

MECHANICAL ENGINEERING UNDERGRADUATE MAJOR (BS, HBS)

The Bachelor of Science and Honors Bachelor of Science degrees in Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET, <http://www.ABET.org>.

At Oregon State University, the mechanical engineering focal areas include design, mechanics materials, robotics & control, and thermal-fluid sciences.

Program Educational Objectives—Mechanical Engineering

Note: The Bachelor of Science and Honors Bachelor of Science degrees in Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET, <http://www.ABET.org>, which requires stated program educational objectives and student outcomes to support these.

OSU Mechanical Engineering graduates receive an innovative education, and within 3 to 5 years of graduation will have:

1. Created value to organizations through the analysis, evaluation, and improvement of engineered systems and processes using appropriate mechanical engineering methods and tools.
2. Communicated effectively across disciplines and cultures to manage and/or lead activities in support of organizational goals and objectives.
3. Innovated systems and processes, in response to organizational challenges, through the application of structured and unstructured mechanical engineering methodologies, including engineering design and problem solving.

Major Code: 321

- Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- 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.
- Communicate effectively with a range of audiences.
- Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusion.
- Acquire and apply new knowledge as needed, using appropriate learning strategies.
- Apply principles of engineering, basic science, and mathematics (including multivariate calculus and differential equations).
- Model, analyze, design, and realize physical systems, components or processes.
- Prepare students to work professionally in either thermal or mechanical systems areas.

First Year		Credits
CH 201	CHEMISTRY FOR ENGINEERING MAJORS	3
CH 202	CHEMISTRY FOR ENGINEERING MAJORS ¹	3
CH 205	LABORATORY FOR CH 202	1
COMM 111 or COMM 114	*PUBLIC SPEAKING ² or *ARGUMENT AND CRITICAL DISCOURSE	3
HHS 231	*LIFETIME FITNESS FOR HEALTH ²	2
HHS 241	*LIFETIME FITNESS (or any PAC course) ²	1
ENGR 248	ENGINEERING GRAPHICS AND 3-D MODELING ¹	3
MIME 101	INTRODUCTION TO MIME	3
MTH 251	*DIFFERENTIAL CALCULUS	4
MTH 252	INTEGRAL CALCULUS	4
MTH 254	VECTOR CALCULUS I	4
PH 211	*GENERAL PHYSICS WITH CALCULUS	4
WR 121	*ENGLISH COMPOSITION	3
*Perspectives Courses ²		9
		Credits
		47
Second Year		Credits
ENGR 112	INTRODUCTION TO ENGINEERING COMPUTING	3
ENGR 201	ELECTRICAL FUNDAMENTALS I ¹	3
ENGR 202	ELECTRICAL FUNDAMENTALS II	3
ENGR 211	STATICS	3
ENGR 212	DYNAMICS	3
ENGR 213	STRENGTH OF MATERIALS ¹	3
ENGR 390	ENGINEERING ECONOMY	3
MTH 256	APPLIED DIFFERENTIAL EQUATIONS	4
MTH 341	LINEAR ALGEBRA I	3
PH 212	*GENERAL PHYSICS WITH CALCULUS	4
PH 213	*GENERAL PHYSICS WITH CALCULUS	4
ST 314	INTRODUCTION TO STATISTICS FOR ENGINEERS ¹	3
WR 327	*TECHNICAL WRITING	3
Biological Science Course ²		4
*Difference, Power, and Discrimination Elective ²		3
		Credits
		49
Third Year		Credits
MATS 321	INTRODUCTION TO MATERIALS SCIENCE	4
MATS 322	MECHANICAL PROPERTIES OF MATERIALS	3
ME 250	INTRODUCTION TO MANUFACTURING PROCESSES	1
ME 311/NSE 311	INTRODUCTION TO THERMAL-FLUID SCIENCES	4
ME 312/NSE 312	THERMODYNAMICS	4
ME 316	MECHANICS OF MATERIALS	3
ME 317	INTERMEDIATE DYNAMICS	4
ME 331/NSE 331	INTRODUCTORY FLUID MECHANICS	4
ME 332/NSE 332	HEAT TRANSFER	4
ME 373	MECHANICAL ENGINEERING METHODS	4
ME 382	INTRODUCTION TO DESIGN	4
ME 383	MECHANICAL COMPONENT DESIGN	4
		Credits
		43
Fourth Year		Credits
ME 430/ECE 451	SYSTEMS DYNAMICS AND CONTROL	4
ME 351	INTRODUCTION TO INSTRUMENTATION AND MEASUREMENT SYSTEMS	4
MIME 497	*MIME CAPSTONE DESIGN	4
MIME 498	*MIME CAPSTONE DESIGN	4
Restricted ME Technical Electives		11
Restricted ME Laboratory Elective		4
Perspectives ²		4
*Synthesis Courses ²		6
		Credits
		41
		Total Credits
		180

2 Mechanical Engineering Undergraduate Major (BS, HBS)

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Baccalaureate Core Course (BCC)

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Writing Intensive Course (WIC)

1
Prerequisite for upper-division courses

2
Must be selected to satisfy baccalaureate core requirements

Major Code: 321

First Year

Fall		Credits
MTH 251	*DIFFERENTIAL CALCULUS	4
WR 121	*ENGLISH COMPOSITION	3
MIME 101	INTRODUCTION TO MIME	3
HHS 231	*LIFETIME FITNESS FOR HEALTH	2
CH 201	CHEMISTRY FOR ENGINEERING MAJORS	3
Physical Activity Class (PAC)		1
Credits		16

Winter		Credits
MTH 252	INTEGRAL CALCULUS	4
ENGR 248	ENGINEERING GRAPHICS AND 3-D MODELING	3
CH 202	CHEMISTRY FOR ENGINEERING MAJORS	3
CH 205	LABORATORY FOR CH 202	1
COMM 114	*ARGUMENT AND CRITICAL DISCOURSE	3
Credits		14

Spring		Credits
MTH 254	VECTOR CALCULUS I	4
PH 211	*GENERAL PHYSICS WITH CALCULUS	4
ENGR 112	INTRODUCTION TO ENGINEERING COMPUTING	3
Perspective		3
Credits		14

Second Year

Fall		Credits
PH 212	*GENERAL PHYSICS WITH CALCULUS	4
ENGR 211	STATICS	3
ECON 201	*INTRODUCTION TO MICROECONOMICS	4
MTH 256	APPLIED DIFFERENTIAL EQUATIONS	4
Credits		15

Winter		Credits
PH 213	*GENERAL PHYSICS WITH CALCULUS	4
MTH 341	LINEAR ALGEBRA I	3
ENGR 201	ELECTRICAL FUNDAMENTALS I	3
ENGR 212	DYNAMICS	3
Perspective		3
Credits		16

Spring		Credits
WR 327	*TECHNICAL WRITING	3
ENGR 213	STRENGTH OF MATERIALS	3
ENGR 202	ELECTRICAL FUNDAMENTALS II	3
ST 314	INTRODUCTION TO STATISTICS FOR ENGINEERS	3
Perspective		3
Credits		15

Third Year

Fall		Credits
MATS 321	INTRODUCTION TO MATERIALS SCIENCE	4
ENGR 390	ENGINEERING ECONOMY	3
ME 311	INTRODUCTION TO THERMAL-FLUID SCIENCES	4

ME 317	INTERMEDIATE DYNAMICS	4
Credits		15

Winter

ME 316	MECHANICS OF MATERIALS	3
ME 373	MECHANICAL ENGINEERING METHODS	4
ME 382	INTRODUCTION TO DESIGN	4
ME 250	INTRODUCTION TO MANUFACTURING PROCESSES	1
Perspective		3
Credits		15

Spring

ME 312	THERMODYNAMICS	4
ME 331	INTRODUCTORY FLUID MECHANICS	4
ME 383	MECHANICAL COMPONENT DESIGN	4
MATS 322	MECHANICAL PROPERTIES OF MATERIALS	3
Credits		15

Fourth Year

Fall		Credits
ME 332	HEAT TRANSFER	4
ME 430	SYSTEMS DYNAMICS AND CONTROL	4
MIME 497	*MIME CAPSTONE DESIGN	4
ME Technical Elective		4
Credits		16

Winter

MIME 498	*MIME CAPSTONE DESIGN	4
ME 351	INTRODUCTION TO INSTRUMENTATION AND MEASUREMENT SYSTEMS	4
Synthesis		3
ME Technical Elective w/Lab		4
Credits		15

Spring

Perspective		4
Synthesis		3
ME Technical Elective		3
ME Technical Elective		4
Credits		14
Total Credits		180