

An Introduction to Engineering at the UW

Welcome to the College of Engineering at the University of Washington. The College is dedicated to producing the world's best engineers and is committed to providing an enriched academic experience for all students.

The College of Engineering offers undergraduate degrees in nine engineering disciplines and Technical Communication. The College also collaborates with the College of Forest Resources to offer a program in Paper Science and Engineering.

<i>Degree Program</i>	<i>Approx. number of degrees per year</i>
Aeronautics and Astronautics	50
Bioengineering	30
Chemical Engineering	50
Civil and Environmental Engineering	100
Computer Engineering	80
Electrical Engineering	180
Industrial Engineering	40
Mechanical Engineering	100
Materials Science & Engineering	40
Paper Science & Engineering	15
Technical Communication	15

Getting Started

Most students planning to major in engineering enter the UW as pre-engineers. Students who indicate an interest in engineering on their UW application are assigned pre-engineering status. Students who plan to pursue an engineering degree, but who do not have pre-engineering status, may have their status changed to pre-engineering at the Engineering Advising & Diversity Center, 301 Loew Hall.

Several engineering departments admit a small number of incoming freshman directly in to the department. Students who indicate Bioengineering, Chemical Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering, or Materials Science & Engineering as their intended area of study on their UW application are considered for direct admission to these programs.

During the first two years, students take required courses in math, chemistry, physics, English composition, and engineering fundamentals along with some general education courses in the Visual, Literary, & Performing Arts (VLPA) and Individuals & Societies (I&S).

A sample curriculum for the first two years is given below. **Individual curricula will vary from the one listed below depending on the student's academic background and program of interest as well as the availability of courses.** Sample four-year plans for each department can be found in 301 Loew Hall, from the specific department of interest, or via the web at: <http://www.engr.washington.edu/advising/sampleplans.html>.

	<i>Autumn Quarter</i>	<i>Winter Quarter</i>	<i>Spring Quarter</i>
First Year	Math 124 – Calculus I (5 cr) Chem 142 – Chem I w/Lab (5 cr) Engl Comp or VLPA/I&S* (5 cr)	Math 125 – Calculus II (5 cr) Chem 152 – Chem II w/Lab (5 cr) Engl Comp or VLPA/I&S* (5 cr)	Math 126 – Calculus III (5 cr) Phys 121 – Mechanics w/Lab (5 cr) Engineering Fundamental** or Chem 162 – Chem III w/Lab (4-5 cr)
Second Year	Math 307 – Differential Equations (3 cr) Phys 122 – Elec. & Mag. w/ Lab (5 cr) Engineering Fundamental** (4 cr) TC 231 – Intro. to Tech. Writing (3 cr)	Math 308 – Matrix Algebra (3 cr) Phys 123 – Waves w/ Lab (5 cr) Engineering Fundamental** (4 cr) VLPA/I&S* (3-5 cr)	Math 3XX (3 cr) Engineering Fundamental** (4 cr) Engineering Fundamental** (4 cr) VLPA/I&S* (3-5 cr)

* VLPA/I&S – Visual, Literary, & Performing Arts / Individuals & Societies.

** Engineering Fundamentals – Refer to the sheet on upper-division admission requirements (page 4 of this handout) for a listing of required introductory engineering and computing courses.

Admission to Engineering Programs

Pre-engineering students must complete prerequisite courses and apply for admission to a departmental program. Admission is competitive. Most engineering departments offer an early admission option which occurs at the end of a student's freshman year. All departments offer an upper-division admission option. Information on these two options is provided below.

To apply, students must complete the online College of Engineering application available at <http://www.engr.washington.edu/uapp> and submit required transcripts by the specified deadlines.

College of Engineering Application Deadlines

- **Autumn Quarter - July 1** - All Departments admit students Autumn Quarter.
- **Spring Quarter - February 1** - Bioengineering, Computer, Electrical, Industrial, Materials Science, Paper Science, and Technical Communication admit students Spring Quarter. *Aeronautics and Astronautics, Civil & Environmental, Chemical, and Mechanical Engineering DO NOT ADMIT students Spring Quarter.*
- **Note:** Students interested in applying to Paper Science and Engineering can apply on a continuous basis so please email cfradv@u.washington.edu for more information.

Applicants who are University of Washington students are considered at the same time as transfer applicants. The criteria by which applicants are evaluated vary from department to department, but are based in part on the GPA earned in prerequisite courses. More information on the College of Engineering admission processes is available at http://www.engr.washington.edu/advising/admission_resources.html.

Note: All transfer and postbaccalaureate applicants must also submit a University of Washington application by the applicable deadline. The University application deadlines are significantly sooner than the College of Engineering application deadline. More information on University application processes is available at <http://admit.washington.edu/>.

Early Admission (Autumn Quarter Only)

All departments, with the exception of Civil and Environmental Engineering and Computer Engineering, offer an early admission option. To be considered for early admission, applicants must be currently enrolled at the UW and have completed all early admission prerequisite courses prior to the July 1 application deadline.

To be considered for early admission, the following courses must be completed prior to the application deadline with grades of at least 2.0 in each of the required courses and a cumulative GPA of 2.5 or higher. At least 15 credits of the prerequisite courses must be completed at the University of Washington.

- ⇒ English composition.
- ⇒ MATH 124, 125, & 126
- ⇒ A minimum of 10 credits of natural science courses from PHYS 121, 122, 123 or CHEM 142, 152. **Chemical Engineering** requires CHEM 142, 152, 162 and PHYS 121. **Bioengineering** and **Paper Science & Engineering** require CHEM 142, 152, and 162.

Upper-Division Admission

Upper-division admission requirements for each department are summarized in the table on the next page. For admission requirements for the Interdisciplinary program and the Technical Communication program, contact the department advisor.

In addition to course requirements, there are minimum GPA requirements for application to the engineering programs. The minimum GPA requirements are listed below. Please note the GPAs listed are minimums only. In reality, the average GPA of those offered admissions is higher.

Computer Science & Engineering Accelerated Admission

This admission pathway is intended as a fast track into the Computer Science and Engineering department for matriculated UW students who have excelled in the CSE introductory courses. To apply students must have completed CSE 142 (or its equivalent) and CSE 143, plus at least five additional credits toward the CSE upper-division admission course requirements. Admission is considered for any quarter.

College of Engineering Graduation Requirements

Application and graduation requirements in **mathematics, natural sciences, written and oral communication, and engineering fundamentals** for all engineering programs are summarized on the next page. A majority of these requirements are typically completed in the first two years of study.

For information on the Technical Communication program requirements, contact the department advisor or the Engineering Advising and Diversity Center.

Visual, Literary, & Performing Arts (VLPA) and Individuals & Societies (I&S) Requirements

All programs require a minimum of 10 credits of VLPA and 10 credits of I&S course work plus an additional 4 to 10 credits of course work from either category. The total VLPA and I&S requirement for each department is available at <http://www.engr.washington.edu/advising/vlpa-is.html> or from the department website.

It is generally recommended that about half of the VLPA and I&S requirements be taken during the first two years of study.

Engineering Program Requirement

The junior year of an engineering departmental program consists largely of core courses required of all students in the program. The core courses introduce the students to the breadth of subject areas associated with the engineering discipline.

During the senior year, students have the opportunity to take technical electives within the program. The technical electives allow the student to take more advanced courses in subject areas of interest. During the junior and senior years, students also complete any remaining requirements in areas such as math, writing, natural sciences, engineering fundamentals, and VLPA/I&S.

<i>Program</i>	<i>Min GPA for Application</i>
Aero & Astro	2.0 in each prerequisite course 2.5 average in prerequisite courses
BioEngr	2.5 cumulative average
Chem Engr	2.5 average in prerequisite courses
Civil & Envir Engr	2.0 in each prerequisite course 2.5 average in prerequisite courses
Comp E	2.5 average in prerequisite courses
Elec Engr	2.5 average in prerequisite courses 2.5 cumulative average
Ind Engr	2.5 average in prerequisite courses
Interdis BS/BSE	BS Students – 2.5 cumulative avg. BSE Students – 2.8 cumulative avg.
Matls Sci & Engr	2.0 in each prerequisite course 2.5 cumulative average
Mech Engr	2.0 in each prerequisite course 2.5 average in prerequisite courses
Paper Sci & Engr	2.5 average in prerequisite courses
Tech Comm	2.0 cumulative average 3.0 in the 13 required Written and Oral Communications credits

Upper-Division Admission Requirements

MATHEMATICS

Course #	Cr	Title	AA	BIO E	CHME	CEE	COMP E	EE	IE	ME	MSE	PSE
MATH 124,125,126	(5,5,5)	Calc 1,2,3	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
MATH 307	(3)	Diff Equations	◆	◇	◆	◇		◇	◇	◇	◆	◆
MATH 308	(3)	Matrix Algebra	◆	◇	◇	◆	◇	◇	◇	◇	◇	
MATH 309	(3)	Linear Analysis			R*					R**	◇*	
MATH 324	(3)	Adv Calculus I	◆+					◇		R**	◇*	
IND E 315	(3)	Prob & Stat for Engr			R*	◇†		◇†	◇	◇†	◇*	
MATH/STAT 390	(4)	Prob & Stat		◇	R*	◇†	◇	◇†		◇†	◇*	

AMATH 351 is an acceptable alternative to MATH 307 for AA, CHM E, CEE, EE, IE, ME and MSE.

AMATH 352 is an acceptable alternative to MATH 308 for AA, CHM E, CEE, EE, and ME.

◆+MATH 324 must be taken no later than Autumn Quarter of admission.

R*CHM E requires one of MATH 309, INDE 315, or MATH/STAT 390.

R**ME requires either MATH 309, 324, or AMATH 353.

◇* Materials Science & Engineering – must select one of the four courses as a math elective.

† CEE, EE and ME require either MATH/STAT 390 or IND E 315 for graduation.

NATURAL SCIENCES

Course #	Cr	Title	AA	BIO E	CHME	CEE	COMP E	EE	IE	ME	MSE	PSE
BIOL 180, 200	(5,5)	Intro Biology		◆*								
CHEM 142	(5)	Gen Chem I/lab	◆	◆	◆	◆	R	◆	◆	◆	◆	◆
CHEM 152	(5)	Gen Chem II/lab	R	◆	◆	◇			◆	◆	◆	◆
CHEM 162	(5)	Gen Chem III/lab		◆	◆							◆
CHEM 223 or 237	(4)	Org Chem		◇	◆							◆
CHEM 224 or 238	(4)	Org Chem			◇							◇
PHYS 121	(4/1)	Mechanics/lab	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
PHYS 122	(4/1)	Elec & Mag/lab	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
PHYS 123	(4/1)	Waves/lab	◆	◇	◆	◇	R	◇	◆	◇	◇	◇

*Contact departmental adviser if Bio 180 is full for fall quarter. Course may be in progress at time of admission.

WRITTEN AND ORAL COMMUNICATION

Course #	Cr	Title	AA	BIO E	CHME	CEE	COMP E	EE	IE	ME	MSE	PSE
Engl. Comp	(5)		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
TC 231	(3)	Tech Writing	◆	◇	◇	◇	◇	◇	◇	◆	◇	◇
TC 333	(4)	Adv Tech Writing	◇*		◇**		◇	◇	◇	◇***	◇	

◇* Aero/Astro Engr. accepts Department Approved Elective in place of TC 333. Contact department for list of approved electives.

◇** Chemical Engr. accepts the following courses in place of TC 333: ENGL 381, COM 220.

◇*** Mechanical Engineering will accept the following courses in place of TC 333: ENGL 182, ENGL 281, ENGL 381.

ENGINEERING FUNDAMENTALS

Course #	Cr	Title	AA	BIO E	CHME	CEE	COMP E	EE	IE	ME	MSE	PSE
ME 123	(4)	Visualization & CAD								◇	◇*	
AMATH 301	(4)	Scientific Computing	◆+		◆*	◆*				◇	◆*	
CSE 142	(4)	Computer Prog I		◆**		◆*	◆	◇	◇			
CSE 143	(5)	Computer Prog II		◇			◆	◇				
MSE 170	(4)	Materials Science							◇	◇	◆	
AA 210	(4)	Statics	◆			◆			◇	◆	◇	
EE 215	(4)	Fund Elec Engr		◇			◇	◇	◇	◇		
CEE 220	(4)	Mech of Mtls	◆			◆			◇	◆	◇	
ME 230	(4)	Dynamics	◆			◆			◇	◆		
IND E 250	(4)	Engr Econ							◇			
CHEM E 260	(4)	Thermo	◆	◇	◆							◆

◆* Either AMATH 301 or CSE 142 will be accepted by CHEM E, CEE & MSE.

◆+AMATH 301 must be taken no later than Autumn quarter of admission.

◆** CSE 142 may be in progress at time of admission

Pre-engineering status is required for priority registration for most introductory engineering courses.

◆ REQUIRED for upper-division admission. Courses generally must be completed before application deadline. Contact an advisor if courses will be in-progress at the time of application.

◇ REQUIRED for graduation.

AA	Aeronautics & Astronautics
BIO E	Bioengineering
CHM E	Chemical Engineering
CEE	Civil & Environmental Engineering
COMP E	Computer Engineering
EE	Electrical Engineering
IND E	Industrial Engineering
ME	Mechanical Engineering
MSE	Materials Science & Engineering
PSE	Paper Science and Engineering

Departmental and Program Undergraduate Contact Information

To access departmental information over the World Wide Web, begin with the College of Engineering home page at <http://www.engr.washington.edu>, then click on Academic Departments and then choose the department of your choice.

When mailing information to the individuals listed below, the rest of the mailing address is:

University of Washington, Seattle, WA 98195-____ (use the last four digits of the campus box number)

STUDENT SUPPORT PROGRAMS

Engineering Advising & Diversity Center

301 Loew Hall, Box 352180

206/543-1770 – email: eadc@engr.washington.edu

Pre-Engineering Advising / Interdisciplinary Engr

Dave Drischell – 206/543-1770

email: engradv@engr.washington.edu

Engineering Co-op Program

Dawn Wiggin – 206/543-8711

email: coop@engr.washington.edu

Minority Scholars Engineering Program (MSEP)

Scott Pinkham – 206/221-7769

email: spinkham@u.washington.edu

Women in Science & Engineering (WISE)

Cathryne Jordan – 206/685-4849

email: uwwise@u.washington.edu or

jordanc@u.washington.edu

DO-IT (Disabilities, Opportunities, Internetworking, and Technology) Program

3737 Brooklyn Ave NE, Suite 12, Box 355670

Sheryl Burgstahler OR Sara Lopez -- 206/685-DOIT

email : doit@u.washington.edu

ENGINEERING DEPARTMENTS

Aeronautics & Astronautics

211C Guggenheim, Box 352400

Marlo Anderson – 206/616-1115

email: ugadvising@aa.washington.edu

Bioengineering

1701 NE Pacific St., N107, Box 355061

Kelli Jayn Nichols – 206/685-2022

email: bioeng@u.washington.edu

Chemical Engineering

105 Benson Hall, Box 351750

Devota Madrano – 206/543-2252

email: advising@cheme.washington.edu

ENGINEERING DEPARTMENTS (CONT')

Civil and Environmental Engineering

201 More Hall, Box 352700

Mariko Navin – 206/543-5092

email: ceadvice@u.washington.edu

Computer Engineering

AC101 Allen Center, Box 352350

Crystal Eney / Megan Reardon / Monica Duke/Raven Avery

Phone: 206/543-1695

email: ugrad-advisor@cs.washington.edu

Electrical Engineering

AE 100L Allen Center, Box 352500

Erin Peinado or Erica Coleman

Phone: 206/543-2142

email: undergrad@ee.washington.edu

Industrial Engineering

G7 ME Building, Box 352650

206/543-5041

email: ieadvise@u.washington.edu

Materials Science & Engineering

302A Roberts Hall, Box 352120

Kathleen Elkins – 206/616-6581

email: kelkins@u.washington.edu

Mechanical Engineering

143 ME Building, Box 352600

Margo Segimoto / Mee-Ling Hon / Matthew Wanderski

Phone: 206/543-5090

email: meadvise@u.washington.edu

Paper Science and Engineering

116 Anderson Hall, Box 352100

Michelle Trudeau OR Debra Salas-Haynes – 206/543-7081

email: cfradv@u.washington.edu

Technical Communication

211 & 306 Engineering Annex , Box 352195

Gian Bruno OR Karen Kasonic

206/543-1798 or 616-0797

email: tc@u.washington.edu

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