

OVERVIEW: HANDS ON TRAINING FOR POWER ELECTRONICS USING SIMETRIX SIMULATION SOFTWARE AND MICROCHIP PICTAIL PLUS DAUGHTER BOARD.

In the modern world, energy conservation is of top priority. It is time we switched to efficient, improved and renewable green energy sources as alternatives to eco-unfriendly fossil fuels. A good knowledge of power electronics will help you do just this!

MODULE 1 (BASICS OF ELECTRONICS)

RCL, transformers, connectors, switches, tools, antenna, cables, etc, SMD and soldering technology (wave reflow, IR), and opto-electronics. Reading, types, windings, AWG/SWG and formulas, ESR, fault finding, etc.

Hands-on: R-voltage divider, CL-charging and discharging

MODULE 2 (SEMICONDUCTORS)

Familiarisation of components: diodes, transistor BJT, FET (JFET, MOSFET, IGBT) and other components like SCR, DIAC, TRIAC, GTO. Explanation of solar panel driving a MOSFET, battery and accumulator cells.

Hands-on: diodes, AC to DC bridge using STEP DOWN transformer to light LED, ON-OFF using TRIAC.

MODULE 3 (INTEGRATED CIRCUITS)

555 timers and 741: construction, identification, types, fault finding, common circuits, including a-stable, mono-stable, comparator, differential amplifier, hysteresis and voltage regulators. Digital flip flop, frequency divider, logic gates, binaries.

Hands-on: astable and comparator

MODULE 4 (DC TO DC / DC TO AC CONVERTERS)

Buck and boost converters, ferrite transformers--topology and construction, UPS and SMPS, fly back, top switch, half bridge and full bridge.

Hands-on: DC to DC converters -- Boost converter: 12V to 50V, 1.5V to 6V; Buck converter: 12V to 9V

MODULE 5 (MICROCONTROLLERS AND MICROPROCESSORS)

Different types of PWM. Interfacing with Microchip's 16-bit DSPic device to generate and control BUCK/BOOST CONVERTER.

Hands-on: Implementation on Microchip's pic-tail daughter board.

Note:

1. Course fee is Rs 8,000 + 10.3% service tax = Rs 8,824 (including registration, training and reference CD).
2. Timings for week days are 10:30 AM to 5:30 PM.
3. Timings for weekend classes are: Saturday 1.30 PM - 5:30 PM; Sunday 10 AM - 5 PM
4. Students will receive certificates from EFY on successful completion of the course on Power Electronics.
5. A CD, which contains the course content, reference manual, data manual, library of programs, codes in C language plus a lot of information on microcontrollers, will be provided at the end of the course.