

# AEROSPACE ENGINEERING MAJOR – Focus on Aeronautical Engineering

## Program Tracking Sheet

Effective for students entering AY 2021-2022

|          |                        |
|----------|------------------------|
| 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 (6/3 unit)**

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 |
|---|--|--|--|-----|

**Humanities Elective**

|   |  |  |  |     |
|---|--|--|--|-----|
| 6 |  |  |  | 1/3 |
|---|--|--|--|-----|

**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 |
|---|--|--|--|-----|

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|---|--|--|--|-----|
| 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 SCIENCES (10/3 units)**

Must include 1/3 units in thermodynamics

**MATHEMATICS (6/3 unit)** Courses with prefix: MA

|    |                  |  |  |     |
|----|------------------|--|--|-----|
| 16 | MA 1021 (Calc 1) |  |  | 1/3 |
|----|------------------|--|--|-----|

|    |                  |  |  |     |
|----|------------------|--|--|-----|
| 17 | MA 1022 (Calc 2) |  |  | 1/3 |
|----|------------------|--|--|-----|

|    |                  |  |  |     |
|----|------------------|--|--|-----|
| 18 | MA 1023 (Calc 3) |  |  | 1/3 |
|----|------------------|--|--|-----|

|    |                  |  |  |     |
|----|------------------|--|--|-----|
| 19 | MA 1024 (Calc 4) |  |  | 1/3 |
|----|------------------|--|--|-----|

|    |                    |  |  |     |
|----|--------------------|--|--|-----|
| 20 | MA 2051 (Diff Eqs) |  |  | 1/3 |
|----|--------------------|--|--|-----|

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|----|-------------------------------------|--|--|-----|
| 21 | MA 2071 Matrices and Linear Algebra |  |  | 1/3 |
|----|-------------------------------------|--|--|-----|

**PHYSICS (2/3 unit)** Courses with prefix: PH

|    |                               |  |  |     |
|----|-------------------------------|--|--|-----|
| 22 | PH 1110/1111/2201 (Mechanics) |  |  | 1/3 |
|----|-------------------------------|--|--|-----|

|    |                    |  |  |     |
|----|--------------------|--|--|-----|
| 23 | PH 1120/1121 (E&M) |  |  | 1/3 |
|----|--------------------|--|--|-----|

**CHEMISTRY (1/3 unit)** Course with prefix: CH

|    |                                   |  |  |     |
|----|-----------------------------------|--|--|-----|
| 24 | CH 1010 (Chem 1) or 1020 (Chem 2) |  |  | 1/3 |
|----|-----------------------------------|--|--|-----|

**SPACE ENVIRONMENTS (1/3 unit)**

|    |                                   |  |  |     |
|----|-----------------------------------|--|--|-----|
| 25 | PH 2550 Atmospheric and Space Env |  |  | 1/3 |
|----|-----------------------------------|--|--|-----|

**ENGINEERING SCIENCE AND DESIGN (20/3 units)**

**Aerodynamics (2/3 unit)**

|    |                                 |  |  |     |
|----|---------------------------------|--|--|-----|
| 26 | AE 3410 Compressible Fluid Dyn. |  |  | 1/3 |
|----|---------------------------------|--|--|-----|

|    |                      |  |  |     |
|----|----------------------|--|--|-----|
| 27 | AE 3711 Aerodynamics |  |  | 1/3 |
|----|----------------------|--|--|-----|

**Aerospace Materials (2/3 unit)**

|    |                            |  |  |     |
|----|----------------------------|--|--|-----|
| 28 | ES 2001 Intro to Materials |  |  | 1/3 |
|----|----------------------------|--|--|-----|

|    |                             |  |  |     |
|----|-----------------------------|--|--|-----|
| 29 | AE 4717 Fund. of Comp. Mat. |  |  | 1/3 |
|----|-----------------------------|--|--|-----|

**Structures (1 unit)**

|    |                                       |  |  |     |
|----|---------------------------------------|--|--|-----|
| 30 | AE 2712 Intro to Aerospace Structures |  |  | 1/3 |
|----|---------------------------------------|--|--|-----|

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|----|------------------------------|--|--|-----|
| 31 | AE 3712 Aerospace Structures |  |  | 1/3 |
|----|------------------------------|--|--|-----|

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|----|-----------------------------|--|--|-----|
| 32 | AE 4712 Structural Dynamics |  |  | 1/3 |
|----|-----------------------------|--|--|-----|

**Propulsion (1 unit)**

|    |                                 |  |  |     |
|----|---------------------------------|--|--|-----|
| 33 | ES 3001 Intro to Thermodynamics |  |  | 1/3 |
|----|---------------------------------|--|--|-----|

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|----|-------------------------------|--|--|-----|
| 34 | AE 3602 Incompressible Fluids |  |  | 1/3 |
|----|-------------------------------|--|--|-----|

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|----|--|--|--|-----|
| 35 | AE 4711 Fundamentals of Air Breathing Propulsion |  |  | 1/3 |
|----|--|--|--|-----|

**Flight Mechanics, and Stability and Control (1 unit)**

|    |                                  |  |  |     |
|----|----------------------------------|--|--|-----|
| 36 | ES 2503 Intro to Dynamic Systems |  |  | 1/3 |
|----|----------------------------------|--|--|-----|

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|----|--|--|--|-----|
| 37 | AE 3713 Intro to Aerospace Control Systems |  |  | 1/3 |
|----|--|--|--|-----|

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|----|-------------------------------------|--|--|-----|
| 38 | AE 4723 Aircraft Dynamics & Control |  |  | 1/3 |
|----|-------------------------------------|--|--|-----|

**Major Design Experience (1/3 unit)**

|    |                         |  |  |     |
|----|-------------------------|--|--|-----|
| 39 | AE 4770 Aircraft Design |  |  | 1/3 |
|----|-------------------------|--|--|-----|

**ASTRONAUTICAL ENGINEERING (2/3 unit)**

**Orbital Mechanics and Space Environments (1/3 unit)**

|    |                      |  |  |     |
|----|----------------------|--|--|-----|
| 40 | AE 2713 Astronautics |  |  | 1/3 |
|----|----------------------|--|--|-----|

**Telecommunications (1/3 unit)**

|    |                                     |  |  |     |
|----|-------------------------------------|--|--|-----|
| 41 | AE 4733 Guidance, Navig., and Comm. |  |  | 1/3 |
|----|-------------------------------------|--|--|-----|

**Experimentation (1/3 unit)**

|    |  |  |  |     |
|----|--|--|--|-----|
| 42 | ME 3901 or ME 3902 Engineering Experimentation |  |  | 1/3 |
|----|--|--|--|-----|

**Aerospace Design – Major Qualifying Project (1 unit)**

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|----|--|--|--|-----|
| 43 |  |  |  | 1/3 |
|----|--|--|--|-----|

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|----|--|--|--|-----|
| 44 |  |  |  | 1/3 |
|----|--|--|--|-----|

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|----|--|--|--|-----|
| 45 |  |  |  | 1/3 |
|----|--|--|--|-----|