

Master of Engineering

Core Course in (Offered/other) Research Specializations

Fall 2026/Winter 2027/Not offered this year

Communications; Signal & Image Processing

At least four of the following courses:

1. ECE 502 A01/A02 – Probability and Random Process for Electrical Engineers
2. ECE 540 B01 – Detection and Estimation
3. ECE 541 B01 – Digital Signal Processing
4. ECE 577 A1 – Antenna Theory and Design
5. ECE 582 B01 – Information Theory and Channel Coding
6. ECE 583 A01 – Digital Communications
7. ECE 644 – Digital Image and Video Processing
8. ECE 684 – Wireless Communication Systems
9. ECE 686 B01 – Wireless Communication Networks
10. ECE 740 B01 – Computer and Robot Vision
11. ECE 740 A02 – Biomedical Image Analysis
12. ECE 740 – Deep Learning for Computer Vision
13. ECE 780 A01 – Blockchain Technologies
14. ENGG 700 – Special Topics in Engineering (Fall&Winter)

Software Engineering & Intelligent Systems

At least four of the following courses:

1. ECE 522 A01/LAB D41 – Software Construction, Verification and Evaluation
2. ECE 562 A1 – Deep Reinforcement Learning for Robotics
3. ECE 582 B01 – Information Theory and Channel Coding
4. ECE 624 A01 – Fuzzy Set in Human-Centric Systems
5. ECE 625 B01/SEM 800 – Data Analysis and Knowledge Discovery
6. ECE 626 B01 – Advanced Neural Networks
7. ECE 627 B01 – Intelligent Web
8. ECE 710 – Wearable Device, IoT, Data Analysis
9. ECE 720 – Metaheuristic Optimization
10. ECE 720 A01 – Automated Software Testing, Debugging and Analysis
11. ECE 720 A02 – Advanced Topics in Software Engineering and Intelligent Systems
12. ECE 720 X50 – Trustworthy Machine Learning System Engineering
13. ECE 720 A02 – Robot Learning: Principles and Advances
14. ECE 740 B01 – Computer and Robot Vision
15. ECE 740 – Deep Learning for Computer Vision
16. ECE 780 A01 – Blockchain Technologies
17. ENGG 700 – Special Topics in Engineering (Fall&Winter)

Integrated Circuits and Systems; Solid State Electronics; Computer Engineering

At least four of the following courses:

1. ECE 511 – Advanced Digital Circuit and System Design
2. ECE 512 – Digital System Testing and Design for Testability
3. ECE 547 A01 – Fundamentals of Solid-State Devices
4. ECE 551 – Design of CMOS Analog Integrated Circuits
5. ECE 553 B01/LAB H01 – Digital Integrated Circuit Design
6. ECE 558 A01 – Microfabrication & Nanofabrication Topics I
7. ECE 559 B01 – Microfabrication & Nanofabrication Topics II
8. ECE 570 – Computational Electromagnetics
9. ECE 578 A01 – Microwave and Millimeter-wave Circuits
10. ECE 644 – Digital Image and Video Processing (only for Computer Engineering stream)
11. ECE 646 B01 – Organic Electronics
12. ECE 650 – Radio Frequency Integrated Circuits
13. ECE 710 – Wearable Device, IoT, Data Analysis
14. ECE 720 – Metaheuristic Optimization
15. ECE 750 B01 – Devices for Sensing Applications
16. ECE 750 – Nanobiotechnological Systems
17. ENGG 700 – Special Topics in Engineering (Fall&Winter)

Energy Systems

At least four of the following courses:

1. ECE 511 – Advanced Digital Circuit and System Design
2. ECE 530 – Power Qual/Dist Analysis
3. ECE 531 B1 – Industrial Drive Systems (Students who have taken ECE 432 are not allowed to take ECE 531)
4. ECE 560 A01 – Modern Control Theory
5. ECE 561 A01 – Nonlinear Control Systems
6. ECE 570 – Computational Electromagnetics
7. ECE 631 A01 – High-Voltage DC (HVDC) Systems
8. ECE 633 B01 – Modeling and Simulation of Electromagnetic Transients in Electrical Circuits
9. ECE 635 B1 – Power Converter Renewable Energy System
10. ECE 636 A01 – Voltage Source Converters
11. ECE 730 – Smart Grid Fundamentals
12. ECE 730 A02 – Computational and AI Methods for Cyber-Physical Systems
13. ECE 730 B02 – Power Converter System Design
14. ECE 730 – Applied Nuclear Energy
15. ENGG 700 – Special Topics in Engineering (Fall&Winter)

Control Systems

At least four of the following courses:

1. ECE 560 A01 – Modern Control Theory

2. ECE 561 A01 – Nonlinear Control Systems
3. ECE 660 A01 & B1 – Optimization in Dynamic Control and Estimation
4. ECE 664 B01 – Nonlinear Control Design with Application
5. ECE 665 B01 – Multivariable Robust Control
6. ECE 740 B01 – Computer and Robot Vision
7. ECE 760 B01 – Robotics: Modeling, Learning and Control
8. CH E 662 – Process Identification
9. CH E 694 – Optimal Control
10. ENGG 700 – Special Topics in Engineering (Fall&Winter)

Electromagnetics & Microwaves

At least four of the following courses:

1. ECE 570 – Computational Electromagnetics
2. ECE 576 X50 – Advanced Engineering Electromagnetics
3. ECE 577 A1 – Antenna Theory and Design
4. ECE 578 A01 – Microwave and Millimeter-wave Circuits
5. ENGG 700 – Special Topics in Engineering (Fall&Winter)

Biomedical Engineering

At least four of the following courses:

1. ECE 644 – Digital Image and Video Processing
2. ECE 691 B01 – Biomedical Optics
3. ECE 692 B01 – Ultrasound Imaging
4. ECE 710 – Wearable Device, IoT, Data Analysis
5. ECE 740 A02 – Biomedical Image Analysis
6. ECE 740 – Deep Learning for Computer Vision
7. ENGG 700 – Special Topics in Engineering (Fall&Winter)

Photonics & Plasmas; Microsystems & Nanodevices

At least four of the following courses:

1. ECE 558 A01 – Microfabrication & Nanofabrication Topics I
2. ECE 559 B01 – Microfabrication & Nanofabrication Topics II
3. ECE 571 B01 – Optical & Quantum Electronics
4. ECE 572 B01/B02 – Nonlinear Optics
5. ECE 579 Section TBD – Radio Wave Propagation: Theory, Modeling, and Applications (prior ECE 770 topic)
6. ECE 675 A01 – Plasma Engineering
7. ECE 730 – Applied Nuclear Energy
8. ECE 770 – An Introduction to Laser-Plasma Interactions
9. ECE 770 – Nanoscale Optics
10. ECE 770 – Optics for Microsystems
11. ECE 770 – Silicon Photonic Integrated Circuits
12. ECE 770 – Radiation Diagnostics and Radiation Safety
13. ECE 770 B04 – Principles of Plasma Diagnostics
14. ENGG 700 – Special Topics in Engineering (Fall&Winter)