AUTOMATION_S6 Spring Semester Undergraduate/Junior	Control Engineering & Energy II	4 credits Lab: 50% Final exam (3h): 50%
This course aims at deepening the notions taught in linear systems and energy conversion. Control Engineering is mainly discussed using the state representation formalism. DC energy production is seen through AC-DC energy conversion, photovoltaic systems and batteries. DC machines are also studied.		
Prerequisite: Control Engineering & Energy I		

DA_1411	Control Engineering	Language
Lecture: 10	**Tutorials: 8**	**Lab work: 12**
An advanced focus is done on the correction of linear systems using transfer functions. State-space representation is then introduced for a global study of systems using intern variables towards Kalman representation. - PID controller, other controllers transfer functions - Continuous state-space representation: state variables and state-space representation - Stability, Kalman canonical realization, Companion realizations - Controllability, full state feedback, pole placement - Observability, observers		

DA_1412	DC energy production	Language
Lecture: 10	**Tutorials: 8**	**Lab work: 12**
In addition to the notions taught in the S5 semester, this course introduces bridge rectifier in order to study DC energy production from the electrical grid. DC energy is also linked to photovoltaic systems and storage in batteries. - Main active components in power engineering - Uncontrolled and controlled rectifiers - DC machines modelization - Rectifiers & DC machine, reversibility - Photovoltaic systems and battery storage		