

MASTER OF ENGINEERING IN ARTIFICIAL INTELLIGENCE FOR COMPUTER VISION AND CONTROL

AI has become a valuable and important catalyst for other technologies such as the Internet of Things and Cyber Physical Systems. AI is also considered as the engine that powers several truly ground-breaking Computer Vision, Control and Cybernetic applications such as autonomous cars, robotic personal assistants and automated manufacturing. The Master of Engineering in Artificial Intelligence, Computer Vision and Control degree is intended to provide interested students maximum exposure towards the very fast evolving AI technologies, machine learning, and methods while particularly targeting Electrical and Computer Engineering topics such as computer vision, medical image diagnosis, power system distribution, robotics and automation. Today, all major new technology products inherit a layer of artificial intelligence unit for self-learning and adaptability. Depending on the application or platform, this AI component can be used for speech recognition, face recognition or context-aware human-device interactions. The wide use of these AI technologies resulted in a major spike in the demand for engineers who are trained in this dynamic and fast-growing exciting field. Through the Master of Engineering in Artificial Intelligence, Computer Vision and Control students will be ready to overcome challenges in the field of core AI framework, signal & image processing and computer vision, control systems, embedded systems, integrated circuits and VLSI including neuromorphic computing, network, communication and information systems, power systems and robotics.

Requirement	Credits
Minimum Credits Required	30
Maximum 400-Level Credit	12
Minimum 500-Level+ Credit	18
Maximum 700-Level Credit	4
Maximum Transfer Credit	9

Code	Title	Credit Hours
Required Courses (15-16)		
Select minimum 5 courses from the following: 15-16		
ECE 437 or ECE 569	Digital Signal Processing I Digital Signal Processing II	3
ECE 438 or ECE 533	Control Systems Robust Control	3
ECE 501	AI and Edge Computing	3
ECE 510	IoT and Cyber Physical Systems	3
ECE 563	AI in Smart Grid	3
ECE 565	Compt Vision Image Processing	3
ECE 566	Machine and Deep Learning	3
ECE 590	Object-Oriented Program & ML	3
ECE 597	Special Problems (Artificial Intelligence, Computer Vision and Control)	1-3
Signal and Image Processing Elective (3)		
Select a minimum 1 course from the following: 3		
ECE 437	Digital Signal Processing I	3

ECE 481	Image Processing	3
ECE 508	Video Processing & Comm	3
ECE 511	Analysis Random Signals	3
ECE 563	AI in Smart Grid	3
ECE 565	Compt Vision Image Processing	3
ECE 566	Machine and Deep Learning	3
ECE 567	Statistical Signal Processing	3
ECE 568	Digital Speech Processing	3
ECE 569	Digital Signal Processing II	3

Computer Engineering Elective (3)

Select a minimum 1 course from the following: 3

ECE 408	Intro to Computer Ntwks	3
ECE 441	Smart & Connected Embedded Sys	4
ECE 501	AI and Edge Computing	3
ECE 510	IoT and Cyber Physical Systems	3
ECE 517	Wireless Ntwrk Protocols/Stand	3
ECE 518	Computer Cyber Security	3
ECE 520	Info Theory and Applications	3
ECE 528	Application Software Design	3
ECE 541	Comm Ntwrks Performance Analy	3
ECE 543	Computer Network Security	3
ECE 545	Modern Internet Tech	3
ECE 585	Computer Org and Design	3
ECE 586	Hardwr Security & Adv Comp Arc	3
ECE 587	Hardware Software Codesign	3
ECE 590	Object-Oriented Program & ML	3

Power and Control Engineering Elective (3)

Select a minimum 1 course from the following: 3

ECE 411	Power Electronics	4
ECE 438	Control Systems	3
ECE 505	Applied Optimization Engrgs	3
ECE 512	Hybrid Electric Vehicle Drives	3
ECE 533	Robust Control	3
ECE 537	Next Generation Smart Grid	3
ECE 549	Motion Control Syst Dynamics	3
ECE 550	Power Elect Dymcs Control	3
ECE 551	Advanced Power Electronics	3
ECE 552	Adjustable Speed Drives	3
ECE 555	Power Market Operations	3
ECE 557	Fault Tolerant Power Systems	3
ECE 558	Power System Reliability	3
ECE 560	Power Syst Dynamics Stability	3
ECE 564	Cntrl Oprtn Elect Power Systs	3
ECE 579	Oper/Plan/Dist Power Grid	3
ECE 580	Elements of Sustainable Energy	3
ECE 581	Elements of Smart Grid	3
ECE 582	Microgrid Design and Operation	3

Elective Courses (5-6)

The remaining elective courses may be chosen from any of the listed core or elective options, provided that those courses were not already used to satisfy another degree requirement.

5-6