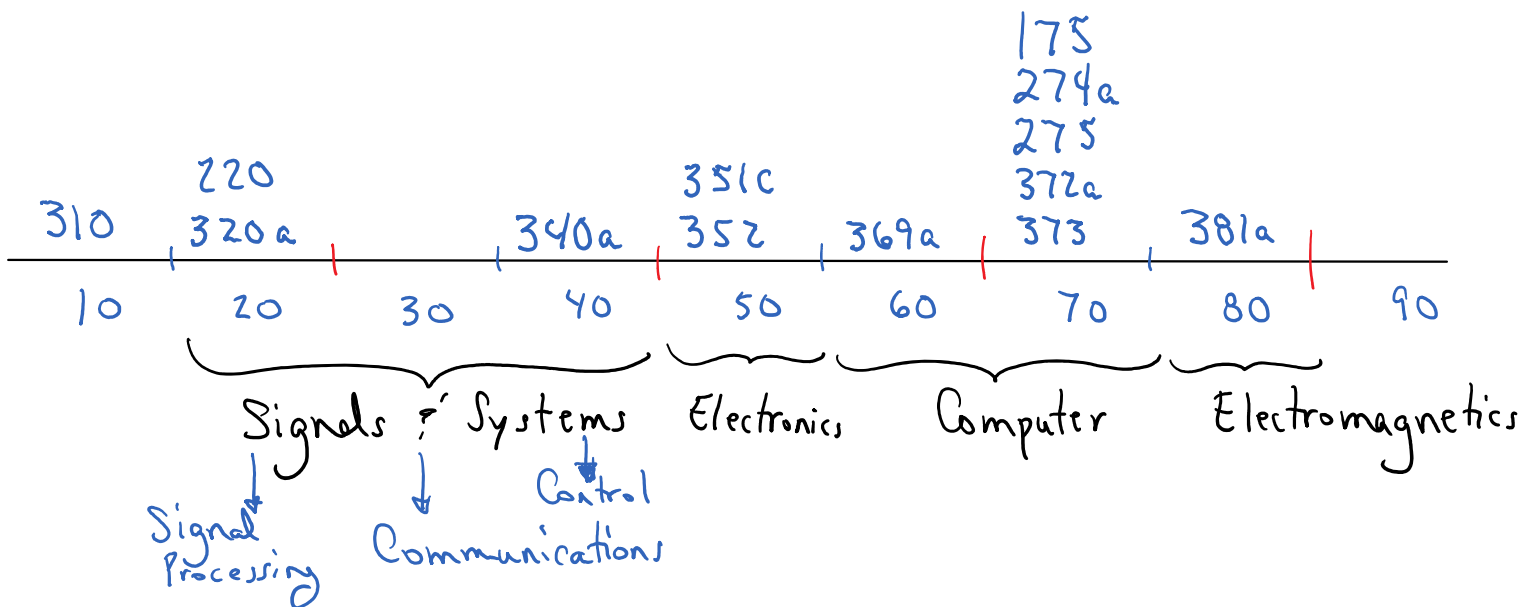


# Technical Electives



Spring 2022

|                   |           |  |
|-------------------|-----------|--|
| Computer Courses: | ECE 330B  | Computational Techniques                         |
|                   | ECE 523   | Engineering Applications of Machine Learning     |
|                   | ECE 524   | Fundamentals of Cloud Computing                  |
|                   | ECE 4/562 | Computer Architecture                            |
|                   | ECE 4/566 | Knowledge-System Engineering                     |
|                   | ECE 569   | High Performance Computing                       |
|                   | ECE 4/571 | Fundamentals of Information and Network Security |
|                   | ECE 576B  | Embedded System Design and Optimization          |
|                   | ECE 4/579 | Principles of Artificial Intelligence            |
|                   | ECE 678   | Wireless Protocols                               |

|                          |           |      |                            |
|--------------------------|-----------|------|----------------------------|
| Electronics/Bio Courses: |           |      |                            |
|                          | ECE 352   | (CE) | Device Electronics         |
|                          | ECE 4/507 |      | Digital VLSI System Design |

|                                  |            |      |                               |
|----------------------------------|------------|------|-------------------------------|
| Electromagnetics/Optics Courses: | ECE 381a   | (CE) | Introductory Electromagnetics |
|                                  | ECE 4/503a |      | Math Methods Optics/Photonic  |

|  |  |            |  |   |
|--|--|------------|--|---|
|  |  | ECE 4/514a |  | Photovoltaic Solar Energy Systems         |
|  |  | ECE 534    |  | Adv Topics Optical & Electronic Materials |
|  |  | ECE 587L   |  | Photonic Communications Lab               |
|  |  | ECE 4/584  |  | Antenna Theory and Design                 |
|  |  | ECE 4/588  |  | Active Circuit Design                     |

|                           |  |            |  |   |
|---------------------------|--|------------|--|---|
| Signals & System Courses: |  | ECE 531    |  | Software Defined Radio                        |
|                           |  | ECE 533    |  | Digital Image Processing                      |
|                           |  | ECE 4/535a |  | Digital Communications Systems                |
|                           |  | ECE 4/542  |  | Digital Control Systems                       |
|                           |  | ECE 633    |  | Quantum Info Processing & Error Correction    |
|                           |  | ECE 636    |  | Information Theory                            |
|                           |  | ECE 639    |  | Detection & Estimation in Engineering Systems |

| Weekly Schedule (Spring 2022) |                                     |  |                                     |  |                         |
|-------------------------------|-------------------------------------|--|-------------------------------------|--|-------------------------|
| 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<br>ECE 576B               | ECE 330B<br>ECE 352<br>ECE 4/584<br>ECE 4/588<br>ECE 636 | ECE 4/566<br>ECE 576B               | ECE 330B<br>ECE 352<br>ECE 4/584<br>ECE 4/588<br>ECE 636 | ECE 4/566<br>ECE 576B   |
| 11:30 AM                      | ECE 4/566<br>ECE 576B               | ECE 330B<br>ECE 352<br>ECE 4/584<br>ECE 4/588<br>ECE 636 | ECE 4/566<br>ECE 576B               | ECE 330B<br>ECE 352<br>ECE 4/584<br>ECE 4/588<br>ECE 636 | ECE 4/566<br>ECE 576B   |
| 12:00 PM                      |                                     | ECE 330B<br>ECE 352<br>ECE 4/584<br>ECE 4/588<br>ECE 636 | ECE 381a R                          | ECE 330B<br>ECE 352<br>ECE 4/584<br>ECE 4/588<br>ECE 636 |                         |
| 12:30 PM                      | ECE 4/503A                          | ECE 533<br>ECE 534                                       | ECE 381a R<br>ECE 4/503A            | ECE 533<br>ECE 534                                       |                         |
| 1:00 PM                       | ECE 4/503A<br>ECE 4/571<br>ECE 581B | ECE 533<br>ECE 534                                       | ECE 4/503A<br>ECE 4/571<br>ECE 581B | ECE 533<br>ECE 534                                       | ECE 4/571<br>ECE 581B   |
| 1:30 PM                       | ECE 4/503A<br>ECE 4/571<br>ECE 581B | ECE 533<br>ECE 534                                       | ECE 4/503A<br>ECE 4/571<br>ECE 581B | ECE 533<br>ECE 534                                       | ECE 4/571<br>ECE 581B   |
| 2:00 PM                       | ECE 4/507<br>ECE 4/535a             |  | ECE 4/507<br>ECE 4/535a             |  | ECE 4/507<br>ECE 4/535a |
| 2:30 PM                       | ECE 4/507<br>ECE 4/535a             |  | ECE 4/507<br>ECE 4/535a             |  | ECE 4/507<br>ECE 4/535a |
| 3:00 PM                       | ECE 381a                            |  | ECE 381a                            |  | ECE 381a                |
| 3:30 PM                       | ECE 381a<br>ECE 678                 | ECE 633  | ECE 381a<br>ECE 678                 | ECE 633  | ECE 381a                |
| 4:00 PM                       | ECE 4/514a<br>ECE 531<br>ECE 678    | ECE 524<br>ECE 633                                       | ECE 4/514a<br>ECE 531<br>ECE 678    | ECE 633  | ECE 4/514a              |
| 4:30 PM                       | ECE 4/514a<br>ECE 531<br>ECE 678    | ECE 524<br>ECE 633                                       | ECE 4/514a<br>ECE 531<br>ECE 678    | ECE 633  | ECE 4/514a              |
| 5:00 PM                       | ECE 531<br>ECE 639                  | ECE 524  | ECE 531<br>ECE 639                  |  |                         |
| 5:30 PM                       | ECE 4/542<br>ECE 639                | ECE 524  | ECE 4/542<br>ECE 639                |  |                         |
| 6:00 PM                       | ECE 4/542<br>ECE 639                | ECE 524  | ECE 4/542<br>ECE 639                |  |                         |
| 6:30 PM                       | ECE 4/542                           |  | ECE 4/542                           |  |                         |

Fall 2022 (Anticipated)

|                   |  |            |      |  |
|-------------------|--|------------|------|--|
| 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 4/572  |      | Design, Modeling, and Simulation for High Tech Sys in Medicine |
|                   |  | ECE 4/574a |      | Computer-Aided Logic Design                                    |
|                   |  | ECE 4/578  |      | Fundamentals of Computer Networks                              |
|                   |  | ECE 509    |      | Cyber Security: Concept, Theory, Practice                      |
|                   |  | ECE 677    |      | Distributed Computing Systems                                  |

|                          |  |           |  |  |
|--------------------------|--|-----------|--|--|
| 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 4/559 |  | Fundamentals of Optics for Electrical Engineers |
|                                  |  | 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                                |
|                           |  | ECE 632    |  | Advanced Optical Communications Systems                |

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

|             |  |          |  |  |
|-------------|--|----------|--|--|
| McGuire New |  | ENTR 487 |  | Venture Development I (Fall), Available to ECE Juniors |
|-------------|--|----------|--|--|

Venture Dev:

ENTR 484

Venture Development II (Spring), Available to ECE Juniors

Weekly Schedule (Fall 2022, Tentative)

| Time     | Mon  | Tues                                | Wed  | Thurs                               | Fri                                |
|----------|--|-------------------------------------|--|-------------------------------------|------------------------------------|
| 8:00 AM  |  | ECE 373<br>ECE 576A                 |  | ECE 373<br>ECE 576A                 |                                    |
| 8:30 AM  |  | ECE 373<br>ECE 576A                 |  | ECE 373<br>ECE 576A                 |                                    |
| 9:00 AM  | ECE 4/541a                                       | ECE 373<br>ECE 576A                 | ECE 4/541a                                       | ECE 373<br>ECE 576A                 | ECE 4/541a                         |
| 9:30 AM  | ECE 4/541a                                       | ECE 4/511<br>ECE 4/572<br>ECE 4/586 | ECE 4/541a                                       | ECE 4/511<br>ECE 4/572<br>ECE 4/586 | ECE 4/541a                         |
| 10:00 AM | ECE 369a<br>ECE 4/546                            | ECE 4/511<br>ECE 4/572<br>ECE 4/586 | ECE 369a<br>ECE 4/546                            | ECE 4/511<br>ECE 4/572<br>ECE 4/586 | ECE 369a<br>ECE 4/546              |
| 10:30 AM | ECE 369a<br>ECE 4/546                            | ECE 4/511<br>ECE 4/572<br>ECE 4/586 | ECE 369a<br>ECE 4/546                            | ECE 4/511<br>ECE 4/572<br>ECE 4/586 | ECE 369a<br>ECE 4/546              |
| 11:00 AM | ECE 503  | ECE 4/529<br>ECE 4/574A             | ECE 503  | ECE 4/529<br>ECE 4/574A             | ECE 503                            |
| 11:30 AM | ECE 503  | ECE 4/529<br>ECE 4/574A             | ECE 503  | ECE 4/529<br>ECE 4/574A             | ECE 503                            |
| 12:00 PM |  | ECE 4/529<br>ECE 4/574A             |  | ECE 4/529<br>ECE 4/574A             |                                    |
| 12:30 PM |  | ECE 4/530<br>ECE 4/578              |  | ECE 4/530<br>ECE 4/578              |                                    |
| 1:00 PM  | ECE 4/550<br>ECE 4/559<br>ECE 696B               | ECE 4/530<br>ECE 4/578              | ECE 4/550<br>ECE 4/559<br>ECE 696B               | ECE 4/530<br>ECE 4/578              | ECE 4/550<br>ECE 4/559<br>ECE 696B |
| 1:30 PM  | ECE 4/550<br>ECE 4/559<br>ECE 696B               | ECE 4/530<br>ECE 4/578              | ECE 4/550<br>ECE 4/559<br>ECE 696B               | ECE 4/530<br>ECE 4/578              | ECE 4/550<br>ECE 4/559<br>ECE 696B |
| 2:00 PM  | ECE 369a a Lab<br>ECE 537<br>ECE 581A            |                                     | ECE 369a a Lab<br>ECE 537<br>ECE 581A            |                                     | ECE 537<br>ECE 581A                |
| 2:30 PM  | ECE 369a a Lab<br>ECE 537<br>ECE 581A            |                                     | ECE 369a a Lab<br>ECE 537<br>ECE 581A            |                                     | ECE 537<br>ECE 581A                |
| 3:00 PM  | ECE 369a a Lab<br>ECE 4/513                      |                                     | ECE 369a a Lab<br>ECE 4/513                      |                                     | ECE 4/513                          |
| 3:30 PM  | ECE 369a b Lab<br>ECE 4/513                      | ECE 532                             | ECE 369a b Lab<br>ECE 4/513                      | ECE 532<br>ECE 695                  | ECE 4/513                          |
| 4:00 PM  | ECE 369a b Lab<br>ECE 434<br>ECE 501b<br>ECE 677 | ECE 509<br>ECE 532                  | ECE 369a b Lab<br>ECE 434<br>ECE 501b<br>ECE 677 | ECE 532<br>ECE 695                  |                                    |
| 4:30 PM  | ECE 369a b Lab<br>ECE 434<br>ECE 501b<br>ECE 677 | ECE 509<br>ECE 532                  | ECE 369a b Lab<br>ECE 434<br>ECE 501b<br>ECE 677 | ECE 532                             |                                    |
| 5:00 PM  | ECE 369a b Lab<br>ECE 434<br>ECE 501b<br>ECE 677 | ECE 509<br>ECE 538                  | ECE 369a b Lab<br>ECE 434<br>ECE 501b<br>ECE 677 | ECE 538                             |                                    |
| 5:30 PM  | ECE 369a c Lab<br>ECE 677                        | ECE 509<br>ECE 538                  | ECE 369a c Lab                                   | ECE 538                             |                                    |
| 6:00 PM  | ECE 369a c Lab<br>ECE 677                        | ECE 509<br>ECE 538                  | ECE 369a c Lab                                   | ECE 538                             |                                    |



## 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

## 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>

Options

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](https://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.

**SUN#** = 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

ECE Course Description

| Course Nbr | Course Title                                      | Typically Offered Semester(s) | Flat Fee | Other Fees | SUN# |
|------------|---|-------------------------------|----------|------------|------|
| 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     |          |            |      |
| 208        | ...   | Main campus: Fall, Spring     | ...      |            |      |

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>