VANDERBILT
School *of* Engineering

Mechanical Engineering Curriculum (2023-2024 Catalog Year)
126 hours (minimum)

1. Mathematics (17 hours)

MATH 1300	Accelerated Single-Variable Calculus I (4 hours) F/S
MATH 1301	Accelerated Single-Variable Calculus II (4 hours) F/S
MATH 2300	Multivariable Calculus (3 hours) F/S
MATH 2420	Methods of Ordinary Differential Equations (3 hours) F/S
MATH Elective	MATH 2410 and above, except 3000

2. Basic Science (16 hours)

CHEM 1601+1601L	General Chemistry I and Laboratory (4 hours) F/S
MSE 1500+1500L **or**	Materials Science I +Lab (4 hours) S
CHEM 1602+1602L	General Chemistry II +Lab (4 hours) S
PHYS 1601 + 1601L	General Physics I and Laboratory (4 hours) F/S
PHYS 1602+ 1602L	General Physics II and Laboratory (4 hours) F/S

3. Engineering Science (25 hours)

ES 1401-1403	Introduction to Engineering (3 hours) F
CE 2200	Statics (3 hours) F/S/SU
CE 2205	Mechanics of Materials (3 hours) F/S/SU
CS 1100 **or** 1101 **or** 1103	Programming and Problem Solving (3 hours) F/S
ECE 2112	Circuits I (3 hours) F/S
ME 2190	Dynamics (3 hours) F/S/SU
ME 2220	Thermodynamics (3 hours) F/S/SU
ME 3224	Fluid Mechanics (3 hours) F
MSE 2205	Strength and Structure of Engineering Materials (1 hour) F

4. Liberal Arts Core (18 hours)

At least one “W”-designated course in the English language must be included on a graded basis.

5. Open Electives (6 hours)

Courses excluded from the listings in the Liberal Arts Core may be taken as open electives.

6. ME Core (26 hours)

ME 2160	Introduction to Mechanical Engineering Design (3 hours) F
ME 2171	Instrumentation Laboratory (2 hours) S
ME 3202	Machine Analysis & Design (3 hours) F
ME 3204	Mechatronics (3 hours) S
ME 3234	System Dynamics (4 hours) F
ME 3248	Heat Transfer (3 hours) S
ME 4213	Energetics Laboratory (2 hours) F
ME 4950	Design Synthesis (2 hours) F
ME 4951	Engineering Design Projects (3 hours) S
ME 4959	Senior Engineering Design Seminar (1 hour) F

7. Technical Electives (9 hours)

A maximum of three one-credit-hour ME courses may be used as technical electives.

8. Professional (ME) Depth (9 hours minimum)

Each student must choose at least 9 hours of ME elective courses. No more than 6 hours of 3850 and 3860 combined can be credited toward ME depth electives.

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Mechanical Engineering Prerequisites and Corequisites (2023-2024 Catalog Year)

1. Mathematics (17 hours)

MATH 1300	None.
MATH 1301	MATH 1300 or 1201
MATH 2300	MATH 1301
MATH 2420	MATH 2300 or MATH 2310 MATH 2501
MATH Elective	See catalog listing.

2. Basic Science (16 hours)

CHEM 1601+1601L	None.
PHYS 1601 + 1601L	Prerequisite or corequisite: MATH 1200 or MATH 1300
PHYS 1602+ 1602L	Prerequisite or corequisite: MATH 1201 or MATH 1301
MSE 1500+1500L	None.
or CHEM 1602+1602L	CHEM 1601+1601L

3. Engineering Science (25 hours)

ES 1401-1403	None.
CE 2200	Corequisites: MATH 1301; PHYS 1601
CE 2205	CE 2200
CS 1100 **or** 1101 **or** 1103	None.
ECE 2112	Corequisites: MATH 2300; PHYS 1602
ME 2190	CE 2200; PHYS 1601; Corequisite: MATH 2300
ME 2220	PHYS 1601; MATH 2300
ME 3224	ME 2190; MATH 2420
MSE 2205	Corequisite: CE 2205

4. Liberal Arts Core (18 hours)

At least one “W”-designated course in the English language must be included on a graded basis.

5. Open Electives (6 hours)

Courses excluded from the listings in the Liberal Arts Core may be taken as open electives.

6. ME Core (26 hours)

ME 2160	ES 1401-1403; Mechanical Engineering major
ME 2171	Corequisite: MATH 2300
ME 3202	Corequisite: CE 2205
ME 3204	ECE 2112; CS 1100 or CS 1101 or CS 1103 or CS 1104
ME 3234	ME 2190; MATH 2420
ME 3248	ME 2220; ME 3224
ME 4213	Senior Standing
ME 4950	ME 3202
ME 4951	ME 4950
ME 4959	Senior Standing; Corequisite: ME 4950

7. Technical Electives (9 hours)

A maximum of three one-credit-hour ME courses may be used as technical electives.

8. Professional (ME) Depth (9 hours minimum)

Each student must choose at least 9 hours of ME elective courses. No more than 6 hours of 3850 and 3860 combined can be credited toward ME depth electives.