CORROSION ENGINEERING, BS

Bachelor of Science in Corrosion Engineering (425000BS)

This option of the undergraduate program in Corrosion Engineering does not include a cooperative education component.

The following information has official approval of the **Department of Chemical, Biomolecular, and Corrosion Engineering** and **The College of Engineering and Polymer Science**, but is intended only as a supplemental guide. Official degree requirements are established at the time of transfer and admission to the degree-granting college. Students should refer to the Degree Progress Report (DPR) which is definitive for graduation requirements. *Completion of this degree within the identified time frame below is contingent upon many factors, including but not limited to: class availability, total number of required credits, work schedule, finances, family, course drops/withdrawals, successfully passing courses, prerequisites, among others.* The transfer process is completed through an appointment with your academic advisor.

Requirements Summary

Code	Title	Hours
General Education Requirements (https://bulletin.uakron.edu/undergraduate/general-education/) *		29
Natural Science		32
Advanced Chemistry		11
Engineering Core		11
Corrosion Engineering		37
Electives		15
Total Hours		135

* Several courses required for the major also satisfy General Education requirements. The University minimum of 34 credits are required for General Education and credit for these courses will apply to both.

General Education Courses

Code	Title	Hours
Students pursuing a bachelor's degree must complete three tiers of General Education coursework. Tiers I and II provide students with foundational skills and breadth of disciplinary knowledge. Tier III courses require students to integrate knowledge, understand diverse perspectives, and think critically about complex issues. Courses tagged for Tier III may also fulfill major or Disciplinary Area requirements.		
Tier I: Academic Foundations		**12**
Quantitative Reasoning: 3 credit hours		
Speaking: 3 credit hours		
Writing: 6 credit hours		
Tier II: Disciplinary Areas		**22**
Arts/Humanities: 9 credit hours		
Natural Sciences: 7 credit hours		
Social Sciences: 6 credit hours		
Tier III: Tagged Courses		
Select one class from each of the following subcategories:		
Complex Systems		
Critical Thinking		
Domestic Diversity		
Global Diversity		
Review the General Education Requirements page for detailed course listings.		
Total Hours		34

Natural Science

Code	Title	Hours
3150:151	Principles of Chemistry I	3
3150:152	Principles of Chemistry I Laboratory	1
3150:153	Principles of Chemistry II	3
3150:154	Qualitative Analysis	2
3450:221	Analytic Geometry-Calculus I	4
3450:222	Analytic Geometry-Calculus II	4
3450:223	Analytic Geometry-Calculus III	4
3450:335	Introduction to Ordinary Differential Equations	3
3650:291	Elementary Classical Physics I	4
3650:292	Elementary Classical Physics II	4
Total Hours		32

Advanced Chemistry

Code	Title	Hours
3150:263	Organic Chemistry Lecture I	3
3150:264	Organic Chemistry Lecture II	3
3150:265	Organic Chemistry Laboratory I	2
3150:424	Analytical Chemistry II	3
Total Hours		11

Engineering Core

Code	Title	Hours
4200:305	Materials Science	2
4250:105	Corrosion Engineering Computations	2
4300:201	Statics	3
4400:307	Basic Electrical Engineering	4
Total Hours		11

Corrosion Engineering

Code	Title	Hours
4200:110	Project Management and Teamwork I	1
4200:210	Project Management and Teamwork II	1
4200:220	Introduction to Thermodynamic Processes	3
4200:310	Project Management and Teamwork III	1
4200:321	Transport Phenomena	3
4200:410	Project Management and Teamwork IV	1
4250:101	Tools for Corrosion Engineering	2
4250:200	Material and Energy Balances for Corrosion Engineers	4
4250:300	Fundamentals of Aqueous Corrosion	3

4250:301	Aqueous Corrosion Lab I	1
4250:305	Aqueous Corrosion Prevention	3
4250:306	Aqueous Corrosion Lab II	1
4250:310	Fundamentals of Dry Corrosion	3
4250:311	High Temperature Corrosion Lab	1
4250:440	Corrosion Engineering Design I	3
4250:441	Corrosion Engineering Design II	3
4300:202	Introduction to Mechanics of Solids	3
Total Hours		37

Electives

Code	Title	Hours
	Chem/Bio Elective	3
	Corrosion Engineering Elective	6
	Corrosion Engineering Design Elective	6
Total Hours		15

Recommended Sequence

1st Year		
Fall Semester		**Hours**
3150:151	Principles of Chemistry I [1]	3
3150:152	Principles of Chemistry I Laboratory	1
3300:111	English Composition I [1,2]	3
3450:221	Analytic Geometry-Calculus I [1]	4
4200:110	Project Management and Teamwork I	1
4250:101	Tools for Corrosion Engineering	2
	Hours	14
Spring Semester		
3150:153	Principles of Chemistry II [1]	3
3150:154	Qualitative Analysis	2
3450:222	Analytic Geometry-Calculus II [1]	4
4250:105	Corrosion Engineering Computations	2
	Second Writing Course [1,3]	3
	General Education or Honor Distribution [4]	3
	Hours	17
2nd Year		
Fall Semester		
3150:263	Organic Chemistry Lecture I	3
3150:265	Organic Chemistry Laboratory I	2
3450:223	Analytic Geometry-Calculus III [1]	4
3650:291	Elementary Classical Physics I [1]	4
4200:210	Project Management and Teamwork II	1
4250:200	Material and Energy Balances for Corrosion Engineers	4
	Hours	18
Spring Semester		
3150:264	Organic Chemistry Lecture II	3
3450:335	Introduction to Ordinary Differential Equations	3
3650:292	Elementary Classical Physics II [1]	4
4200:220	Introduction to Thermodynamic Processes	3
4200:305	Materials Science	2
	Hours	15
3rd Year		
Fall Semester		
4200:310	Project Management and Teamwork III	1
4200:321	Transport Phenomena	3
4250:300	Fundamentals of Aqueous Corrosion	3
4250:301	Aqueous Corrosion Lab I	1
4300:201	Statics	3
4400:307	Basic Electrical Engineering	4
	Hours	15
Spring Semester		
	Biology or Chemistry Elective	3
3150:424	Analytical Chemistry II	3
3250:244	Introduction to Economic Analysis	3
4250:305	Aqueous Corrosion Prevention	3
4250:306	Aqueous Corrosion Lab II	1
	General Education or Honors Distribution [4]	3
	Hours	16
Summer Semester		
4300:202	Introduction to Mechanics of Solids	3
	General Education or Honors Distribution [4]	3
	Hours	6
4th Year		
Fall Semester		
4200:410	Project Management and Teamwork IV	1
4250:310	Fundamentals of Dry Corrosion	3
4250:311	High Temperature Corrosion Lab	1
4250:440	Corrosion Engineering Design I	3
4250:xxx	Corrosion Engineering Elective	3
	General Education or Honors Distribution [4]	3
	Hours	14
Spring Semester		
4250:441	Corrosion Engineering Design II	3
4250:xxx	Corrosion Engineering Elective	3
4xxx:xxx	Design Elective	3
4xxx:xxx	Design Elective	3
	General Education or Honors Distribution [4]	3
	General Electives	5
	Hours	20
	Total Hours	135

1. Honors sections may be available; check the schedule of classes.
2. The Chemical and Biomolecular Engineering Department recommends that English Composition I be used to satisfy writing course requirement but other choices are available. See the General Education Program for details.
3. Check General Education Program or Honors Distribution to find courses that satisfy the second writing course requirement.

[4] Credit hours shown for General Education or Honors Distribution are general guidelines only. These courses should be chosen in accordance with the appropriate General Education curriculum guide (for non-honors students) or Honors Distribution (for honors students). Honors students must also ensure that their course selections meet additional requirements not shown on this curriculum guide.