

Structures, Mechanics, and Materials EFA

Civil and Environmental Engineering Updated April 2017

Description

The *Structures, Mechanics, and Materials EFA* is designed for students who wish gain more depth in structural engineering topics. BS graduates with this EFA can find work in civil engineering positions involving more structural design and construction tasks. The EFA is also good preparation for students who wish to pursue graduate study (MS or PhD) in structural engineering.

CEE Design Electives (6 sh)

The Civil Program requires two CEE Design Electives. For the *Structures, Mechanics, and Materials EFA*, the following CEE Design Elective is required:

- ✓ CEE:3136 Design of Concrete Structures (3 sh)

You must choose a second CEE Design Elective from the following list:

- CEE:4157 Environmental Engineering Design (3 sh)
- CEE:4374 Water Resources Design (3 sh)
- CEE:4762 Design of Transportation System (3 sh)

Any course not chosen as a CEE Design Elective may be taken as an EFA Elective.

EFA Electives (21 sh)

For the *Structures, Mechanics, and Materials EFA*, the following EFA Elective is required:

- ✓ CEE:4533 Finite Element I (3 sh)

You must choose at least 4 (or a maximum of 6) of the following courses:

- CEE:4135 Structural Modeling & Health Monitoring (3 sh) [Fall/Odd Years]
- CEE:3783 Surveying and Remote Sensing (3 sh)
- CEE:4160 Introduction to Bridge Engineering (3 sh) [Spring/Even Years]
- CEE:4164 Design of Wood Structures (3 sh)
- CEE:4511 Numerical Calculations (3 sh)
- CEE:4512 Engineering Design Optimization (3 sh)
- CEE:4532 Fundamentals of Vibrations (3 sh)
- CEE:4535 Design of Steel Structures (3 sh)
- CEE:4539 Foundations of Structures (3 sh)
- CEE:5540 Intermediate Mechanics of Deformable Bodies (3 sh)
- CEE:4162 Structural Systems for Buildings (3 sh) [Spring/Odd Years]
- CEE:5236 Optimization of Structural Systems (3 sh)
- CEE:5179 Continuum Mechanics (3 sh)

Any remaining EFA Electives (a maximum of 2) may be chosen from the following:

- Any 3000 level or above course(s) in CEE
- Any 3000 level or above course(s) in MIE
- Any 3000 level or above course(s) in Business Administration (MGMT, MKGT, MSCI)
- Any other course(s) approved for EFA Elective credit. Other courses require written justification for relevance to the EFA. (Note that many 2000 level or below courses will not be approved for EFA Elective Credit).

EFA Submission

To submit your EFA, fill out the attached PDF form and email it to Kim Lebeck (kimberly-lebeck@uiowa.edu) for approval by the CEE Curriculum Committee. Keep a copy to bring to Academic Advising with your CEE Advisor.

Civil & Environmental Engineering EFA Form

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Student Name/Date: _____

Student ID #: _____

Expected Graduation Date: _____

Do you plan to take FE exam? _____

Subtrack Designation: _____ Civil _____ Environmental

Indicate your chosen Elective Focus Area:

- Civil and Environmental Practice
- Environmental Engineering
- Hydraulics & Water Resources
- Structures, Mechanics and Materials
- Transportation

- Pre-Architecture
- Urban and Regional Planning
- Management
- Student Tailored

Session	Years	Course #	CEE Design Electives	S.H.	Pre-Requisites
<i>Enter your Choice of Two Required CEE Design Electives</i>					

Session	Years	Course #	EFA Electives	S.H.	Pre-Requisites
<i>Enter your Choice of Courses for the Seven Required EFA Electives</i>					

For the **Pre-Architecture, Urban and Regional Planning, Management, and Student Tailored EFAs**, list courses that are required but do not count as EFA Electives. These courses may be used to satisfy the General Education Component (GEC) requirements.

Session	Years	Course #	Additional Required Courses	S.H.	Pre-Requisites
<i>Enter any additional required courses for this EFA</i>					

For the **Student Tailored EFA**, include a career statement to justify the elective focus area. Provide information on the requirements of the minor field or the certificate program when the EFA form is submitted.

Career Objective(s) Statement: