B.S. in Civil & Environmental Engineering

Academic Program Guide for **New First-Year Students** (Effective Fall 2019)

Department of Civil Engineering (jahan@rowan.edu)

Students who entered Rowan University prior to Fall 2018 should follow the guide for their program and start year in consultation with their advisor.

Rowan University Graduation Requirements for all Majors / Degrees

- Students must complete at least 120 semester hours (sh) of coursework that apply to their Rowan University degree.
- Students must have a cumulative GPA of at least 2.0 in Rowan University coursework. (Transfer courses/credit do not count toward the RU GPA.)
- A minimum of 30 sh of coursework must be completed at/through Rowan University.
- Only grades of "D-" or above may apply to graduation/degree requirements. (Some programs may set higher minimums.)
- Students must meet the Rowan Core and Rowan Experience Requirements.
  - An individual course can potentially satisfy one Rowan Core literacy and/or multiple Rowan Experience attributes.
  - Rowan Core and Rowan Experience designations are listed in course details in Section Tally (www.rowan.edu/registrar) and may also be searched on that site under "Attributes." A list of Rowan Core courses is here: https://confluence.rowan.edu/display/AS/Rowan+Core+Course+List.
- Students must apply for graduation and should do so for the term in which they will complete all program requirements.

Program-Specific Graduation Requirements for this Major / Degree

- None.

Rowan Core Requirements[1]

*Students must satisfy all **six** Rowan Core Literacies. A minimum total of 3 sh of coursework is required to satisfy each Literacy.*
With the exception of the 11 sh counted here for Communicative Literacy, credits attached to the courses in this section will apply elsewhere.

◯ (COML) Communicative Literacy: *Must be met by the following three courses or their official equivalents:*
◯ COMP 01111 College Composition I (3 sh) ◯ ENGR 01201 Sophomore Eng. Clinic I (4 sh) ◯ ENGR 01202 Sophomore Eng. Clinic II (4 sh)

◯ (ARTL) Artistic Literacy *Recommendation from major:*

◯ (GLBL) Global Literacy *Recommendation from major:*

◯ (HUML) Humanistic Literacy *Recommendation from major:*

◯ (QNTL) Quantitative Literacy *Recommendation from major:* MATH 01130 (4 sh counted under non-program)

◯ (SCIL) Scientific Literacy *Recommendation from major:* CHEM 06100 (4 sh counted under non-program)

Subtotal of credits counted in this section: 11 sh

Rowan Experience Requirements

Students must satisfy all three Rowan Experience attributes. Credits attached to the courses in this section will apply elsewhere.

◯ (LIT) Broad-Based Literature Attribute *Recommendation from major:*

◯ (WI) Writing Intensive Attribute *Recommendation from major:* ENGR 01403 (2 sh counted under major)

◯ (RS) Rowan Seminar Attribute[2] *Recommendation from major:* ENGR 01101 (2 sh counted under major)

Non-Program Courses (23 sh)

Courses in this section cannot be in the major department.

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
CHEM 06100	Chemistry I	Satisfies Scientific Literacy			4
CS 01104	Intro to Scientific Programming	SM			3
MATH 01130	Calculus I	Satisfies Quantitative Literacy			4
MATH 01131	Calculus II	SM			4
PHYS 00220	Introductory Mechanics	SM, LAB; Satisfies Scientific Literacy			4
BIOL 01112 or BIOL 01113 or BIOL 01210 or BIOL 01212 or GEOG 06130 or GEOL 01101	Gen. Biology – Envir Focus or Gen Biology – Human Focus or Human Anatomy and Physiology I or Human Anatomy and Physiology II or Earth Science Lab I or Physical Geology	Approved Technical Science Elective			4
				Subtotal:	23 sh

[1] The Rowan Core requirements are waived for transfer students with an earned A.A. or A.S. degree from a NJ community/county college.

[2] The Rowan Seminar requirement is waived for all students transferring 24 or more approved credits into Rowan University at the time of initial entry.

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Major Requirements (74 sh)

Summary of Major Requirements

- 25 sh of Foundational Courses
- 28 sh of Mid-Level Courses
- 9 sh of Upper-Level Courses
- 12 sh of Civil Engineering Electives
- 74 sh total

Foundational Courses

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
ENGR 01101	Freshman Eng. Clinic I	Rowan Seminar Atrribute			2
ENGR 01102	Freshman Clinic II				2
CEE 08305	Civil Engineering Systems				3
ENGR 01271	Statics				2
MATH 01230	Calculus III				4
CEE 08102	Engineering Graphics				2
ENGR 01291	Dynamics				2
ENGR 01272	Solid Mechanics				2
CEE 08103	Field Surveying				2
MATH 01235	Math for Engineering Analysis				4
				Subtotal:	25 sh

Mid-Level Courses

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
ENGR 01303	Junior Eng. Clinic	Must be taken twice.			4
ENGR 01341	Fluid Mechanics				2
ENGR 01281	Material Science				2
CEE 08382	Structural Analysis				3
CEE 08301	Civil Engineering Materials				2
CEE 08311	Environmental Engineering				3
CEE 08383	Analysis & Design of Steel Frames				3
CEE 08342	Water Resources Engineering				3
CEE 08361	Transportation Engineering				3
CEE 08351	Geotechnical Engineering				3
				Subtotal: 28 sh	

Upper-Level Courses

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
ENGR 01403	Senior Eng. Clinic	Must be taken twice, Satisfies WI requirement			4
CEE 08491	CE Design Project I				2
CEE 08492	CE Design Project II				2
CEE 08490	Civil Engineering Practice				1
				Subtotal: 9 sh	

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Civil Engineering Electives

Students must choose 4 electives based on availability. At least 1 elective must come from 3 of the following areas: Environmental Engineering, Water Resources Engineering, Geotechnical Engineering, Transportation Engineering.

Environmental Engineering

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
◯	CEE 08312	Sustainable Civil & Environmental Engineering				3
◯	CEE 08412	Environmental Treatment Process Principles				3
◯	CEE 08413	Introduction to Environmental Management				3
◯	CEE 08422	Site Remediation Engineering Principles				3
◯	CEE 08431	Solid and Hazardous Waste Management				3
◯	CEE 08432	Pollutant Fate and Transport Principles				3
◯	CEE 08433	Principles of Integrated Solid Waste Management				3

Water Resources Engineering

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
◯	CEE 08441	Surface Hydrology				3
◯	CEE 08442	Hydrometeorology				3
◯	CEE 08443	Advanced Water Resources Engineering For Seniors				3
◯	CEE 08444	Principles of Hydraulic Design				3
◯	CEE 08445	Principles of Environmental Fluid Mechanics				3
◯	CEE 08446	River Engineering Principles				3
◯	CEE 08447	Watershed Engineering Principles				3
◯	CEE 08448	Introduction to Water and Environmental Monitoring				3

Geotechnical Engineering

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
◯	CEE 08452	Foundation Engineering for Seniors				3
◯	CEE 08453	Earth Retaining Systems for Seniors				3
◯						3

Transportation Engineering

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
◯	CEE 08463	Transportation Planning, Demand, and Data Analysis				3
◯	CEE 08464	Elements of Transportation Engineering for Seniors				3
◯	CEE 08465	Pavement Analysis and Evaluation				3
◯	CEE 08466	Introduction to Transportation Systems Modeling				3
◯	CEE 08468	Introduction to Intelligent Transportation Systems				3
◯	ENGR 01480	Viscoelasticity				3

Structural Engineering Electives

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
◯	CEE 08473	Advanced Structural Analysis for Seniors				3
◯	CEE 08474	Structural Mechanics				3
◯	CEE 08475	Fatigue and Fracture				3
◯	CEE 08476	Portland Cement Concrete				3
◯	CEE 08481	Reinforced Concrete Design				3
◯	CEE 08483	Advanced Steel Design for Seniors				3
◯	CEE 08484	Prestressed Concrete for Seniors				3
◯	CEE 08485	Advanced Reinforced Concrete for Seniors				3
◯	CEE 08486	Bridge Engineering for Seniors				3

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◯	CEE 08487	Design of Masonry and Wood Structures				3
					Subtotal: 12 sh	

Free Electives for this Major/Degree (12 sh)

Students should choose Free Electives to satisfy any Rowan Core or Rowan Experience requirements that are not fulfilled by Major or Non-Program courses.

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
					3
					3
					3
					3
				Subtotal: 12 sh	

Total Program Credits Required for this Major / Degree: 120 SH