

MASTER OF ELECTRICITY MARKETS

Restructuring of electricity delivery brings major changes to the electric power industry. Electricity is traded as a commodity in financial markets which affect the way electric power grids are controlled and operated. Today's electrical engineers are compelled to understand both the technical and business sides of such changes in order to address the needs of the electric power industry.

The Department of Electrical and Computer Engineering and the Stuart School of Business have teamed up to offer a master's degree in electricity markets. Combining courses from graduate programs in electrical engineering and in finance, the Master of Electricity Markets degree program provides graduate-level education in electricity suitable for electric power engineers. A background in finance is not required.

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 this 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:

| | | |
|----------------------|---|---|
| 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 ECE Short Courses 700-Level Credit | 4 |
| Maximum Transfer Credit | 9 |

| Code | Title | Credit Hours |
|--|---|----------------|
| Required Core Courses | | (15-16) |
| Select a minimum of five courses from the following: | | 15-16 |
| ECE 417 | Power Distribution Engineering | 3 |
| ECE 418 or ECE 419 | Power System Analysis Power Systems Analysis with Laboratory | 3-4 |
| ECE 420 | Analytical Methods for Power System Economics and Cybersecurity | 3 |
| ECE 537 | Next Generation Smart Grid | 3 |
| ECE 553 | Power System Planning | 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 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 |

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|--|--|---|--------------|
| Finance Courses | | | (6) |
| Select a minimum of two courses from the following: | | | 6 |
| MSF 502 | Statistical Analysis in Financial Markets ¹ | 3 | |
| MSF 503 | Financial Modeling ¹ | 3 | |
| MSF 504 | Valuation and Portfolio Management | 3 | |
| MSF 505 | Futures, Options, and OTC Derivatives | 3 | |
| MSF 524 | Models for Derivatives | 3 | |
| MSF 526 | | 3 | |
| MSF 534 | Corporate Finance | 3 | |
| MSF 554 | Market Risk Management | 3 | |
| MSF 584 | | 3 | |
| General Electives | | | (9) |
| Select nine credit hours of electives from ECE 400-799 | | | 9 |
| Total Credit Hours | | | 30-31 |

¹ A student can take MSF 502 or MSF 503, but only one can be counted toward the degree program.