

Mechanical, Civil, Aeronautical, Industrial, and Materials Science Engineering AS-T (3 year)



2023-24

Program map for Mechanical, Civil, Aeronautical, Industrial, and Materials Science Engineering Associate in Science-Transfer (AS-T), three 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 \(lowercolumbia.edu/programs/stem \)](https://lowercolumbia.edu/programs/stem)
- [Course descriptions in LCC Catalog \(lowercolumbia.edu/publications/catalog/courses \)](https://lowercolumbia.edu/publications/catalog/courses)
- [Distribution lists in LCC Catalog \(lowercolumbia.edu/publications/catalog/distribution-lists \)](https://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

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- COLL 101: College Success 101 (2 credits)
 - CHEM& 161: General Chemistry w/ Lab I (5 credits)
 - ENGR 106: Engineering Problems (5 credits)
 - Prerequisite is C or better in MATH 098 or placement into MATH& 141

**Pre- and co-requisite(s)*

Second Quarter

- CHEM& 162: General Chemistry w/ Lab II (5 credits)
- MATH& 141: Precalculus I (6 credits)
- ENGL& 101: English Comp I (5 credits)

Third Quarter

- CHEM& 163: General Chemistry w/ Lab III (5 credits)
- MATH& 142: Precalculus II (5 credits)
- CS 170: Computer Programming (5 credits)

Fourth Quarter

- MATH& 151: Calculus I (5 credits)
- PHYS& 221: Engineering Physics I w/ Lab (5 credits)
- Choose one:
 - ART& 100: Art Appreciation (5 credits)
 - CMST 250: Intercultural Communication (5 credits)
 - HIST& 126: World Civilization I (5 credits)

Fifth Quarter

- MATH& 152: Calculus II (5 credits)
- PHYS& 222: Engineering Physics II w/ Lab (5 credits)
- Choose one:
 - ECON& 201: Micro Economics (5 credits)
 - ECON& 202: Macro Economics (5 credits)

Sixth Quarter

- MATH& 153: Calculus III (5 credits)
- PHYS& 223: Engineering Physics III w/ Lab (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)

Seventh Quarter

- MATH& 254: Calculus IV (5 credits)
- ENGR& 214: Statistics (5 credits)
- ENGR& 121: Engineering Graphics I (3 credits)

Apply for Financial Aid at transfer institution**Eighth Quarter**

- MATH 240: Differential Equations (5 credits)
- ENGR& 215: Dynamics (5 credits)
- ENGR& 122: Engineering Graphics II (3 credits)

Apply for Graduation (lowercolumbia.edu/graduation)**Ninth Quarter**

- MATH 220: Linear Algebra (5 credits)
- ENGR& 225: Mechanics of Materials (5 credits)
- ENGR& 123: Engineering Graphics III (3 credits)

Detailed Class Sequence**1. College Success**

COLL 101: College Success 101 (2 credits)

2. Pre-Major Requirement

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

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

3. Elective

ENGR 106: Engineering Problems (5 credits)

- *Prerequisite: High school or 100-level physics or chemistry, or instructor permission. Concurrent enrollment in MATH& 142.*

4. Pre-Major Requirement

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

- *Prerequisites: CHEM& 161*

5. Prerequisite Coursework / Elective

MATH& 141: Precalculus I (6 credits)

- *Prerequisites: C or better in MATH 098, B or better in ABE 092, or placement.*

6. 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.*

7. Elective

CHEM& 163: General Chemistry w/ Lab III (5 credits)

- *Prerequisites: CHEM& 162*
- *Optional for WSU transfer.*
- *It is recommended that sequence courses be completed at one institution.*

8. Prerequisite Coursework / Elective

MATH& 142: Precalculus II (5 credits)

- *Prerequisites: C or better in MATH& 141.*

9. 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.*

10. Math Requirement

MATH& 151: Calculus I (5 credits)

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

11. Pre-Major Requirement

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

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

12. 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*

13. Math Requirement

MATH& 152: Calculus II (5 credits)

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

14. Pre-Major Requirement

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

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

15. 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.*

16. Math Requirement

MATH& 153: Calculus III (5 credits)

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

17. Pre-Major Requirement

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

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

18. 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*

19. 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*

20. Pre-Major Requirement

ENGR& 214: Statistics (5 credits)

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

21. Elective

ENGR& 121: Engineering Graphics I (3 credits)

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

22. Math Requirement

MATH 240: Differential Equations (5 credits)

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

23. Pre-Major Requirement

ENGR& 215: Dynamics (5 credits)

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

24. 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.*

25. Math Requirement

MATH 220: Linear Algebra (5 credits)

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

26. Pre-Major Requirement

ENGR& 225: Mechanics of Materials (5 credits)

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

27. 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 \(Chemical Option\) \(lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Chemical-Option \)](http://lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Chemical-Option)
- [Bioengineering and Chemical Pre-Engineering AS-T \(Bioengineering Option\) \(lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Bioengineering-Option \)](http://lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Bioengineering-Option)
- [Biological Sciences - AS-T \(lowercolumbia.edu/program-maps/stem/AST-Biological-Sciences \)](http://lowercolumbia.edu/program-maps/stem/AST-Biological-Sciences)
- [Biology - DTA/MRP \(lowercolumbia.edu/program-maps/stem/DTA-MRP-Biology \)](http://lowercolumbia.edu/program-maps/stem/DTA-MRP-Biology)
- [Chemistry - AS-T \(lowercolumbia.edu/program-maps/stem/AST-Chemistry \)](http://lowercolumbia.edu/program-maps/stem/AST-Chemistry)
- [Computer Science - AST \(lowercolumbia.edu/program-maps/stem/AST-Computer-Science \)](http://lowercolumbia.edu/program-maps/stem/AST-Computer-Science)
- [Computer Science AS-T \(WSU-V\) \(lowercolumbia.edu/program-maps/stem/AST-Computer-Science-WSU-V \)](http://lowercolumbia.edu/program-maps/stem/AST-Computer-Science-WSU-V)
- [Computer and Electrical Pre-Engineering - AS-T COMP E EE/MRP \(2 year\) \(lowercolumbia.edu/program-maps/stem/AST-Computer-and-Electrical-Pre-Engineering-2-year \)](http://lowercolumbia.edu/program-maps/stem/AST-Computer-and-Electrical-Pre-Engineering-2-year)
- [Computer and Electrical Pre-Engineering - AS-T COMP E EE/MRP \(3 year\) \(lowercolumbia.edu/program-maps/stem/AST-Computer-and-Electrical-Pre-Engineering-3-year \)](http://lowercolumbia.edu/program-maps/stem/AST-Computer-and-Electrical-Pre-Engineering-3-year)
- [Earth Sciences - AA-DTA \(lowercolumbia.edu/program-maps/stem/AADTA-Earth-Sciences \)](http://lowercolumbia.edu/program-maps/stem/AADTA-Earth-Sciences)
- [Earth Sciences - AS-T \(lowercolumbia.edu/program-maps/stem/AST-Earth-Sciences \)](http://lowercolumbia.edu/program-maps/stem/AST-Earth-Sciences)
- [Environmental Science - AS-T \(lowercolumbia.edu/program-maps/stem/AST-Environmental-Science \)](http://lowercolumbia.edu/program-maps/stem/AST-Environmental-Science)
- [Mechanical, Civil, Aeronautical, Industrial, Materials Science Engineering - AS-T \(2 year\) \(lowercolumbia.edu/program-maps/stem/AST-Mechanical-Civil-Aeronautical-Industrial-Materials-Science-Engineering-2-year \)](http://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 \(3 year\) \(lowercolumbia.edu/program-maps/stem/AST-Mechanical-Civil-Aeronautical-Industrial-Materials-Science-Engineering-3-year \)](http://lowercolumbia.edu/program-maps/stem/AST-Mechanical-Civil-Aeronautical-Industrial-Materials-Science-Engineering-3-year)
- [Physics - AS-T \(lowercolumbia.edu/program-maps/stem/AST-Physics \)](http://lowercolumbia.edu/program-maps/stem/AST-Physics)
- [Physics - AS-T \(Math Transfer Option\) \(lowercolumbia.edu/program-maps/stem/AST-Physics-Math-Transfer-Option \)](http://lowercolumbia.edu/program-maps/stem/AST-Physics-Math-Transfer-Option)