

# MECHANICAL ENGINEERING MAJOR

## Program Tracking Sheet

Effective for students entering AY 2023-2024

Name:	Class Year:
Advisor:	2 <sup>nd</sup> Major:

**NOTES:** Minimum total academic credit = 15 units

Residency Req.: Min. of 8 units must be completed at WPI

**HUMANITIES AND ARTS (2 units)**

All 5 HUA courses must be completed before beginning the Inquiry Seminar or Practicum.

**Depth Component**

Students must complete at least three thematically-related courses prior to the culminating Inquiry Seminar or Practicum in the same thematic area. At least one of the three courses should be at the 2000-level or above.

	Course	Term	Grade	Units
1				1/3
2				1/3
3				1/3
4	HU 3900 or HU 3910			1/3

**Breadth Component**

Students must take at least one course outside the grouping in which they complete their depth component. To identify breadth, courses are grouped in the following manner.

- i. art/art history, drama/theatre, and music (AR, EN/TH, MU);
- ii. foreign languages (AB, CN, EN, GN, SP);
- iii. literature and writing rhetoric (EN, WR, RH);
- iv. history and international studies (HI, HU, INTL);
- v. philosophy and religion (PY, RE).

Exception: May take all six courses in a foreign language

5				1/3
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**Humanities Elective**

6				1/3
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**WELLNESS AND PHYSICAL EDUCATION (4 WPE classes = 1/3 unit)**

7				1/12
				1/12
				1/12
				1/12

**SOCIAL SCIENCE (2/3 unit)** ECON, ENV, GOV, PSY, SD, SOC, SS, STS, DEV, and ID2050

8				1/3
9				1/3

**THE INTERACTIVE QUALIFYING PROJECT (1 unit)**

10				1/3
11				1/3
12				1/3

**FREE ELECTIVES (1 unit)**

13				1/3
14				1/3
15				1/3

**MATHEMATICS AND BASIC SCIENCE (3 2/3 units)**

**MATHEMATICS (6/3 units)**

Must include Differential & Integral Calculus and Ordinary Differential Equations

16	MA 1021 Calculus I			1/3
17	MA 1022 Calculus II			1/3
18	MA 1023 Calculus III			1/3
19	MA 1024 Calculus IV			1/3
20	MA 2051 Ordinary Differential Equations			1/3
21	MA 2071 Linear Algebra			1/3

**SCIENCE (3/3 unit)**

One Chemistry and two Physics, OR one Physics and two Chemistry

22				1/3
23				1/3
24				1/3

**STUDENT SELECTED COURSES (2/3 unit)**

From the general category of Mathematics (MA) and/or Basic Science (BB, CH, PH, GE)

25				1/3
26				1/3

**ENGINEERING SCIENCE AND DESIGN (6 1/3 units)**

**MECHANICAL SYSTEMS (4/3 unit)**

27	ES 2501 Intro to Static Systems			1/3
28	ES 2502 Stress Analysis			1/3
29	ES 2503 Intro to Dynamic Systems			1/3
30	ME 4320 / ME 4322 / ME 4323 / ME 4324			1/3

**THERMAL SYSTEMS (4/3 unit)**

31	ES 3001 Intro to Thermodynamics			1/3
32	ES 3004 Fluid Mechanics			1/3
33	ES 3003 Heat Transfer			1/3
34	ME 4422 / ME 4429			1/3

**OTHER COURSES (4/3 unit)**

35	ES 2001 Intro to Material Science			1/3
36	ECE 2010 Intro to ECE			1/3
37	ME 3901 or ME 3902 Engineering Experimentation Options			1/3
38	Programming (ME 2312/ ME 4512/ BME 1004/ CS 1000/ CS 1004/ CS 1005/ CS 1101/ CS 1102)			1/3

**MAJOR QUALIFYING PROJECT (3/3 unit)**

39				1/3
40				1/3
41				1/3

**ELECTIVES (4/3 unit)**

**Note 1:** Elective courses from engineering disciplines may be selected at the 2000 or higher level. They may also include ES and ME courses at the 1000 level.

42				1/3
43				1/3
44				1/3
45				1/3

**Note 2:** ES 3001 can be replaced by CH 3510 or PH 2101. If CH or PH is used to cover thermodynamics, this course counts as a science; another engineering elective is then required.

**Note 3:** ECE 2010 or any ECE course other than ECE 1799.

**MECHANICAL ENGINEERING PROGRAM CHART**

**STUDENTS EARNING A B.S. DEGREE IN MECHANICAL ENGINEERING MUST COMPLETE 15 UNITS OF STUDY, DISTRIBUTED AS FOLLOWS:**

4 UNITS OF NON-TECHNICAL ACTIVITIES

<b>2 UNITS HUMANITIES AND ARTS</b>	<i>See WPI Requirements</i>
<b>1 UNIT INTERACTIVE QUALIFYING (IQP) PROJECT</b>	<i>See WPI Requirements</i>
<b>2/3 UNIT SOCIAL SCIENCE</b>	<i>See WPI Requirements</i>
<b>1/3 UNIT PHYSICAL EDUCATION</b>	<i>See WPI Requirements</i>

1 UNIT FREE ELECTIVE

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3 2/3 UNITS OF MATHEMATICS (MA) AND BASIC SCIENCE (BB, CH, GE 2341, PH)

<b>MATHEMATICS</b>	
MA 1021	MA 1023
MA 1022	MA 1024
MA 2051	MA 2071

2/3 Units  
Student Selected Courses from the General Category of Mathematics and/or Basic Science

2 Units  
Differential & Integral Calculus, Ordinary Differential Equations, and Linear Algebra

3/3 Units  
One Chemistry and Two Physics, OR  
One Physics and Two Chemistry

<b>SCIENCE</b>	
CH 1010	CH 1020
PH 1110	PH 1120

6 1/3 UNITS OF MECHANICAL ENGINEERING

4/3 units required	4/3 units required	4/3 units required	1 unit required	4/3 units required
<b>MECHANICAL SYSTEMS</b>	<b>THERMAL SYSTEMS</b>	<b>OTHER COURSES</b>	<b>MAJOR QUALIFYING PROJECT (MQP)</b>	<b>ELECTIVES</b>
ES 2501 ES 2502 ES 2503 One of: ME 4320 ME 4322 ME 4323 ME 4324	ES 3001 <sup>2</sup> ES 3004 ES 3003 One of: ME 4422 ME 4429	ES 2001 ECE 2010 <sup>3</sup> (ME 3901 or ME3902) One Programming Course (ME 2312, ME 4512, BME 1004, CS 1000, CS 1004, CS 1005, CS 1101, or CS 1102)		Engineering (Note 1)

**Note 1:** Elective courses from engineering disciplines may be selected at the 2000 or higher level. They may also include ES and ME courses at the 1000 level.

**Note 2:** ES 3001 may be replaced by CH 3510 or PH Thermodynamics. If CH or PH is used to cover thermodynamics, this course counts as a science; another engineering elective is then required.

**Note 3:** ECE 2010 or any ECE course other than ECE 1799.