

# Introduction of the Power Program at USF

Graduate Student Orientation

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# USF Smart Grid Power Systems Lab

<http://power.eng.usf.edu>

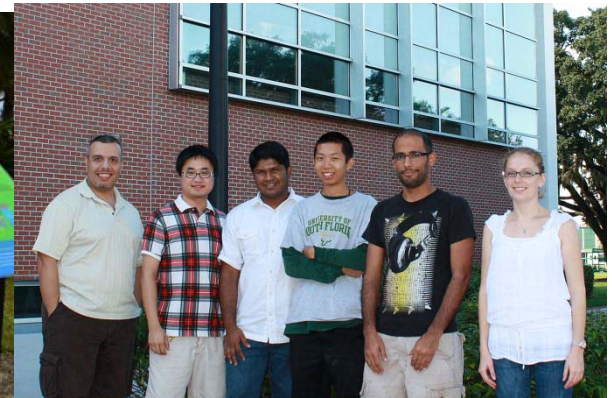
<https://www.facebook.com/UsfSmartGridPowerSystems>



Lab location



PV/battery live laboratory



students



Oct. 2015 Lakshan's defense



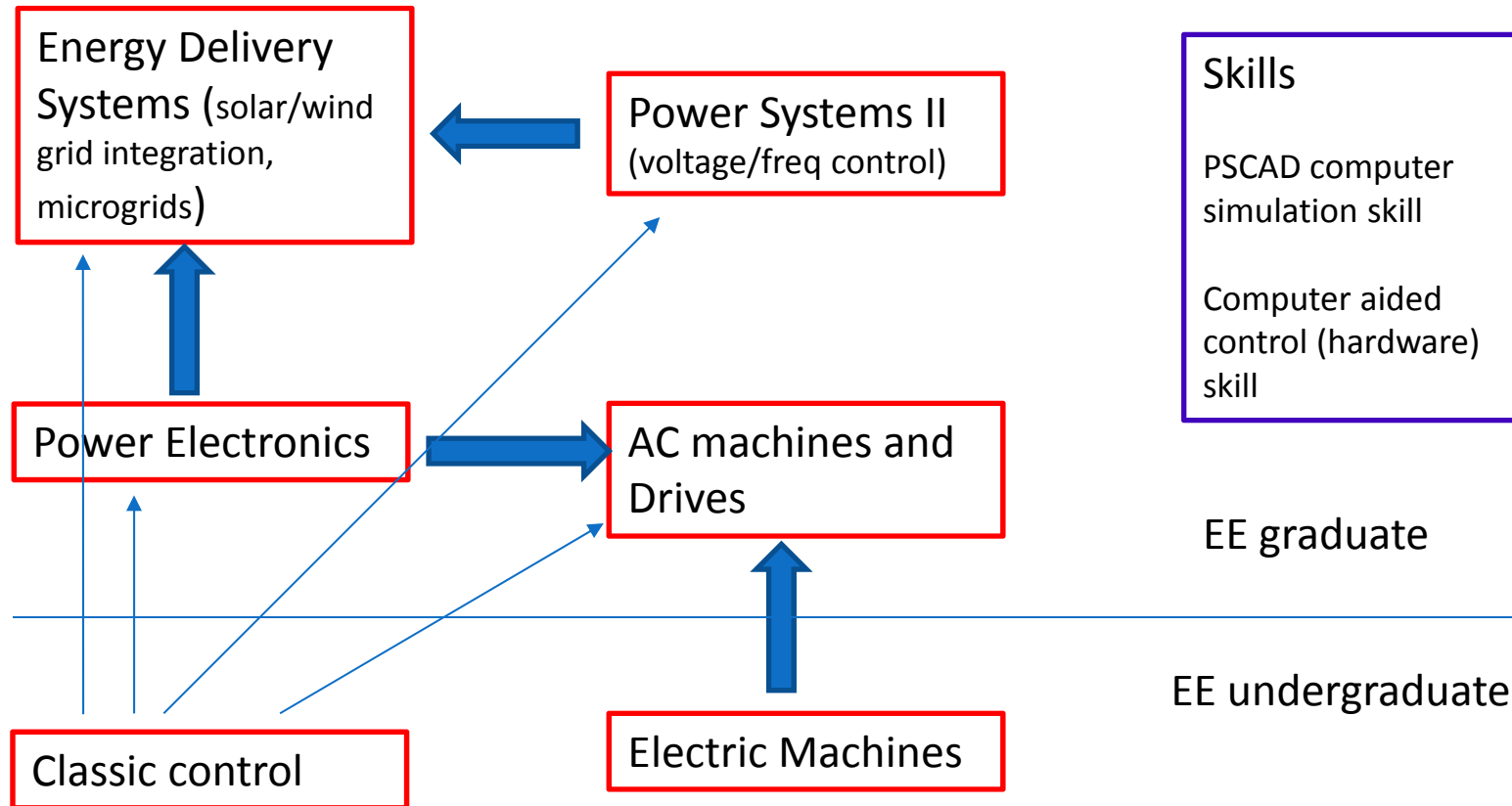
Prof. Poor's (COE Dean of Princeton) visit



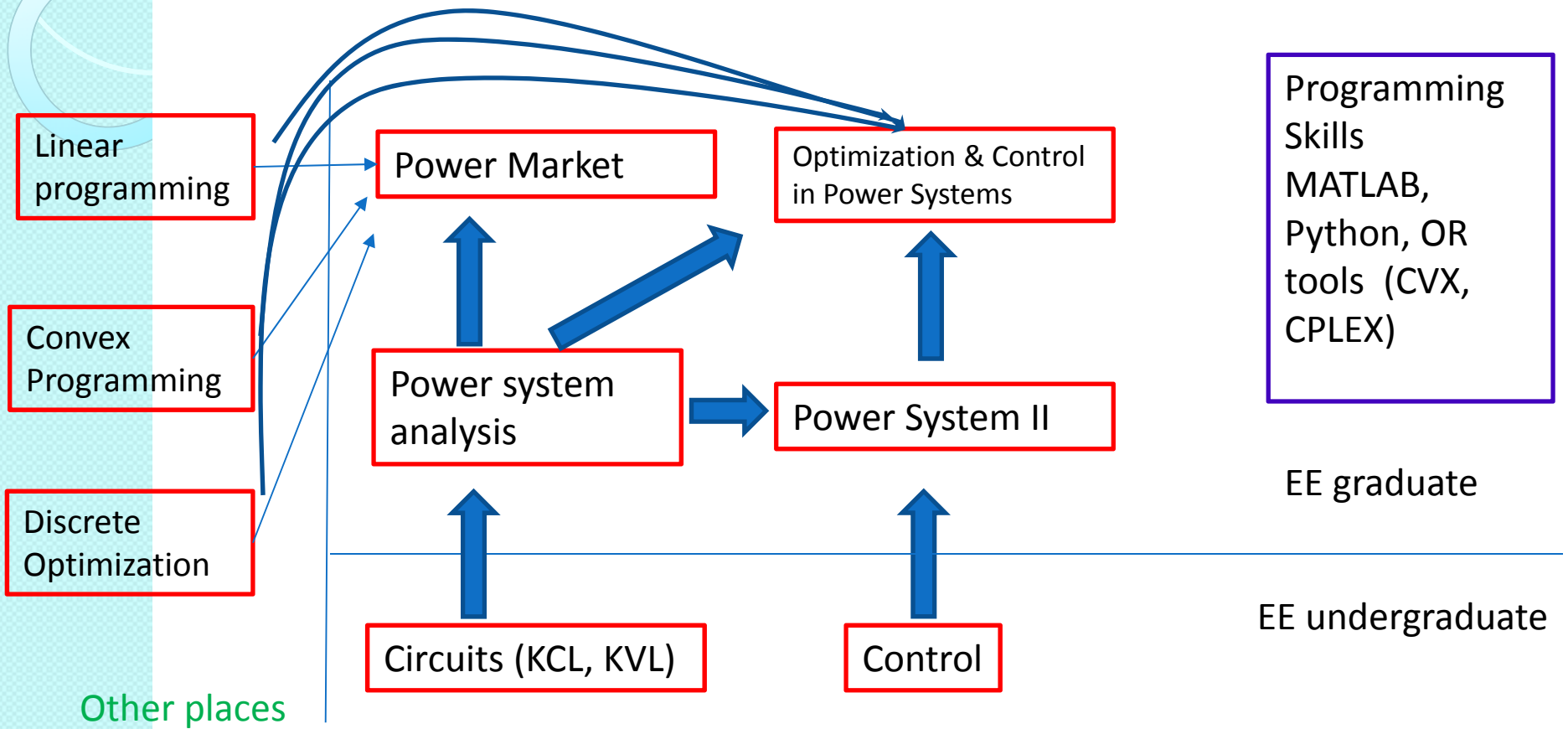
# Power Program Areas

- Renewable Energy Integration
  - Power Electronics
  - Energy Delivery Systems
  - AC Machines and Drives
  - Related control courses
- Power System Operation
  - Power System Analysis
  - Power Systems II
  - Power Market
  - Related operations research courses (eg., LP, MIP)
- And
  - Control & Optimization in Power Systems, Power System Protection, Power Quality, Distribution Systems

# Renewable energy grid integration



# Power System Operation





# Traditional utility engineering

- Power system protection
- Distribution systems



# Power program features

- **Excellent curriculum** that prepares students with computer-aid analysis and design skills: software and hardware
  - Software training (PSCAD) in power systems & power electronics courses
  - Programming and software training (Matlab, CPLEX) in power systems & power market
  - Hardware training in machine and control courses
- **Excellent teaching lab/facility**
  - Opal-RT real-time simulators enabled Hardware-in-the-loop testbed

<http://www.floridaenergy.ufl.edu/wp-content/uploads/9-FanLingling.pdf>

## RT-LAB Enabled Drive Lab

