

MODERN ENERGY AND POWER SYSTEMS CERTIFICATE

Introduction

The Modern Energy and Power Systems graduate certificate is designed to provide students with a familiarity of drive systems for electric machinery using power electronics converters. Topics include fundamental mechanics and load characteristics, basic understandings of power electronics converters, magnetic circuits, DC and AC machines and fundamental control algorithms. Students learn complex power; per-unit quantities; modeling of generators, transformers and transmission lines; power flow problem; economic dispatch; faults and sequence networks; and an introduction to power system protection and dynamics.

Students may take these courses as a nondegree student or by being enrolled at the University of Colorado Denver. Courses can also be used to partially fulfill requirements for a master's degree in electrical engineering or other eligible graduate programs. The certificate is designed for professionals in industry, academia and government.

The program is intended for students and engineers with a BS degree in electrical engineering or the equivalent.

Certificate Requirements

1. The certificate requires successful completion of four courses, outlined below, with a grade of B- or better.
2. Some courses have remote options.

Code	Title	Hours
One of the following pair of courses (4 credit hours)		4
ELEC 5164	Electric Machines and Drives	
ELEC 5170	Electric Machines and Drives Laboratory	
OR		
ELEC 5174	Power Electronic Systems	
ELEC 5474	Power Electronics Laboratory	
OR		
ELEC 5184	Power Systems Analysis	
ELEC 5444	Power System Laboratory	
Two of the following courses (6 credit hours)		6
ELEC 5194	Power Systems Operation and Control	
ELEC 5755	Grid Integration of Renewable Energy	
ELEC 5294	Advanced Power Electronic Systems	
ELEC 5710	Advanced Electric Drive Systems	
ELEC 5164	Electric Machines and Drives	
ELEC 5184	Power Systems Analysis	
ELEC 5174	Power Electronic Systems	
Total Hours		10