

Engineering Science, A.S.

HEGIS: 5609.00

PROGRAM CODE: 87212

PROGRAM DIRECTOR: Dr. John Mikalopas

DEPARTMENT: PHYSICAL SCIENCES

The Engineering Science AS is designed to provide students the foundation in engineering and related physical sciences and mathematics courses in preparation for transfer to baccalaureate programs. Courses focus on understanding the principles and methods of engineering, application of mathematics, science, and computing techniques to the study of and solution to engineering problems, the importance of professional and ethical responsibilities of engineers, and support quantitative reasoning, scientific writing, and research.

The curriculum presented here applies to students who started the major in Fall 2026 or Spring 2027. If you enrolled as a matriculant prior to that, please see the *College Catalog* for the year you started the major as a matriculant for the curriculum requirements that apply to you.

Consultation with the Program Advisor is required.

Degree Maps:

[Degree Map for Engineering Science, A.S. - MAT 9010 or MAT 9B0 or MAT 900 Placement](#)

[Degree Map for Engineering Science, A.S. - MAT 1500 Placement - Calculus I](#)

Your Degree Map contains the suggested term-by-term course sequence for your academic path towards graduation.

To ensure successful and timely completion of your degree, it is recommended that you meet with your academic advisor to discuss your unique map.

Please note some courses *may* only be offered once an academic year.

Program Learning Outcomes:

Upon successful completion of the Engineering Science degree program requirements, graduates will:

1. employ mathematics, science, and computing techniques to support the study and solution of engineering problems
2. understand the principles and methods of engineering
3. demonstrate practical skills in modern laboratory techniques, methods, instrumentation, and data analysis
4. communicate clearly their understandings of engineering and of their specific activity in the field orally and in writing

5. understand the importance of professional and ethical responsibilities of engineers
 6. recognize environmental constraints and safety issues in engineering
 7. exhibit good teamwork skills and serve as effective members of teams
 8. be prepared for a lifetime of continuing education
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College Requirements:

English and Math proficient as determined by the CUNY Proficiency Index, unless otherwise exempt, or successful completion of any required developmental course(s).

Civic Engagement Experiences:

One (1) Civic Engagement experience satisfied by Civic Engagement Certified or Civic Engagement Component course or approved outside activity.

Writing Intensive Requirement:

One (1) Writing Intensive Course in any discipline is required.

Required Core (4 Courses, 13 Credits):

When Required Core Courses are specified for a category, they are required for the major

- ENG 1200 - Composition I 3 Credit(s)
 - ENG 2400 - Composition II 3 Credit(s)
 - **Mathematical & Quantitative Reasoning Course ***
 - MAT 9010 - Introduction to Mathematics with College Algebra 3 Credit(s) **or**
 - MAT 9B0 - College Algebra for STEM Majors 3 Credit(s) **or**
 - MAT 900 - College Algebra 3 Credit(s) **or**
 - MAT 1400 - Analytic Geometry and Pre-Calculus Mathematics 3 Credit(s) **or**
 - MAT 1500 - Calculus I 3 Credit(s)
 - **Life & Physical Sciences Course ***
 - CHM 1100 - General Chemistry I 4 Credit(s)
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Flexible Core (6 Courses, 20 Credits):

When Flexible Core Courses are specified for a category, they are required for the major

One course from each Group A to D (Group E is satisfied by the courses shown). **No more than two courses can be selected from the same discipline.**

A. World Cultures and Global Issues Designated Course

B. U.S. Experience in its Diversity Designated Course

C. Creative Expression Designated Course

D. Individual and Society Designated Course

E. Scientific World Designated Course*

- CHM 1200 - General Chemistry II 4 Credit(s)
 - PHY 1300 - Advanced General Physics I 4 Credit(s)
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Major Requirements (9 to 12 Courses, 28 to 37 Credits):

Additional Physical Sciences Requirements (4 Courses, 13 Credits)

- PHY 1400 - Advanced General Physics II 4 Credit(s)
- EGR 2100 - Engineering Design 3 Credit(s)
- EGR 2200 - Introduction to Electrical Engineering 3 Credit(s)
- EGR 2300 - Introduction to Engineering Thermodynamics 3 Credit(s)

Additional Mathematics Requirements (5 to 8 Courses, 15 to 24 Credits)

Select **five (5)** to **eight (8)** additional courses beyond the Mathematical and Quantitative Reasoning (MQR) course from the following:

- CS 1200 - Introduction to Computing 3 Credit(s)
 - MAT 1000 - College Trigonometry 3 Credit(s) ^
 - MAT 1400 - Analytic Geometry and Pre-Calculus Mathematics 3 Credit(s) (Recommended)
 - MAT 1500 - Calculus I 3 Credit(s) (Recommended)
 - MAT 1600 - Calculus II 3 Credit(s) (Recommended)
 - MAT 2100 - Calculus III 3 Credit(s)
 - MAT 5500 - Differential Equations 3 Credit(s)
 - MAT 5600 - Linear Algebra 3 Credit(s)
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Electives:

0 credits sufficient to meet required total of 61 to 70 credits

Notes:

^ Depending on Math placement, students may be required to select MAT 1000

*This program has a waiver to require particular courses in the Common Core, otherwise more than the minimum credits for the degree may be necessary.

Total Credits: 61 to 70

Degree InformationCatalog Year: **2026 - 2027**Plan: **Engineering Science AS**Sub Plan: **None**Required Credits: **61 - 70****General Requirements**Req GPA: **2.0**Req Residential Credits: **30**Req Pathways Credits: **33**Req Civic Engagement: **1**Req Writing Intensive: **1****1**

Session A

COURSE	CRS
ENG 1200	3
CHM 100*	0
CHM 1100*	4
MAT 9010 ¹ or MAT 980 ¹ or MAT 900 ¹ (NEED MIN. GRADE C)	3
Choose 1: Flexible Core Individual and Society	3

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Session A

COURSE	CRS
ENG 2400	3
CHM 1200	4
Additional Math 2: MAT 1000 ¹	3
EGR 2100	3

3

Session A

COURSE	CRS
EGR 2300	3
Additional Math 3: MAT 1500 ¹ (NEED MIN. GRADE C)	3
PHY 1300	4
Additional Math 4: CS 1200 ²	3

4

Session A

COURSE	CRS
EGR 2200	3
PHY 1400	4
Additional Math 5: MAT 1600 ² (NEED MIN. GRADE C)	3
Choose 1: Flexible Core World Cultures & Global Issues	3
Additional Math 6^: MAT 5600 ²	3

Session B

COURSE	CRS
Additional Math 1: MAT 1400 ¹ (NEED MIN. GRADE C)	3

Session B

COURSE	CRS
Choose 1: Flexible Core U.S. Experiences in Its Diversity	3

Session B

COURSE	CRS
Choose 1: Flexible Core Creative Expression	3

Session B

COURSE	CRS
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NOTE: The term-by-term course sequence takes into account necessary Prerequisites, Corequisites, and Pre-/Co-requisite.

NOTE: Select ONE (1) WRITING INTENSIVE course & ONE (1) CIVIC ENGAGEMENT course. Some courses meet BOTH requirements, see CUNYfirst to determine course status

SEMESTER CRS: 16

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CAREER AND TRANSFER MILESTONES**1****CAREER & TRANSFER EXPLORATION ACTIVITIES**

Done

<u>Claim your Handshake Account (Kingsborough)</u>	
<u>Join the Engineering Student Club, to build your network and skills.</u>	
<u>Research and explore desired career pathway via career coach. Including researching Baccalaureate Programs and Complete a Transfer Plan.</u>	
<u>Draft Basic Resume with assistance from the Career Center.</u>	
<u>Review the CUNY Research Scholars Program (CRSP) at KCC.</u>	

2**CAREER & TRANSFER EXPLORATION ACTIVITIES**

Done

<u>Create your LinkedIn profile</u>	
<u>Attend a Professional/Networking Event Outside of KCC</u>	
<u>Draft a Basic Cover Letter with assistance from the Career Center.</u>	
<u>Review and engage with the in-demand skills for the field of Engineering: Learn CAD and begin using engineering tools. Build problem-solving skills by completing hands-on projects or practice exercises.</u>	
<u>Join CUNY Research Scholars Program (CRSP) at KCC.</u>	
<u>Attend Transfer Events.</u>	

3**CAREER & TRANSFER EXPLORATION ACTIVITIES**

Done

<u>Career Planning - Research and Join Professional Organization [Student Membership]</u>	
<u>Attend a Professional/Networking Event Outside of KCC</u>	
<u>Planning for References (Job & Transfer) - can be professors, campus connections, research mentors, or others who are aware of your interests, abilities, skills and work habits and obtain letters of recommendation.</u>	
<u>Find a Mentor to Check in with Periodically: Establish a relationship with someone who can provide guidance and advice related to your career goals.</u>	
<u>Start the transfer process to a Baccalaureate program.</u>	
<u>Explore internship Opportunities through CUNY Career Launch or through the Career Center.</u>	
<u>Join CUNY Research Scholars Program (CRSP) at KCC.</u>	
<u>Review and engage with the in-demand skills for the field of Forensic Science: Apply technical skills through hands-on projects.</u>	

4**CAREER & TRANSFER EXPLORATION ACTIVITIES**

Done

<u>Join CUNY Research Scholars Program (CRSP) at KCC.</u>	
<u>Take advantage of events offered by campus Career and Professional Development offices to perfect your job search and sharpen your interview and employability skills. Update your LinkedIn profile and resume with new certifications, experiences, and skills.</u>	
<u>Review and engage with the in-demand skills for the field of Forensic Science: Build and present a technical portfolio that includes research projects, designs, code and lab work.</u>	
<u>Accept your offer to Enroll in a Baccalaureate program.</u>	
<u>Complete CUNY Cap and Gown Survey</u>	

NOTE: Explore the highlighted Milestones by following the link to the Career-Infused Degree Map web page or relevant linked page

Important Notes:*Based on the Chemistry Ready Placement Score, students may test directly into CHM 1100 and not be required to take CHM 100. Contact the Physical Sciences Department for Chemistry Ready Placement^Additional Mathematics Course **above** 61 credit minimum for degree**Math Course Information**¹ Course is usually offered every semester² Course is usually offered every Fall and Spring semesters

Degree InformationCatalog Year: **2026 - 2027**Plan: **Engineering Science AS**Sub Plan: **None**Required Credits: **61 - 70**General RequirementsReq GPA: **2.0**Req Residential Credits: **30**Req Pathways Credits: **33**Req Civic Engagement: **1**Req Writing Intensive: **1****1**

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COURSE	CRS
ENG 1200	3
CHM 1100*	4
CHM 100*	0
MAT 1500 ¹ (NEED MIN. GRADE C)	3
Choose 1: Flexible Core Individual and Society	3

Session B

COURSE	CRS
Choose 1: Flexible Core World Cultures & Global Issues	3

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Session A

COURSE	CRS
ENG 2400	3
CHM 1200	4
PHY 1300	4
EGR 2100	3
Additional Math 1: MAT 1600 ² (NEED MIN. GRADE C)	3

Session B

COURSE	CRS
Choose 1: Flexible Core Creative Expression	3

3

Session A

COURSE	CRS
EGR 2300	3
PHY 1400	4
Additional Math 2: MAT 2100 ² , 5500 ² , 5600 ² , or CS 1200 ²	3
Additional Math 3: MAT 2100 ² , 5500 ² , 5600 ² , or CS 1200 ²	3

Session B

COURSE	CRS

4

Session A

COURSE	CRS
EGR 2200	3
Additional Math 4: MAT 2100 ² , 5500 ² , 5600 ² , or CS 1200 ²	3
Additional Math 5: MAT 2100 ² , 5500 ² , 5600 ² , or CS 1200 ²	3
Choose 1: Flexible Core U.S. Experiences in Its Diversity	3

Session B

COURSE	CRS

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SEMESTER CRS: 12

CAREER AND TRANSFER MILESTONES**1**

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