

DESIGN OF ELECTRIC MOTORS, GENERATORS, AND DRIVE SYSTEMS

JUNE 7–11, 2021 | Instructors: James L. Kirtley Jr. and Steven B. Leeb | professional.mit.edu/dmg

Note: All times are US Eastern Daylight Time

	MONDAY, JUNE 7	TUESDAY, JUNE 8	WEDNESDAY, JUNE 9	THURSDAY, JUNE 10	FRIDAY, JUNE 11
9:30 am		09:30 MATLAB Programming and Functions (SBL)	09:30 Inverters and Drive Systems: DC-DC (SBL)	09:30 Induction Machine Modeling (JLK)	09:30 Induction Motor Control Models (SBL)
10:00 am	10:00 Introductions (JLK)				
10:30 am	10:15 Elements of Energy Flows in Electromechanics (JLK)			10:45 Induction Machine Design Techniques (JLK)	10:45 Field Oriented Control (SBL)
11:00 am					
11:30 am	11:30 Introduction to MATLAB (SBL)	11:30 Park's Transformation, D-Q Modeling of Synchronous Machines (SBL)			
12:00 pm			12:00 AC Inverters: The Teaching Lab Inverter (SBL)	12:00 Induction Motor Drives: 6-pulse and PWM (JLK)	12:00 The Rest of the Control Loop (SBL)
12:30 pm	12:30 Models of PM DC and Brushless Machines (JLK)				
1:00 pm					
1:30 pm		LUNCH	LUNCH	LUNCH	LUNCH
2:00 pm	LUNCH	2:00 Internals of PM Brushless Machines (JLK)	2:00 Inverters Continued	2:00 Design Strategy and models/ Optimization (JLK)	2:00 Introduction to Afternoon Lab (SBL)
2:30 pm	2:30 Introduction to Afternoon Lab (SBL)				2:30–5:00 Lab: Simulation and Analysis of Induction Motor Drives
3:00 pm	3–5:30 Lab: Getting Started, Simulating DC Machines	3:00 Drives Using Interior Magnet PM Machines (JLK)	3:00 Introduction to Afternoon Lab (JLK)		
3:30 pm		3:45 Introduction to Afternoon Lab (SBL)	3:30–5:30 Lab: Build an Induction Motor and/or Brushless Motor Drive	3:30–5:30 Lab: Designing Scripts for Designing Brushless Machines	
4:00 pm		4–5:30 Lab: Simulating Brushless (PM) Drive Systems			
4:30 pm					
5:00 pm					