

MASTER OF POWER ENGINEERING

The purpose of this degree program is to prepare students for leading edge positions in industry in the areas of electric power, power electronics, motor drives, and electric machines. The professional Master of Power Engineering is a course-only degree program that prepares students for professional practice in power engineering.

The admission requirements for this degree follow the existing admission requirements for other professional master's degrees in the ECE department. Students whose accredited B.S. degree is not in electrical engineering may pursue the professional master's degree, provided that they have an adequate background and can demonstrate proficiency in the material contained in undergraduate courses equivalent to Illinois Institute of Technology's coursework:

ECE 211 & ECE 213	Circuit Analysis I and Circuit Analysis II	7
ECE 311	Engineering Electronics	4
ECE 319	Fundamentals of Power Engineering	4
MATH 251	Multivariate and Vector Calculus	4
MATH 252	Introduction to Differential Equations	4

A student may demonstrate proficiency by successfully completing the courses or by demonstrating satisfactory performance in one or more special examinations administered by the ECE department.

Curriculum

Requirement	Credits
Minimum Degree Credits	30
Maximum 400-Level Credit	12
Minimum 500-Level Credit	18
Maximum Short Courses ECE 700-Level Credit	4
Maximum Transfer Credit	9

Code	Title	Credit Hours
Core Courses		(12-14)
ECE 418 or ECE 419	Power System Analysis Power Systems Analysis with Laboratory	3-4
Select a minimum of three courses from the following:		9-10
ECE 411	Power Electronics	4
ECE 412 or ECE 512	Hybrid Electric Vehicle Drives Hybrid Electric Vehicle Drives	3-4
ECE 420	Analytical Methods for Power System Economics and Cybersecurity (For Undergraduate only)	3
ECE 537	Next Generation Smart Grid	3
ECE 551	Advanced Power Electronics	3
Power Systems		(6)
Select a minimum of two courses from the following:		6
ECE 417	Power Distribution Engineering	3
ECE 553	Power System Planning	3
ECE 554	Power System Relaying	3
ECE 555	Power Market Operations	3
ECE 556	Power Market Economics and Security	3
ECE 557	Fault-Tolerant Power Systems	3
ECE 558	Power System Reliability	3
ECE 559	High Voltage Power Transmission	3
ECE 560	Power Systems Dynamics and Stability	3
ECE 561	Deregulated Power Systems	3
ECE 562	Power System Transaction Management	3

ECE 563	Artificial Intelligence in Smart Grid	3
ECE 564	Control and Operation of Electric Power Systems	3
ECE 579	Operations and Planning and Distributed Power Grid	3
ECE 580	Elements of Sustainable Energy	3
ECE 581	Elements of Smart Grid	3
ECE 582	Microgrid Design and Operation	3
CHE 543	Energy, Environment, and Economics	3

Power Electronics and Motor Drives (6)

Select a minimum of two courses from the following: 6

ECE 437 or ECE 436	Digital Signal Processing I Digital Signal Processing I with Laboratory	3-4
ECE 438	Control Systems	3
ECE 531	Linear System Theory	3
ECE 533	Robust Control	3
ECE 538	Renewable Energies	3
ECE 539	Computer Aided Design of Electric Machines	3
ECE 442 or ECE 510	Internet of Things and Cyber Physical Systems Internet of Things and Cyber Physical Systems	3
ECE 548	Energy Harvesting	3
ECE 549	Motion Control Systems Dynamics	3
ECE 550	Power Electronic Dynamics and Control	3
ECE 552	Adjustable Speed Drives	3
ECE 764	Vehicular Power Systems	2
CHE 541	Renewable Energy Technologies	3

General Electives (4-6)

Select four to six credit hours 4-6

Up to three credit hours of a Graduate Special Project in power engineering (ECE 594 or ECE 597), and up to six credit hours of ECE short courses may be applied to the degree.