









## 2024 - 2025 Major Map

### Engineering Science (Microelectronics), BS

School/College: Ira A. Fulton Schools of Engineering  
ESESCMEBS

Term 1 0 - 15 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 MAT 170: Precalculus (MATH OR MA)	3	C	<ul style="list-style-type: none"> <li>ASU 101 or college-specific equivalent First-Year Seminar required of all first-year students and should be taken in the first semester.</li> <li>If ENG 105 is taken, a three credit hour elective must also be taken prior to graduation.</li> <li>Prep for success using the <a href="#">First-Year Student Guide</a>.</li> <li>Join a <a href="#">Fulton community</a>.</li> <li>Explore <a href="#">engineering and technical professions</a>.</li> </ul>
ASU 101-ESC: The ASU Experience	1		
CSE 100: Principles of Programming with C++ (QTRS OR CS)	3		
ENG 101 or ENG 102: First-Year Composition OR			
ENG 105: Advanced First-Year Composition OR	3	C	
ENG 107 or ENG 108: First-Year Composition			
FSE 100: Introduction to Engineering	2		
Humanities, Arts and Design (HUAD)	3		
Term hours subtotal:	15		

Term 2 15 - 29 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 ESC 110: History of the Semiconductor Industry	1	C	<ul style="list-style-type: none"> <li>Create a <a href="#">Handshake</a> profile.</li> <li>Get involved with EPICS, the Generator Labs, and the <a href="#">Fulton Start-Up Center</a>.</li> </ul>
ECN 221: Business Statistics (QTRS OR CS) OR STP 226: Elements of Statistics (QTRS OR CS)	3		
EEE 120: Digital Design Fundamentals	3		
ENG 101 or ENG 102: First-Year Composition OR			
ENG 105: Advanced First-Year Composition OR	3	C	
ENG 107 or ENG 108: First-Year Composition			
FSE 104: EPICS Gold Feasibility and Planning	1		
FSE 150: Perspectives on Grand Challenges for Engineering (GCSI OR SB)	3		
 Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Term hours subtotal:	14		

Term 3 29 - 44 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 ESC 211: Engineering Tools for Microelectronics I	4	C	<ul style="list-style-type: none"> <li>Prep for success using the <a href="#">Sophomore Guide</a>.</li> </ul>
 ESC 221: Computing Tools for Microelectronics I	4	C	
ECN 211: Macroeconomic Principles (SOBE OR SB) OR ECN 212: Macroeconomic Principles (SOBE OR SB)	3		
PHY 111: General Physics (SCIT OR SQ)	3		
PHY 113: General Physics Laboratory (SCIT OR SQ)	1		
Complete Mathematics (MATH) requirement.			
Term hours subtotal:	15		

Term 4 44 - 60 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
--	-------	---------------	-------

❗ ESC 233: Verilog I	4	C
ESC 212: Engineering Tools for Microelectronics II	4	C
ESC 321: Computing Tools for Microelectronics II	4	C
PHY 112: General Physics (SCIT OR SQ)	3	
PHY 114: General Physics Laboratory (SCIT OR SQ)	1	
Term hours subtotal:	16	

- Pursue an undergraduate research experience.
- Apply for internships.
- Attend career fairs and events.

Term 5 60 - 75 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ ESC 220: Networks I	4	C	<ul style="list-style-type: none"> <li>• Plan for success using the <b>Junior Guide</b>.</li> <li>• Network at <b>student organization</b> competitions or professional societies.</li> </ul>
★ ESC 333: Verilog II	4	C	
ACC 382: Accounting and Financial Analysis	3		
FSE 404: EPICS Gold: EPICS in Action	1		
MGT 380: Management and Strategy	3		
Term hours subtotal:	15		

Term 6 75 - 90 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ ESC 320: Networks II	4	C	<ul style="list-style-type: none"> <li>• Research and prepare for <b>graduate school</b>.</li> <li>• Apply for an <b>engineering accelerated program</b>.</li> <li>• Develop a <b>professional profile online</b>.</li> </ul>
ESC 441: Test and Verification	4	C	
ESC 443: VLSI Scripting	4	C	
MGT 400: Cross-Cultural Management (GCSI OR C & G)	3		
Term hours subtotal:	15		

Term 7 90 - 104 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ ESC 490: Engineering Science Capstone I	4	C	<ul style="list-style-type: none"> <li>• Plan for success using the <b>Senior Guide</b>.</li> <li>• Use <b>Handshake</b> to apply for full-time positions.</li> <li>• Complete an in person or virtual <b>practice interview</b>.</li> </ul>
ESC 447: Layout and Timing	4	C	
LES 305: Business Law and Ethics for Managers	3		
Governance and Civic Engagement (CIVI)	3		
Term hours subtotal:	14		

Term 8 104 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ ESC 491: Engineering Science Capstone II	4	C	
SCM 380: Supply Chain Management Foundations (SUST)	3		
American Institutions (AMIT)	3		
Humanities, Arts and Design (HUAD)	3		
Elective	3		
Term hours subtotal:	16		

Hide Course List(s)/Track Group(s)

- **Total Hours:** 120
- **Upper Division Hours:** 45 minimum
- **University Undergraduate Graduation Requirements**

#### Notes:

Mathematics Placement Assessment score determines placement in first mathematics course.

General Studies designations listed next to courses on the major map were valid for the 2024 - 2025 academic year. Please refer to the course catalog for current General Studies designations at time of class registration. General Studies credit is applied according to the designation the course carries at the time the class is taken.