



Study Plan

B.Sc. Electric and Hybrid Vehicles Engineering

Faculty of Automotive and Construction Machinery Engineering

Study plan for reference only; may be subject to change.

Module title	Semester – numer of hours							ECTS
	1	2	3	4	5	6	7	
Common subjects								
Analysis I	60							5
Algebra	45							4
Basics of Engineering Drawing and Descriptive Geometry	45							3
Structural Materials	45							3
Computer Techniques I	60							5
Introduction to Geometric Modelling	15							1
Environmental Protection	30							2
Workshop	15							1
Chemistry	30							2
Physics I	30							2
History of Technology	15							1
Intellectual Property + Health and Safety	15							1
Analysis II		60						5
Differential Equations		60						5
Electrical and Electronics Engineering I		45						4
Basics of Engineering Drawing and Descriptive Geometry		45						3
Theoretical Mechanics I		60						5
Manufacturing Technology		45						3
Structural Materials Laboratory		15						1
Geometric Modelling		15						1
Physics II		30						2
Computer Techniques Laboratory		15						1
Theoretical Mechanics II			60					5
Strength of Materials			60					5

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Electrical and Electronics Engineering II	30	2
Theory of Machines and Automatic Control	45	4
Metrology and Interchangeability	30	2
Advanced Geometry Modelling	15	1
Introduction to Mechatronics	30	2
Ionics and Photovoltaics	45	3
Introduction to Microprocessor Systems	30	2
Introduction to Machine Design I	60	4
Project on Machine Design I	30	2
Mechanical Vibrations	45	3
Magnetic Materials	15	1
Fuel Cells	15	1
Electric Machines	15	1
Electrochemistry	30	2
Simulation of Dynamic Systems	15	1
Power Electronics	45	3
Software Engineering	30	2
Mechatronic Sensor and Actuator Systems	30	3
Automation Systems	30	3
Vehicles	45	3
Nanomaterials and Nanotechnologies	30	2
Combustion Engines Theory	60	4
Construction of Autonomous Vehicles	15	1
Batteries	30	2
Energy Accumulation in Vehicles	30	3
Introduction to Image Processing	15	1
Computer Systems in Mechatronics	30	2
Fundamentals of Mechatronic Systems Design	30	2
Smart Structures	30	2
Physics III	30	2
Introduction to Diagnostics	30	2
Finite Element Method	30	2
Project on Electric and Hybrid Drives	60	4
Image Processing and Analysis	45	3
Mechatronics Systems Design	30	2
Interim Project	75	4

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Vehicle Recycling						30	2	
Elective Module					45	15		5
Elective Module (HES)							60	4
Foreign Language			60	60	60			12
Physical Education and Sport	30	30	30					0
Thesis							150	15
Diploma Seminar							15	1
Apprenticeship							160	4
SUBTOTAL	405	420	435	450	420	475	255	192
Specialized subjects								
Ecological Vehicles:								
Electric and Hybrid Vehicles Engineering							45	4
Advanced Control of Electric and Hybrid Drives							45	4
Electrically Cont. Continuously Variable Transm.							30	2
Operational Infrastr. of El. and Hybrid Vehicles							30	3
Diagnosis of Electric and Hybrid Vehicles							30	3
Ultralight Vehicle Bodies							30	2
TOTAL	405	420	435	450	420	595	345	210
Autonomous Vehicles:								
Navigation of Autonomous Vehicles							45	4
Energy Harvesting in Vehicles							45	4
Vision Systems for Mobile Robots							30	2
Vehicle Structures and Crashworthiness							30	3
Vehicle Informatic Systems							30	3
Reliability and Safety of Mechatronic Systems							30	2
TOTAL	405	420	435	450	420	595	345	210
Unconventional Vehicles:								
Electric and Hybrid Vehicles Engineering							45	4
Navigation of Autonomous Vehicles							45	4

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Electrically Cont. Continuously Variable Transm.	30	2						
Vehicle Structures and Crashworthiness	30	3						
Vehicle Informatic Systems	30	3						
Ultralight Vehicle Bodies	30	2						
TOTAL	405	420	435	450	420	595	345	210