



SERVO MOTORS / STEPPER MOTORS

OBJECTIVES

The purpose of this course is to gain the concepts and knowledge necessary to design and apply DC and Brushless motor drives. This course is intended for design engineers and field application engineers in the motion control industry who wish to clarify basic principles. The course includes brief discussion on magnetism and mechanisms and to drive a circuit model.

The content will cover most of the basic skills in designing brush and brushless DC motor drives including power electronic circuits, analogue and digital motor control hardware, gate drive and feedback sensors, with particular emphasis on motor control algorithms and servo systems. The author's long experience in research and development of many types of drives, practical and useful procedures in selecting components and methods, rule-of-thumb design rules, performance vs. cost trade-off etc, will be discussed.

WHO SHOULD ATTEND

1. Anyone with general technical knowledge.
2. Working in a technical environment.
3. Technicians, Supervisors and Engineers who wish to enhance their knowledge in the basics of motors and generators technology.

COURSE OUTLINE

I. Motor Control Basics

1. Torque production mechanism in electric motors
2. Various motor types
3. Control of brushed DC motors
4. Brushless motors and electric commutation
5. Other motor types

II. Power Electronics and Analogue Motor Drives

1. Power electronics devices
2. Switch configuration and PWM
3. Gate drive design
4. Brushless motor controllers
5. 2Q and 4Q drive

III. Drive Configuration

1. Current limiting and bus current control
2. Feedback sensors
3. Sinusoidal drives
4. Phase current control
5. DSP's for motor drives

IV. Servo Systems and Motion Control

1. Servo systems fundamentals
2. PID and other velocity and position control algorithms
3. Mechanical resonance modelling and digital filtering technique
4. Motion profiles and system sizing (selection of motors and drives)
5. Dynamic model of brushless motors
6. Frame transformation and synchronous d-q frame model of motors
7. Angle advance control of brushes motors

V. New Technologies in Motor Control

1. Space vector modulation
2. Sensor-less control
3. Modelling and simulation

TRAINER

PESDC has a panel of professionally qualified, well-trained and industrially experienced technical trainers

COURSE FEE (TECH-09)

RM765.00 per pax (member)

RM800.00 per pax (non-member)

(Inclusive of course materials, lunch and refreshment)

Certificate of Achievement will be awarded upon successful completion of the course.

*SBL
claimable*

COURSE DETAILS

Duration : 3 Days

Date :

Time : 9.00am to 5.00pm

Venue : PESDC Training Complex

For Further Enquiries, please contact:

Mr Thillai or Mr Jeremy Lai

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