

Preliminary course programme

	Monday 10/6	Tuesday 11/6	Wednesday 12/6	Thursday 13/06	Friday 14/06
8:15-10:00 Break: 9-9:15		Theme 1 System analysis and Optimization <ul style="list-style-type: none"> Modelling and Simulation The control problem for hybrid and electric vehicles Optimization and how it can be used to analyse vehicle propulsion systems	Theme 5 Charging equipment for EVs "Electrification is not only electromobility"	Theme 2 Electrical Machines <ul style="list-style-type: none"> Fundamental physics and torque generation Losses & cooling Electrical machine topologies Control of electrical machines	Theme 3 Batteries <ul style="list-style-type: none"> Li-ion battery and beyond Battery ageing Testing and safety Theme 3 Tutorial Battery modelling <ul style="list-style-type: none"> Modelling of Li-ion batteries Battery optimization
10 - 10:15		Fika	Fika	Fika	Fika
10:15-12 Break: 11-11:15		Theme 1 Tools for system studies Tutorial on tools for vehicle propulsion system design and optimal control	Theme 4 Environmental Assessment of Electromobility <ul style="list-style-type: none"> Life-cycle perspective Environmental impact of electrification 	Theme 2 Power Electronics <ul style="list-style-type: none"> Power Electronics components Fundamental converter types Modulation and control Cost estimates 	Theme 3 Batteries <ul style="list-style-type: none"> Li-ion battery and beyond Battery ageing Testing and safety
12-13:15	Welcome lunch	Lunch	Lunch	Lunch	Lunch
13:15-15 Break: 14-14:15	Introduction Course introduction. <ul style="list-style-type: none"> Why electromobility? What are your expectations? ** Panel discussion** <ul style="list-style-type: none"> Basic hybrid concepts and systems. Driving cycles 	Theme 5 The Swedish power grid	Theme 4 Environmental Assessment of Electromobility <ul style="list-style-type: none"> Calculation exercise Circular economy of electric drivetrain components	Theme 2 Simulation of electric drives <ul style="list-style-type: none"> Mod. of 2Q converter Switching freq. assessment 1phase – 3 phase extension Harmonic injection	Home assignment <ul style="list-style-type: none"> Introduction to home assignment Summary and feedback
15 - 15:15	Fika	Fika	Fika	Fika	
15:15-17 Break: 16-16:15	Theme 1 Tools for system studies <ul style="list-style-type: none"> Tutorial on tools for vehicle propulsion system design and optimal control Practical session with computer exercises (Simulink)	Theme 5 Transport and electricity system	Theme 4 Environmental Assessment of Electromobility <ul style="list-style-type: none"> Impact of electrification in logistics User patterns for driving and charging EVs 	Theme 3 Batteries and Fuel Cells <ul style="list-style-type: none"> Basic principles Different battery and fuel cell technologies 	
17 – 17:30	Break	Break	Break	Break	
	17:30-19 Intro group activity 19.00 Dinner	17:30 – 19 Group activity 19.00 Dinner	17:30 – 19 Group activity 19.00 Dinner	19.00 Farewell Dinner	