

MASTER OF SCIENCE IN ENERGY SYSTEMS ENGINEERING

Curriculum

Code	Title	Credit Hours
Core Courses:		(9)
CHE 543	Energy, Environment, and Economics	3
ECE 418	Power System Analysis	3
MMAE 520	Advanced Thermodynamics	3
Elective Courses:		(155-161)
Select 15-21 credit hours from the following courses:		15-21
CAE 466	Building Electrical/Lighting Systems Design	3
CAE 471	Construction Planning and Scheduling	3
CAE 472	Construction Site Operation	3
CAE 473	Construction Contract Administration	3
CAE 505	Applications of Computational Fluid Dynamics in Engineering	3
CAE 513	Building Science	3
CAE 517	HVAC Systems Design	3
CAE 524	Building Enclosure Design	3
CAE 526	Energy Conservation in Buildings	3
CAE 538	Control of Building Environmental Systems	3
CAE 539	Introduction to Geographic Information Systems	3
CAE 550	Applied Building Energy Modeling	3
CAE 552	Introduction to Sustainable Building Design	3
CAE 556	Net Zero Energy Building Design I	3
CAE 557	Net Zero Energy Building Design II	3
CAE 569	Construction Methods, Cost Estimating, and Project Budgeting	3
CAE 574	Economic Decision Analysis in Civil Engineering	3
CHE 541	Renewable Energy Technologies	3
ECE 411	Power Electronics	4
ECE 412	Hybrid Electric Vehicle Drives	4
ECE 420	Analytical Methods for Power System Economics and Cybersecurity	3
ECE 438	Control Systems	3
ECE 537	Next Generation Smart Grid	3
ECE 539	Computer Aided Design of Electric Machines	3
ECE 550	Power Electronic Dynamics and Control	3
ECE 552	Adjustable Speed Drives	3
ECE 553	Power System Planning	3
ECE 557	Fault-Tolerant Power Systems	3
ECE 561	Deregulated Power Systems	3
ECE 563	Artificial Intelligence in Smart Grid	3
ECE 582	Microgrid Design and Operation	3
ENVE 522	Global Environmental Change and Sustainability Analysis	3
INTM 523	Sustainable Facilities Operations	3
INTM 560	Sustainability of Critical Materials	3
INTM 561	Energy Options in Industry	3
MMAE 433	Design of Thermal Systems	3
MMAE 443	Systems Analysis and Control	3
MMAE 453	Electrified Vehicle Powertrains	3
MMAE 500	Data Driven Modeling	3
MMAE 501	Engineering Analysis I	3
MMAE 504	Random Data Measurement and Analysis	3

MMAE 506	Methods and Applications of Deep Learning	3
MMAE 525	Fundamentals of Heat Transfer	3
MMAE 543	Modern Control Systems	3
MMAE 550	Optimal State Estimation	3
MMAE 556	Electrified Vehicle Powertrains	3
Other Elective Courses		(0-6)
Students may select up to six credit hours of 400-level and above Engineering courses, including 594 or 597 special topics		0-6

Minimum Degree Credits Required: 30