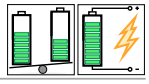
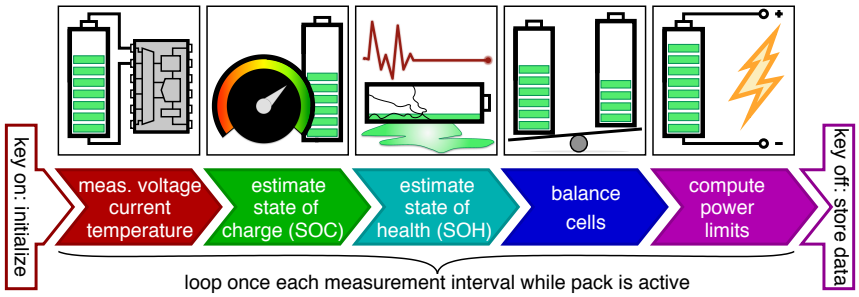
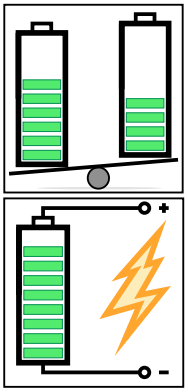
Welcome to the course!



- Welcome to ***Battery Pack Balancing and Power Estimation!***
- This course is the fifth in a specialization that investigates the proper management and control of battery packs, usually comprising many cells
- BMS must control battery operation by balancing cells and computing power limits



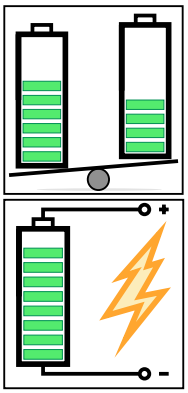
What topics will we study in this course?



In this course, you will learn:

- Causes for cells becoming out of balance
- Circuit concepts and methods to bring pack into balance
- Considerations for how to design balancing solution
- How to simulate balancing in Octave to evaluate designs
- Limitations to simple power-limits computations
- Straightforward method for improved power-limits computations
- How to implement power-limits computations in Octave
- Future trends in BMS algorithms (honors)

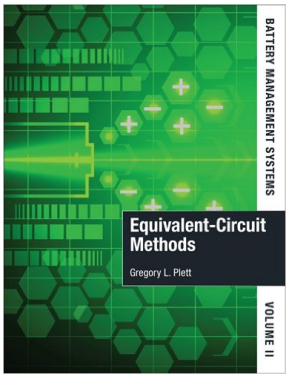
What skills will you gain in this course?



After completing the course, you'll be able to:

- Evaluate different design choices for cell balancing and articulate their relative merits
- Design component values for a simple passive balancing circuit
- Compute remaining energy and available power using a simple cell model
- Use provided Octave script to compute available power using a comprehensive equivalent-circuit cell model
- Use provided Octave simulation tools to evaluate how quickly a battery pack must be balanced

Prerequisites; for further study



Prerequisites:

- Course 1: ***Intro. to Battery Management Systems***
  - Basic background in BMS requirements, sensing, simple methods to compute power limits
- Course 2: ***Equivalent Circuit Cell Model Simulation***
  - Specific background in ESC cell model

Resource:

- We'll study Chs. 5–7 of *Battery Management Systems, Vol. 2, Equivalent-Circuit Methods*, Artech House
- For further study, you can confer this optional resource