

Electric Drives: From Basic Understanding to Advanced Vector Control and Encoder-less Direct-Torque-Control (DTC) Operation

Topical Outline and the Associated Time

Topic	Time in Mins.
1. Applications	10
2. Structure and Flux-Density Distribution	10
3. Using Space Vectors	15
4. Sinusoidal Steady State Operation	75
(a) Operation of PMAC Machines	
(b) Operation of Induction Machines	
(c) Adjustable-Speed Induction Motor Drives	
5. Dynamic Analysis and Encoder-less Control	100
(a) d- and q- axis windings	
(b) Vector Control and Feedback Controller Design	
(c) Encoder-less Operation	
(d) Space Voltage Vector PWM	
(e) Direct-Torque Control	

Reference Textbooks:

1. *Electric Drives: An Integrative Approach* by N. Mohan, ISBN 0-9715292-1-3, published by MNPERE (www.mnpere.com), 464 pages, revised in year 2003.
2. *Advanced Electric Drives: Analysis, Control and Modeling using Simulink®* by N. Mohan, ISBN 0-9715292-0-5, published by MNPERE (www.mnpere.com), 184 pages, year 2001.