

BESA-Civil Engineering

Fall 2023

Bachelor of Engineering Studies and Arts (BESA)

College of Engineering (ENG) Concentration in Civil Engineering

99 units (minimum)

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Mathematics & Science Prerequisites

21-120	Differential and Integral Calculus (Gen Ed)	10
21-122	Integration and Approximation (Gen Ed)	10
21-254	Linear Algebra and Vector Calculus for Engineers	11
21-260	Differential Equations	9
15-110	Principles of Computing	10
33-141	Physics I for Engineering Students (Gen Ed)	12
33-142	Physics II for Engineering and Physics Students	12
09-105	Introduction to Modern Chemistry I	10
or 09-111	Nanolegos: Chemical Building Blocks (9)	

Civil Engineering Courses

72 units

12-100	Exploring CEE: Infrastructure and Environment in a Changing World (Freshman year; co-req: 21-120, 33-141)	12
xx-xxx	2 nd Introduction to Engineering course, student's choice	12
12-200	CEE Challenges: Design in a Changing World (Fall, Sophomore year; prereq: 12-100)	9
12-212	Statics (Fall, Sophomore year; co-req: 12-100, 21-122, 33-141)	9
12-233	CEE Infrastructure Systems in Action (Fall, Sophomore year; prereq: 12-100)	2
12-231	Solid Mechanics (Spring, Sophomore year; prereq: 12-212)	9
12-234	Sensing and Data Acquisition for Engineering Systems (Spring, Sophomore year)	4
12-271	Computation and Data Science for Civil & Environmental Engineering (Spring, Sophomore year; prereq: 15-110/15-112, 21-120, 21-122, 33-141)	9
27-357	Introduction to Materials Selection (Spring, Junior year)	6

Electives

27 units minimum

Choose 27 units from the following CivE courses with prerequisites in consultation with the concentration advisor:

12-201	Geology (Sophomore year)	9
12-301	CEE Projects: Integrating the Built, Natural and Information Environments (Fall, Junior year; prereq: 12-200, 12-271)	9
12-335	Soil Mechanics (Fall, Junior year; prereq: 12-231, 33-142; co-req: 12-355)	9
12-355	Fluid Mechanics (Fall, Junior year; prereq: 21-260)	9
12-356	Fluid Mechanics Lab (Fall, Junior year; co-req: 12-355)	2
12-351	Environmental Engineering (Spring, Junior year; prereq: 09-105/09-111; co-req: 21-260)	9
12-635	Structural Analysis (Fall, Senior year; prereq: 12-231)	12
12-631	Structural Design (Spring, Senior year; prereq: 12-231; co-req: 27-357, 12-358)	12

BESA Free Electives

Take any Carnegie Mellon course. A maximum of 9 units of physical education and/or military science may be counted toward this requirement.