	Monday 10/6	Tuesday11/6	Wednesday 12/6	Thursday 13/06	Friday 14/06
8:15-10:00 **Break: 9-9:15**		**Theme 3** (Mario Valvo) **Batteries** • Li-ion battery and beyond • Battery ageing • Testing and safety	**Theme 5** (Olof Samuelsson) **The Swedish power grid**	**Theme 2** (Francisco Marquez Fernandez & Luca Peretti) **Electrical Machines** • Fundamental physics and torque generation • Losses & cooling • Electrical machine topologies Control of electrical machines	**Theme 1** (Jonas Fredriksson) **Tools for system studies** Tutorial on tools for vehicle propulsion system design and optimal control
10 - 10:15		**Fika**	**Fika**	**Fika**	**Fika**
10:15-12 **Break: 11-11:15**		**Theme 3** (Mario Valvo) **Batteries** • Li-ion battery and beyond • Battery ageing • Testing and safety	**Theme 3** (?)	**Theme 2** (Francisco Marquez Fernandez & Luca Peretti) **Power Electronics** • Power Electronics components • Fundamental converter types • Modulation and control Cost estimates	**Theme 1** (Jonas Fredriksson) **Tools for system studies** • Tutorial on tools for vehicle propulsion system design and optimal control Practical session with computer exercises (Simulink)
12-13:15	**Welcome lunch**	**Lunch**	**Lunch**	**Lunch**	**Lunch**
13:15-15 **Break: 14-14:15**	**Introduction** Course introduction. • Why electromobility? • What are your expectations? ** **Panel discussion****	**Theme 4** (Anders Nodrelöf) **Online Lecture** **LCA calculation exercise – work in pairs!** Online support and final wrap-up! Bring laptops!	Theme 4 (Henrik Gillström) **Logistics perspective on electrification** **Lecture:** • System readiness level • Impact on the transportation system • Impact on actors	**Theme 2** (Francisco Marquez Fernandez & Luca Peretti) **Simulation of electric drives** • Mod. of 2Q converter • Switching freq. assessment • 1phase – 3 phase extension Harmonic injection	**Summary and Feedback**
	Theme 4 (Anders Nodrelöf) **Electromobility & the Environment** Lecturer: An environmental life cycle perspective and assessment on vehicle electrification	**Theme 5** (Valeria Castellucci & Mikael Lantz) **Transport and electricity system**			
15 - 15:15	**Fika**	**Fika**	**Fika**	**Fika**	**Departure**
15:15-17 **Break: 16-16:15**	**Theme 4** (Anders Nodrelöf) **Electromobility & the Environment, cont.** + Electromobility and circularity Circular economy concept, end-of-life handling, and recycling.	**Theme 5** (Valeria Castellucci & Mikael Lantz) **Charging equipment for EVs** "Electrification is not only electromobility"	**Introduction to home assignment** **Free time** – enjoy facilities and nature around Hooks Herrgård	**Theme 1** (Lars Eriksson) **System analysis and Optimization** • Modelling and Simulation • The control problem for hybrid and electric vehicles Optimization and how it can be used to analyse vehicle propulsion systems	
17 – 17:30	**Break**	**Break**		**Break**	
	17:30-19 Intro group activity **19.00 Dinner**	**17:30 – 19 Group activity** **19.00 Dinner**	**19.00 Dinner**	**19.00 Farewell Dinner**	