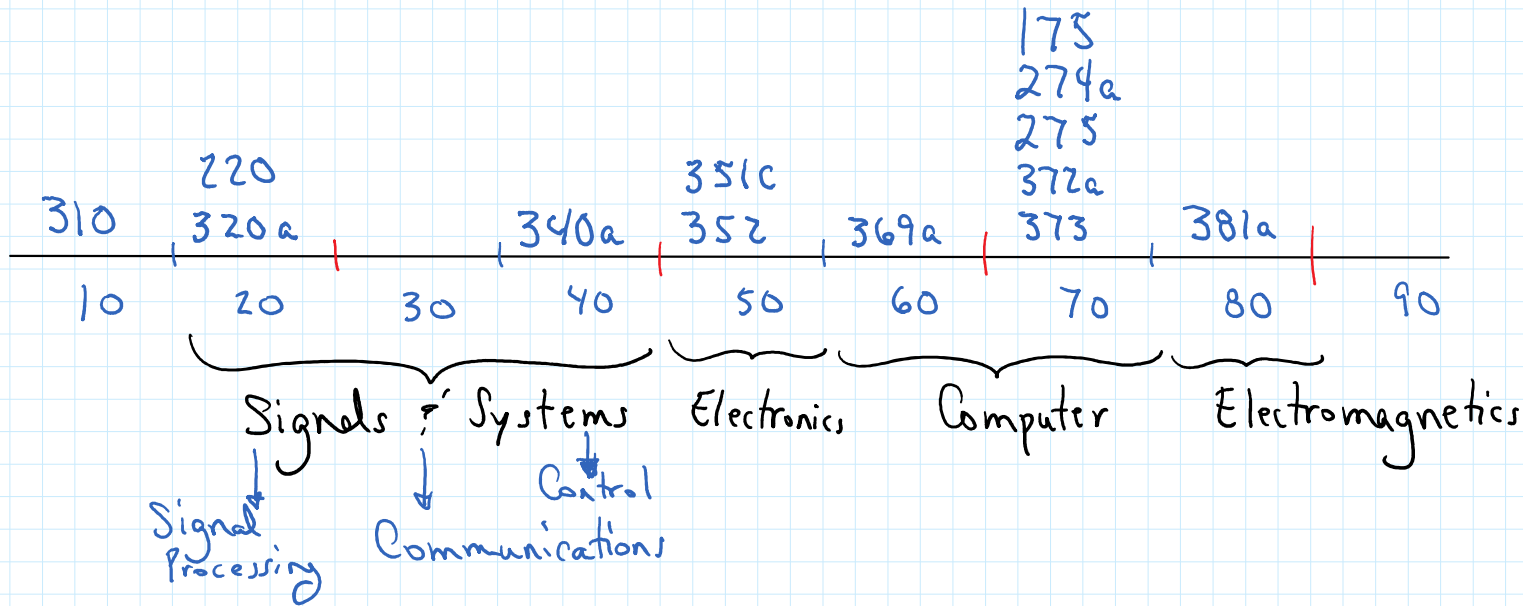


Technical Electives



<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>

Spring 2023

Computer Courses:	ECE 330B	Computational Techniques
	ECE 523	Engineering Applications of Machine Learning
	ECE 4/562	Computer Architecture
	ECE 569	High Performance Computing
	ECE 4/571	Fundamentals of Information and Network Security
	ECE 4/579	Principles of Artificial Intelligence

Electronics/Bio Courses:	ECE 304a	Design of Electronic Circuits
	ECE 352 (CE)	Device Electronics
	ECE 4/507	Digital VLSI System Design
	ECE 4/546	Semiconductor Processing

Electromagnetics/Optics Courses:	ECE 381a (CE)	Introductory Electromagnetics
	ECE 4/503a	Math Methods Optics/Photonic
	ECE 4/514a	Photovoltaic Solar Energy Systems
	ECE 587L	Photonic Communications Lab
	ECE 4/584	Antenna Theory and Design

Signals & System Courses:	ECE 532	Digital Image Analysis
	ECE 4/535a	Digital Communications Systems
	ECE 4/542	Digital Control Systems
	ECE 696b 310	Advanced Topics in Machine Learning

Weekly Schedule (Spring 2023)

Time	Mon	Tues	Wed	Thurs	Fri
8:00 AM		ECE 304a La ECE 4/579		ECE 304a Lb ECE 4/579	
8:30 AM		ECE 304a La ECE 4/579		ECE 304a Lb ECE 4/579	
9:00 AM	ECE 304a ECE 4/562	ECE 304a La ECE 4/579	ECE 304a ECE 4/562	ECE 304a Lb ECE 4/579	ECE 304a ECE 4/562
9:30 AM	ECE 304a ECE 4/562	ECE 304a La ECE 569	ECE 304a ECE 4/562	ECE 304a Lb ECE 569	ECE 304a ECE 4/562
10:00 AM	ECE 523 ECE 4/546	ECE 304a La ECE 539a ECE 569	ECE 523 ECE 4/546	ECE 304a Lb ECE 539a ECE 569	ECE 523 ECE 4/546
10:30 AM	ECE 523 ECE 4/546	ECE 304a La ECE 539a ECE 569	ECE 523 ECE 4/546	ECE 304a Lb ECE 539a ECE 569	ECE 523 ECE 4/546
11:00 AM		ECE 330B ECE 352 ECE 4/584 ECE 696b 310		ECE 330B ECE 352 ECE 4/584 ECE 696b 310	
11:30 AM		ECE 330B ECE 352 ECE 4/584 ECE 696b 310		ECE 330B ECE 352 ECE 4/584 ECE 696b 310	
12:00 PM		ECE 330B ECE 352 ECE 4/584 ECE 696b 310	ECE 381a R	ECE 330B ECE 352 ECE 4/584 ECE 696b 310	
12:30 PM	ECE 4/503A	ECE 532	ECE 381a R ECE 4/503A	ECE 532	
1:00 PM	ECE 4/503A ECE 4/571	ECE 532	ECE 4/503A ECE 4/571	ECE 532	ECE 4/571
1:30 PM	ECE 4/503A ECE 4/571	ECE 532	ECE 4/503A ECE 4/571	ECE 532	ECE 4/571
2:00 PM	ECE 4/535a		ECE 4/535a		ECE 4/535a
2:30 PM	ECE 4/535a		ECE 4/535a		ECE 4/535a
3:00 PM	ECE 381a		ECE 381a		ECE 381a
3:30 PM	ECE 381a		ECE 381a		ECE 381a
4:00 PM	ECE 4/507 ECE 4/514a		ECE 4/507 ECE 4/514a		ECE 4/514a
4:30 PM	ECE 4/507 ECE 4/514a		ECE 4/507 ECE 4/514a		ECE 4/514a
5:00 PM	ECE 4/507		ECE 4/507		
5:30 PM	ECE 4/542		ECE 4/542		
6:00 PM	ECE 4/542		ECE 4/542		
6:30 PM	ECE 4/542		ECE 4/542		

Fall 2023 (Anticipated)

Computer Courses:	ECE 369a	(EE)	Fundamentals of Computer Architecture
	ECE 373	(EE)	Object Oriented Software Design
	ECE 4/513		Web Development and Internet of Things
	ECE 4/578		Fundamentals of Computer Networks
	ECE 509		Cyber Security: Concept, Theory, Practice

Electronics/Bio Courses:	ECE 4/515		Microelectronic Manufacturing and Environment
	ECE 434		Electrical and Optical Properties of Materials
	ECE 4/550		Analog Integrated Circuits

Electromagnetics/Optics Courses:	ECE 4/586		Microwave Engr I: Passive Circuits
	ECE 527		Holography and Diffractive Optics
	ECE 581a		Electromagnetic Field Theory

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

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

<https://eller.arizona.edu/programs/entrepreneurship>

Description

ENTR 487 (E.11)

Description

ENTR 487 (Fall)

Integration of marketing, production and management functions. Pro forma statements. Development of venture capital.

Description

ENTR 484 (Spr)

Preparation and presentation of a comprehensive business plan. Integration of financial, operational, and marketing elements.

Weekly Schedule (Fall 2023, Tentative)

Time	Mon	Tues	Wed	Thurs	Fri
8:00 AM		ECE 373		ECE 373	
8:30 AM		ECE 373		ECE 373	
9:00 AM		ECE 373		ECE 373	
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 4/511 ECE 4/572 ECE 4/586	ECE 369a	ECE 4/511 ECE 4/572 ECE 4/586	ECE 369a
10:30 AM	ECE 369a	ECE 4/511 ECE 4/572 ECE 4/586	ECE 369a	ECE 4/511 ECE 4/572 ECE 4/586	ECE 369a
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 4/530 ECE 4/578	ECE 4/550	ECE 4/530 ECE 4/578	ECE 4/550
1:30 PM	ECE 4/550	ECE 4/530 ECE 4/578	ECE 4/550	ECE 4/530 ECE 4/578	ECE 4/550
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 581a	ECE 369a b Lab ECE 4/513	ECE 581a ECE 695	ECE 4/513
4:00 PM	ECE 369a b Lab ECE 434 ECE 501b	ECE 581a	ECE 369a b Lab ECE 434 ECE 501b	ECE 581a ECE 695	
4:30 PM	ECE 369a b Lab ECE 434 ECE 501b	ECE 581a	ECE 369a b Lab ECE 434 ECE 501b	ECE 581a	
5:00 PM	ECE 369a b Lab ECE 434 ECE 501b ECE 639	ECE 538	ECE 369a b Lab ECE 434 ECE 501b ECE 639	ECE 538	
5:30 PM	ECE 369a c Lab ECE 639	ECE 538	ECE 369a c Lab ECE 639	ECE 538	
6:00 PM	ECE 369a c Lab ECE 639	ECE 538	ECE 369a c Lab ECE 639	ECE 538	



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)	DiffEqn 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

Links:

Undergraduate Enrollment in Graduate Courses:

<https://registrar.arizona.edu/records-enrollment/enrollment/ugrd-enrollment-grad-courses>

UGRD Enrollment in GRAD Courses

Requirements and instructions for undergraduates wishing to enroll in a Graduate course:

Submit the [Undergraduate Enrollment in Graduate Courses form](#) to:

The Office of the Registrar
Administration 210

To Receive Undergraduate Credit the Student Must

1. Be classified as a senior, or an honor's junior or senior.
2. Have a minimum cumulative GPA of 3.00.

Course Catalog: <https://catalog.arizona.edu/courses>

https://catalog.arizona.edu/courses

The Schedule of Classes is a comprehensive listing of all credit-bearing courses available each semester. The Schedule of Classes is publicly available at schedule.arizona.edu; students wishing to register for a semester can view the Schedule of Classes using the [Search for Classes](#) button found in the UAccess Student Center.

Dates & Deadlines

Important semester-by-semester dates and deadlines, including the last day to use UAccess for adding, dropping, and changing classes. [\[Learn more\]](#)

Course Descriptions

The [Course Catalog](#) is a comprehensive listing of all credit-bearing courses offered by the University of Arizona since Fall 2010. Courses listed in the Course Catalog may not be offered every semester; for up to date information on which courses are offered in a given semester, please see the Schedule of Classes.

Descriptions for courses offered by the University from 1993-94 through 2009-10 may be found in [archived Catalogs](#), while descriptions for courses offered prior to 1993 may be found in the [UA Campus Repository](#).

Browse Catalog

Select Institution

Course Fees

*Select Term

A B C D **E** F G H I J K L M N O P Q R S T U V W X Y Z

Browse Catalog

Select Institution

Course Fees

*Select Term

CHANGE

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

COLLAPSE ALL

EXPAND ALL

Select subject code to display or hide course information.

 = Shared Unique Number System

Sections of courses offered as fully online sections in main campus programs will be charged a \$50 iCourse Fee. This fee does not apply to In Person or Hybrid sections, or to students in fully online programs. Please check the Schedule of Classes for up-to-date information on the mode of instruction for individual sections as offerings may change from semester to semester.

▶ EAS - East Asian Studies


▶ ECE - Electrical & Computer Engr

instruction for individual sections as offerings may change from semester to semester.

▶ EAS - East Asian Studies

▼ ECE - Electrical & Computer Engr

VIEW ALL COURSE DESCRIPTIONS

Course Nbr	Course Title	Typically Offered Semester(s)	Flat Fee	Other Fees	
175	Computer Programming for Engineering Applications	Main campus: Fall, Spring	\$25.00		
201R	Geometrical and Instrumental Optics I	Main campus: Fall			
202R	Geometrical and Instrumental Optics II	Main campus: Spring			
207	Elements of Electrical Engineering	Main campus: Fall, Spring			
...	...	Main campus: Fall, Spring

ECE Course Description

Syllabi (short versions):

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

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

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