A.S. ENGINEERING SCIENCE
Department: Physical Sciences
Total credits: 66-70

COLLEGE REQUIREMENTS — CREDITS

• Successful completion of CUNY Tests in Reading and Writing and the COMPASS Math Skills Test with passing examination scores or developmental courses may be required.
• One (1) Writing Intensive course in any discipline from any category below is required. Participation in a Learning Community that includes ENG 1200 or 2400 also satisfies this requirement.
• Two (2) Civic Engagement experiences—satisfied by CE-Certified or CE-Component courses or approved outside activity. Refer to the *Degree Requirements* section of this catalog.

CUNY CORE

Approved Required and Flexible Core courses are listed in the General Education: CUNY Pathways section of this catalog. When Required or Flexible Core courses are specified for a category, they are required for the major.

REQUIRED CORE:

ENG 1200	3
ENG 2400	3
Mathematical & Quantitative Reasoning: MAT 1500√ or MAT 1600√	4
Life and Physical Sciences: CHM 1100 or CHM 1200 or PHY 1300 or PHY 1400	4

FLEXIBLE CORE: ◊

One course from each Group A – E plus an additional course from any Group. No more than two courses in the same discipline.	20

A. World Cultures and Global Issues
B. U.S. Experience In Its Diversity
C. Creative Expression
D. Individual & Society
E. Scientific World: MAT 1500√ or MAT 1600√ or CS 1200√ or CHM 1100 or CHM 1200 or PHY 1300 or PHY 1400 (if not taken for Required Core)
Plus another course selected from any Group E list above (if not taken for Required or Flexible Core)

DEGREE REQUIREMENTS §

If not taken for the CUNY Required Core or Flexible Core, the following are required:

Calculus I and II and III (MAT 1500√ and MAT 1600√ and MAT 2100√)	12
Differential Equations (MAT 5500√)	3
Linear Algebra (MAT 5600√)	4
Introduction to Computing (CS 1200√)	4
General Chemistry I and II (CHM 1100 and CHM 1200)	8
Advanced General Physics I and II (PHY 1300 and PHY 1400)	8
Engineering Design (EGR 2100)	3
Introduction to Electrical Engineering (EGR 2200)	3
Introduction to Engineering Thermodynamics (EGR 2300)	3

ELECTIVES: 0 credits sufficient to meet the required total 60 credits for the degree.	8

§ Consultation with the Department Advisor is required.

√ Refer to course descriptions for pre-requisites, co-requisites and/or pre/co-requisites
◊ 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.

STUDENT LEARNING OUTCOMES

Employ mathematics, science, and computing techniques to support the study and solution of engineering problems
CHM 1100 CHM 1200 PHY 1300 PHY 1400 EGR 2100 EGR 2200 EGR 2300

Understand the principles and methods of engineering
CHM 1100 CHM 1200 PHY 1300 PHY 1400 EGR 2100 EGR 2200 EGR 2300

Demonstrate practical skills in modern laboratory techniques, methods, instrumentation, and data analysis
CHM 1100 CHM 1200 PHY 1300 PHY 1400 EGR 2100

Communicate clearly their understandings of engineering and of their specific activity in the field
CHM 1100 CHM 1200 PHY 1300 PHY 1400 EGR 2100 EGR 2200 EGR 2300

Understand the importance of professional and ethical responsibilities of engineers
CHM 1100 CHM 1200 PHY 1300 PHY 1400 EGR 2100 EGR 2200 EGR 2300

Recognize environmental constraints and safety issues in engineering
CHM 1100 CHM 1200 PHY 1300 PHY 1400 EGR 2100 EGR 2200 EGR 2300

Exhibit good teamwork skills and serve as effective members of teams
CHM 1100 CHM 1200 PHY 1300 PHY 1400 EGR 2100 EGR 2200 EGR 2300

Be prepared for a lifetime of continuing education
CHM 1100 CHM 1200 PHY 1300 PHY 1400 EGR 2100 EGR 2200 EGR 2300