

Civil Engineering

2023-2024 Bachelor of Science Requirements – 131 Credit Hours*

Freshman Year

Fall Semester		Credits	Spring Semester		Credits
XXXX 193	First Year Seminar ¹	3	ENSC 205	Statics	3
CHEM 101	General Chemistry I	3	CENG 225	Engineering Geology	3
CHEM 101L	General Chemistry I Lab	1	MATH 258	Calculus & Analytical Geometry II	4
MATH 157	Calculus & Analytical Geometry I	4	PHYS 121	Physics I	4
PHIL 101	Reasoning	3	PHYS 121L	Physics I Lab	1
COMM 100	Communication & Speech	3	PHIL 201	Human Nature	3
Total Credits		17	Total Credits		18

Sophomore Year

Fall Semester		Credits	Spring Semester		Credits
CENG 252	Civil Fluid Mechanics	3	ENSC 301	Mechanics of Materials I	3
CENG 261	Introduction to Geomatics	2	ENSC 306	Dynamics	3
CENG 261L	Introduction to Geomatics Lab	1	MATH 260	Ordinary Differential Equations	3
MATH 259	Calculus & Analytic Geometry III	4	MATH 321	Statistics for Experimentalists	3
ENGL 101	Writing (WE)	3	RELI xxx	World/Comparative Religion (GS) ¹	3
RELI xxx	Christianity & Catholic Traditions ¹	3	Total Credits		15
Total Credits		16			

Junior Year

Fall Semester		Credits	Spring Semester		Credits
CENG 301	Structural Analysis I	3	CENG 303	Environmental Engineering	3
CENG 380	Construction Materials & Engr	2	CENG 303L	Environmental Engineering Lab	1
CENG 380L	Construction Materials & Engr Lab	1	CENG 352	Water Resource Engineering	3
CENG 331	Soil Mechanics	3	CENG 352L	Water Resource Engineering Lab	1
CENG 331L	Soil Mechanics Lab	1	CENG 391	Civil Engineering Design & Practice	3
CENG 318	Transportation Engineering	3	CENG 412	Concrete Design	3
XXXX xxx	Programming Elective ³	3	PHIL 301	Ethics <i>or</i> RELI Ethics ¹	3
Total Credits		16	Total Credits		17

Senior Year

Fall Semester		Credits	Spring Semester		Credits
ENSC 491	Senior Design Project I	2	ENSC 492	Senior Design Project II (WE, FA)	3
CENG 404	Sustainable Systems (SJ, GS)	3	CENG 4 th	Technical Elective ³	3
CENG 1 st	Technical Elective ³	3	CENG 5 th	Technical Elective ³	3
CENG 2 nd	Technical Elective ³	3	ENSC 400	Fundamentals of Eng Exam	0
CENG 3 rd	Technical Elective ³	3	XXXX 2 nd	Broadening CORE Requirement ²	3
XXXX 1 st	Broadening CORE Requirement ²	3	XXXX 432	CORE Integration Seminar ¹	3
Total Credits		17	Total Credits		15

¹ Refer to Gonzaga CORE requirements for options.

² Select two broadening courses from History, Literature, or Social & Behavioral Science, with no more than one course per topic.

³ See back for approved technical and programming electives.

Programming Elective

- CPSC 121 Computer Science I (3 credits)
- CPSC 214 Intro to Programming with Python (3 credits)
- CPSC 222 Introduction to Data Science (3 credits)
- ENSC 244 Computer Methods for Engineers (3 credits)
- ENVS 384/L GIS & Ecological Techniques (4 credits)

*Programming course must be at least 2 credit hours – applies to transfer students only

Technical Electives

Courses from the following list satisfy the requirement for having 5 courses (15 credits minimum) of technical electives. To aid in course selection, the discipline(s) covered in each course are identified as follows:

- (C) construction engineering and management
- (E) environmental engineering
- (G) geotechnical engineering
- (S) structural engineering
- (T) transportation engineering
- (W) water resources engineering

Other courses may be used with approval from the Civil Engineering Chair.

Typically Offered in Fall

- CENG 411 Steel Design (S, C)
- CENG 417 Traffic Engineering (T)
- CENG 420 Structural Dynamics (S)
- CENG 424 Water Treatment Processes (E)
- CENG 426 Stream Restoration (E, W)
- CENG 473 Foundation Design (G, S, C)

Typically Offered in Spring

- CENG 422 Structural Analysis II (S)
- CENG 415 Masonry and Timber Design (S, C)
- CENG 418 Transportation Systems Design (T)
- CENG 421 Stormwater Management (E, W)
- CENG 450 Watershed Modeling (W)
- CENG 480 Construction Management (C)

Infrequently Offered

- CENG 413 Groundwater (E, G, W)
- CENG 414 Waste Management (E)
- CENG 427 Infrastructure Design (E, G, T, W)
- CENG 444 Air Pollution (E)
- CENG 454 Biological Treatment Processes (E)
- CENG 464 Ground Behavior for Structures (G)
- MENG 465 Introduction to Finite Elements (S)

Offered Even-Numbered Summers

- CENG 440 Gonzaga in Delft: Sustainable Cities* (E, S, T, W)

* CENG 440 has Writing Enriched (WE) and Global Studies (GS) core designators. Open to sophomores, juniors, and seniors.