Master of Engineering:
Core Courses in Identified Research Areas
August 2018

Biomedical Engineering
1) ECE 405 – Biophysical Measurement and Instrumentation
2) ECE 440 – Digital Image Processing
3) BME 513 – Intro to Medical Imaging

Communications: Signal & Image Processing
1) ECE 502 – Probability and Random Process for Electrical Engineering
2) ECE 583 – Digital Communications
3) ECE 541 – Digital Signal Processing
4) ECE 780 A2 – Adv. Topics in Communications:
   MIMO Communications and Signal Processing

Computer Engineering: Integrated Circuits and Systems
1) ECE 511 – Digital ASIC Design
2) ECE 512 – Digital System Design and Design for Testability
3) ECE 553 – Digital Integrated Circuit Design ( )

Depending on the student's project, one of the following courses will also be required:
4a) ECE 541 – Digital Signal Processing
4b) ECE 583 – Digital Communications
4c) ECE 625 – Data Analysis and Knowledge Discovery
4d) ECE 750 A2 – Adv. Topics in Integrated Circuits
   Design of CMOS Radio-Frequency Integrated Circuits

Control Systems
1) ECE 560 – Modern Control Theory
2) ECE 561 – Nonlinear Control Systems (to be offered 2019/2020)
4) ChE 662 – System Identification
Electromagnetics & Microwaves
1) ECE 576 – Advanced Engineering Electromagnetics
2) ECE 578 – Advanced Microwave and Millimeter-wave Circuits
3) ECE 577 – Antenna Theory and Design

Energy Systems
1) ECE 531 – Industrial Drives
2) ECE 633 – Modeling and Simulation of Electromagnetic Transient in Electrical Circuit
3) ECE 636 – Dynamics and Control of Power Converters
4) ECE 730 A3 – Adv. Topics in Energy Systems: Smart Grid Fundamentals

Microsystems & Nanodevices
1) ECE 558 – Microfabrication & Nanofabrication Topics I
2) ECE 559 – Microfabrication & Nanofabrication Topics II

Photonics & Plasmas; Solid State Electronics
1) ECE 558 – Microfabrication & Nanofabrication Topics I
2) ECE 770 B2 – Optics for Microsystems
3a) ECE 673 – Laser applications
or
3b) ECE 675 Plasma Engineering

Software Engineering & Intelligent Systems
1) ECE 623 – Data Exploration and Evolutionary Computing
2) ECE 624 – Fuzzy Set in Human Centric Computing
3) ECE 625 – Data Analysis and Knowledge Discovery
4a) ECE 626 – Advanced Neural Networks
or
4b) ECE 627 – Intelligent Web