

CIVIL ENGINEERING

BACHELOR OF SCIENCE

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

**HOWARD**
UNIVERSITY

4-YEAR ADVISING SCHEME

Students seeking the Bachelor of Science in Civil Engineering must complete a minimum of 120 credit hours comprised of core courses in engineering (67 credits), science and mathematics courses (34 credits), free electives (3 credits), social science and humanities courses (6 credits), an African American Studies elective (3 credits), and general curriculum courses (7 credits).

FALL SEMESTER 1

Number	Course Title	Credits
EGPP 101	Intro to Engineering	2
MATH 156	Calculus I	4
ENGW ---	English First-Year Writing (I)	3
CHEM 003	General Chemistry I Lecture	4
CHEM 005	General Chemistry I Lab	1
Total Credits		14

SPRING SEMESTER 1

Number	Course Title	Credits
CIEG 104	Civil Engineering Software and Design	3
MATH 157	Calculus II	4
ENGW ---	English First-Year Writing (2)	3
PHYS 013	Physics I Lecture (Science and Engineering)	3
PHYS 023	Physics I Lab (Science and Engineering)	1
--	ROTC/Physical Education	1
Total Credits		15

FALL SEMESTER 2

Number	Course Title	Credits
--	Computer/Data/Basic Science Elective	3
CIEG 202	Statics	3
CIEG 207	Environmental Engineering I	3
PHYS 014	Physics II Lecture (Science and Engineering)	3
PHYS 024	Physics II Lab (Science and Engineering)	1
--	Social Science	3
Total Credits		16

SPRING SEMESTER 2

Number	Course Title	Credits
CIEG 316	CE Materials and Sustainability	3
CIEG 301	Mechanics of Materials Lecture	3
CIEG 303	Mechanics of Materials Lab	1
CIEG 351	Probability and Statistics	3
MATH 159	Differential Equations	4
Total Credits		14

FALL SEMESTER 3

Number	Course Title	Credits
CIEG 314	Basic Structural Analysis	3
CIEG 316	Transportation Engineering	3
CIEG 311	Fluid Mechanics Lecture	3
CIEG 313	Fluid Mechanics Lab	1
CIEG 349	Numerical Methods in CE	3
--	Free Elective (CIEG or NON CIEG Course)	3
Total Credits		16

SPRING SEMESTER 3

Number	Course Title	Credits
CIEG 354	Engineering Economics	3
CIEG 352	Water Resources Engineering	3
CIEG 434	Soil Mechanics Lecture	3
CIEG 438	Soil Mechanics Lab	3
CIEG ---	CIEG Discipline Elective 1	1
--	Humanities	3
Total Credits		16

FALL SEMESTER 4

Number	Course Title	Credits
CIEG 439	Senior Design I	2
CIEG 436	Hazard Resilient Infrastructure Systems	3
CIEG ---	CIEG Discipline Elective 2	3
CIEG ---	CIEG Discipline Elective 3	3
CIEG 464	Engineering Project Management	3
CIEG ---	Professional Character and FE Civil Exam Prep	1
Total Credits		15

SPRING SEMESTER 4

Number	Course Title	Credits
CIEG 441	Senior Design II	2
CIEG--	CIEG Discipline Elective 4	3
--	Technical Elective 1	3
--	Technical Elective 2	3
--	African American Studies Elective	3
Total Credits		14

Total Credits: 120

More Information :

The 4-Year Advising Scheme is a guide for students to successfully complete the program in four years of study. It is not a substitution for academic advising. Students are expected to check-in with their academic advisor every semester.

The prerequisite structure for courses and technical elective options are available in the program handbook.

Courses may not be offered in semesters in which they do not appear listed on the scheme.

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Curriculum 2026 - 2027

PREREQUISITES

Some courses in the curriculum have prerequisites that must be satisfied before being permitted to enroll in that course or a co-requisite that must be taken at the same time as that course. Below are courses within the Civil Engineering curriculum that have a prerequisite and/or co-requisite. Contact your academic advisor to address prerequisite or co-requisite error messages that may appear when registering for a course.

CORE COURSES

Course Number/ Title /Credits	Prerequisite / Co-requisite
CIEG 202 Statics (3)	PHYS 013 (3) and MATH 157 (4)
CIEG 207 Environmental Engineering I (3)	CHEM 003 (4)
CIEG 301 Mechanics of Materials Lecture (3)	CIEG 202 (3), and MATH 157 (4) / CIEG 303 (1)
CIEG 303 Mechanics of Materials Lab (1)	CIEG 202 (3), and MATH 157 (4) / CIEG 301 (3)
CIEG 311 Fluid Mechanics Lecture (3)	CIEG 202 (3), and MATH 157 (4) / CIEG 313 (1)
CIEG 313 Fluid Mechanics Lab (1)	CIEG 202 (3), and MATH 157 (4) / CIEG 311 (3)
CIEG 314 Basic Structural Analysis (3)	CIEG 301 (3), and CIEG 303 (1)
CIEG 316 CE Materials and Sustainability (3)	CIEG 202 (3), and CIEG 207 (3)
CIEG 349 Numerical Methods in CE (3)	MATH 159 (3)
CIEG 351 Probability and Statistics (3)	MATH 157 (4)
CIEG 352 Water Resources Engineering (3)	CIEG 351 (3), CIEG 311 (3), and CIEG 313 (1)
CIEG 354 Engineering Economics (3)	CIEG 351 (3) or MATH 009 (3)
CIEG 416 Transportation Engineering (3)	CIEG 104 (3), and CIEG 351 (3)
CIEG 434 Soil Mechanics Lecture (3)	CIEG 301 (3), and CIEG 311 (3) / CIEG 438 (1)
CIEG 436 Hazard-Resilient Infrastructure Systems (3)	CIEG 351 (3), and CIEG 316 (3)
CIEG 438 Soil Mechanics Lab (1)	CIEG 301 (3), and CIEG 311 (3) / CIEG 434 (3)
CIEG 439 Senior Design I (2)	CIEG 207 (3), CIEG 314 (3), CIEG 352 (3), CIEG 354 (3), CIEG 416 (3), and CIEG 434 (3)
CIEG 464 Engineering Project Management (3)	CIEG 354 (3)
CIEG 441 Senior Design II (2)	CIEG 439 (2)
CIEG 461 Professional Character and FE Exam Prep (1)	Senior Standing

MATH COURSES

Course Number/Title/Credits	Prerequisite
MATH 156 Calculus I (4)	Math Placement Score or earned credit for MATH 007 - Pre-Calculus (4)
MATH 157 Calculus II (4)	MATH 156 (4)
MATH 159 Differential Equations (4)	MATH 157 (4)

ENGLISH COURSES

Course Number/Title/Credits	Prerequisite
ENGW 101/102/104 English First-Year Writing (3)	English Placement Score or ACTE/SATW
ENGW 103/105 English First-Year Writing (3)	"C" or better in ENGW 101/102/104 (3)

SCIENCE COURSES

Course Number/Title/Credits	Prerequisite/Co - Requisite
PHYS 013 Physics for Science and Engineering I (3)	-- / MATH 156 (4) and PHYS 023 (1)
PHYS 023 Physics for Science and Engineering I Lab (1)	-- / MATH 156 (4) and PHYS 013 (3)
PHYS 014 Physics for Science and Engineering II (3)	PHYS 013 (4) / MATH 157 (4) and PHYS 024 (1)
PHYS 024 Physics for Science and Engineering II Lab (1)	PHYS 013 (4) / MATH 157 (4) and PHYS 014 (3)