

BS Civil Engineering Curriculum – Catalog Year 2019-20
Freshman Year

First Semester			R	L	C	Second Semester			R	L	C
ENL 101	Critical Writing & Reading I		3	0	3	ENL 102	Critical Writing & Reading II		3	0	3
EGR 111	Intro. Engineering & Computing		2	3	3	MTH 154	Calc. Applied Sci. & Eng. II		4	0	4
MTH 153	Calc. Applied Sci. & Eng. I		4	0	4	PHY 111	Physics for Sci. & Eng. I		4	2	4
CEN 161	Civil Eng. Design Graphics		1	3	2	CHM 152	Principles Modern Chemistry II		3	0	3
CHM 153	Prin. Mod. Chem. for Engineers		3	0	3	CHM 162	Intro. to Applied Chemistry II		0	3	1
					15						15

Sophomore Year

First Semester			R	L	C	Second Semester			R	L	C
EGR 241	Engineering Mechanics I: Statics		3	0	3	EGR 242	Engineering Mechanics II: Dynamics		3	0	3
	University Studies [4]		3	0	3	CEN 202	Mechanics of Materials [3]		3	0	3
ENL 266	Technical Communications [2]		3	0	3	CEN 212	Civil Engineering Materials Lab		0	3	1
PHY 112	Physics for Sci. & Eng. II		4	2	4	MTH 212	Differential Equations		3	0	3
MTH 213	Calc. Applied Sci. & Eng. III		4	0	4	BIO/BNG	BIO/BNG Requirement [1]		3	0	3
					17		University Studies [4]		3	0	3
											16

Junior Year

First Semester			R	L	C	Second Semester			R	L	C
CEN 209	Intro to Transportation		3	0	3	CEN 304	Intro. Environmental Engineering		3	0	3
CEN 303	Fluid Mechanics		3	0	3	CEN 313	Fluid Mechanics Lab [6]		0	3	1
CEN 305	Soil Mechanics [5]		3	0	3	CEN 314	Environmental Eng. Lab		0	3	1
CEN 306	Structural Analysis [5]		3	0	3		Technical Elective [7]		3	0	3
CEN 315	Soil Mechanics Lab		0	3	1		Technical Elective [7]		3	0	3
	University Studies [4]		3	0	3		Technical Elective [7]		3	0	3
					16						14

Senior Year

First Semester			R	L	C	Second Semester			R	L	C
CEN 491	Civil Engineering Project [8,9]		2	0	2	CEN 491	Civil Engineering Project [8,9]		2	0	2
EGR 303	Engineering Economics [10]		3	0	3	CEN 452	Ethical, Prof. & Safety Issues		1	0	1
	Technical Elective [7]		3	0	3		Technical Elective [7]		3	0	3
	Technical Elective [7]		3	0	3		Technical Elective [7]		3	0	3
	Technical Elective [7]		3	0	3		Technical Elective [7]		3	0	3
					14		University Studies [4]		3	0	3
											15

TOTAL CREDITS = 122

R = Recitation (hours)

L = Laboratory (hours)

C = Number of Credits

[1] BIO/BNG course must be either BIO 143 or BNG 255. Satisfies University Studies 2-B requirement.

[2] This course meets University Studies 1C requirement.

[3] CEN 202 requires the completion of EGR 241 with a grade of C- or better.

 [4] See University Studies 3A, 3B, 4A, & 4B requirement (refer to www.umassd.edu/universitystudies/approvedcourses)

[5] CEN 305 and CEN 306 require the completion of CEN 202 with a grade of C- or better.

[6] CEN 313 requires the completion of CEN 303 with a grade of C- or better.

[7] Must choose from approved list of courses and must satisfy CEN distribution requirements.

[8] Course spans over two semesters; grades awarded at the end of the spring semester.

[9] Course meets University Studies 5A/B requirements.

[10] Satisfies University Studies 4-C requirements.

Students are required to take 27 credits of **Technical Electives** as follows:

12 cr. CEN Core Technical Electives: Must select any 4 of the following 5 core course options

1. CEN 325 Water Resources Engineering
 2. CEN 323 Geotechnical Engineering
 3. CEN 334 **or** CEN 419 Traffic Engineering or Advanced Traffic Engineering
 4. CEN 411 Water Quality Engineering
 5. CEN 307 **or** CEN 408 Structural Design Class (Concrete or Steel)
- (Taking CEN 307 and CEN 408 does NOT count as 2 different options)
(Taking CEN 334 and CEN 419 does NOT count as 2 different options)

15 cr. CEN Technical Electives: May select from any of the approved list of CEN Technical Electives

Technical Electives: To satisfy the 15 credits of general technical electives required (beyond the Core Technical elective requirement), students may choose from any of the following:

- Any of the allowed Core Technical Electives, which are not used to satisfy the Core requirements.
- Any CEN course offered at the 400 level, which is not used to satisfy another requirement.
- Any CEN course offered at the 500 level or above, with permission of the course instructor.
- Up to 3 credits of the 15 credit requirement may be satisfied by a Science Elective. A Science Elective can be any BIO, BNG, CHM, MLS, or MAR course; any PHY course numbered above 150; EGR 333 or EGR 490. Independent study, seminars, and courses used to satisfy other CEN requirements do not qualify. If BIO 143 or BNG 255 was used to satisfy the BIO/BNG Requirement, then it may not be used as the Science Elective. EGR 490 must be approved by the Faculty Sponsor, Department Chair, and Associate Dean prior to the start of the internship.

To be eligible to enroll in CEN 491, students must have completed 4 of the following 5 core groups:

1. CEN 209 + CEN 334 (or CEN 419)
2. CEN 305 + CEN 323
3. CEN 306 + either CEN 307 or CEN 408
4. CEN 303 + CEN 325
5. CEN 304 + enrolled in CEN 411