



# SPACE ENGINEERING

CURRICULUM UPDATES

# SPACE ENGINEERING

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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.

**Replacement:** ESSE 2220 3.00 is replaced with EECS 2030 3.00 Section E, Section F, or Section Z.

**Students entering 3<sup>rd</sup> 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 3<sup>rd</sup> and 4<sup>th</sup> year courses.

**Students Graduating February, June, or October 2025 and missing ESSE 3330 3.00 and/or ESSE 3360 3.00:** Contact Professor Regina Lee, Undergraduate Program Director, ([reginal@yorku.ca](mailto:reginal@yorku.ca)) to discuss permission to complete ESSE 4000 3.00/6.00 instead.

# SPACE ENGINEERING

Third Year Courses			
<input type="checkbox"/>	LE/ENG 3000 3.00	Professional Engineering Practice	
<input type="checkbox"/>	LE/ESSE 3330 3.00	Materials for Space Applications	
<input type="checkbox"/>	LE/ESSE 2210 3.00	Engineering and the Environment	
<input type="checkbox"/>	LE/ESSE 3280 3.00	Physics of the Space Environment	
<input type="checkbox"/>	LE/ESSE 3360 3.00	Heat Transfer and Thermal Design	
<input type="checkbox"/>	LE/ESSE 3380 4.00	Introduction to Mechatronics	
<input type="checkbox"/>	LE/MECH 3302 3.00	Mechanisms for Mechanical Systems	
<input type="checkbox"/>	LE/MECH 3409 3.00	Machine Elements Design	
<input type="checkbox"/>	SC/PHYS 3050 3.00	Electronics I	
<input type="checkbox"/>	SC/PHYS 3150 3.00	Electronics II	
<input type="checkbox"/>			
Fourth Year Courses			
<input type="checkbox"/>	LE/ENG 4000 6.00	Engineering Project	
<input type="checkbox"/>	LE/ESSE 4020 3.00	Time Series and Spectral Analysis	
<input type="checkbox"/>	LE/ESSE 4110 3.00	Dynamics of Space Vehicles	
<input type="checkbox"/>	LE/ESSE 4350 6.00	Space Hardware	
<input type="checkbox"/>	LE/ESSE 4360 3.00	Payload Design	
<input type="checkbox"/>	LE/ESSE 4361 3.00	Space Mission Design	
<input type="checkbox"/>	LE/ESSE 4370 3.00	Finite Element Methods in Engineering Design	
<input type="checkbox"/>	LE/ENG 4550 3.00	Introduction to Control Systems	
<input type="checkbox"/>			
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, LE/ESSE 4380 4.00, SC/PHYS 3070 3.00, SC/PHYS 4120 3.00			
Complementary Studies (6 credits)			

Swap 3280 with 4350 if 3280 is not offered in the 2024-2025 academic year (3 credits)

Enrol in the 2025-2026 academic year / Move to 4<sup>th</sup> year

Enrol in the 2025-2026 academic year / Move to 4<sup>th</sup> year

Enrol in the 2024-2025 academic year / Complete in 3<sup>rd</sup> year

Enrol in the 2024-2025 academic year / Complete in 3<sup>rd</sup> year

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## UPDATED

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

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## 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

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## RECAP

**No longer offered:** ESSE 2360 3.00 and ESSE 3340 3.00 will no longer be offered effective Fall/Winter 2019/2020

**Replacement:** ENG 2003 3.00 may be taken instead of ESSE 2360 3.00

**Replacement:** MECH 3302 3.00 may be taken instead of ESSE 3340 3.00

**Replacement:** ESSE 4610 3.00 was replaced with ESSE 3670 3.00

**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.