

Option 1: Start Project-Track Coursework in **Fall**



Students who:

- Are planning to complete the MS degree in one year.
- Are starting the MSECE in Fall 2024 and have a background in their technical area, either from senior/graduate-level courses or work experience.

Option 2: Start Project-Track Coursework in **Spring**



Students who:

- Have completed limited coursework or have limited work experience in their ECE area of interest or project area of interest.
- Have not yet defined a primary area of interest.

This option will allow students to take a semester of coursework before starting the I2I sequence to learn foundational concepts and to define their interests.

Representative coursework for students to take before/concurrently with ECE 69500, Ideas to Innovation I

Focus Area	Course Suggestions
Power and energy systems (PES)	ECE 51012, Electromechanics (Spring) ECE 51018, Hybrid Electric Vehicles (Spring)
Computer Engineering (CE)	See recommended 500-level courses by CE sub-area on this page: CE Plans of Study
Communications, Networking, Signal and Image Processing (CNSIP)	Signal and Image Processing: ECE 53800, Digital Signal Processing I (Fall) Communications and Networking: ECE 54400, Digital Communications (Fall)
Automatic Control (AC)	Control Systems: ECE 58000, Optimization Methods for Systems & Control (Spring) Robotics: ECE 56900, Introduction to Robotic Systems (Fall)
Fields and Optics (FO)	RF: <ul style="list-style-type: none"> • ECE 60422, Primer on RF Circuit Design (Fall) • ECE 60423, RF System Design (Fall) • ECE 60424, RF Design: Passive/Active Components (Fall) Photonics: ECE 51300, Diffraction, Fourier Optics, and Imaging (Fall, odd years)
Microelectronics and Nanotechnology (MN)	Microfabrication/Manufacturing: <ul style="list-style-type: none"> • ECE 59500, Microfabrication Fundamentals (Spring) • ECE 59500 Semiconductor Manufacturing, ECE 59500, Intro to Nanolithography (Summer and Fall) • ECE 59500, Integrated Circuit/MEMS Fabrication Laboratory (Fall and Spring) • ECE 59500, Introduction to Electronics Packaging and Heterogeneous Integration (Fall) MEMS: ECE 59500, MEMS I , MEMS II , MEMS III (Fall) Photovoltaics: <ul style="list-style-type: none"> • ECE 50616, Physics and Manufacturing of Solar Cells (Fall, Odd Years) • ECE 59500, Theory and Practice of Solar Cells (every other Spring) Semiconductor Devices: <ul style="list-style-type: none"> • ECE 60600, Solid State Devices (Fall or Spring) • ECE 59500, Semiconductor Fundamentals (Spring) • ECE 59500, ECE Fundamentals of Transistors (Spring) and ECE50631, Fundamentals of Current Flow (Fall, Spring, Summer)
VLSI and Circuit Design (VC)	Hardware Design: ECE 55900, MOS VLSI Design (Fall) Embedded Systems: ECE 56800, Embedded Systems (Spring)
Machine Learning	ECE 50024, Machine Learning (Spring)
Quantum Systems	ECE 59500, Introduction to Quantum Science and Technology (Fall)