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ROI Engineering Inc.

ANSYS Workbench Low Frequency Emag **3 Days**

A three-day course in Electromagnetic Analysis is recommended for analysts who perform magnetostatic, low frequency harmonic and transient electromagnetic analyses. Attendees learn how to set up and solve electromagnetic field problems, compute field quantities, extract forces, torque, eddy currents, and losses. Workshop problems include solenoid actuators, permanent magnet machines, and transformers. After completing the course, analysts should be able to perform two- and three-dimensional magnetostatic, harmonic and transient magnetic field analyses, circuit-coupled electromagnetic field analyses and calculate force torque inductance fields losses flux and saturation levels.

Course Topics include:

- 2D Planar and Axisymmetric Magnetostatic Analysis
- 2D Planar and Axisymmetric Harmonic Response (Steady State AC) Analysis
- 2D Planar and Axisymmetric Transient Analysis
- 3D Magnetostatic Analysis using the Scalar Potential
- 3D Harmonic Response and Transient Analyses
- Special Topics and Modeling Strategies

Each course chapter is followed by "hands-on" workshops and exercises.

Workshop problems include:

- Magnetic Clutch
- Current Excitation
- Skin Effects in a Solid Rectangular Bar
- Normally Closed Switch
- DC Electromagnet and Keeper
- Gear Induction Heating Using SOLID117
- Flux Passing Through Metal Detector Sense Coil Using SOLID97
- 2D Planar Rotating Machine Using Prepared Input Files
- Torque Calculations for 3D Periodic Devices
- Use LMATRIX to Determine Keeper Force
- Calculating Inductance and AC Resistance of Solid Conductors from Terminal Conditions

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