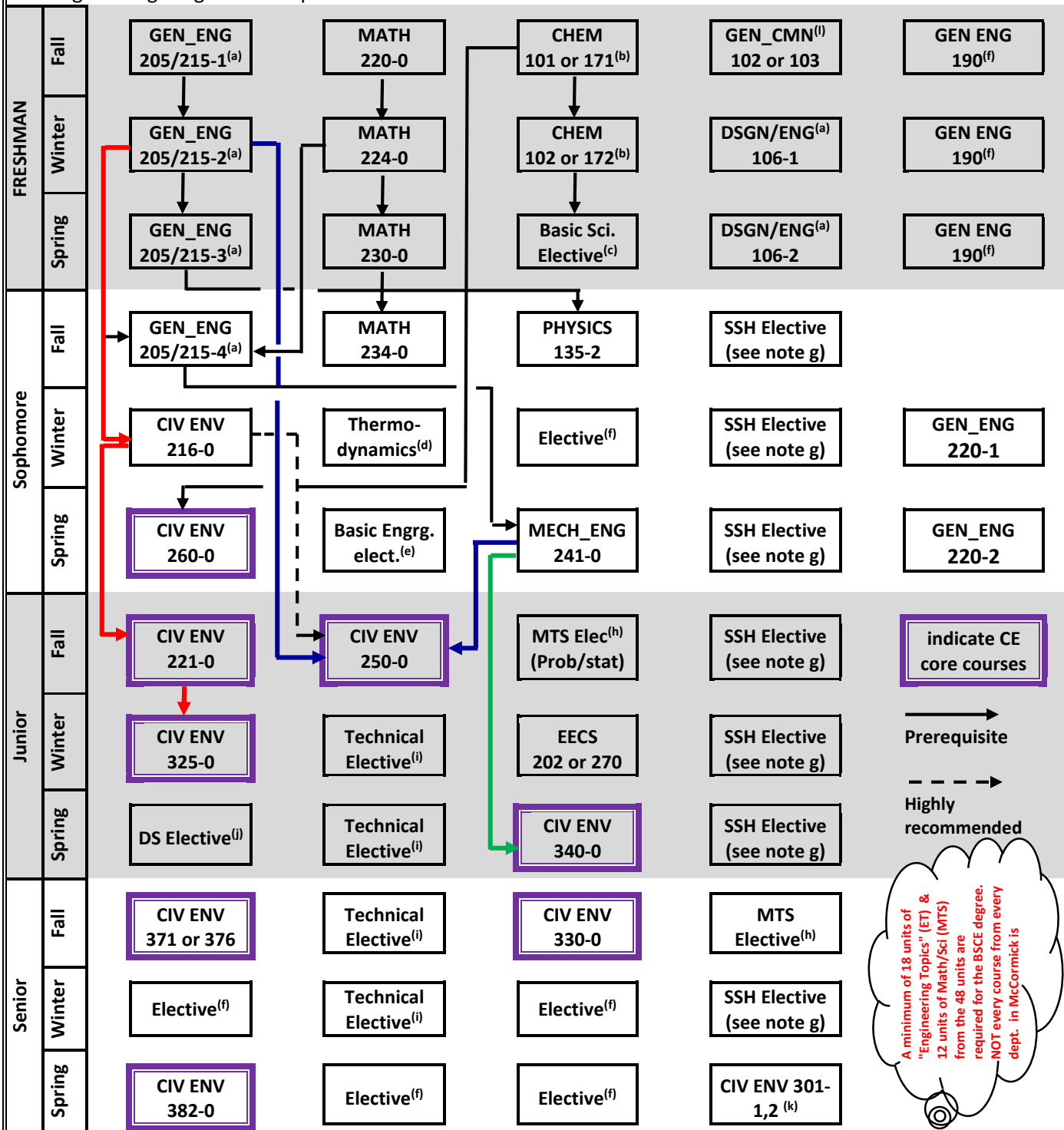


Civil Engineering Program – sample flow chart

2013-2014



- Notes:**
- Must register both courses concurrently.
  - Completion of CHEM 171 & 172 meets the requirement of CHEM 101, 102, & 103. CHEM 171 replaces CHEM 101 & 102.
  - MUST** choose from biological sciences and earth and planetary science listed in Basic Sciences.
  - May choose between MECH\_ENG 220 and CHEM 342-1, BME 250, and CHEM\_ENG 211.
  - May choose from material science, systems engineering, & analysis, computer architecture & numerical analysis, & computer programming lists in Basic Engineering.
  - May choose from any course offered for credit by the University. **CIV ENV 190 for a total of 1 credit is HIGHLY recommended for freshman and sophomores. Skills acquired from these courses are necessary for summer internship in civil and environmental engineering profession**
  - Courses must be selected to meet the Social Science-Humanities theme requirement.
  - Choose courses from the approved list (see next page). One MTS elective must be a calculus-based probability/statistics – Civ\_Env 306 recommended (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/undergraduates/curriculum/abet\\_outcomes/abet\\_course\\_partitioning.php](http://www.mccormick.northwestern.edu/undergraduates/curriculum/abet_outcomes/abet_course_partitioning.php). **These partitions are valid only for the academic year the course is taken**
  - 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.
  - Choose from Civ\_Env 323, 336, 352, 395 (must be design class), 399 (must be design project approved by ABET Coordinator), 421
  - All seniors are encouraged and highly recommended to take 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, professional ethics & life-long learning.

## Civil Engineering Program 2013-2014

### 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/undergraduates/curriculum/theme/index.html>.

### 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, 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 a calculus-based probability/statistics course – Civ\_Env 306 recommended (50% math); IEMS 201, 202, Statistics 210, 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.
  - EnvrSci 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/undergraduates/curriculum/abet\\_outcomes/abet\\_course\\_partitioning.php](http://www.mccormick.northwestern.edu/undergraduates/curriculum/abet_outcomes/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/undergraduates/curriculum/abet\\_outcomes/abet\\_course\\_partitioning.php](http://www.mccormick.northwestern.edu/undergraduates/curriculum/abet_outcomes/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 seniors are encouraged and highly recommended to take 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, discussions on professional ethics and life-long learning.