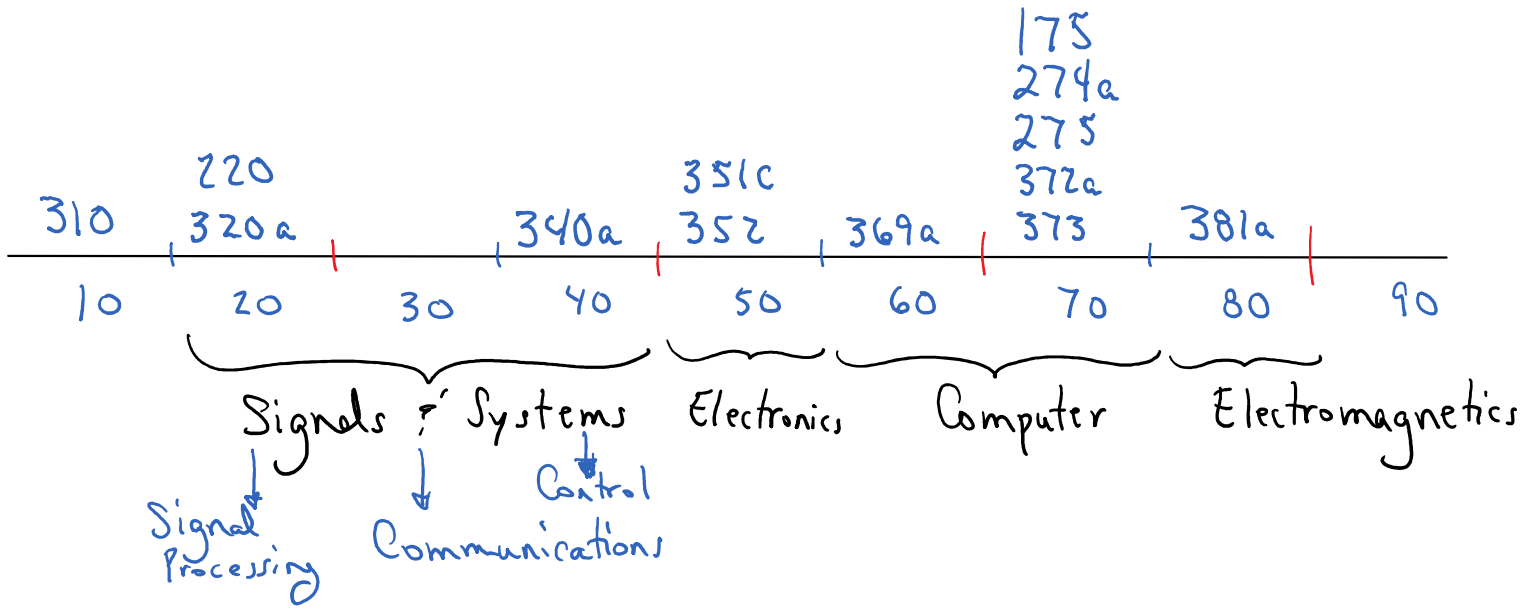


Technical Electives



<https://ece.engineering.arizona.edu/undergrad-programs/courses>
<https://ece.engineering.arizona.edu/grad-programs/courses>

Textbook(s)
 Description
 Topics
 Prerequisites

Undergraduate Enrollment in Graduate Classes:

<https://www.arizona.edu> Search Box: "Undergraduate Enrollment in Graduate Course"
 Must submit a form!

Course Descriptions:

<https://catalog.arizona.edu> Menu Item: Courses::Course Descriptions
 ECE: "VIEW ALL COURSE DESCRIPTIONS" (link) {allow pop-ups in browser}

Faculty Videos: <https://ece.engineering.arizona.edu/faculty-staff/videos>

Fall 2022

Computer Courses:	ECE 369a	(EE)	Fundamentals of Computer Architecture
	ECE 373	(EE)	Object Oriented Software Design
	ECE 4/511		Numeric Modelling of Physics & Biological Systems
	ECE 4/513		Web Development and Internet of Things
	ECE 4/574a		Computer-Aided Logic Design
	ECE 4/578		Fundamentals of Computer Networks
	ECE 509		Cyber Security - Concept, Theory, Practice
	ECE 576a		Engineering of Computer Based Systems

Electronics/Bio Courses:	ECE 434		Electrical and Optical Properties of Materials
	ECE 4/550		Analog Integrated Circuits
	ECE 4/572		Design, Modeling, and Simulation for High Technology Systems in Medicine

Electromagnetics/ Optics Courses:	ECE 4/559		Fundamentals of Optics for Electrical Engineers
	ECE 4/586		Microwave Engr I: Passive Circuits
	ECE 527		Holography and Diffraction Optics
	ECE 696b		Introduction to Quantum Mechanics and Quantum Information Processing

Signals & System Courses:	ECE 4/529		Digital Signal Processing
	ECE 4/530		Optical Communications Systems
	ECE 532		Digital Image Analysis
	ECE 536a		Free Space Optical Communications Systems
	ECE 537		Digital Communications Systems II
	ECE 538		Radar Signal Processing
	ECE 4/541a		Automatic Control Systems
	ECE 501b		Advanced Linear System Theory
	ECE 503		Probability and Random Processes for Engineering Applications
	ECE 639		Detection and Estimation in Engineering Systems

McGuire Center for Entrepreneurship (2 Semester Sequence, Conflicts with ENGR 498a/b)

McGuire New Venture Dev:		ENTR 487		Venture Development I (Fall), Available to ECE Juniors
		ENTR 484		Venture Development II (Spring), Available to ECE Juniors

Weekly Schedule (Fall 2022)					
Time	Mon	Tues	Wed	Thurs	Fri
8:00 AM		ECE 373 ECE 576A		ECE 373 ECE 576A	
8:30 AM		ECE 373 ECE 576A		ECE 373 ECE 576A	
9:00 AM		ECE 373 ECE 576A		ECE 373 ECE 576A	
9:30 AM		ECE 4/511 ECE 4/572 ECE 4/586		ECE 4/511 ECE 4/572 ECE 4/586	
10:00 AM	ECE 369a ECE 4/546	ECE 4/511 ECE 4/572 ECE 4/586	ECE 369a ECE 4/546	ECE 4/511 ECE 4/572 ECE 4/586	ECE 369a ECE 4/546
10:30 AM	ECE 369a ECE 4/546	ECE 4/511 ECE 4/572 ECE 4/586	ECE 369a ECE 4/546	ECE 4/511 ECE 4/572 ECE 4/586	ECE 369a ECE 4/546
11:00 AM	ECE 503	ECE 4/529 ECE 4/574A	ECE 503	ECE 4/529 ECE 4/574A	ECE 503
11:30 AM	ECE 503	ECE 4/529 ECE 4/574A	ECE 503	ECE 4/529 ECE 4/574A	ECE 503
12:00 PM		ECE 4/529 ECE 4/574A		ECE 4/529 ECE 4/574A	
12:30 PM		ECE 4/530 ECE 4/578		ECE 4/530 ECE 4/578	
1:00 PM	ECE 4/550 ECE 4/559 ECE 696B	ECE 4/530 ECE 4/578	ECE 4/550 ECE 4/559 ECE 696B	ECE 4/530 ECE 4/578	ECE 4/550 ECE 4/559 ECE 696B
1:30 PM	ECE 4/550 ECE 4/559 ECE 696b	ECE 4/530 ECE 4/578	ECE 4/550 ECE 4/559 ECE 696b	ECE 4/530 ECE 4/578	ECE 4/550 ECE 4/559 ECE 696b
2:00 PM	ECE 369a a Lab ECE 537 ECE 4/541a ECE 696b		ECE 369a a Lab ECE 537 ECE 4/541a ECE 696b		ECE 537 ECE 4/541a ECE 696b
2:30 PM	ECE 369a a Lab ECE 537 ECE 4/541a ECE 581A		ECE 369a a Lab ECE 537 ECE 4/541a ECE 581A		ECE 537 ECE 4/541a ECE 696b
3:00 PM	ECE 369a a Lab ECE 4/513		ECE 369a a Lab ECE 4/513		ECE 4/513
3:30 PM	ECE 369a b Lab ECE 4/513	ECE 532	ECE 369a b Lab ECE 4/513	ECE 532 ECE 695	ECE 4/513
4:00 PM	ECE 369a b Lab ECE 434 ECE 501b	ECE 509 ECE 532	ECE 369a b Lab ECE 434 ECE 501b	ECE 532 ECE 695	
4:30 PM	ECE 369a b Lab ECE 434 ECE 501b	ECE 509 ECE 532	ECE 369a b Lab ECE 434 ECE 501b	ECE 532	
5:00 PM	ECE 369a b Lab ECE 434 ECE 501b ECE 639	ECE 509 ECE 538	ECE 369a b Lab ECE 434 ECE 501b ECE 639	ECE 538	
5:30 PM	ECE 369a c Lab ECE 639	ECE 509 ECE 538	ECE 369a c Lab ECE 639	ECE 538	

5:00 PM	ECE 639		ECE 639		
5:30 PM	ECE 369a c Lab	ECE 509	ECE 369a c Lab	ECE 538	
	ECE 639	ECE 538	ECE 639		
6:00 PM	ECE 369a c Lab	ECE 509	ECE 369a c Lab	ECE 538	
	ECE 639	ECE 538	ECE 639		

Spring 2023

Computer Courses:		ECE 330B		Computational Techniques
		ECE 4/562		Computer Architecture
		ECE 4/571		Fundamentals of Information and Network Security
		ECE 4/579		Principles of Artificial Intelligence
		ECE 506		Reconfigurable Computing
		ECE 524		Fundamentals of Cloud Security
		ECE 678		Wireless Protocols

Electronics/Bio Courses:		ECE 352	(CE)	Device Electronics
		ECE 4/507		Digital VLSI System Design
		ECE 4/517		Measurement & Data Analysis in Biomedical Engineering

Electromagnetics/Optics Courses:		ECE 381a	(CE)	Introductory Electromagnetics
		ECE 4/514a		Photovoltaic Solar Energy Systems
		ECE 4/556		Optoelectronics
		ECE 4/584		Antenna Theory and Design
		ECE 534		Adv. Topics in Optical and Electronic Materials

Signals & System Courses:		ECE 523		Engineering Applications of Machine Learning and Data Analysis
		ECE 533		Digital Image Processing
		ECE 4/535a		Digital Communications Systems
		ECE 4/542		Digital Control Systems

Weekly Schedule (Spring 2023, Tentative)					
Time	Mon	Tues	Wed	Thurs	Fri
8:00 AM		ECE 4/579		ECE 4/579	
8:30 AM		ECE 4/579		ECE 4/579	
9:00 AM	ECE 4/562	ECE 4/579	ECE 4/562	ECE 4/579	ECE 4/562
9:30 AM	ECE 4/562	ECE 569	ECE 4/562	ECE 569	ECE 4/562
10:00 AM	ECE 523	ECE 569	ECE 523	ECE 569	ECE 523
10:30 AM	ECE 523	ECE 569	ECE 523	ECE 569	ECE 523
11:00 AM	ECE 4/566 ECE 576B	ECE 330B ECE 352 ECE 4/584 ECE 4/588 ECE 636	ECE 4/566 ECE 576B	ECE 330B ECE 352 ECE 4/584 ECE 4/588 ECE 636	ECE 4/566 ECE 576B
11:30 AM	ECE 4/566 ECE 576B	ECE 330B ECE 352 ECE 4/584 ECE 4/588 ECE 636	ECE 4/566 ECE 576B	ECE 330B ECE 352 ECE 4/584 ECE 4/588 ECE 636	ECE 4/566 ECE 576B
12:00 PM		ECE 330B ECE 352 ECE 4/584 ECE 4/588 ECE 636	ECE 381a R	ECE 330B ECE 352 ECE 4/584 ECE 4/588 ECE 636	
12:30 PM	ECE 4/503A	ECE 533 ECE 534	ECE 381a R ECE 4/503A	ECE 533 ECE 534	
1:00 PM	ECE 4/503A ECE 4/571 ECE 581B	ECE 533 ECE 534	ECE 4/503A ECE 4/571 ECE 581B	ECE 533 ECE 534	ECE 4/571 ECE 581B
1:30 PM	ECE 4/503A ECE 4/571 ECE 581B	ECE 533 ECE 534	ECE 4/503A ECE 4/571 ECE 581B	ECE 533 ECE 534	ECE 4/571 ECE 581B
2:00 PM	ECE 4/507 ECE 4/535a		ECE 4/507 ECE 4/535a		ECE 4/507 ECE 4/535a
2:30 PM	ECE 4/507 ECE 4/535a		ECE 4/507 ECE 4/535a		ECE 4/507 ECE 4/535a
3:00 PM	ECE 381a		ECE 381a		ECE 381a
3:30 PM	ECE 381a	ECE 633	ECE 381a	ECE 633	ECE 381a
4:00 PM	ECE 4/514a ECE 531	ECE 524 ECE 633	ECE 4/514a ECE 531	ECE 633	ECE 4/514a
4:30 PM	ECE 4/514a ECE 531	ECE 524 ECE 633	ECE 4/514a ECE 531	ECE 633	ECE 4/514a
5:00 PM	ECE 531	ECE 524	ECE 531		
5:30 PM	ECE 4/542	ECE 524	ECE 4/542		
6:00 PM	ECE 4/542	ECE 524	ECE 4/542		
6:30 PM	ECE 4/542		ECE 4/542		



What is ECE AMP?

- The **Accelerated Master's Program (AMP)** enables qualified undergraduate students to earn both a B.S. degree and M.S. degree in as few as 5 years. AMP is for the top undergraduates who plan to continue in a graduate program in the same UA discipline.
- As an AMP student: During your undergraduate studies you may take up to 12 units at the 5xx level that will count toward your B.S. degree and also toward your M.S. degree.
- The ECE M.S. degree has two options, it's your choice!
 - Non-Thesis (coursework only) – 30 units of ECE courses from main campus selections.
 - Thesis – 24 units of ECE courses from main campus selections, plus 6 units of thesis.





AMP Five-Year Flowchart

Freshman		Sophomore		Junior		Senior		Graduate Program	
Calculus I Math 122A/B or Math 125 (5) or (3)	Calculus II Math 129 (3)	Vect Calc Math 223 (4)	Discrete Math Math 243 (3)	Appl. Engr Math ECE 310A* (4)	Technical Elective (3)	Interdiscpl Design ENGR 498A (3) FALL ONLY	Interdiscpl Design ENGR 498B (3) SPRING ONLY	ECE Graduate course (3)	ECE Graduate course (3)
Intro to Engineering ENGR 102 or ENGR 102A/B (3)	Intro Mech Phys 141 (4)	Electr & Magn Phys 241 (4)	Diff Eqn Math 254 (3)	Circuit Theory ECE 320A* (3)	Intro to Comm. ECE 340A* (3)	Technical Elective/ECE Grad (3)	Technical Elective/ECE Grad (3)	ECE Graduate course (3)	ECE Graduate course (3)
Fund of Chemistry Chem 151 (4)	Computer Programming ECE 175* (3)	Computer Programming II ECE 275* (3)	Basic Circuits ECE 220* (3)	CE: ECE 369A* EE: ECE 381a (4)	Electronic Circuits ECE 351C* (4)	Technical Elective/ECE Grad (3)	Technical Elective (3)	ECE Graduate course (3)	ECE Graduate course (3)
1 st Year Composition Engl 101 (3)	1 st Year Composition Engl 102 (3)	Digital Logic ECE 274A* (4)	Optics & Thermo Phys 143 (2)	CE: ECE 373 EE: ECE 352 (3)	Microprocesso r Org. ECE 372A* (4)	Technical Elective/ECE Grad (3)	Technical Elective (3)		
Ind & Society INDV, Tier 1 (3)	Trad & Culture TRAD, Tier 1 (3)	Ind & Society INDV, Tier 1 (3)	Ind & Society INDV, Tier 2 (3)	Trad & Culture TRAD, Tier 1 (3)	Engr Ethics ECE 311 (1)	Technical Elective (3)	Arts OR Humanities Tier 2 (3)		



Electrical and Computer Engineering-Accelerated Master's Program (ECE-AMP)

The Accelerated Master's Program (AMP) is designed to allow undergraduate seniors to concurrently work toward a master's degree. This option is appropriate for exceptional undergraduate students who would also like to pursue a graduate degree. By counting a limited number of courses toward both degrees, students can earn a M.S. degree much quicker. The M.S. degree provides knowledge, technical skills and research skills for career advancement.

Admission Requirements

- Be an ECE undergraduate junior or senior
- Have a 3.3 cumulative undergraduate GPA
- Waive GRE requirement for admission to ECE Master of Science Degree (M.S.)
- Demonstration of the maturity necessary for success in an accelerated, highly competitive program.

Admission Application Process

- Submit Graduate College Application upon completion of a minimum of 75 undergraduate credit hours, second semester Junior year.

Coursework Requirements

- Select an ECE Faculty advisor who will guide the student's research or development work towards the completion of a thesis. The ECE-AMP program also has a Non-Thesis Option.
- Meet with the ECE Graduate Academic Advisor for assistance in the course selection of the 12 credits of Technical Electives

90+ Units

Ms. Tami Whelan

gradadvisor@ece.arizona.edu