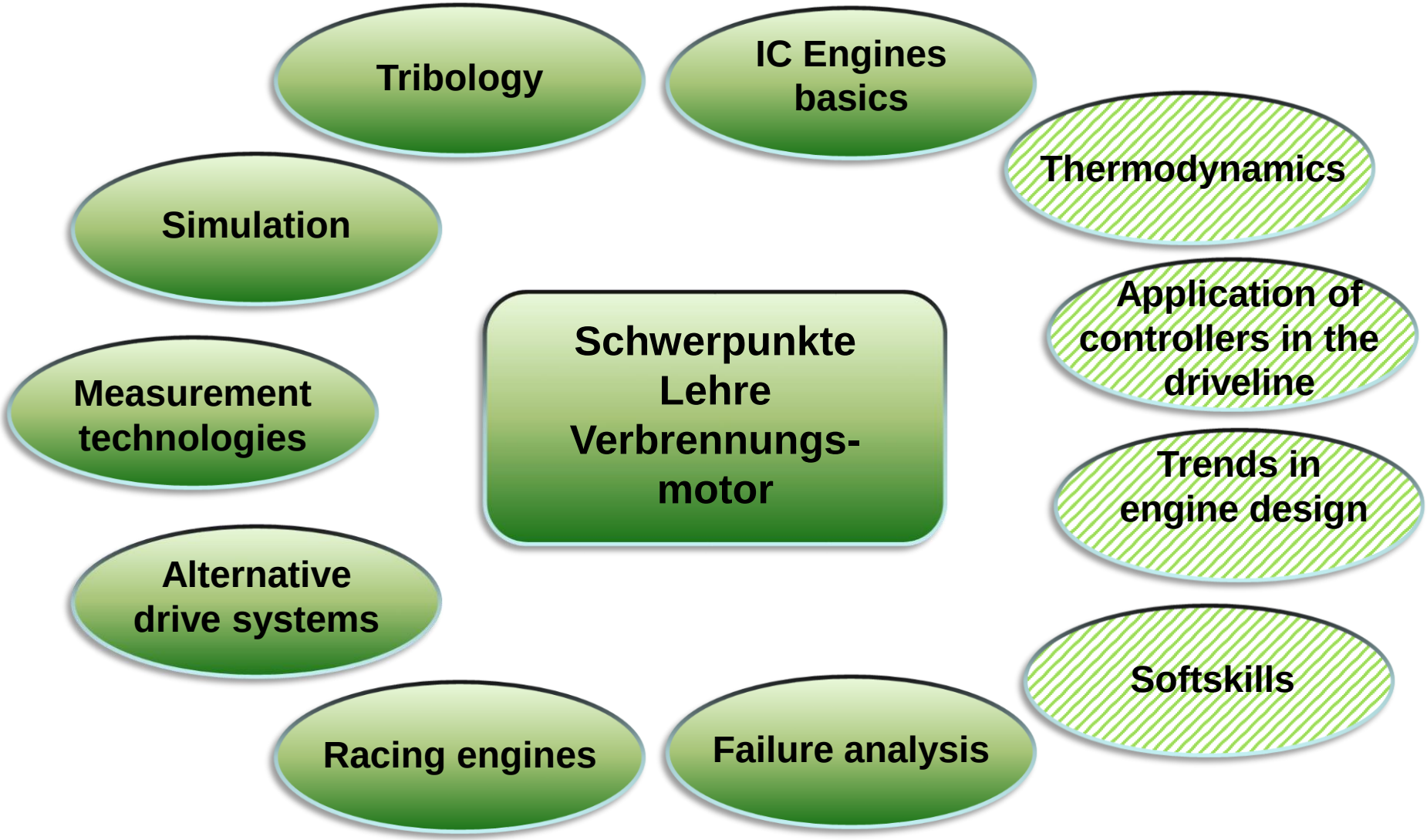
7. Tribological behaviour of vehicle components
8. Optimisation of Tribological friction partners

Department of Envirinmental Engineering

Department of Logistics

Department of Internal Combustion Engines

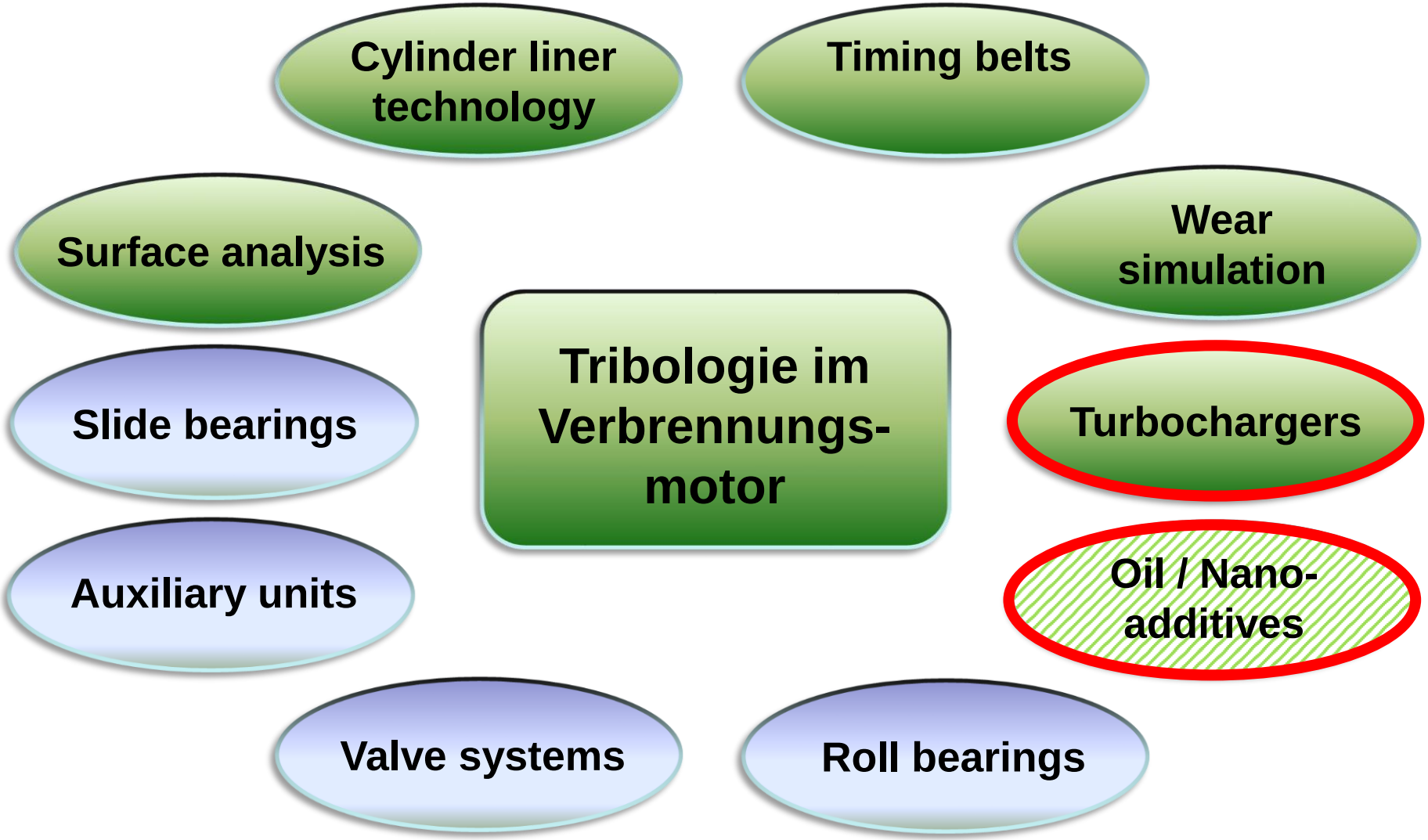
Strategic areas of teaching



40 subjects in B.Sc. and M.Sc.

Department of Internal Combustion Engines

Strategic research topics



Cooperation activities with universities
National

- **Technical University Budapest** (Prof. Penninger) alternative fuels, Algie to fuel
- **Technical University Debrecen / Fa. Atomki** Activating componenten for RNT-Measurements
- **Technical University Miskolc** Surface analysis
- **College of Kecskemét** TÁMOP project
- **College of Óbuda** TÁMOP project

Cooperation activities with universities

International

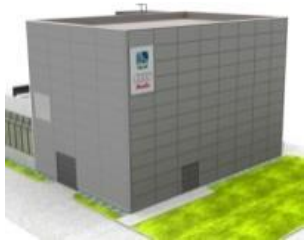
- **Technical University Wien** (Prof. Geringer, Prof. Winter) Kondensatbildung und Messung von säurebestandteilen im Abgas eines Dieselmotors in unterschiedlichen Betriebspunkten und mit unterschiedlichen Kraftstoffen / **IFT** (Prof. Bleicher, Hr. Zemann) alternative Motorwerkstoffe und Fertigungsmethoden (3-D Druck)
- **Technical University Magdeburg** (Prof. Bartel) zur Betreuung der Dissertation von Dudás, Alexander (Thema: Optimierung von Zylinderlaufbahnen für besondere tribologische Anforderungen (RDW Märkte))
- **College Coburg** (Prof. Gnuschke, Prof. Krahl, Hr. Öttinger) studentischer Austausch / Duales Studium / MSC Kraftstoffsystemingenieur
- **Technical College Ingolstadt** (Prof. Huber) zum Thema studentischer Austausch / Einzylindermotor
- **Technical University Stuttgart** (Prof. Gadow) Zusammenarbeit im Bereich europäische Förderprogramme im Bereich Beschichtungen
- **UniversityHuddersfield** (Prof. Baron / Allenport) zum Thema ATL
- **Tallinn University** (Trinn, Henri) ???

Department of Internal Combustion Engines

Implementation of dynamometers, laboratories and offices

Phase 1:

- Implementation of a dynamometer with on-line wear measurement technique
- Implementation of a cold test dynamometer



Financing (AHM, City, Governmet, Uni)

Opening April 2011

✓

Phase 2:

- Implementation of laboratories for tribological experiments
- Implementation of an office building

Financing(Governmet, Uni)

Opening Mai 2012

✓

Phase 3:

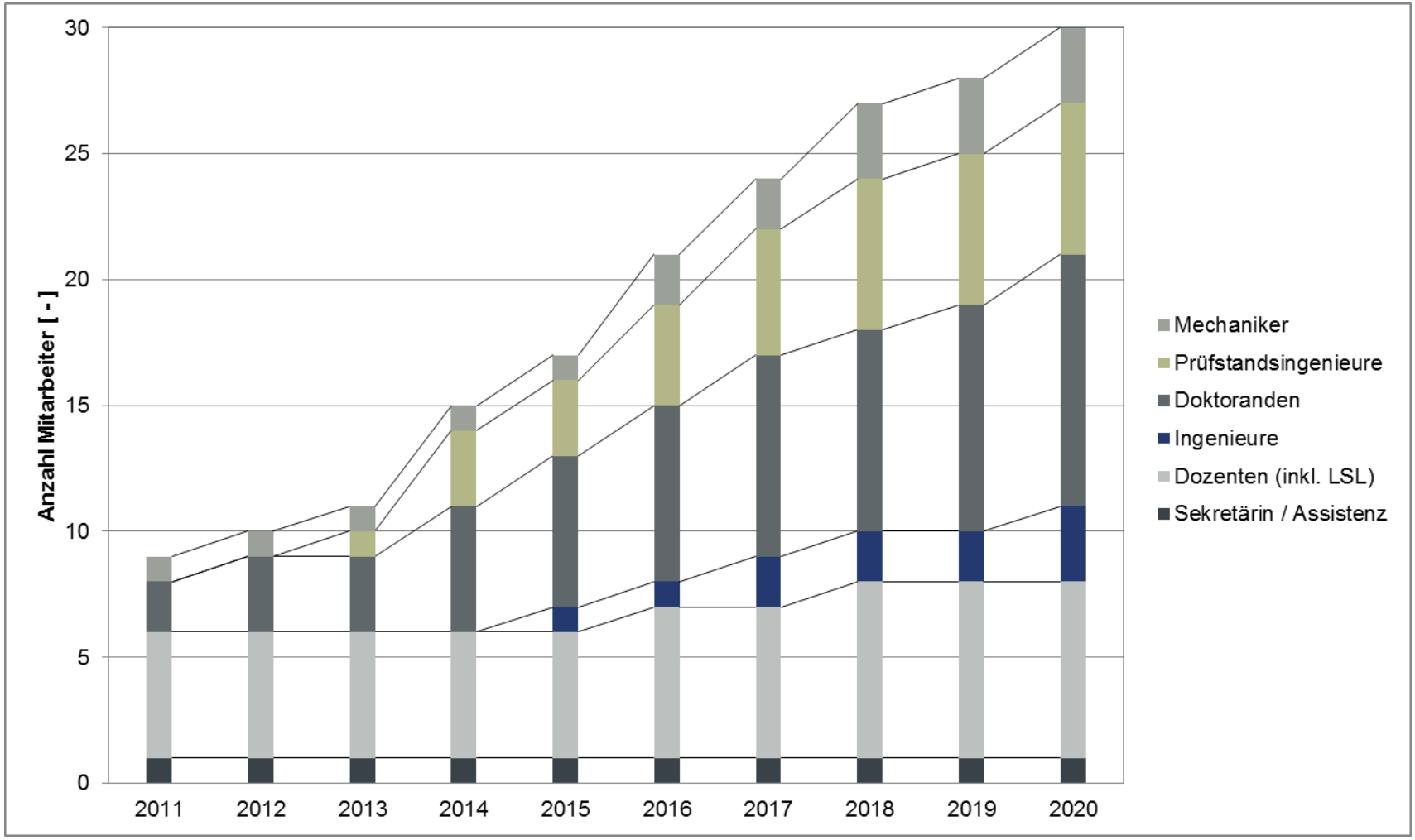
- Implementation of another dynamometers
- Implementation of component dynamometers

Financing open

Planning started in 2013

Goal is to finish till 2015 / 2016

Department of Internal Combustion Engines
Staff



Department of Internal Combustion Engines

Highlights - Mobility of the future presentation series Spring 2015

KW	Thema	Datum	Vortragende	Ort
08	Von Effizienz bis Hochleistung - das Spannungsfeld der R-Ottomotoren von Audi	19.02.2015	Dr. Thomas Heiduk (AUDI AG)	Foyer MT SZE
10	High Performance und Low Consumption TGDI	05.03.2015	Dr. Paul Kapus (AVL Graz)	Foyer MT SZE
12	Der globale Automobilmarkt – Ein Update	19.03.2015	Miorini, H. (Robert Bosch AG)	Foyer MT SZE
14	Airbag-Entwicklung in der Fahrzeugsicherheit	02.04.2015	Dr. Erich Blümcke (Audi AG)	Foyer MT SZE
16	Die Tankstelle der Zukunft	16.04.2015	Dr. Thomas Garbe (Volkswagen AG)	Foyer MT SZE
18	RDE - A Game Changer?	30.04.2015	Wanker, Roland (AVL Graz)	Foyer MT SZE
21	Eigenschaftsentwicklung Gesamtfahrzeug	21.05.2015	Dr. Rüdiger Chmielewski (Audi AG)	Foyer MT SZE
23	Führung in japanischen Lean-Unternehmen	04.06.2015	Dr. Roman Ditzer (RD interlogue)	Audi Akademie PTC
25	IT in der Automobilindustrie	18.06.2015	Mosch, Sven (AUDI Hungaria Motor Kft.)	Audi Akademie PTC

Department of Internal Combustion Engines

3. Györer Tribologietagung (3rd Tribological Conference of Győr)

Department of Internal Combustion Engines

3. Györer Tribologietagung (3rd Tribological Conference of Győr)

131 participant from 6 Countries

Topics: Tribology, Coating technologies, Tribosystems, Chain drives, Frictional systems, Friction and wear reduction, Simulation of wear and friction Tribology of tools

Goal: High quality presentations
Sponsored student and Ph.D. candidate participation
Connecting industry and academia

VIP guests: Herr Thomas Faustmann
Herr Antal Mihalicz
Herr Oliver Hoffmann

Department of Internal Combustion Engines

Highlights - SZEngine / Formula Student

Köszönöm a figyelmet!

SZÉCHENYI ISTVÁN EGYETEM
SZE - GYŐR

Audi Hungaria