

# MECHANICAL ENGINEERING MAJOR

## Program Tracking Sheet

Effective for students entering AY 2022-2023

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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**PHYSICAL EDUCATION (4 PE classes = 1/3 unit)**

				1/12
7				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 and/or Basic Science

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 / 4322 / 4323 / 4324 / 4810			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 1101 or CS 1004)			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)

MATHEMATICS	
MA 1021	MA 1023
MA 1022	MA 1024
MA 2051	MA 2071

SCIENCE	
CH 1010	CH 1020
PH 1110	PH 1120

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

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
MECHANICAL SYSTEMS	THERMAL SYSTEMS	OTHER COURSES	MAJOR QUALIFYING PROJECT (MQP)	ELECTIVES
ES 2501 ES 2502 ES 2503 One of: ME 4320 ME 4322 ME 4323 ME 4324 ME 4810	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 1101, or CS 1004)		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.