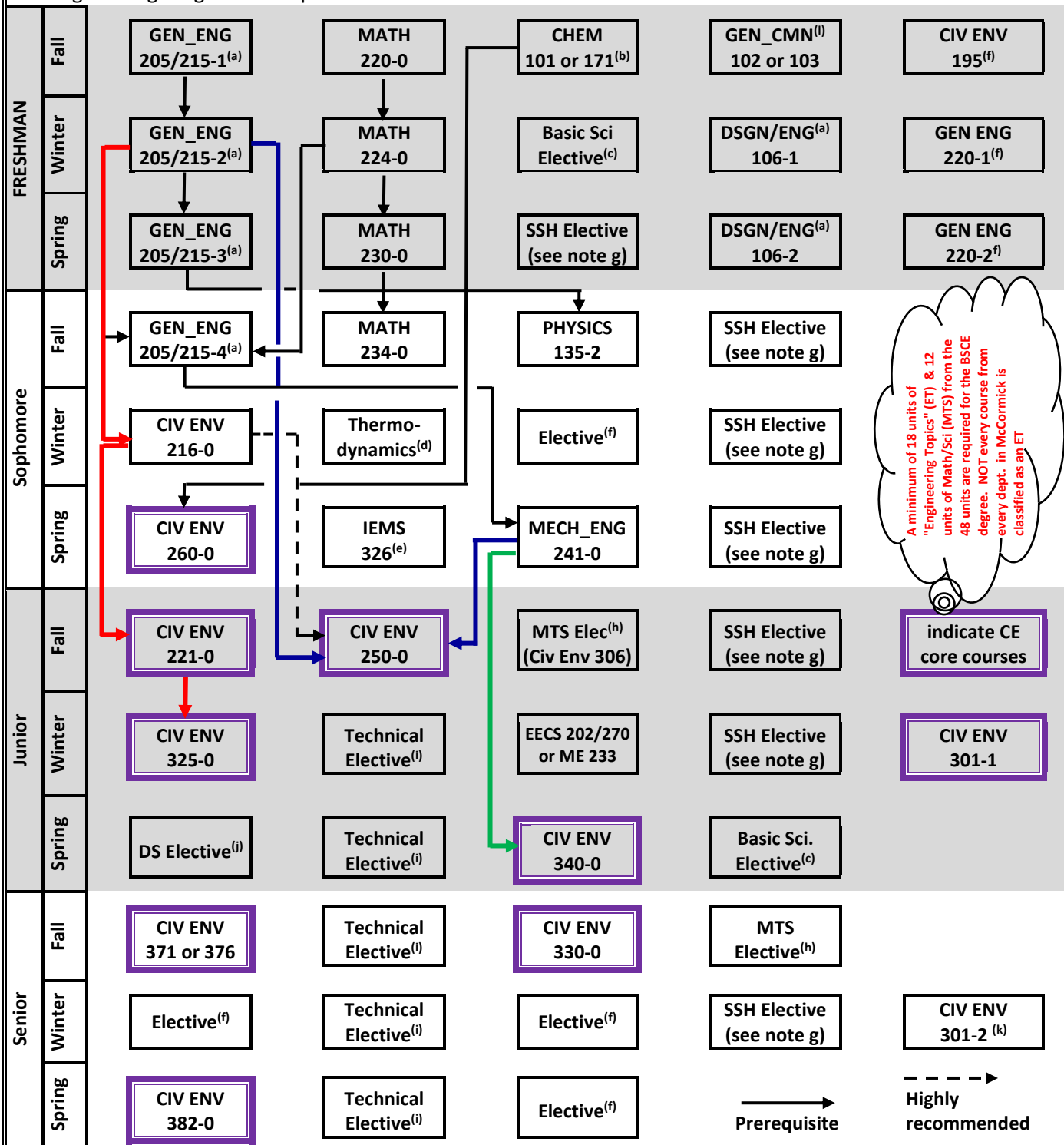


Civil Engineering Program – sample flow chart

2016-2017



Notes:

- a. Must register both courses concurrently.
- b. Completion of CHEM 171 & 172 meets the requirement of CHEM 101, 102, & 103. CHEM 171 replaces CHEM 101 & 102.
- c. **At least ONE MUST choose from biological sciences or earth and planetary science lists in Basic Sciences. The other can be any course except Astronomy listed in Basic Sciences.**
- d. May choose among MECH_ENG 220, BME 250, and CHEM_ENG 211.
- e. IEMS 326 recommended. May choose from material science, systems engng. & analysis, computer architecture & numerical analysis, & computer programming lists in Basic Engng.
- f. May choose from any course offered for credit by the University. CIV ENV 195 (zero unit) and GEN ENG 220-1,2 for a total of 1 credit sequence is HIGHLY recommended for freshman and sophomores. Skills acquired from these courses are necessary for summer internship in civil and environmental engineering profession
- g. Courses must be selected to meet the Social Science-Humanities theme requirement.
- h. Choose courses from the approved list (see next page). One MTS elective must be Civ_Env 306 (50% math). A **minimum of 12 units of Math/Science and 18 units of Engineering Topics (ET) from 48 units are required for BSCE.** Consult with your academic advisor and the partitioning table at <http://www.mccormick.northwestern.edu/academics/undergraduate/abet/course-partitioning.php>. These partitions are valid only for the academic year the course is taken.
- i. Any course 300-level or above, except GEN_ENG 220-1,2 or DSGN 254, in math, science, engineering or other areas supporting the civil engineering specialization area(s) which at present is economic courses. CivEnv 395, 398, or 399 may be acceptable through petition. Must meet pre-requisite requirements of chosen courses.
- j. Choose from Civ_Env 323, 336, 352, 395 (must be design class), 399 (must be design project approved by ABET Coordinator), 421
- k. CivEnv 301-1,2 – Professional Development Seminar I, II. This is a no credit, no tuition course series on the review for Fundamental of Engineering Exam (CivEnv 301-2), professional ethics & life-long learning. CivEnv 301-1 is required.

Civil Engineering Program 2016-2017

Civil Engineering Core Courses (7 units)

| | | | |
|-------------------|--|------------|-----------------------------|
| CivEnv 221 | Theory of Structures I | CivEnv 250 | Introductory Soil Mechanics |
| CivEnv 260 | Fundamental of Environmental Engineering | CivEnv 325 | Reinforced Concrete |
| CivEnv 330 | Construction Management | CivEnv 340 | Fluid Mechanics II |
| CivEnv 371 or 376 | Introduction to Transportation Planning & Analysis or Transportation System Operations | | |

The following courses must be taken in sequence: **205-2→216→221→325**; **205-2→ME 241→250**; **ME 241→340** to be in compliance with ABET accreditation criteria.

Social Science-Humanities Requirement

Seven courses chosen according to either of the following two options:

Option A: At least two courses must be chosen in each of three areas: (1) Social and Behavioral Science (SBS); (2) Historical Studies and Values (HSV); and (3) Fine Arts, Language and Literature (FAL). Of the seven courses, only three 100-level introductory courses may be presented and three courses must be thematically related to provide depth.

Option B: Five of the seven courses must clearly have a thematic relatedness. For breadth, no more than five courses may come from a single area. Of the seven courses, only three may be 100-level introductory courses.

The courses taken for a student's Social Science-Humanities Requirement must be approved in advance by the McCormick Humanities Panel. Foreign language study can be incorporated into the program, but should be started as early as possible, preferably in the freshman year. Complete theme requirement information and theme declaration form are available at the McCormick Undergraduate Engineering Office web site, <http://www.mccormick.northwestern.edu/documents/students/undergraduate/social-science-humanities-theme/social-science-humanities-theme-form.pdf>.

Approved list of DS, MTS, and Technical Electives

Design and Synthesis (DS) – choose two courses

- One course must be **Civ_Env 382 – Capstone Design** (pre-req. 325, 250, 330, 371/376, co-req. 340), plus
- Choose one course from below
 - CivEnv 323 Structural Steel Design, *pre-req. 221*
 - CivEnv 336 Project Scheduling, *pre-req. 330*
 - CivEnv 352 Foundation Engineering, *pre-req. 250 (offer winter odd year)*
 - CivEnv 395 Special Topics (must be design class)
 - CivEnv 399 Projects (must be design project approved by ABET Coordinator)
 - CivEnv 421 Prestressed Concrete, *pre-req. 325 (requires instructor permission and a permission number from CEE Office)*

Note: You must meet pre-requisite requirements to be in compliance with ABET accreditation criteria.

Mathematical Techniques and Science (MTS) – choose two courses and no 399 course

- One course must be **Civ_Env 306** (50% math); plus
- One course from below
 - Any course 300 level or above from the Math Department.
 - Any course 200 level or above in Biological Sciences, Chemistry, Earth & Planetary Science 201 and above, or Physics; plus CHEM 103 and PHYSICS 135-3.
 - EnvSci 201, 202.
 - Any course 300 level or above from Engineering Science and Applied Mathematics.

ABET requires min. of 12 units of math/science from 48 units for BSCE degree. To ensure compliance to this requirement, please consult with your academic advisor and the partition table at <http://www.mccormick.northwestern.edu/academics/undergraduate/abet/course-partitioning.php> on courses offered by McCormick before registering. These partitions are valid only for the academic year the course is taken.

Technical Electives (TE) – choose five courses

- Any course, 300 level or above in math, science, engineering or other areas supporting the civil engineering specialization area(s) which at present is Economic courses, CivEnv 395, 398, or 399 (limit to 1 399-course) may be acceptable through petition. You must meet pre-requisite requirements of chosen courses to be in compliance with ABET accreditation criteria.
- For a comprehensive list of approved courses, see "Suggested electives for BSCE Specialty Concentration for Jr/Sr 2011-2012".
- Other courses from Weinberg College of Arts and Sciences or Kellogg may be approved upon petition.

ABET requires a min. of 18 units of "Engineering Topics" from 48 units for the BSCE degree. To ensure compliance to this requirement, please consult with your academic advisor and the partition table at <http://www.mccormick.northwestern.edu/academics/undergraduate/abet/course-partitioning.php> on courses offered by McCormick before registering. These partitions are valid only for the academic year the course is taken.

Professionalism and Life-Long Learning

All juniors are required to take CivEnv 301-1 – Professional Development Seminar I. This is a no credit, no tuition course on civil engineering profession, engineering ethics, and life-long learning. All seniors are encouraged and highly recommended to take CivEnv 301-2 – Professional Development Seminar II. This is a no credit, no tuition course on the review for Fundamental of Engineering Exam.