Mechanical, Civil, Aeronautical, Industrial, Materials Science Engineering - AS-T (2 year)

2023-24

Program map for Mechanical, Civil, Aeronautical, Industrial, and Materials Science Associate in Science-Transfer (AST), two year plan

Complete basic background studies for transfer to a bachelor's degree program in engineering disciplines. Careers may be found in research, development, design, operations management, teaching, sales and consulting.

See also: (lowercolumbia.edu/programs/stem)

- **Degree Requirements for Science, Technology, Engineering and Math programs (lowercolumbia.edu/programs/stem)**
- **Course descriptions in LCC Catalog (lowercolumbia.edu/publications/catalog/courses)**
- **Distribution lists in LCC Catalog (lowercolumbia.edu/publications/catalog/distribution-lists)**

Please note that many course sequences only begin in fall quarter. Please check with your program advisor for more information.

Please review both the "By Quarter Overview" and "Detailed Class Sequence" tabs below.

By Quarter Overview

First Quarter

- COLL 101: College Success 101 (2 credits)
- PHYS& 221: Engineering Physics I w/ Lab (5 credits)
- ENGR 106: Engineering Problems (5 credits)
  - Prerequisite is C or better in MATH 098 or placement into MATH& 141
- MATH& 151: Calculus I (5 credits)

Second Quarter

- PHYS& 222: Engineering Physics II w/ Lab (5 credits)

- MATH& 152: Calculus II (5 credits)
- ENGL& 101: English Comp I (5 credits)
- Choose one:
  - ART& 100: Art Appreciation (5 credits)
  - CMST 250: Intercultural Communication (5 credits)
  - HIST& 126: World Civilization I (5 credits)

Third Quarter

- MATH& 153: Calculus III (5 credits)
- PHYS& 223: Engineering Physics III w/ Lab (5 credits)
- CS 170: Computer Programming (5 credits)
- ENGR& 121: Engineering Graphics I (3 credits)

Fourth Quarter

- MATH& 254: Calculus IV (5 credits)
- ENGR& 214: Statics (5 credits)
- CHEM& 161: General Chemistry w/ Lab I (5 credits)
- ENGR& 122: Engineering Graphics II (3 credits)

Apply for Financial Aid at transfer institution

Fifth Quarter

- MATH 240: Differential Equations (5 credits)
- ENGR& 215: Dynamics (5 credits)
- Choose one:
  - ECON& 201: Micro Economics (5 credits)
  - ECON& 202: Macro Economics (5 credits)
- CHEM& 162: General Chemistry w/ Lab II (5 credits)

Apply for Graduation (lowercolumbia.edu/graduation)

Sixth Quarter

- MATH 220: Linear Algebra (5 credits)
- ENGR& 225: Mechanics of Materials (5 credits)
- Choose one:
  - ANTH& 100: Survey of Anthropology (5 credits)
  - ANTH& 206: Cultural Anthropology (5 credits)
  - HIST& 128: Western Civ III (5 credits)
  - HIST& 215: Women in US History (5 credits)
- ENGR& 123: Engineering Graphics III (3 credits)
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Detailed Class Sequence

1. College Success

COLL 101: College Success 101 (2 credits)

2. Pre-Major Requirement

PHYS& 221: Engineering Physics I w/ Lab (5 credits)

- *Prerequisites: Completion of or concurrent enrollment in MATH& 151 or instructor permission.*

3. Elective

ENGR 106: Engineering Problems (5 credits)

- Prerequisite is C or better in MATH 098 or placement into MATH& 141

4. Math Requirement

MATH& 151: Calculus I (5 credits)

- *Prerequisites: MATH& 142 with a grade of C or better.*

5. Pre-Major Requirement

PHYS& 221: Engineering Physics I w/ Lab (5 credits)

- *Prerequisites: Completion of or concurrent enrollment in MATH& 151 or instructor permission.*

6. Math Requirement

MATH& 152: Calculus II (5 credits)

- *Prerequisite: MATH& 151 with a grade of C or better.*

7. Communications Requirement

ENGL& 101: English Comp I (5 credits)

- *Prerequisites: College level reading and writing skills or completion of ENGL 099 or TECH 105 with a grade of C or better.*

8. Humanities / Diversity Requirement

Choose one of these recommended courses:

- ART& 100: Art Appreciation (5 credits)
- CMST 250: Intercultural Communication (5 credits
  - *Fulfills [DIVR] requirement at WSU*
- HIST& 126: World Civilization I (5 credits
  - *Fulfills [DIVR] requirement at WSU*

9. Math Requirement

MATH& 153: Calculus III (5 credits)

- *Prerequisite: MATH& 152 with a grade of C or better.*

10. Pre-Major Requirement

PHYS& 223: Engineering Physics III w/ Lab (5 credits)

- *Prerequisites: PHYS& 222 or instructor permission.*

11. Pre-Major Requirement

CS 170: Computer Programming (5 credits)

- *Prerequisites: MATH 088 or MATH 097 with a grade of C or better and knowledge of Windows is required; or instructor permission.*

12. Elective

ENGR& 121: Engineering Graphics I (3 credits)

- *It is recommended that sequence courses be completed at one institution*.

13. Elective

MATH& 254: Calculus IV (5 credits)

- *Prerequisites: MATH& 153 with a grade of C or better.*
- *Required to transfer to WSUV at junior level*

14. Pre-Major Requirement

ENGR& 214: Statics (5 credits)

- *Prerequisites: MATH& 151 and either PHYS& 221 or ENGR 106.*

15. Pre-Major Requirement

CHEM& 161: General Chemistry w/ Lab I (5 credits)

- *Prerequisites: CHEM& 100 or high school chemistry and MATH 098.*

16. Elective

ENGR& 122: Engineering Graphics II (3 credits)

- *Prerequisite: ENGR& 121 or instructor permission.*
- *It is recommended that sequence courses be completed at one institution.*

17. Math Requirement

MATH 240: Differential Equations (5 credits)

- *Prerequisite: MATH& 254 with a grade of C or better.*

18. Pre-Major Requirement

ENGR& 215: Dynamics (5 credits)

- *Prerequisites: ENGR& 214, MATH& 152, and PHYS& 221, or instructor permission.*

19. Social Science Requirement

Choose one of these recommended courses:

- ECON& 201: Micro Economics (5 credits)
  - *Prerequisites: MATH 088 or TECH 088 or BUS 104 and ENGL& 101 or BUS 190.*
- ECON& 202: Macro Economics (5 credits)
  - Prerequisite: *ECON& 201 or instructor permission.*

20. Pre-Major Requirement

CHEM& 162: General Chemistry w/ Lab II (5 credits)

- *Prerequisites: CHEM& 161*

21. Math Requirement

MATH 220: Linear Algebra (5 credits)

- *Prerequisite: MATH& 152 with a grade of C or better.*

22. Pre-Major Requirement

ENGR& 225: Mechanics of Materials (5 credits)

- *Prerequisite: ENGR& 214, concurrent enrollment in MATH& 152, and*
- *PHYS& 222 or instructor permission.*

23. Social Science / Diversity Requirement

Choose one of these recommended courses:

- ANTH& 100: Survey of Anthropology (5 credits)
  - *Fulfills [DIVR] requirement at WSU*
- ANTH& 206: Cultural Anthropology (5 credits)
  - *Fulfills [DIVR] requirement at WSU*
- HIST& 128: Western Civ III (5 credits)
  - *Fulfills [ROOT] requirement at WSU*
- HIST& 215: Women in US History (5 credits)
  - *Fulfills [DIVR] requirement at WSU*

24. Elective

ENGR& 123: Engineering Graphics III (3 credits)

- *Prerequisite: ENGR& 121 and ENGR& 122 or instructor permission.*
- *Required to transfer to WSUV at junior level.*
- *It is recommended that sequence courses be completed at one institution.*

Program Maps for Science, Technology, Engineering and Math (STEM) (lowercolumbia.edu/program-maps/stem)

- **Bioengineering and Chemical Pre-Engineering AS-T (Chemical Option) (lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Chemical-Option)**
- **Bioengineering and Chemical Pre-Engineering AS-T (Bioengineering Option) (lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Bioengineering-Option)**
- **Biological Sciences - AS-T (lowercolumbia.edu/program-maps/stem/AST-Biological-Sciences)**
- **Biology - DTA/MRP (lowercolumbia.edu/program-maps/stem/DTA-MRP-Biology)**
- **Chemistry - AS-T (lowercolumbia.edu/program-maps/stem/AST-Chemistry)**
- **Computer Science - AST (lowercolumbia.edu/program-maps/stem/AST-Computer-Science)**
- **Computer Science AS-T (WSU-V) (lowercolumbia.edu/program-maps/stem/AST-Computer-Science-WSU-V)**
- **Computer and Electrical Pre-Engineering - AS-T COMP E EE/MRP (2 year) (lowercolumbia.edu/program-maps/stem/AST-Computer-and-Electrical-Pre-Engineering-2-year)**
- **Computer and Electrical Pre-Engineering - AS-T COMP E EE/MRP (3 year) (lowercolumbia.edu/program-maps/stem/AST-Computer-and-Electrical-Pre-Engineering-3-year)**
- **Earth Sciences - AA-DTA (lowercolumbia.edu/program-maps/stem/AADTA-Earth-Sciences)**

- **Earth Sciences - AS-T (lowercolumbia.edu/program-maps/stem/AST-Earth-Sciences)**
- **Environmental Science - AS-T (lowercolumbia.edu/program-maps/stem/AST-Environmental-Science)**
- **Mechanical, Civil, Aeronautical, Industrial, Materials Science Engineering - AS-T (2 year) (lowercolumbia.edu/program-maps/stem/AST-Mechanical-Civil-Aeronautical-Industrial-Materials-Science-Engineering-2-year)**
- **Mechanical, Civil, Aeronautical, Industrial, and Materials Science Engineering AS-T (3 year) (lowercolumbia.edu/program-maps/stem/AST-Mechanical-Civil-Aeronautical-Industrial-Materials-Science-Engineering-3-year)**
- **Physics - AS-T (lowercolumbia.edu/program-maps/stem/AST-Physics)**
- **Physics - AS-T (Math Transfer Option) (lowercolumbia.edu/program-maps/stem/AST-Physics-Math-Transfer-Option)**