Clackamas Community College Transfer Guide
Bachelor of Science in Engineering Science

Important Note:
Students are encourage to dually enroll at OSU-Cascades spring term of their second year, to avoid a year delay in the ESE program. ST 314, is only offered spring term and once a year. ST 314 is an important pre-requisite for upper division courses offered fall term of third year. Failure to take ST 314 could result in a year delay in the ESE program.

Transfer Admissions:
osucascades.edu/admissions/admissions-advising

Program Requirements

OSU Graduation Requirement:

Students are required to meet the University Graduation requirements as well as complete course work required for their major to graduate with a Bachelor of Science in Energy Systems Engineering. **All catalog and course selection information is subject to change pending catalog declaration year. catalog.oregonstate.edu/regulations/#text*

- 180 minimum = total number of credits required to graduate
- 60 minimum = number of upper division credits required
- 45 of last 75 credits must be OSU credits
- Max 135 credits transferred to OSU
- Max 18 W grades (withdraw)
- Max 11 credits PAC

College of Engineering Academic Standing

Progression Model

- Grades of C or better and a minimum of 2.50 cumulative OSU GPA
- Maintain 2.50 term and/or cumulative OSU GPA and 65% of courses completed
    - Warning: OSU term GPA is below a 2.50 and/or completion is under 65%
    - Probation: After 24 OSU credits attempted, if both term and cumulative standards are not met
    - Suspension: If on probation and have a subsequent term OSU GPA under 2.50 and/or pace under 65%
- No major courses may be taken with S/U grading.

Academic Progression Model Information: https://engineering.oregonstate.edu/current-students/advising/progression

Important Notes:

- **It is the student's responsibility to double check that all requirements are met**. The advisor can suggest courses and assist the student in constructing a plan of study, but the student in the end is responsible for assuring all requirements for graduation are met.
- Degree requirements are subject to change and dependent on catalog year of admission and major declaration.
- MECOP Internship information: www.mecopinc.org/

Students will work with their Academic Advisor and use the Bacc Core approved list for OSU-Cascades to choose courses for the Bacc Core requirements. To find information about Bacc Core or for the approved list, visit: https://admissions.oregonstate.edu/course-articulations

Baccalaureate Core:

x	Skills Requirements	Non-AAOT course	AAOT or ASOT
	Health/Fitness	HPE 295	AAOT completes
	Mathematics	MTH 251 in major	AAOT completes
	Writing I^	WR 121Z in major	AAOT completes
	Writing II	WR 227Z in major	AAOT completes
	Speech^	COMM 111Z/112 in major	AAOT completes
x	**Perspective Requirements:** *no more than 2 from 1 department*		
	Cultural Diversity	See Bacc Core guide	AAOT completes
	Literature & the Arts	See Bacc Core guide	AAOT completes
	Social Processes & Institutions	EC 201 in major	AAOT completes
	Western Culture	See Bacc Core guide	AAOT completes
	Physical Science	PH 211-213 in major	AAOT completes
	Biological Science	See Bacc Core guide	AAOT completes
	Additional Science (Physical or Biological)	CH 221-222 in major	AAOT completes
	Difference, Power & Discrimination	See Bacc Core guide	AAOT completes
x	**Synthesis Requirements**: *cannot be from the same department*		
	Contemporary Global Issues	OSU Only	OSU Only
	Science, Technology & Society	OSU Only	OSU Only

A student who has completed (or plans on completing) an ASOT-Business or an AAOT has completed all Skills & Perspectives requirements in the Bacc Core. Students still need to complete synthesis courses.

Major Requirements

First & Second year courses: All courses must be completed with a C grade or better

x	Major Requirement (OSU)	Clackamas CC Approved Transfer Courses:
	CH 201: Chemistry for Engineering Majors	CH 221: General Chemistry
	CH 202/205: Chem. For Engineering Major + Lab	CH 222: General Chemistry II
	COMM 111Z or 114: Public Speaking or Arg. & Critical Discord	COMM 111Z or 112: Public Speaking or Persuasive Speaking
	CS 162: Intro. to Computer Science II	CS 162: Computer Science II
	ECON 201: Intro. to Microeconomics	EC 201: Prin. Of Econ: Microeconomics
	ENGR 100: The OSU Engineering Student	ENGR 111: Intro. to Engineering
	ENGR 102: Design Engineering & Problem Solving	ENGR 115: Engineering Graphics
	ENGR 103: Engineering Computation & Algorithmic Thinking	CS 161: Computer Science I
	ENGR 201: Electrical Fundamentals I	ENGR 221: Electrical Circuit Analysis
	ENGR 202: Electrical Fundamentals II	ENGR 222: Electrical Circuit Analysis II
	ENGR 203: Electrical Fundamentals III	ENGR 223: Electrical Circuit Analysis III
	ENGR 211: Statics	ENGR 211: Statics
	ENGR 212: Dynamics	ENGR 212: Dynamics
	MTH 251: Differential Calculus	MTH 251: Calculus I
	MTH 252: Integral Calculus	MTH 252: Calculus II (Integral)
	MTH 254: Vector Calculus I	MTH 254: Vector Calculus I
	MTH 256: Applied Differential Equations	MTH 256: Differential Equations
	MTH 264: Intro to Matrix Algebra	MTH 253: Calculus III
	PH 211: General Physics with Calculus	PH 211: General Physics w/ Calculus
	PH 212: General Physics with Calculus	PH 212: General Physics w/ Calculus
	PH 213: General Physics with Calculus	PH 213: General Physics w/ Calculus
	ST 314: Introduction to Statistics for Engineers	OSU Only
	WR 121Z: Composition I	WR 121Z: Composition I
	WR 227Z: Technical Writing	WR 227Z: Technical Writing

Third & Fourth year courses: All courses must be completed with a C grade or better

x	Major Requirement (OSU)	Clackamas CC Approved Transfer Courses:
	ECE 271/272: Digital Logic Design + Lab	OSU Only
	ENGR 390: Engineering Economy	OSU Only
	ESC 340: Intro. to Experimentation	OSU Only
	ESC 350: Engineering Materials	OSU Only
	ESC 440: Computational Methods for Engineers	OSU Only
	ENGR 415: Engineering Capstone Design I	OSU Only
	ENGR 416: Engineering Capstone Design II	OSU Only
	ESE 330: Modeling & Analysis of Dynamic Systems	OSU Only
	IE 471: Project Management in Engineering	OSU Only
	ME 311: Intro. to Thermal-Fluid Sciences	OSU Only
Restricted Electives: Selected Courses to meet option requirements (28 credits)		

Energy Systems Engineering Option: The Energy Systems Engineering option provides Engineering Science students with the opportunity to focus on the design, processes, and systems used to convert, distribute, and store energy with the 28 CH of required electives listed below.

x	Major Requirement (OSU)	Clackamas CC Approved Transfer Courses:
	ESE 355: Energy Regulation	OSU Only
	ESE 430: Feedback Control Systems	OSU Only
	ESE 450: Energy Generation Systems	OSU Only
	ESE 470: Energy Distribution Systems	OSU Only
	ESE 471: Energy Storage Systems	OSU Only
	IE 415: Simulation and Decision Support Systems	OSU Only
	IE 425: Industrial Systems Optimization	OSU Only

Choose Your Own Path: Students may also design their own individualize track by taking 28 credits from the list below.

x	Major Requirement (OSU)	Clackamas CC Approved Transfer Courses:
	CS 261: Data Structures	CS 260: Data Structures
	CS 290: Web Development	OSU Only
	CS 325: Analysis of Algorithms	OSU Only
	CS 340: Intro. to Databases	OSU Only
	CS 434: Machine Learning & Data Mining	OSU Only
	ECE 322: Electronics I	OSU Only
	ESE 355: Energy Regulation	OSU Only
	ESE 430: Feedback Control Systems	OSU Only
	ESE 450: Energy Generation Systems	OSU Only
	ESE 470: Energy Distribution Systems	OSU Only
	ESE 471: Energy Storage Systems	OSU Only
	ESE 499: Special Topics	OSU Only
	IE 415: Simulation and Decision Support Systems	OSU Only
	IE 425: Industrial Systems Optimization	OSU Only
	ME 331: Intro. Fluid Mechanics	OSU Only
	ME 332: Heat Transfer	OSU Only
	MTH 231: Elements of Discrete Mathematics	MTH 231: Elements of Discrete Math

NOTES

* All info is subject to change at catalog policy

All PH courses need to be taken at the same institution