SPACE ENGINEERING
CURRICULUM UPDATES
New

Replacement: PHYS 3050 3.00 is replaced with EECS 2200 3.00.

Replacement: PHYS 3150 3.00 is replaced with EECS 2210 3.00.

Students entering 3rd year this Fall/Winter 2024-2025 (i.e., students who entered Fall/Winter 2022-2023 and declared Space Engineering in Fall/Winter 2023-2024):

In the 2024-2025 academic year, you will:
• Enrol in ESSE 4020 3.00 (Fall 2024) and ENG 4550 3.00 (Fall 2024 or Winter 2025), in place of ESSE 3330 3.00 and ESSE 3360 3.00
• If ESSE/PHYS 3280 3.00 (Winter 2025) is cancelled, enrol in ESSE 4350 3.00 (Year term) in its place

In the 2025-2026 academic year, you will:
• Enrol in ESSE 3330 3.00 and ESSE 3360 3.00 and possibly ESSE 4350 3.00 (pending PHYS 3280 3.00)

The above represents a re-ordering of your 3rd and 4th year courses.

Students impacted by the above re-ordering will be notified by a Lassonde Academic Advisor directly.
### Third Year Courses

- ENCE 3003 3.00: Professional Engineering Practice
- ENCE 3301 3.00: Materials for Space Applications
- ENCE 3202 3.00: Engineering and the Environment
- ENCE 3203 1.00: Physics of the Space Environment
- ENCE 3300 1.00: Heat Transfer and Thermal Design
- ENCE 3381 3.00: Introduction to Mechatronics
- MECCH 3421 3.00: Machine Elements Design
- MECCH 3422 3.00: Electronics I
- MECCH 3423 3.00: Electronics II

**Swap 3280 with 4350 if 3280 is not offered in the 2024-2025 academic year.**

### Fourth Year Courses

- ENCE 4000 6.00: Engineering Project
- ENCE 4025 3.00: Theoretical and Spectral Analysis
- ENCE 4100 3.00: Dynamics of Space Vehicles
- ENCE 4300 3.00: Space Hardware
- ENCE 4305 3.00: Payload Design
- ENCE 4315 3.00: Space Mission Design
- ENCE 4320 3.00: Finite Element Methods in Engineering Design
- ENCE 4355 3.00: Introduction to Control Systems

### Enrolment Dates

- Enrol in the 2024-2025 academic year / Complete in 3rd year
- Enrol in the 2025-2026 academic year / Move to 4th year

**LASSONDE SCHOOL OF ENGINEERING**

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For students following the 2022-2023 Academic Calendar:

- **ESSE 3380 4.00 “Introduction to Mechatronics”, a major requirement, is not currently offered**
- **Approved course substitute:** Until ESSE 3380 4.00 is offered, students must complete PHYS 2030 3.00 instead

- **ESSE 4380 4.00 “Mechatronic Systems and Design”, a technical elective option, is not currently offered**
- Students may select from any other available technical electives listed in the Academic Calendar

For students following the 2022-2023 Academic Calendar:

- **MECH 3409 3.00 “Machine Elements Design”, a major requirement, is open for Space Engineering students**
- Students who were unable to complete MECH 3409 3.00 in Fall/Winter 2023-2024 were approved to complete PHYS 3250 3.00 instead
SPACE ENGINEERING

RECAP

Subject code changes:

- ENG 3330 3.00 is now ESSE 3330 3.00
- ENG 4350 6.00 is now ESSE 4350 6.00
- ENG 3320 3.00 is now ESSE 3320 3.00
- PHYS 4110 3.00 is now ESSE 4110 3.00

“Two of” Technical Electives: Students are required to complete 6.00 credits of technical electives from a “two of” list in their Academic Calendar. Students may choose from courses listed in their original Academic Calendar or they may select courses from a more recent Academic Calendar. For example:

For example, the 2016-2017 Academic Calendar states:

- Two of: LE/EECS 4421 3.00, LE/ENG 3320 3.00, LE/ENG 4330 3.00, LE/ESSE 3020 3.00, LE/ESSE 4220 3.00, LE/ESSE 4230 3.00, LE/ESSE 4610 3.00, SC/PHYS 3070 3.00, SC/PHYS 4120 3.00.

Whereas the 2022-2023 Academic Calendar states:

- Two of: LE/EECS 4421 3.00, LE/ESSE 3320 3.00, LE/ENG 4330 3.00, LE/ENG 4650 3.00, LE/ESSE 3020 3.00, LE/ESSE 3670 3.00, LE/ESSE 4220 3.00, LE/ESSE 4230 3.00, SC/PHYS 3070 3.00, SC/PHYS 4120 3.00, LE/ESSE 4380 4.00.

For students following the 2021-2022 Academic Calendar and prior:

ESSE 3380 4.00 and MECH 3409 3.00, when offered and available for Space Engineering students, can also count towards the “Two of” technical electives.
## SPACE ENGINEERING

### Recap

<table>
<thead>
<tr>
<th>No longer offered: ESSE 2360 3.00 and ESSE 3340 3.00 will no longer be offered effective Fall/Winter 2019/2020</th>
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</thead>
<tbody>
<tr>
<td>Replacement: ENG 2003 3.00 may be taken instead of ESSE 2360 3.00</td>
</tr>
<tr>
<td>Replacement: MECH 3302 3.00 may be taken instead of ESSE 3340 3.00</td>
</tr>
<tr>
<td>Replacement: ESSE 4610 3.00 was replaced with ESSE 3670 3.00</td>
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</tbody>
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### Students following the 2014-2015 or 2015-2016 or 2016-2017 or 2017-2018 Academic Calendars:

EECS 2031 3.00 is listed as a degree requirement:

- Previous approved course substitution: Take EECS 1541 3.00 to satisfy your EECS 2031 3.00 degree requirement.
- Approved course substitution effective Fall 2019: If EECS 1541 3.00 was not completed by Winter 2019, you must complete ESSE 2220 3.00 (not EECS 1541 3.00) to satisfy the EECS 2031 3.00 degree requirement.

### Students following the 2018-2019 Academic Calendar:

While ESSE 2220 3.00 is listed as a degree requirement, it was not offered in the Fall/Winter 2018-2019 academic session.

- Approved course substitution: Students requiring ESSE 2220 3.00 were approved to complete EECS 2031 3.00 E/Z instead in the Fall/Winter 2018-2019 academic session only.