

New Analog PSU Design Workshop from TI & Biricha



Learn to design and implement stable analog power supplies in just 3 days.

Key points:

- Stable control loop design for both voltage & current mode PSUs
- Detailed analysis of both isolated and non-isolated PSU design techniques and topologies
- Includes numerous hands-on labs and a commercial license for Biricha's new professional PSU design software worth ~2000 EUR

Abridged Workshop Syllabus*

For full details, please visit www.biricha.com/aps

Day 1: Introduction PSU Design, Control Theory, Test and Measurement

- Fundamentals of power supply design
- Bode plots, stability and real life measurement
- Frequency response analysis and impedance measurement
- Labs include:
 - Stable and robust voltage mode PSU design on a Forward type topology
 - Learning how to perform accurate loop measurement and stability analysis using a vector network analyser (each group will have their own network analyzer to use)
 - Measuring control loops using the VNA and testing the transient response of a PSU

Day 2: Peak Current Mode Control

- Peak current design with both legacy ICs and state of the art modern ICs and controllers
- Dealing with sub harmonic oscillations, slope compensation and right hand plane zeros
- Correct PCB routing and layout for low noise power supply design
- Labs include:
 - Designing a stable current mode power supply on Forward/Flyback topologies
 - Current mode controller loop measurement and transient response tests
 - Impact of crossover and phase margin on power supply transient response and stability

Day 3: Isolated Power Supply Design

- Stable isolated PSU design and analysis
- Designing with optocouplers and programmable references (e.g. TL431)
- Characterising optocoupler bandwidth and the impact on loop stability
- Closed loop opto-isolated compensator design for Type II and Type III
- Labs include: Designing a stable opto-isolated power supply on Forward/Flyback topologies
 - Characterising your own optocouplers for your power supply's control loop
 - Designing and testing of real life opto-isolated Type II and optoisolated Type III compensators

Day 4 (Optional + Free): Introduction to Digital Power

- Advantages and disadvantages of digital power
- Understanding digital control and step-by-step digital control loop design