

# PSERC Academy - A Virtual Library of Thousands of Short Videos



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## Overall objectives

- Create an online library of ~20-minute videos on various topics in sustainable energy systems, smart grid 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 for this education

- Difficulty in offering specialized university courses in the broad area of power engineering
- Rapidly evolving and new technologies
- 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

## Deliverables

- About 100 short videos in Year 1 on topics related to power converters, wind energy and photovoltaic grid integration
- Additional 100-200 videos in Year 2 on broader power engineering topics
- Report on methods of course delivery and results of quality/impact assessment

## Description

- Topics cover major aspects of power engineering and sustainable energy systems in clearly defined modules, complementing university courses
- Modules to be developed in In Year 1
  - Power electronics for power systems engineers
  - Grid integration of wind energy
  - Grid integration of photovoltaics
- A wide range of delivery methods including
  - power-point lectures with audio narration
  - Interactive simulations, animations, movie clips
  - online exercises, and online peer-to-peer correspondence, feedback
- Continuous feedback from users and selected reviewers, and continuous refinement of contents

**Example: Single phase PV inverter**

**Closed loop controller**

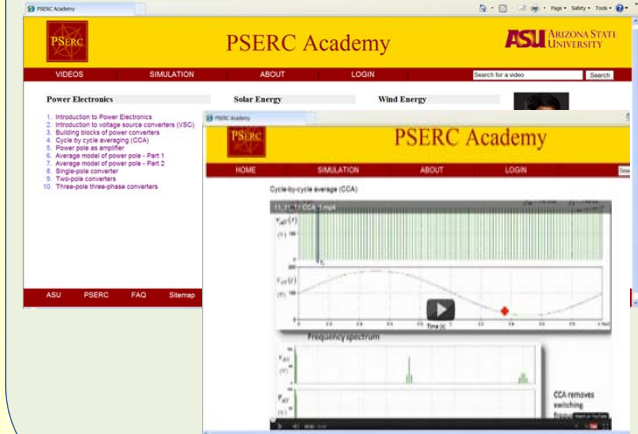
**Components of a voltage source converter**

- Controller
- PWM
- Power topology
- DC link

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## Description

- Screencast techniques using Adobe Captivate used to create videos by digitally recording computer screen output with audio narration
- Dedicated website with search and extensive interactive features, and possibly use of YouTube
- Expected to go live in Feb/March 2012



## Potential uses

- Self-paced, any-time and any-where learning for practicing engineers and students in various fields
- Complement university courses, without needing to compromise between depth and breadth
- Use of videos as the main resource content, enabling regular class time for more student-centered, interactive learning
- Opportunities for interdisciplinary collaboration and research promotion