PSERC Academy: A Virtual Library of Short Videos (4.2)

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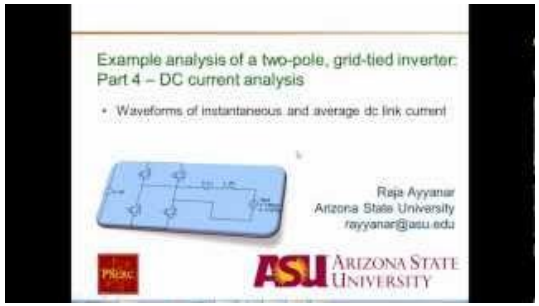
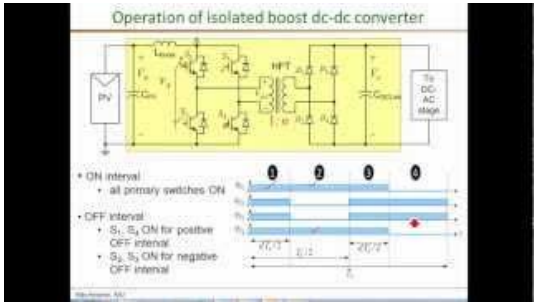
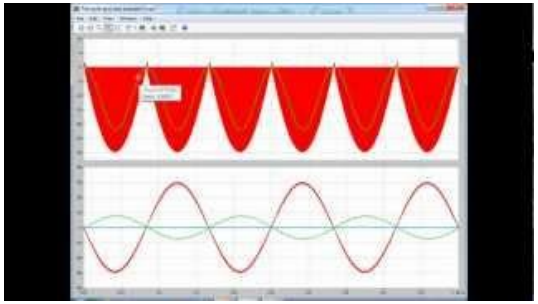
Overall Objectives

- Create an online library of short (10-15 minute) videos on various topics in sustainable energy systems, power electronics, and power engineering
- The vision is to eventually develop several hundreds or even thousands of such videos that will serve as a major online reference source







Workforce Need and Target Audience

- Difficulty in offering specialized university courses in the broad area of power engineering
- Need to accommodate different paces of learning among students
- Limited flexibility in traditional course delivery

- Target audience include university students in power engineering and related fields, as well as practicing engineers

Description

- Topics cover major aspects of power engineering and sustainable energy systems in clearly defined modules, complementing university courses

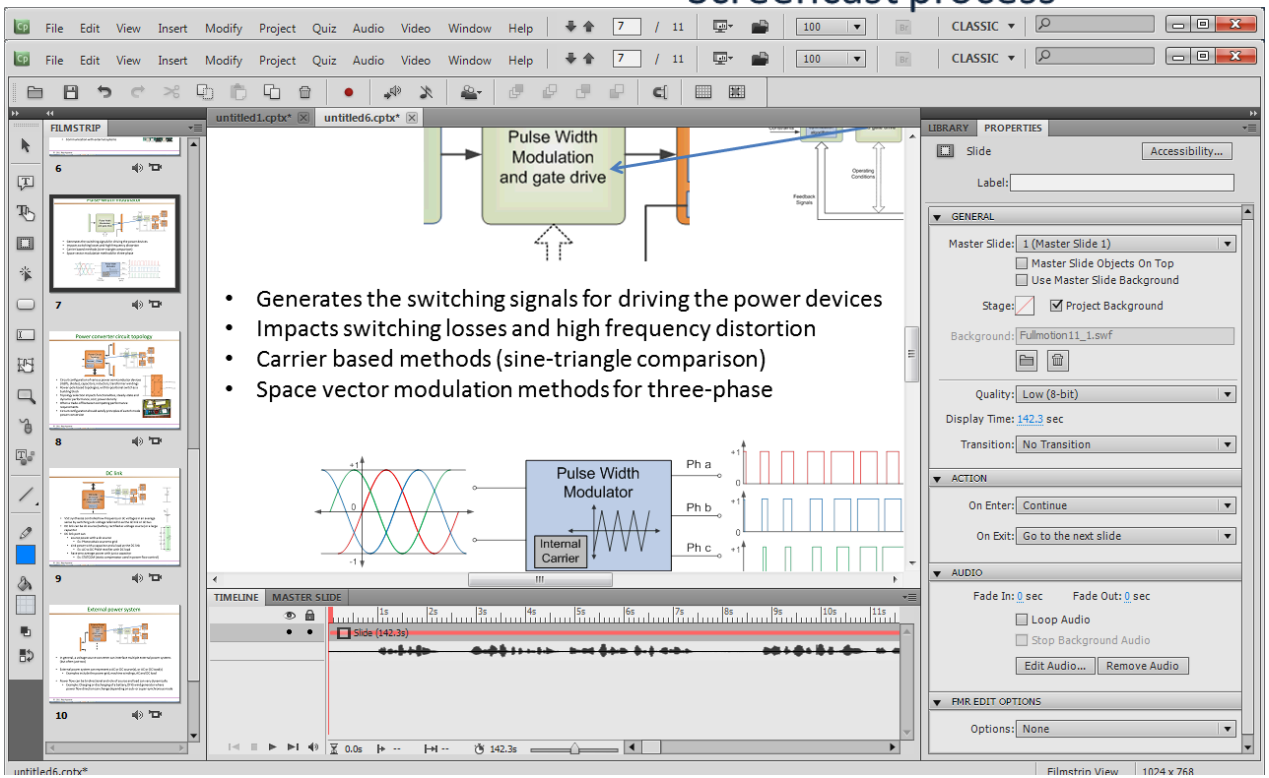
- Initial modules
  - Power electronics
  - Photovoltaics systems and grid integration
  - Grid integration of wind energy

- A wide range of delivery methods including
  - Power-point lectures with audio narration
  - Interactive animations, simulations, movie clips
  - Online exercises, and online peer-to-peer correspondence, feedback

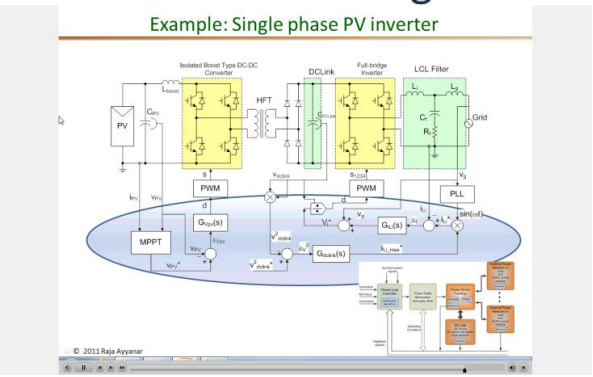
Screencast method for videos

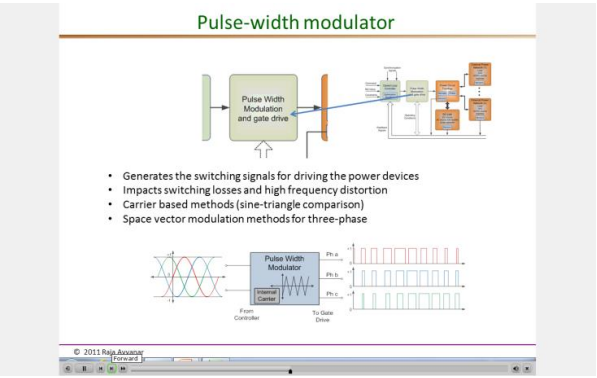
- Screencast techniques using *Adobe Captivate*
- Easy to use a variety of tools including power point, simulations, animations and other programs

Screencast process

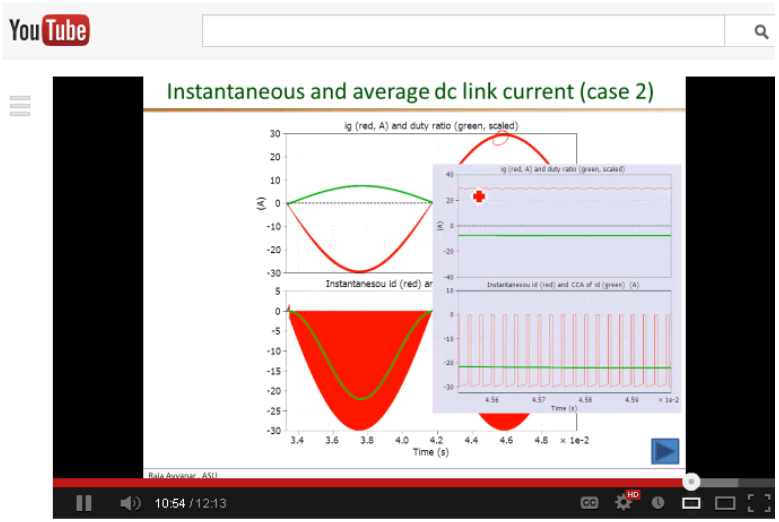


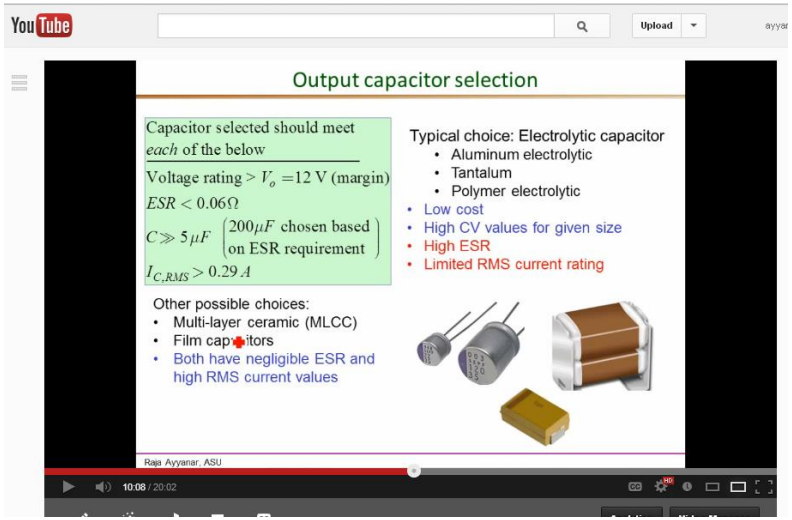
Sample outcomes of screencasting

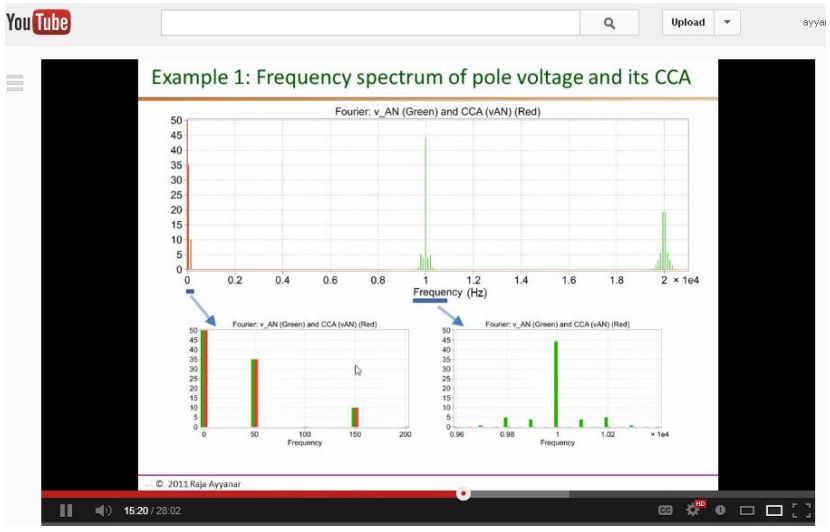




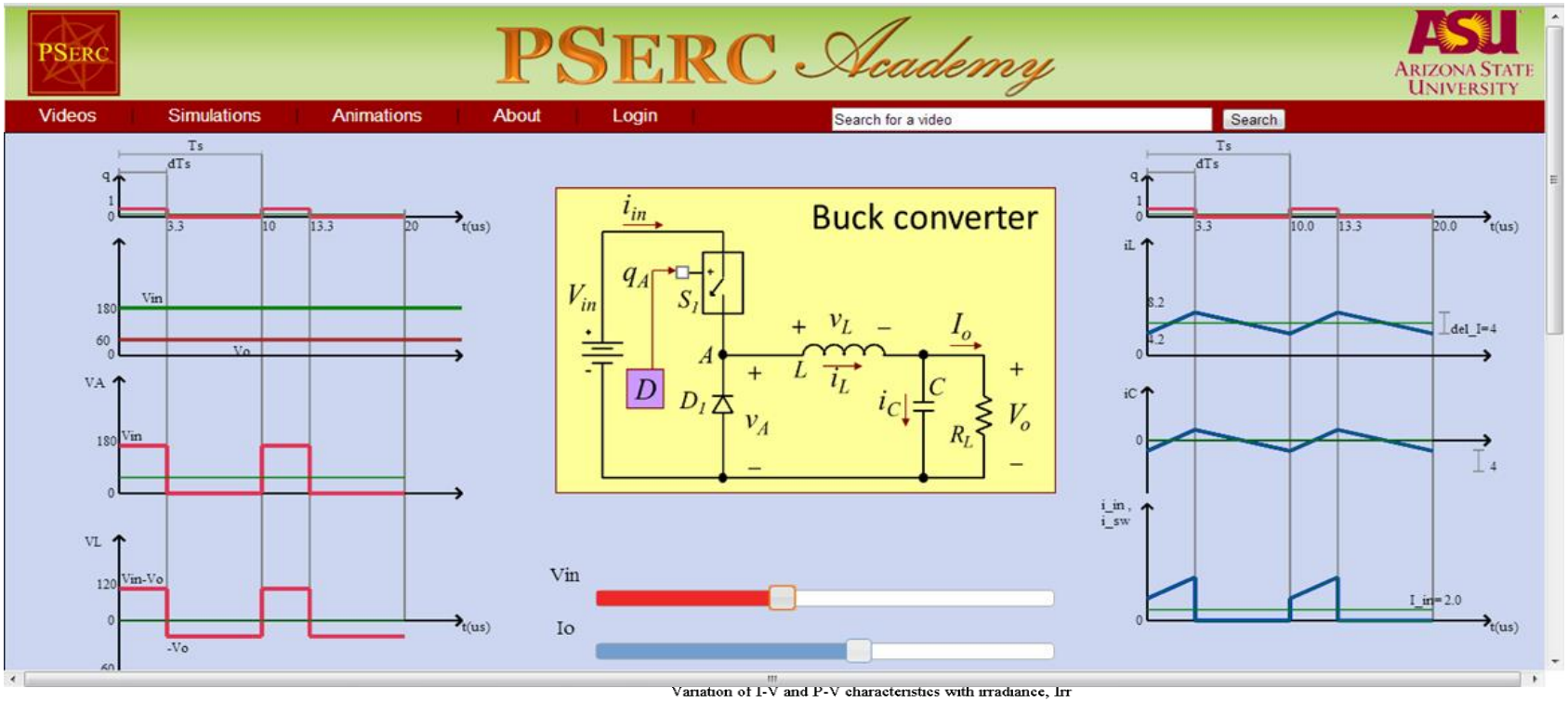
Sample YouTube videos

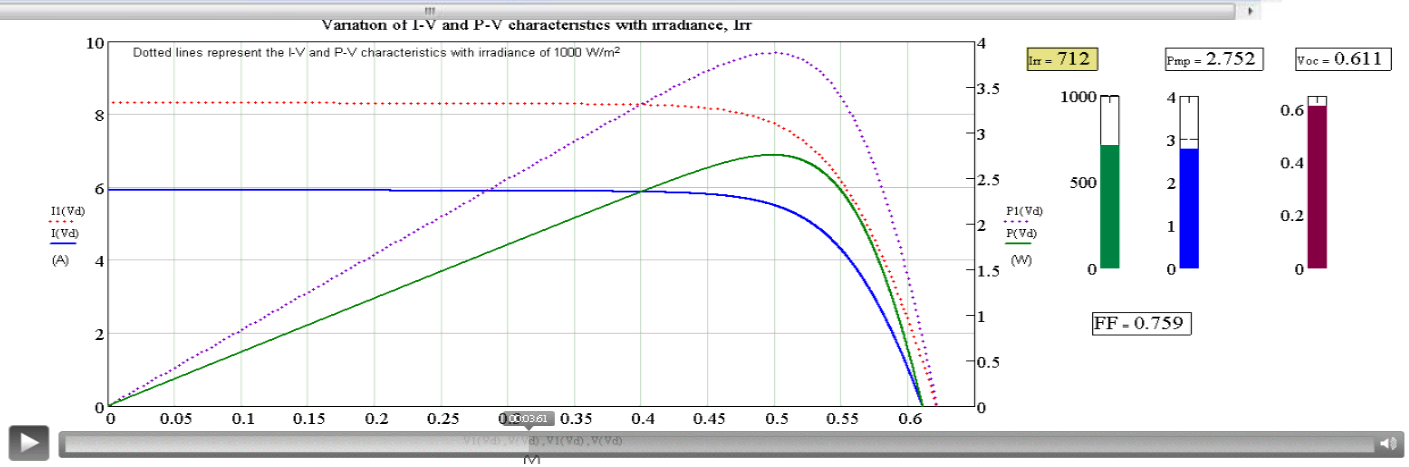






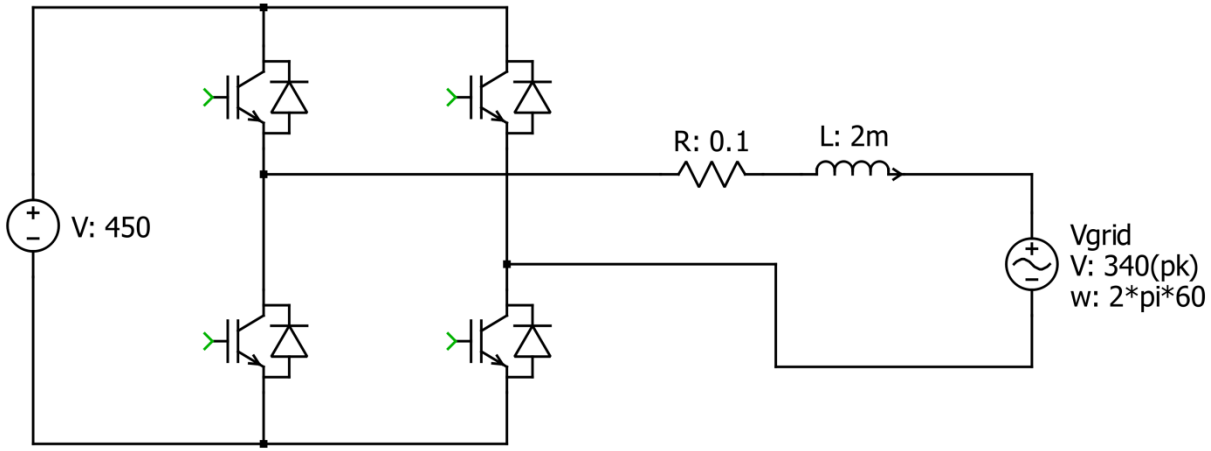
Highly User Interactive Animations





Power Electronics and Systems Simulations

- PLECS simulation files to be made available through the PSERC Academy website
- Working with Plexim (developers of PLECS) to offer these as ‘Demo files’ for public use with some restrictions on circuit modifications, saving changes etc.

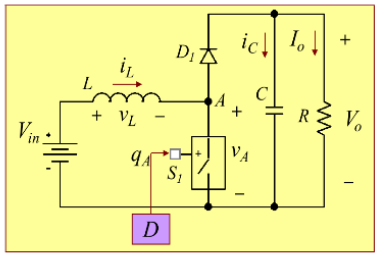


Interactive Quizzes

Multiple Choice

In a boost dc-dc converter, if Vin = 10 V, and d = 0.75, then Vo = ?

- A) 13.33 V
- B) 40 V
- C) 7.5 V
- D) -13.33 V



Correct - Click anywhere or press 'y' to continue.

Question 1 of 4

Clear | Back | Skip | Submit

Quiz Result

Your Score:	30
Max Score:	40
Questions Correct:	3
Number of Questions:	4
Accuracy:	75%
Number of Quiz Attempts:	1

Congratulations, you passed

Continue | Review Quiz

Accessing the Materials: PsercAcademy.asu.edu

- Dedicated website with search and interactive features with the video links (YouTube), lecture material, simulations and animations

Plans for Future Use

- Open access to PsercAcademy.asu.edu by end of Q2, 2013 with initial modules on power electronics and PV systems
- Obtain feedback from PSERC community and outside, and refine the style and contents of videos and other material
- Integrate into the Power Electronics and Renewable Energy courses at ASU beginning Fall 2013
- Seek funding for sustaining the initiative
- Seek partners for developing videos on other aspects of sustainable energy systems