Corrosion Engineering 425000BS

The following information has official approval of the **College of Engineering**, 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. *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.

Italicized courses fulfill General Education requirements. Unless a course is specified, refer to the General Education guide at http://www.uakron.edu/advising/docs/General_Education_Guide.pdf

1st Year	**Fall Semester**	Credit Hours	Prerequisites
3150:151	*Principles of Chemistry I (Lecture and Recitation) (Natural Science Requirement)*	3	Placement into 3450:149 or higher or permission
3150:152	*Principles of Chemistry I Lab (Natural Science Requirement)*	1	3150:151, corequisite
3450:221	*Analytic Geometry-Calculus I*	4	Placement Test or 3450:149 with C- or better
4250:101	Tools for Corrosion Engineering	2	3450:149 (Precalculus) or higher and 4200:110, corequisite
4200:110	Project Management and Teamwork I	1	
	English Composition I Requirement	3	Appropriate placement by advisor
	Physical Education/Wellness	1	
Total		**15**	

1st Year	**Spring Semester**		
3150:153	Principles of Chemistry II (Lect. And Rec.)	3	3150:151
3150:154	Qualitative Analysis	2	3150:152, prerequisite 3150:153, corequisite
3450:222	Analytic Geometry-Calculus II	4	3450:221 with C- or better
4250:105	Corrosion Engineering Computations	2	4250:101 or 4200:101 prerequisite, and 3150:153 corequisite
	English Composition II Requirement	3	3300:111 or equivalent
	Speech/Oral Communication Requirement	3	
Total		**17**	

2nd Year	**Fall Semester**		
4250:200	Material and Energy Balances for Corrosion Engineers*	4	3450:221, 3150:151, 4250:105 or 4200:121
4200:210	Project Management and Teamwork II	1	4200:110
3150:263	Organic Chemistry Lecture I	3	3150:153
3150:265	Organic Chemistry Lab (and Discussion)	2	3150:154 prerequisite; 3150:263, corequisite
3450:223	Analytic Geometry-Calculus III	4	3450:222 with C- or better
3650:291	*Elementary Classical Physics I (Lecture and Lab) (Natural Science Requirement)*	4	3450:221
Total		**18**	

*A student must have a grade of C- or better in this course to complete the program.

2nd Year	**Spring Semester**		
4200:225	Equilibrium Thermodynamics	4	4200:200 or 4250:200 and 3450:223
3150:264	Organic Chemistry Lecture II	3	3150:263
3450:335	Introduction to Ordinary Differential Equations	3	3450:223 with C- or better
3650:292	Elementary Classical Physics II (Lecture & Lab)	4	3650:291
4200:305	Materials Science	2	3150:153 and 3650:292
Total		**16**	

3rd Year	**Fall Semester**		
4300:201	Statics	3	3450:222, 3650:291 corequisites
4400:307	Basic Electrical Engineering	4	3650:292 prerequisite; 3450:335 corequisite

4250:300	Fund. Of Aqueous Corrosion	3	Prerequistes: 4250:105, 3150:264, 4200:225, 4300:201 corequisites: 4250:301, 4300:202, 4400:320
4250:301	Aqueous Corrosion Lab I	1	4250:101, 4250:105, 3150:265, prerequisites 4250:300, co-requisite
4200:321	Transport Phenomena (lecture and recitation)	3	4250:200 and 3450:335
4200:310	Project Management and Teamwork III	1	4200:210
Total		**15**	

3rd Year	**Spring Semester**		
	Humanities Requirement	3	
3250:244	*Intro to Economic Analysis* *(Social Science Requirement)*	3	
4250:305	Corrosion Prevention (Aq)	3	4250:300, 3150:263 prerequisite; 4250:306, 4300:202, 4400:307 corequisite
4250:306	Corrosion Lab II	1	4250:301 prerequisite; 4250:305 co-requisite
3150:xxx **or** 3100:xxx	Chemistry Elective ***-OR-*** Biology Elective	3	
3150:424	Analytical Chemistry II	3	3150:154 and 3150:264
Total		**16**	

3rd Year	**Summer Semester**		
	Area Studies/Cultural Diversity Requirement	2	
	Social Science Requirement (not economics)	3	
4300:202	Mechanics of Solids (lecture and recitation)	3	4300:201
Total		**8**	

4th Year	**Fall Semester**		
3400:210 **or** 3400:221	*Humanities in the Western Tradition* ***-OR-*** *Humanities in the World Since 1300*	4	32 credit hours and 3300:112 equivalent 32 credit hours and 3300:112 equivalent
4250:310	Fundamentals Of Dry Corrosion	3	4250:300 prerequisite; 4250:311 corequisite
4250:311	High Temp Corrosion Lab	1	4250:306 prerequisite; 4250:310 corequisite
4250:440	Corrosion Management I	3	4250:305
4250:xxx	Corrosion Engineering Elective	3	
4200:410	Project Management and Teamwork IV	1	4200:310
Total		**15**	

4th Year	**Spring Semester**		
	Humanities Requirement	3	
4250:xxx	Corrosion Engineering Elective	3	
4250:441	Corrosion Management II	3	4250:440
	Design Elective	3	
	Design Elective	3	
Total		**15**	

	Minimum Total Credits for Degree	**136**	

ALERT: 1) By the end of your first 48 credit hours attempted, you should have completed your General Education English, Math, and Oral Communication (Speech) requirements; 2) By the end of your first 48 credit hours attempted, you should have declared a major and transferred to (been accepted by) a degree granting college at The University of Akron.

Corrosion Engineering Program information Ed Evans, evanse@uakron.edu 330-972-8292
Web Address: www.chemical.uakron.edu

IN GENERAL: The purpose of the Corrosion Engineering curriculum is to prepare men and women for professional careers in the practical application of chemistry, mathematics, and physics to develop economic ways of controlling the degradation of materials.

SALARY LEVEL: Salary levels for Corrosion Engineers are competitive with other engineering disciplines.

JOB DESCRIPTION: Corrosion engineers develop approaches for preserving materials used for many applications including industrial and national infrastructure, defense and environmental assets, and biomedical devices. Corrosion engineers also design new materials and structures that will address emerging needs in a variety of industries including energy, chemical processing and pharmaceuticals.

JOB LOCALE: Corrosion Engineers find acceptance in virtually every industrial classification because of their knowledge of materials and ability to work with a multidisciplinary team. Opportunities are found in large and small companies all over the world, governmental agencies, and in one's own business.

TRANSFER TO COLLEGE OF ENGINEERING: To be admitted to the college, the student must:

- Complete at least 30 semester hours of coursework post high school
- Complete Calculus 2 with a C- or higher
- Have a 2.3 grade point average in at least three of the following categories:
    - in all coursework
    - in all engineering coursework
    - in all required mathematics coursework
    - in all required science coursework (chemistry, physics, computer science, biology)

Admission of students who do not meet the above requirements will be considered by the dean or representative only if the request originates by an Engineering department head or representative.

Students can arrange inter-college transfers through an appointment with their academic advisor; advisor contact information is listed in "My Akron."

CO-OP OPTION: Students can choose between a five-year program, which includes up to four semesters of co-op experience, or a four-year program without co-op experience. The Co-op Program provides an opportunity to gain real-world, relevant experience while working toward a bachelor's degree. Students who participate in the Co-op Program earn money to help fund their education, graduate with 12 or more months of career-related experience, and often receive a higher starting salary after graduation. More information about the Co-op Program can be found at engineering.uakron.edu/coop

PLACEMENT: The Engineering Co-op and Placement Office, ASEC 203, Akron, Ohio 44325 assists all graduates with full-time placement.

WOMEN AND MINORITY ENGINEERS: Eligible students are invited to register into the applicable engineering course elective. There are two options; 4100:110, Women in Engineering Seminar & Peer Group (Contact: Heidi Cressman, 330-972-7701, or hec9@uakron.edu). This course provides beginning women students an overview of the career opportunities for women in engineering. The course introduces relevant topics in engineering, an overview of career opportunities, student led discussion groups and an opportunity to meet with professionals in various engineering disciplines. The other option is 4100:120, Minority Engineering Seminar and Peer Groups (Contact: Julie Zhao, 330-972-2823, or zhao1@uakron.edu). This course provides an overview of disciplines and opportunities in engineering. It also reinforces educational/ career choices and provides role models of successful minority engineers.

(Jackson)