Structure and Content of the Doctoral Program in Transport Mechanical Engineering

Applicants holding a master's degree or equivalent qualification

No.	Course Code		Knowledge Area / Course Title	Total Credits	Credit Breakdown		
	Prefix	Number			Theory	TH/ TN	TL/BTL/ Course Project / Internship
6.1			**Doctoral Coursework (select 4 of 9 courses)**	**8**	**6**	**0**	**2**
1	AT	8001	Sustainable Energy	2	1,5	0	0,5
2	AT	8002	Thermodynamics of Internal Combustion Engines	2	1,5	0	0,5
3	AT	8003	Computational Optimization of Internal Combustion Engines	2	1,5	0	0,5
4	AT	8004	Applied Vehicle Dynamics	2	1,5	0	0,5
5	AT	8005	Advanced Vehicle Noise and Vibration	2	1,5	0	0,5
6	AT	8006	Advanced Automotive Testing and Data Processing	2	1,5	0	0,5
7	AT	8007	Adaptive Vehicle Control	2	1,5	0	0,5
8	AT	8008	Advanced Fault Diagnosis in Engineering Systems	2	1,5	0	0,5
9	AT	8009	Artificial Intelligence in Automotive Engineering	2	1,5	0	0,5
6.2			**Scientific Research**	**8**	**0**	**0**	**8**
1	AT	8010	+ Literature Review	**4**	0	0	2
2	AT	8011	+ Doctoral Research Seminar 1	**3**	0	0	3
3	AT	8012	+ Doctoral Research Seminar 2	**3**	0	0	3
6.3	AT	8013	**Doctoral Dissertation**	**74**	**0**	**0**	**74**
			Grand Total	**90**			

Applicants holding a bachelor's degree or equivalent qualification

No.	Course Code		Knowledge Area / Course Title	Total Credits	Credit Breakdown		
					Theory	TH/ TN	Seminar / Assignment / Course Project / Internship
A	Prefix	Number	**Master's Program**	**42**			
6.1			**General Knowledge**	**5**	**4**	**0**	**1**
1	LP	7301	Philosophy	3	2	0	1
2	ME	7318	Scientific Research Methods	2	2	0	0
6.2			**Part 2. Foundational Disciplinary Knowledge**	**14**	**10**	**1**	**3**
6.2.1			***Compulsory Courses***	***8***	***5,5***	***1***	***1,5***
1	AT	7327	Applications of Design of Experiments in Automotive Engineering	2	1,5	0	0,5
2	ME	7315	System Modeling and Simulation	2	1	1	0
3	AT	7315	Finite Element Methods in Automotive Engineering	2	1,5	0	0,5
4	ME		Experimental Design and Analysis	2	1,5	0	0,5
6.2.2			***Elective Courses***	***6***	***4,5***	***0***	***1,5***
1	AT	7303	Automotive Power Sources	2	1,5	0	0,5
2	AT	7307	Vehicle Emissions and Emission Control	2	1,5	0	0,5
3	AT	7309	Advanced Powertrain Systems	2	1,5	0	0,5
4	AT	7311	Vehicle Body and Chassis Technology and NVH	2	1,5	0	0,5
5	AT	7301	Advanced Automotive Mechatronics	2	1,5	0	0,5
6	AT	7316	Automotive Signal Processing	2	1,5	0	0,5

No.	Course Code		Knowledge Area / Course Title	Total Credits	Credit Breakdown		
					Theory	TH/ TN	Seminar / Assignment / Course Project / Internship
6.3			**Part 3. Specialized Knowledge**	**23**	**16,5**	**0**	**6,5**
6.3.1			***Compulsory Courses***	***11***	***7,5***	***0***	***3,5***
1	AT	7317	Vehicle Vibration Dynamics	3	2	0	1
2	AT	7313	Alternative Fuels for Internal Combustion Engines	3	2	0	1
3	AT	7302	Fault Diagnosis in Engineering Systems	3	2	0	1
4	AT	7318	Assessment of Automotive Fuel-Saving Technologies	2	1,5	0	0,5
			Elective Courses	***12***	***9***	***0***	***3***
6.3.2	AT	7319	Mixture Formation and Combustion in Engines	2	1,5	0	0,5
1	AT	7312	Advanced Engine Theory	2	1,5	0	0,5
2	AT	7305	Engine Vibration Dynamics	2	1,5	0	0,5
3	AT	7314	Methods for Increasing Engine Power	2	1,5	0	0,5
4	AT	7320	Fuel Cell Technology	2	1,5	0	0,5
5	AT	7310	Vehicle Body Aerodynamics	2	1,5	0	0,5
6	AT	7321	Advanced Vehicle Diagnostics and Inspection	2	1,5	0	0,5
7	AT	7306	Vehicle Braking System Dynamics	2	1,5	0	0,5
8	AT	7322	Vehicle Steering System Dynamics	2	1,5	0	0,5
9	AT	7304	Dynamics of Automotive Hydraulic and Pneumatic Systems	2	1,5	0	0,5

No.	Course Code		Knowledge Area / Course Title	Total Credits	Credit Breakdown		
					Theory	TH/ TN	Seminar / Assignment / Course Project / Internship
10	AT	7308	Automotive Embedded Systems	2	1,5	0	0,5
11	AT	7323	Autonomous Vehicles and Intelligent Transportation Systems	2	1,5	0	0,5
12	AT	7324	Electric Vehicle Design and Engineering Calculations	2	1,5	0	0,5
13	AT	7325	Intelligent Vehicle Control	2	1,5	0	0,5
14	AT	7326	Electric Vehicle Battery Management Systems	2	1,5	0	0,5
B			**Doctoral Program**	**90**			
6.1			**Doctoral Coursework (select 4 of 9 courses)**	**8**	**6**	**0**	**2**
1	AT	8001	Sustainable Energy	2	1,5	0	0,5
2	AT	8002	Thermodynamics of Internal Combustion Engines	2	1,5	0	0,5
3	AT	8003	Computational Optimization of Internal Combustion Engines	2	1,5	0	0,5
4	AT	8004	Applied Vehicle Dynamics	2	1,5	0	0,5
5	AT	8005	Advanced Vehicle Noise and Vibration	2	1,5	0	0,5
6	AT	8006	Advanced Automotive Testing and Data Processing	2	1,5	0	0,5
7	AT	8007	Adaptive Vehicle Control	2	1,5	0	0,5
8	AT	8008	Advanced Fault Diagnosis in Engineering Systems	2	1,5	0	0,5
9	AT	8009	Artificial Intelligence in Automotive Engineering	2	1,5	0	0,5
6.2			**Scientific Research**	**8**	**0**	**0**	**8**

No.	Course Code		Knowledge Area / Course Title	Total Credits	Credit Breakdown		
					Theory	TH/ TN	Seminar / Assignment / Course Project / Internship
1	AT	8010	+ Literature Review	**4**	0	0	2
2	AT	8011	+ Doctoral Research Seminar 1	**3**	0	0	3
3	AT	8012	+ Doctoral Research Seminar 2	**3**	0	0	3
6.3	AT	8013	**Doctoral Dissertation**	**74**	**0**	**0**	**74**
			Grand Total	**132**			