



SOE

**School of
Engineering**

JumpStart 3rd Year- Presentation

**School of Engineering
Mechanical Engineering
Aerospace Engineering**

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AE Dept Chair and ME Professor**

**Phung Colvin
UG Academic Advising**

What is Jump Start Your Third Year (JS3)?

It is a campus wide initiative to help second-year students transition to the Schools and connecting with them faculty and staff who can offer major-specific guidance and career related resources to support their progress towards a degree.

Overview

- Degree requirements
- MyDegreePath – Audit
 - Creating Graduation Plans and resources
 - Degree requirements and GE fulfillment
- Things you should know
 - Policies
 - Taking classes at another college
 - Majors, Minors and Double Majors
- Important links
- Career Planning
- Recap of JS3 Requirements
 - Webform Quiz and Career Event

How do you find out what is required for you to graduate?

- Know your **Catalog Year** (year you entered):

2024-2025

- **Catalog.ucmerced.edu**
- **Audit via MyDegreePath and UCM Portal**
(<https://myconnect.ucmerced.edu/>)

AUDIT

- Audit – All Degree Requirements
- Minimum Unit Requirement
- Courses completed
- University Requirements
- General Education (GE):
 - Lower Division
 - Upper Division
 - Life Science and Physical Science
 - GE Social Science and 2 from Literary and Textual, Media and Visual **OR** Societies and Cultures
- Major Requirements – “Select From”
- Emphasis
- Intellectual Experiences – Plan courses to fulfill a maximum of 2 Experiences

[Open All Sections](#) [Close All Sections](#)

YOUR ADVISOR(S):

AT LEAST ONE REQUIREMENT HAS NOT BEEN SATISFIED

✓ **Minimum Unit Requirement**
 EARNED: 20.0 HOURS
 NEEDS: 100.0 HOURS

✓ A minimum of 120 units is required to earn a UC Merced bachelor's degree; however, some majors have total unit requirements higher than this general minimum. Please consult your advisor and your UC Merced Catalog.

Courses must be taken for a letter grade unless the course is offered Pass/No Pass only. See your advisor if you are considering a Pass/No Pass option.

✓ **Cumulative GPA in all UC courses**
 EARNED: 1 SUB-GROUP
 16.0 ATTEMPTED HOURS 64.000 POINTS 4.000 GPA

✗ **Residency Requirement**
 NEEDS: 1 SUB-GROUP

✗ 1) 24 of your last 30 units must be completed in residence at UC Merced.
 (7.0 HOURS TAKEN)

FA24	SPAN181	4.0	A	Latin American Cinema
FA24	MSE 128	4.0	A	
FA24	MSE 119	4.0	A	
FA23	MSE 118	4.0	A	
FA23	CE 001	1.0	P	

NEEDS: 7.0 HOURS
 SELECT FROM:

✗ **University of California Requirements**
 EARNED: 1 SUB-GROUP
 NEEDS: 1 SUB-GROUP

✗ 1) UC Entry Level Writing Requirement:
 Must be completed by the end of your second semester at UC Merced with a grade of C or higher.

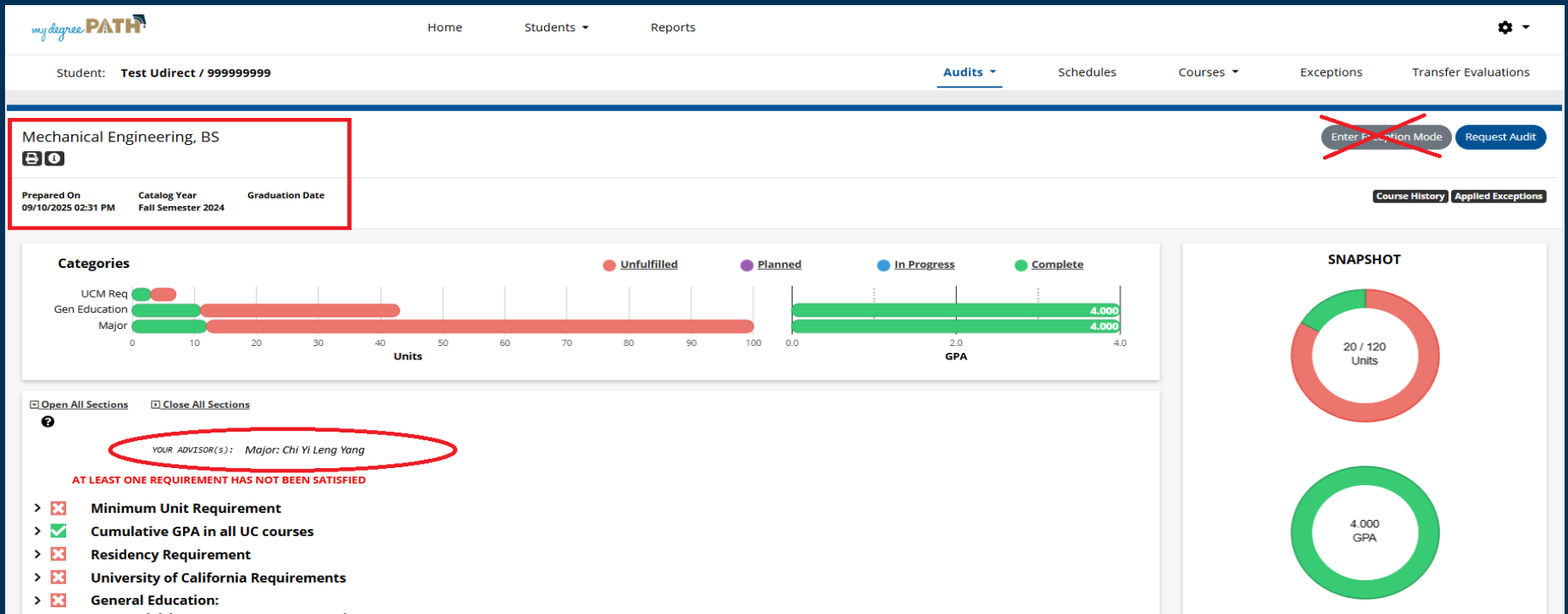
SELECT FROM: WRI 001

✓ 2) American History and Institutions Requirement

SU25	HIST017	3.0	TA	US Hist & CA State Local Govt MERCED: HIST 178
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Degree Requirements

- 120 minimum units for degree completion
- Minimum 2.0 cumulative GPA
- Academic Residency Requirement (24 out of last 30 units must be completed at UC Merced)



- An audit is your official student record
- Includes all of your completed, in-progress and outstanding degree requirements
- After making changes to your courses (adding/dropping) it is recommended you run an audit to see how your changes reflect on your remaining degree requirements

Running a Degree Audit using MyDegreePath

HomeStudents ▾Reports

Student: **Test Udirect / 999999999**

Audits ▾SchedulesCourses ▾ExceptionsTransfer Evaluations

Request an Audit

Run Declared Programs:

School	Degree Program	Title	Catalog Year	Marker	Value	Type	CATLYT
	U1BA_ANTH	Anthropology, BA	Fall Semester 2010	\$MINOR	NDSC-MINR	R	



Default Program List

Select a Different Program:

Advanced Settings [Click to view available options.](#)

Run ProgramCancel

Explore Requirements for Minors/Majors “What IF” Audit

 Home Students ▾ Reports 

Student: **Test Udirect / 999999999** Audits ▾ Schedules Courses ▾ Exceptions Transfer Evaluations

Request an Audit

Run Declared Programs:

Select a Different Program:

Choosing a degree program here will not change your declared degree program.

Program: Mechanical Engineering, BS - U1BS_ME

Catalog Year: Fall Semester 2024 [Clear Selections](#)

Add:

Advanced Settings [Click to view available options.](#)



- 3) Computing Requirement
Complete the following course:
NEEDS: 1 COURSE
SELECT FROM: ME 021
- 4) Engineering Fundamentals Requirement
Complete the following courses:
NEEDS: 5 COURSES
SELECT FROM: ENGR045, 057, 130, 151, 155
- 5) Mechanical Engineering Core
Complete the following courses:
NEEDS: 10 COURSES
SELECT FROM: ENGR065, 120, 135, MATH131, ME 001, 120, 137, ME 140, ENGR193, 194
- 6) Additional Degree Requirement
Complete the following courses:
NEEDS: 2 SETS
SELECT FROM: CHEM002(SU25 OR AFTER) OR CHEM002H(SU25 OR AFTER) (AND) CHEM002L(SU25 OR AFTER)
ENGR091

✓ ME Technical Electives




EARNED: 1 SUB-GROUP

- 1) Mechanical Engineering Technical Electives Requirement
Complete a total of 10 hours in technical electives
from the following list.

12.0 HOURS ADDED

FA23	MSE 118	4.0	A
FA24	MSE 119	4.0	A
FA24	MSE 128	4.0	A

Note the following:

-  ,  and  on **Audit**
- IP vs letter grade
- Non – UC transfer work
* no GPA
- Course and unit credit
may not be up to date,
contact Advisor or Registrar
- Official Transcripts only way to
update official credit
- Official AP/IB needed as well

Again, for an **Audit** report:

1. log into my.ucmerced.edu,
2. select “MyStudentRecord”
3. select “MyDegreePath”
4. **Select “Audit”**
 1. Run Program

Creating a Graduation Plan

MyDegreePath upgrade currently does not have the feature to create a Graduation Plan.

- You can ask your Advisor for a 4-year graduation plan template
- Use your legacy plan from older version of MDP
- Access one on our website

Other Resources to create a Graduation Plan –

- MyDegreePath Audit & Catalog (2024)
- 4 Year Plan (<https://enr-advising.ucmerced.edu/majors>)



SCHOOL OF
ENGINEERING

Name _____

School of Engineering: Graduation Planning

Semester: ~~Fall 2015~~ Semester #5 (Example)

Course	Title	Units
MATH 032	Statistics	4 units
ME 021	Engineering Computing	4 units
ART 003B	Intermediate Painting (Arts/Humanities GE)	4 units
ENGR 045	Introduction to Materials	4 units

⊕ Semester _____

Course	Title	Units



Semester _____

Course	Title	Units

Semester _____

Course	Title	Units

Make sure to use your Catalog Year

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[ARCHIVED CATALOG]
MECHANICAL ENGINEERING

The undergraduate major in Mechanical Engineering provides students with a solid foundation and the necessary skills to assume leadership roles in industry and government agencies. The major also offers a number of opportunities for students intending to continue their education in graduate school. Mechanical Engineering impacts society by developing innovative technologies through design and synthesis of mechanical components and systems. Mechanical engineers are recruited in a variety of industries, including automotive, aerospace, power generation, environmental, electronics, bioengineering, agriculture, food processing, and consulting firms, among many others. Because of the variety of fields that are relevant to this profession, the undergraduate program covers a broad range of subjects, including dynamics, materials, thermal/fluids, vibrations, controls, computer-aided engineering, design and manufacturing. The innovative curriculum at UC Merced provides a rich educational experience that exposes students to engineering fundamentals, laboratory skills and advanced computational tools to solve realistic engineering problems.

The program also prepares students to pursue graduate work in engineering or other disciplines. Mechanical Engineering is an evolving discipline that adapts to the current needs of society. Some of the exciting current areas of research include advanced energy systems, sustainable energy, autonomous vehicles, biomechanics and biosensors, nano/micro-technology, computational modeling, design optimization and complex systems. The programs at UC Merced emphasize a highly interdisciplinary approach; thus the curriculum offers several technical electives in topics inside and outside the Mechanical Engineering program, and a culminating design experience.

The Mechanical Engineering program at UC Merced is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

MECHANICAL ENGINEERING PROGRAM LEARNING OUTCOMES

Students graduating from our program demonstrate the following:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together bring complementary skills and perspectives to create a collaborative and inclusive environment, establish goals, plan tasks, and execute objectives.
6. An ability to develop and conduct appropriate experiments, interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as required, to maintain and upgrade a set of appropriate learning strategies.

PROGRAMS

Undergraduate Degrees

- Mechanical Engineering, Aerospace Engineering Emphasis, B.S.
- Mechanical Engineering, B.S.

4 Year Course Plan:

<https://catalog.ucmerced.edu/content.php?catoid=23&navoid=2429>

<https://enr-advising.ucmerced.edu/majors>

*not all catalog years may have a flow chart

Engineering Academic Advising
School of Engineering

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Majors

- GE REQ
- Bioengineering
- Chemical Engineering
- Civil Engineering
- Computer Science and Engineering
- Data Science and Analytics, B.A.
- Electrical Engineering
- Environmental Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Undeclared Engineering

Mechanical Engineering

Mechanical Engineering

Mechanical engineers are recruited in a variety of industries, including automotive, aerospace, power generation, environmental, electronics, bioengineering, food processing and consulting firms, among many others.

Because of the variety of fields relevant to this profession, UC Merced's undergraduate program covers areas in dynamics, materials, thermal/fluids, vibrations, controls, computer-aided engineering, design and manufacturing.

The innovative curriculum at UC Merced provides hands-on education that exposes students to engineering fundamentals, laboratory work and the use of computational tools to solve realistic engineering problems. The program also prepares students to pursue graduate work in engineering or other disciplines.

Mechanical engineering is an evolving discipline that adapts to the needs of society. Some of the exciting current areas of research include advanced energy systems, sustainable energy, autonomous vehicles, biomechanics and biosensors, nano/micro-technology, computational modeling, design optimization and complex systems.

The Mechanical Engineering program at UC Merced is accredited by the **Engineering Accreditation Commission of ABET**.

Major Requirements

Catalog Year 2024-2025

[Flow Chart - Mechanical Engineering, B.S.](#)
[Mechanical Engineering, Aerospace Engineering Emphasis, B.S.](#)
[Mechanical Engineering, B.S.](#)

Catalog Year 2023-2024

[Flow Chart - Mechanical Engineering, B.S.](#)

Mechanical Engineering Major

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2024-2025 Catalog [ARCHIVED CATALOG]

[ARCHIVED CATALOG]



MECHANICAL ENGINEERING, B.S.

In addition to adhering to [General Education](#), students must meet the following requirements to receive the B.S. in Mechanical Engineering at UC Merced.

All students in the School of Engineering, regardless of major, are required to complete all requirements for all majors with a C- or better unless the course is offered as Pass/No Pass only, which requires a P grade.

Students in the School of Engineering must repeat a required course after receiving a grade of D+, D, D-, F, Unsatisfactory, or Not Passed, and may do so no more than twice beyond the initial enrollment in the class. Students may repeat a course only one time (for a total of two attempts to earn a C- or better). If students do not complete these requirements, they may take these courses at another institution or petition the school who hosts the course for a third attempt. The third attempt is not guaranteed at UC Merced.

[Mechanical Engineering, B.S. Four-Year Course Plan](#)

REQUIREMENTS FOR THE MECHANICAL ENGINEERING MAJOR

REQUIRED MAJOR PREPARATION [34 UNITS]

MATHEMATICS REQUIREMENT [20 UNITS]

Complete the following five courses:

- **MATH 021: Calculus I for Physical Sciences and Engineering** Units: 4
- **MATH 022: Calculus II for Physical Sciences and Engineering** Units: 4
- **MATH 023: Vector Calculus** Units: 4
- **MATH 024: Linear Algebra and Differential Equations** Units: 4
- **MATH 032: Probability and Statistics** Units: 4

PHYSICS REQUIREMENT [10 UNITS]

Complete the following four courses:

- **PHYS 008: Introductory Physics I for Physical Sciences** Units: 4 or **PHYS 008H**
- **PHYS 008L: Introductory Physics I for Physical Sciences Lab** Units: 1
- **PHYS 009: Introductory Physics II for Physical Sciences** Units: 4 or **PHYS 009H**
- **PHYS 009L: Introductory Physics II for Physical Sciences Lab** Units: 1

COMPUTING REQUIREMENT [4 UNITS]

Complete the following course:

- **ME 021: Engineering Computing** Units: 4

ENGINEERING FUNDAMENTALS REQUIREMENT [18 UNITS]

Complete the following courses:

- **ENGR 045: Introduction to Materials** Units: 4
- **ENGR 057: Statics and Dynamics** Units: 4
- **ENGR 130: Thermodynamics** Units: 3
- **ENGR 151: Strength of Materials** Units: 4
- **ENGR 155: Engineering Economic Analysis** Units: 3

MECHANICAL ENGINEERING CORE [32 UNITS]

The Mechanical Engineering core consists of ten upper division courses designed to give all students a common foundation of core knowledge specific to the discipline.

- **ENGR 065: Circuit Theory** Units: 4
- **ENGR 120: Fluid Mechanics** Units: 4
- **ENGR 135: Heat Transfer** Units: 4
- **MATH 131: Numerical Methods for Scientists and Engineers** Units: 4
- **ME 001: Introduction to Mechanical Engineering** Units: 1
- **ME 120: Component Design** Units: 3
- **ME 137: Computer Aided Engineering** Units: 3
- **ME 140: Vibration and Control** Units: 4
- **ENGR 193: Engineering Capstone Design I** Units: 2
- **ENGR 194: Engineering Capstone Design II** Units: 3

ADDITIONAL DEGREE REQUIREMENT [6 UNITS]

Complete the following courses:

- **CHEM 002: General Chemistry I** Units: 4
- **ENGR 091: Professional Development: People in an Engineered World** Units: 2

Mechanical Engineering Major

No Emphasis

TECHNICAL ELECTIVES REQUIREMENT [10-14 UNITS]

Technical Electives (TE) should be selected in a manner that is complementary to, yet integrated with, your major area of study, and should be determined through close interaction with your major advisor. Examples of TE classes are:

- **ME 121: Introduction to Manufacturing Processes** Units: 3
- **ME 129: Tribology** Units: 3
- **ME 135: Finite Element Analysis** Units: 4
- **ME 136: Aerodynamics** Units: 4
- **ME 138: Introduction to Computational Fluid Dynamics** Units: 4
- **ME 141: Introduction to Control Systems** Units: 4
- **ME 142: Mechatronics** Units: 4
- **ME 143: Introduction to Drones** Units: 4
- **ME 144: Introduction to Multi-body Dynamics** Units: 3
- **ME 145: Lagrange Dynamics** Units: 3
- **ME 146: Sensors and Actuators in Mechatronics** Units: 3
- **ME 190: Special Topics in Mechanical Engineering** Units: *
- **ME 195: Upper Division Undergraduate Research** Units: *
- **AE 171: Aerospace Structures and Materials** Units: 4
- **AE 172: Flight Dynamics and Control** Units: 3
- **ENVE 130: Meteorology and Air Pollution** Units: 4
- **ENVE 132: Air Pollution Control** Units: 3
- **ENVE 160: Sustainable Energy** Units: 4
- **ENVE 162: Modeling and Design of Energy Systems** Units: 3
- **MSE 112: Materials Selection and Performance** Units: 4
- **MSE 114: Polymeric Materials** Units: 4
- **MSE 118: Introduction to Nanotechnology and Nanoscience** Units: 4
- **MSE 119: Computational Materials Science** Units: 4
- **MSE 121: Mechanical Behavior of Materials** Units: 4
- **MSE 128: Electronic Materials and Semiconductor Device Fabrication** Units: 4
- Any future Aerospace Engineering (AE) upper-division course

*A maximum of 4 units of **ME 195** can apply to this requirement.

Aerospace Engineering Emphasis

REQUIREMENTS FOR AEROSPACE ENGINEERING EMPHASIS [11 UNITS]

Complete the following courses, either as part of or in addition to the technical elective requirement:

- **ME 136: Aerodynamics** Units: 4
- **AE 171: Aerospace Structures and Materials** Units: 4
- **AE 172: Flight Dynamics and Control** Units: 3

Agricultural Technology Emphasis CY 2025

REQUIREMENTS FOR AGRICULTURAL TECHNOLOGY EMPHASIS [12 UNITS]

Complete the following courses, either as part of or in addition to the technical elective requirement:

- **ECON 005: Introduction to Business and Finance** Units: 4
- **ME 149: Novel Technologies in Agriculture** Units: 4
- **ME 1XX: Application of Machines and Robotic Systems in Agriculture**

TIPS for ME Major

Math, Physics, and Chem are priority to move forward in the Major. As are Engr 057 and Engr 045.



Faculty advise against taking Engr 120, Engr 130, Math 131, and Engr 151 together in one semester.

Plan ahead!

MECHANICAL ENGINEERING, B.S. FOUR-YEAR COURSE PLAN

All General Education course options can be found [here](#).

FIRST YEAR	
Fall	Spring
MATH 021: Calculus I for Physical Sciences and Engineering	MATH 022: Calculus II for Physical Sciences and Engineering
PHYS 008: Introductory Physics I for Physical Sciences and PHYS 008L	PHYS 009: Introductory Physics II for Physical Sciences and PHYS 009L
CHEM 002: General Chemistry I	ME 021: Engineering Computing
ME 001: Introduction to Mechanical Engineering	WRI 010: College Reading and Composition
SPRK 010: Spark Seminar or SPRK 001: Spark Seminar	ENGR 091: Professional Development: People in an Engineered World
SECOND YEAR	
Fall	Spring
MATH 024: Linear Algebra and Differential Equations	MATH 023: Vector Calculus
ENGR 045: Introduction to Materials	ENGR 120: Fluid Mechanics
ENGR 057: Statics and Dynamics	ENGR 151: Strength of Materials
General Education: AREA B	General Education: AREA A-Life Science
THIRD YEAR	
Fall	Spring
MATH 032: Probability and Statistics	ENGR 065: Circuit Theory
MATH 131: Numerical Methods for Scientists and Engineers	ME 120: Component Design
ENGR 130: Thermodynamics	ENGR 155: Engineering Economic Analysis
ME 137: Computer Aided Engineering	General Education: AREA B
FOURTH YEAR	
Fall	Spring
ENGR 135: Heat Transfer	ENGR 194: Engineering Capstone Design II
ENGR 193: Engineering Capstone Design I	ME 140: Vibration and Control
Major Technical Elective/Emphasis Requirement or Elective	Technical Elective/Emphasis Requirement or Elective
General Education: AREA B	Technical Elective/Emphasis Requirement or Elective

Look at course prerequisites ahead of time

Example:
ME 120 requires Engr 151 which requires Engr 045 which requires Math 21, Phys 008, and Chem 002

Pay attention to Capstone requirements

Engr 193:
Prereq - ME 137
Co-reqs - Engr 135 and ME 120

Engr 194:
Prereqs – Engr 193, Engr 135, and ME 120



Aerospace Engineering Major

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2025-2026 Catalog



AEROSPACE ENGINEERING, B.S.

In addition to adhering to [General Education](#), students must meet the following requirements to receive the B.S. in Mechanical Engineering at UC Merced.

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[Aerospace Engineering, B.S. Four-Year Course Plan](#)

LOWER DIVISION MAJOR REQUIREMENTS [38 UNITS]

FOUNDATIONAL MATH AND SCIENCES REQUIREMENT [35 UNITS]

MATHEMATICS REQUIREMENT [20 UNITS]

Complete the following courses:

- [MATH 021: Calculus I for Physical Sciences and Engineering](#) Units: 4
- [MATH 022: Calculus II for Physical Sciences and Engineering](#) Units: 4
- [MATH 023: Vector Calculus](#) Units: 4 or [MATH 023H](#)
- [MATH 024: Linear Algebra and Differential Equations](#) Units: 4
- [MATH 032: Probability and Statistics](#) Units: 4

CHEMISTRY REQUIREMENT [5 UNITS]

Complete the following courses:

- [CHEM 002: General Chemistry I](#) Units: 4 or [CHEM 002H](#)
- [CHEM 002L: General Chemistry I Lab](#) Units: 1

PHYSICS REQUIREMENT [10 UNITS]

Complete the following courses:

- [PHYS 008: Introductory Physics I for Physical Sciences](#) Units: 4 or [PHYS 008H](#)
- [PHYS 008L: Introductory Physics I for Physical Sciences Lab](#) Units: 1
- [PHYS 009: Introductory Physics II for Physical Sciences](#) Units: 4 or [PHYS 009H](#)
- [PHYS 009L: Introductory Physics II for Physical Sciences Lab](#) Units: 1

COMPUTING REQUIREMENT [4 UNITS]

Complete the following course:

- [ME 021: Engineering Computing](#) Units: 4

ENGINEERING FUNDAMENTALS REQUIREMENT [16 UNITS]

Complete the following courses:

- [ENGR 045: Introduction to Materials](#) Units: 4
- [ENGR 057: Statics and Dynamics](#) Units: 4
- [ENGR 065: Circuit Theory](#) Units: 4
- [ENGR 091: Professional Development: People in an Engineered World](#) Units: 2
- [ENGR 130: Thermodynamics](#) Units: 3

AEROSPACE ENGINEERING CORE [30 UNITS]

Complete the following courses:

- [AE 001: Introduction to Aerospace Engineering](#)
- [AE 136: Aerodynamics](#)
- [AE 175: Aerospace Engineering](#)
- [AE 171: Aerospace Structures and Materials](#) Units: 4
- [AE 172: Flight Dynamics and Control](#) Units: 3
- [AE 173: Aerospace Propulsion](#) Units: 3
- [ENGR 120: Fluid Mechanics](#) Units: 4
- [MATH 131: Numerical Methods for Scientists and Engineers](#) Units: 4
- [ME 140: Vibration and Control](#) Units: 4

AEROSPACE ENGINEERING CULMINATING EXPERIENCE [5 UNITS]

Complete the following courses:

- [ENGR 193: Engineering Capstone Design I](#) Units: 2
- [ENGR 194: Engineering Capstone Design II](#) Units: 3

AEROSPACE ENGINEERING TECHNICAL ELECTIVE REQUIREMENT [9 UNITS MINIMUM]

- [AE 190: Special Topic in Aerospace Engineering](#)
- [AE 195](#) (up to 4 technical elective units can come from this class)
- [AE 174: Aeroelasticity](#) Units: 3
- [EE 115: Electromagnetics and Applications](#) Units: 4
- [EE 150: Digital Communication](#) Units: 4
- [ME 121: Introduction to Manufacturing Processes](#) Units: 3
- [ME 129: Tribology](#) Units: 3
- [ME 135: Finite Element Analysis](#) Units: 4
- [ME 138: Introduction to Computational Fluid Dynamics](#) Units: 4
- [ME 141: Introduction to Control Systems](#) Units: 4
- [ME 142: Mechatronics](#) Units: 4
- [ME 143: Introduction to Drones](#) Units: 4
- [ME 144: Introduction to Multi-body Dynamics](#) Units: 3
- [ME 145: Lagrange Dynamics](#) Units: 3
- [ME 146: Sensors and Actuators in Mechatronics](#) Units: 3
- [MSE 114: Polymeric Materials](#) Units: 4
- [MSE 121: Mechanical Behavior of Materials](#) Units: 4
- [MSE 152: Materials Processing & Performance II: Materials Selection](#) Units: 4

TIPS for AE Major

Math, Physics, and Chem are priority to move forward in the Major. As is Engr 057.



Examples:

Engr 057 prereqs –
Math 021 and Phys 008

AE 171 prereqs –
Math 024 and Engr 057.

AE 172 – prereq –
Engr 057

Plan ahead!

AEROSPACE ENGINEERING, B.S. FOUR-YEAR COURSE PLAN



All [General Education](#) course options can be found here.

Please Note: This four-year plan serves as a general guide and assumes that all prerequisite requirements have been met prior to each course. Students may need to complete additional prerequisite coursework (MATH 005, CHEM 001, WRI 001) based on placement results or prior preparation. Be sure to consult with your academic advisor to create a personalized plan that aligns with your individual progress and goals.

FIRST YEAR	
Fall	Spring
MATH 021: Calculus I for Physical Sciences and Engineering	MATH 022: Calculus II for Physical Sciences and Engineering
PHYS 008: Introductory Physics I for Physical Sciences and PHYS 008L	PHYS 009: Introductory Physics II for Physical Sciences and PHYS 009L
CHEM 002: General Chemistry I and CHEM 002L	ME 021: Engineering Computing
AE 001	ENGR 091: Professional Development: People in an Engineered World
SPRK 001: Spark Seminar or SPRK 010: Spark Seminar	WRI 010: College Reading and Composition
SECOND YEAR	
Fall	Spring
MATH 024: Linear Algebra and Differential Equations	MATH 023: Vector Calculus
ENGR 045: Introduction to Materials	ENGR 065: Circuit Theory
ENGR 057: Statics and Dynamics	MATH 032: Probability and Statistics
General Education: Area B—Approaches to Knowledge Social Science, Literary and Textual Analysis, Media and Visual Analysis, Societies and Cultures of the Past	General Education: Area A—Life Science
THIRD YEAR	
Fall	Spring
ENGR 120: Fluid Mechanics	AE 136
MATH 131: Numerical Methods for Scientists and Engineers	AE 173: Aerospace Propulsion
ENGR 130: Thermodynamics	Major Technical Elective
AE 171: Aerospace Structures and Materials	General Education: Area B—Approaches to Knowledge Social Science, Literary and Textual Analysis, Media and Visual Analysis, Societies and Cultures of the Past
FOURTH YEAR	
Fall	Spring
ME 140: Vibration and Control	AE 172: Flight Dynamics and Control
AE 175	ENGR 194: Engineering Capstone Design II
ENGR 193: Engineering Capstone Design I	Major Technical Elective
General Education: Area B—Approaches to Knowledge Social Science, Literary and Textual Analysis, Media and Visual Analysis, Societies and Cultures of the Past	Major Technical Elective

Look at course prerequisites ahead of time

UD AE courses may be Fall or spring only. If prereqs are met, then take course.

Tentative
Engr 193 –
Prereqs – complete 2 of 3 -
AE 171, AE 136, AE 173
Co-req – AE 172

Engr 194 –
Prereqs –
AE 175 and Engr 193



GE – Approaches to Knowledge Area A & B & Intellectual Experiences

I. Approaches to Knowledge Area A

1. Life Science – select from approved course list in Audit.
2. Physical Sciences – Phys 008 (both ME and AE)

II. Approaches to Knowledge Area B

1. Social Science GE – Select from the approved course requirement list in Audit.
2. Take 2 out of 3 from: Literary and Textual, Media and Visual, **or** Societies and Cultures. Select from the approved course list in Audit.

III. Intellectual Experiences (IE)

1. Ethics – Engr 091 (both ME and AE)
2. Scientific Method – Phys 008 (both ME and AE)
3. Diversity & Identity – may be from Area A or B, e.g. HIST 051 as SC. Check Audit.
4. Global Awareness – may be from Area A or B, e.g. Anth 005 as LS. Check Audit.
5. Sustainability – Engr 193 (both ME and AE)

Each course from Area A or B may count towards 2 IE. Refer to Audit.

GE Upper Division Common Course Requirements

Culminating Experience –

Both ME & AE – Engr 193 or Engr 194

Crossroads –

Both ME & AE – Math 131

Writing in the Discipline –

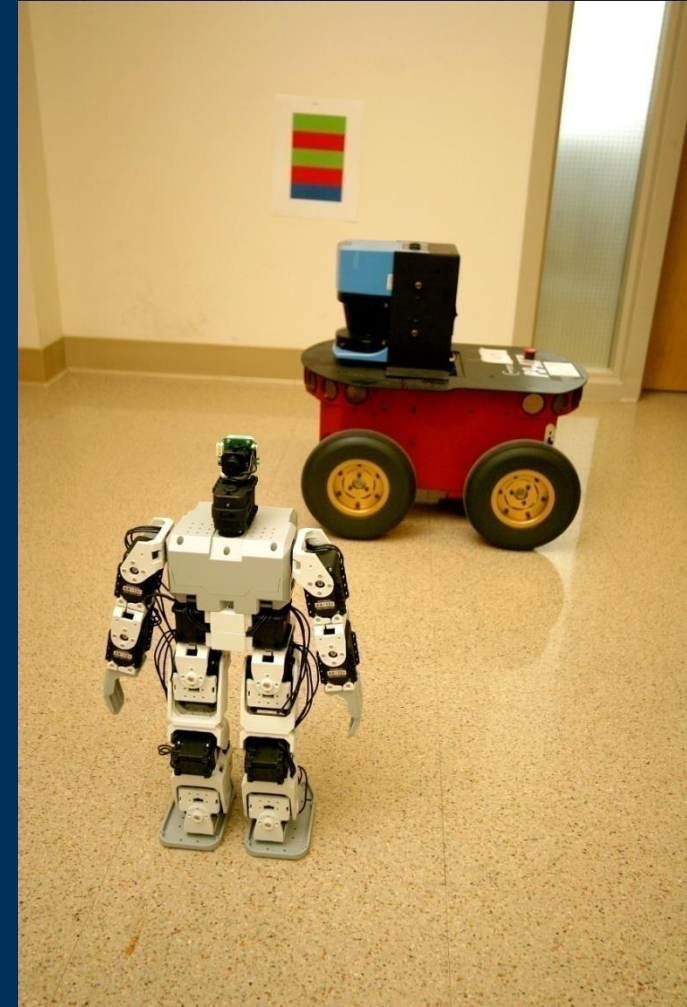
ME – Engr 151

AE – ME 140

Things you should know

- Courses and their requirements can and do change (pre-requisites), so make sure you communicate with your advisor regularly and check your email and the Course Schedule for updates
- *Full-Time Status*: Students must enroll in at least 12 units each semester
- *Journey to 30*: Students must enroll in 15 units per semester to graduate in 4 years
- You have 10 semesters as an Engineering major to complete your degree (summers are not included)

Note – if you take courses in summer terms, adjust your remaining requirements. Plan for internships and research during summer to build your resume!



Normal Progress to Degree Policy

<https://enr-advising.ucmerced.edu/policies/normal-progress>

Student progress is reviewed every Fall term by the School of Engineering. If a student is not meeting the Normal Progress standard, the School may place a hold on the student's academic record, which can prevent registration for future terms.

Normal Progress is defined as follows:

1. Register in at least 12 units per semester and two classes must be major prep (math/science), Engr or Major-specific, or technical requirements.
2. Complete the degree requirements within 10 terms. Summer sessions are not counted as semesters for Normal Progress.

Any student who fails to achieve Normal Progress may be subject to dismissal and will need approval to continue at UC Merced. A student may petition for additional time to the School of Engineering if not meeting Normal Progress due to extenuating circumstances.

Taking Classes During Summer

- Taking Classes at UC Merced
 - Enroll in at least 6 units to apply for UC Merced Summer Financial Aid
- Taking classes at another institution
 - Make sure course is equivalent to UC Merced course by using Transferology.com or Assist.org.
- Apply to the college and enroll in courses.
- Send Unofficial Transcript (FREE) to your Academic Advisor for overrides.
- Send Unofficial Transcript to Advisor once final grade is posted to keep overrides.
- Request for Official Transcript to be sent to Registrar to receive credit for course.

The screenshot displays the Transferology website interface. At the top, there's a navigation bar with the Transferology logo, a user profile for 'karla', and links for 'Will My Courses Transfer?' and 'Find a Replacement Course'. Below the navigation bar, the main heading is 'Find a Replacement Course' with a subtext: 'Search for courses to complete at another school that you can transfer back to your current institution. Planning to go to a new school? Search Will My Courses Transfer? to see how your credits may apply.'

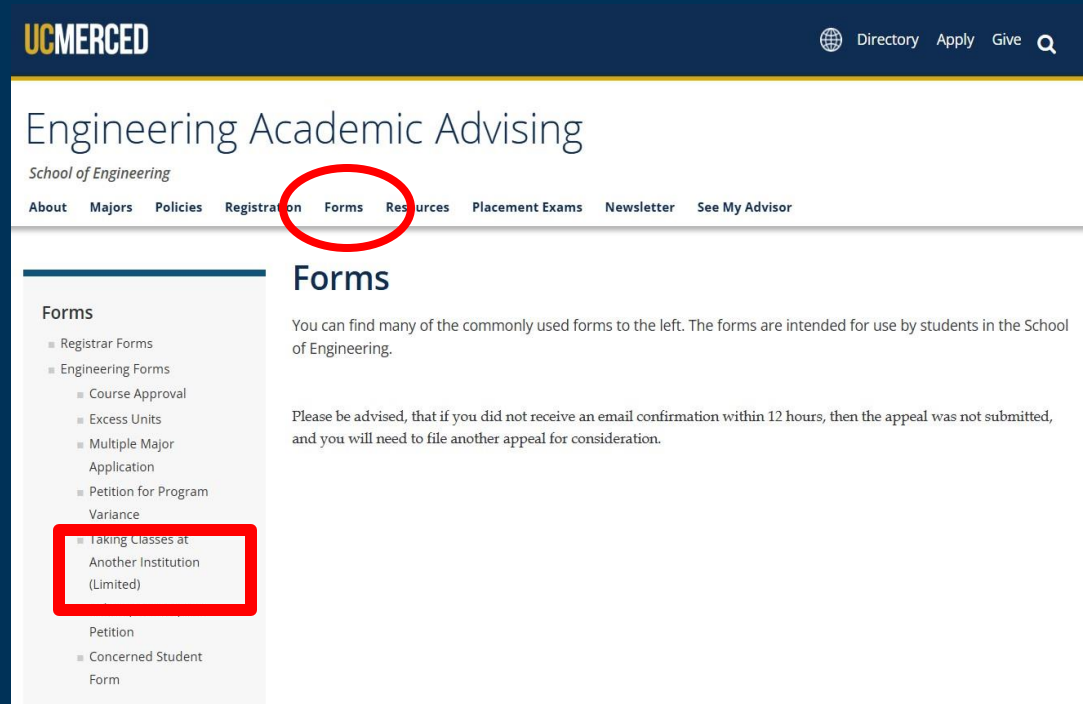
The 'School You Currently Attend' section shows 'University Of California-Merced' selected. The 'Courses' tab is active, displaying a table with columns for 'Courses', 'Requirement Categories', 'Term', and 'Department'. The table lists a course 'ANTH063 INTRODUCTION TO ANTHROPOLOGICAL ARCHAEOLOGY' for 'Spring 23' with '4' units. A search bar with a magnifying glass icon and the text 'Search for Matches' is located in the top right corner of the table area.

Below the table, there's a section for 'Term' with 'Spring 2023' selected. A 'Department' dropdown menu is shown with a placeholder text 'Enter department abbreviation (i.e. ENGL)'. A note at the bottom of the department section says 'Don't see your course listed? Add it yourself.'

The footer contains the CollegeSource logo, contact information, and a copyright notice: 'Copyright © 2023 CollegeSource, Inc. All Rights Reserved.'

Can I Take Courses Outside of UC Merced during Fall or Spring?

- During the Fall or Spring semester, students may take a course with UCOline, Merced College or any other Community College
- You must be enrolled in 12 units at UC Merced.
- Permission Required: See “Taking Classes at Another Institution” for directions via Engr Advising website.



UC Online courses count towards the total units at UC Merced and will calculate into the UC Merced GPA.

Courses taken at Community College will provide course credit only.

Can I Add a Minor or Double Major?

- May declare Minor or double major in your 2nd year.
- There are some double majors that NOT APPROVED due to similarity in requirements, example - ME and AE. See list <https://enr-advising.ucmerced.edu/forms/engineering-forms/multiple-major-application>.
- Double Major: Up to 12 units max may be shared
- Minor: One course may be shared between the Major and the Minor
- How to Declare? Office of the Registrar website – <https://registrar.ucmerced.edu/forms>

Important Links

Engr-advising.ucmerced.edu

- Academic Policies
- Appointments and Walk-in Hours
- Major information and flow charts
- Engineering specific forms
- Vanguard and Professional Clubs and Organizations

Registrar.ucmerced.edu

- All University policies, procedures, and deadlines
- Registrar forms (Add, Time Conflict, Independent Study, Major/Minor, etc.)
- Registration Help Page

Advising.ucmerced.edu

- For general campus advising information.



Don't "Google" it –
look within the site
or catalog

Internship and Project-Based Resources

Non-Competitive Project-Based Experience

- Student Clubs and Orgs

Ex. AIAA (American Institute of Aeronautics and Astronautics), ASME (American Society of Mechanic Engineers), and Society of Automotive Engineers

1. Vanguard <https://enr-advising.ucmerced.edu/student-orgs>
2. Office of Student Involvement - <https://ucmerced.presence.io/organizations>

Semi-Competitive Internship Experience

- Undergraduate Research Opportunities Center – for paid internship for UC Merced Students only
<https://uroc.ucmerced.edu/>
- Volunteer Research with UCM Professors via Independent Study -
<https://engineering.ucmerced.edu/faculty/by-department>
- **Student Career Center** -
<https://hire.ucmerced.edu/>

Competitive Internship Experience

- Job/Internship Boards
<https://hire.ucmerced.edu/enr/jobs-and-internships>
- STEM Center list (public and federal)-
<https://stemcenter.ucmerced.edu/opportunities>
- Great Mind in STEM conference

JumpStart Your 3rd Year Requirements:

- Create a grad plan for the upcoming two terms [Spring 2026/Fall 2026]. (Summer is optional)
- Attend/view one workshop hosted by the School of Engineering (such as this one). Use information provided in this workshop to complete the quiz. Check your UC Merced email for the quiz link - https://ucmerced.az1.qualtrics.com/jfe/form/SV_3l1vk27f38AfRMa

JumpStart Your 3rd Year Requirements:

- Attend one career-related event with the Center for Career and Professional Advancement
[Highly Recommended]
hire.ucmerced.edu
- Meet with your Academic Advisor to review your plan for the next year and share what you discovered for your career planning.

Additional Suggestions

- Core classes rely on problem-based learning
- Focus on making a connection to real-world
- No set algorithm for problem-solving
- Think about extensions of problems – it leads to design
- Be patient with internships – get used to rejections.
- Pick a job portal (Linkedin jobs is an example) and keep checking for internships.
- Around now is a good time to start for Summer 2026

QUESTIONS?

Engineering Advising:

Location: Science & Engineering 2, Room 315

Availability: <https://enr-advising.ucmerced.edu/see-my-advisor> for walk-Ins or appointments via Zoom or In-person.

Emails: <https://enr-advising.ucmerced.edu/see-my-advisor/appointment>