CIVIL ENGINEERING FLOWCHART

General Academic Year 2015-16

NOTE: LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE SEMESTERS (MA2320 & MA3520)

This is not an official list of degree requirements. Adjustments may be required due to curriculum changes.

Fall Year 1 Spring

MA1160 (4/5 CREDITS) F, Su
MA1161 (4/5 CREDITS) F, Su

MA2160 CALCULUS I (4 CREDITS) F, S, Su
MA2160 Coreq.

PH1100 (1 CREDIT) F, S, Su

Note: CE3620 Fall Spring Year INDICATES SEMESTER SPRING is an official list of requirements. May be changed.

Fall Year 2 Spring

PH2100 PHYSICS LAB I (1 CREDIT) F, S, Su

MA3160 CALCULUS II (3 CREDITS) F, S, Su

SU2000 (2 CREDITS) F, S, Su

ENG3200 THERMO/FUIDS (0.5 CREDITS) F, S, Su

CH150 UNIVERSITY CHEMISTRY (3 CREDITS) F, S, Su

ENG1102 MODELING & DESIGN (3 CREDITS) F, S, Su

CH151 UNIVERSITY CHEMISTRY LAB I (1 CREDIT) F, S, Su

MEEM2110 STATICS (3 CREDITS) F, S, Su

CE1000 INTRO TO CIVIL ENGINEERING (1 CREDIT) F

CE2000 (3 CREDITS) F, S, Su

CE1001 SUSTAINABILITY AND CE PRACTICE (1 CREDIT) S

MA2160 (C or better)

ENG1101 ENGINEERING ANALYSIS (3 CREDITS) F, S, Su

PH2100 PHYSICS LAB II (1 CREDIT) F, S, Su

**ENG1003 AUTOCAD IS HIGHLY RECOMMENDED BUT NOT REQUIRED

ENVI103 ENVIRONMENTAL ENGINEERING (3 CREDITS) S

SD = Senior Design Pre-requisite

Fall Year 3 Spring

MA3220/3221 DIFFERENTIAL EQUATIONS (2 CREDITS) F, S, Su

MA3230/3231 MECHANICS OF MATERIALS (3 CREDITS) F, S, Su

ENG3250 ENGINEERING ANALYSIS (3 CREDITS) F, S, Su

CE3310 STATISTICS (3 CREDITS) F, S, Su

MA3710 STATISTICS (3 CREDITS) F, S, Su

CE3710 Uncertainty Analysis in Eng (3 CREDITS) F, S, Su

CE3301 PROFESSIONAL PRACTICE (2 CREDITS) F, S, Su

MA3710 or CE3710 (Coreq or Pre-req)

CE3101 (3 CREDITS) S

CE3810 (3 CREDITS) F, S, Su

CE3101 (L) SOIL MECHANICS (3 CREDITS) F, S, Su

**ENG1003 (AUTOCAD) IS HIGHLY RECOMMENDED BUT NOT REQUIRED

CE4224 (L) STEEL DESIGN I (4 CREDITS) S

CE4213 (L) STRUCTURAL CONCRETE (4 CREDITS) F, S, Su

GOAL 4 & GOAL 8 COURSES CAN BE TAKEN IN EITHER ORDER IN THE SOPHOMORE YEAR.

MA2160 & CH1150/1151

MEEM2150 ENG3200 MEEM2150

EE2000 (3 CREDITS) F, S, Su

**ENG1003 (AUTOCAD) IS HIGHLY RECOMMENDED BUT NOT REQUIRED

COMPOSITION/COMMUNICATION (SEE LIST ON BACK) (1 CREDIT) F, S, Su

CE3332 FUNDAMENTALS OF CONSTRUCTION SD (3 CREDITS) F, S, Su

CE4200 (0.5 CREDIT) F, S, Su

CE3004 TRANSPORTATION ENGINEERING SD (1 CREDIT) F, S, Su

GD2000 (0.5 CREDIT) S

MA/FA COURSE (SEE HASS LIST) (3 CREDITS) F, S, Su

MM/SP/PSY COURSE (SEE HASS LIST) (3 CREDITS) F, S, Su

CE4905 SENIOR DESIGN (3 CREDITS) F, S, Su

Free Elective (3 CREDITS) F, S, Su

MA2160 & CH1150/1151

University Core

Coreq.

ENVI103 ENVIRONMENTAL ENGINEERING (3 CREDITS) S

Any HASS/HASS RESTRICTED COURSE (3 CREDITS) F, S, Su

CE3004 TRANSPORTATION ENGINEERING SD (1 CREDIT) F, S, Su

SD = Senior Design Pre-requisite

6 credits must be upper division 3000-4000 level courses

UN1015 and UN1205 are prerequisites for all upper division HASS courses

Total Academic Credits: 131
Total Co-Curricular Units: 3

Updated 3/11/15
## Engineering Science Elective List (3 credits)

- BE2700  BIOMETICAL SIGNALS & SYSTEMS
- CM2110  FUND. OF CHEM ENGRG 1
- CM2200  INTRO TO MINERALS AND MATERIALS
- EE3010  CIRCUITS AND INSTRUMENTATION
- MY2100  INTRO TO MATERIALS SCI & ENGRG
- MEEM2201  THERMODYNAMICS
- MEEM2700  DYNAMICS
- SSE3730  SYSTEMS DYNAMICS AND DESIGN

### Senior Design (SD) Pre-reqs (complete 7 of the following)

- CE3101, CE3202, CE3331, CE3332, CE3401, CE3620, CE3810,
- ENVE3503, CE4213 or CE4223

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### UNDERGRADUATE CATALOG:
http://www.mtu.edu/catalog/undergraduate/course-descriptions/

### GENERAL EDUCATION:
http://www.mtu.edu/provost/academic-policies/general-education/programs/

### CO-CURRICULAR LIST:
http://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/

### Professional Electives

(UNDERGRADUATE CATALOG: http://www.mtu.edu/catalog/undergraduate/course-descriptions/)

- ANY 3000, 4000, OR 5000 LEVEL COURSE IN CIVIL AND ENVIRONMENTAL ENGINEERING.
  * AN OVERALL GPA OF 3.00 IS REQUIRED TO TAKE GRADUATE LEVEL COURSES (5000 LEVEL)
  * A MAXIMUM OF TWO (2) GRADUATE LEVEL COURSES MAY BE USED TOWARD YOUR BSCE DEGREE
- ANY 3000 OR HIGHER LEVEL COURSE IN BIOLOGY, CHEMISTRY, COMPUTER SCIENCE, GEOLOGY, OR PHYSICS.
- ANY 3000 OR HIGHER LEVEL COURSE IN AN ENGINEERING DEPARTMENT OTHER THAN THE DEPARTMENT OF CIVIL AND ENV. ENGINEERING.
- ANY 4000 OR HIGHER LEVEL COURSE IN MATHEMATICS.
- ANY 3000 OR HIGHER LEVEL COURSE IN BUSINESS OR ECONOMICS. (ACC, BUS, EC, FIN, MGT, MIS, MKT)
- ANY 2000 OR HIGHER LEVEL COURSE IN SURVEYING

NOTE: OTHER COURSES MAY BE USED TO SATISFY THE PROFESSIONAL ELECTIVES REQUIREMENT IF APPROVED BY THE DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING ACADEMIC ADVISOR.

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### GENERAL EDUCATION REQUIREMENTS

#### A. CORE COURSES (12 CREDITS)

1. UN1015 (COMPOSITION)
2. UN1025 (GLOBAL ISSUES)
3. GOAL 4 (CRITICAL AND CREATIVE THINKING) *
4. GOAL 8 (SOCIAL RESPONSIBILITY AND ETHICAL REASONING) **

*GOAL 4 LIST

- FA2330
- FA2520
- FA2720
- FA2820
- HU2130
- HU2503
- SS2100
- SS2200
- SS2400
- SS2500

**GOAL 8 LIST

- EC2001
- PSY2000
- SS2100
- SS2200
- SS2400
- SS2500
- SS2501
- SS2502
- SS2503
- SS2504
- SS2505
- SS2600
- SS2601
- SS2700

#### B. HASS COURSES (12 CREDITS) (General Ed Website, left)

1. SECOND COURSE IN COMMUNICATION/COMP

2. HU OR FA COURSE (HASS LIST)

3. SS OR EC OR PSY COURSE (HASS LIST)

4. ANY HASS OR HASS RESTRICTED COURSE (HASS LIST)

- 6 credits must be upper division 3000-4000 level courses
- No more than 3 credits from the HASS Restricted list can be used to satisfy HASS requirements.
- Each course can satisfy only one requirement.

#### C. CO-CURRICULAR ACTIVITIES (3 UNITS)

- PE/FA/AR/AF_____ PE/FA/AR/AF_____ PE/FA/AR/AF_____ PE/FA/AR/AF_____
### Water Resource Requirements

Choose 1 course from the following:
- **CE3202** STRUCTURAL ANALYSIS 3 credits
- **CE3332** FUND. OF CONSTRUCTION 3 credits
- **CE3401** TRANSPORTATION ENGRG 3 credits

### WATER RESOURCES DESIGN COURSE (select 1)
- **CE4620** RIVER/FLOODPLAIN HYDRAULICS 3 credits
- **CE4640** STORMWATER MANAGE. & LID 3 credits
- **CE4665** STREAM RESTORATION 3 credits

### WATER RESOURCES ELECTIVES (select 4)
- **CE4620** RIVER/FLOODPLAIN HYDRAULICS 3 credits
- **CE4640** STORMWATER MANAGE. & LID 3 credits
- **CE4665** STREAM RESTORATION 3 credits
- **CE5620** STOCHASTIC HYDROLOGY 3 credits
- **CE5666** WR PLANNING & MANAGEMENT 3 credits
- **ENVE4502** WASTE TREATMENT 3 credits
- **ENVE4503** WATER TREATMENT 3 credits
- **ENVE4505** SURFACE WATER QUALITY 3 credits
- **ENVE4507** WATER DISTRIBUTION/COLLECT. 3 credits
- **GE3850** GEOHYDROLOGY 3 credits
- **GE4800** GROUNDWATER ENGRG 3 credits

### Senior Design (SD) Pre-reqs (complete 7 of the following)
- CE3101, CE3331, (CE3202 or CE3332 or CE3401), CE3620, CE3810, ENVE3503, WATER RESOURCES DESIGN COURSE, & 2 WATER RESOURCES ELECTIVES

### Engineering Science Elective List (3 credits)
- **BE2700** BIOMEDICAL SIGNALS & SYSTEMS
- **CM2110** FUND. OF CHEM ENGRG 1
- **CM2200** INTRO TO MINERALS & MATERIALS
- **EE3010** CIRCUITS AND INSTRUMENTATION
- **MY2100** INTRO TO MATERIALS SCI & ENGRG
- **MEEM2201** THERMODYNAMICS
- **MEEM2700** DYNAMICS
- **SSE3730** SYSTEMS DYNAMICS AND DESIGN

### GENERAL EDUCATION REQUIREMENTS

#### A. CORE COURSES (12 CREDITS)
1. **UN1015** (COMPOSITION)
2. **UN1025** (GLOBAL ISSUES)
3. **GOAL 4** (CRITICAL AND CREATIVE THINKING) *
4. **GOAL 8** (SOCIAL RESPONSIBILITY AND ETHICAL REASONING) **

* *GOAL 4 LIST  **GOAL 8 LIST
- **FA2330** EC2001
- **FA2520** PSY2000
- **FA2720** SS2100
- **FA2820** SS2200
- **HU2130** SS2400
- **HU2503** SS2500
- **HU2504** SS2501
- **HU2538** SS2502
- **HU2700** SS2503
- **HU2820** SS2504
- **HU2910** SS2505
- **SS2300** SS2600
- **SS2601** SS2700

#### B. HASS COURSES (12 CREDITS) (General Ed Website, left)
1. SECOND COURSE IN COMMUNICATION/COMP
2. HU OR FA COURSE (HASS LIST)
3. SS OR EC OR PSY COURSE (HASS LIST)
4. ANY HASS OR HASS RESTRICTED COURSE (HASS LIST)

- **6 credits** must be upper division 3000-4000 level courses
- No more than **3 credits** from the HASS Restricted list can be used to satisfy HASS requirements.
- Each course can satisfy only one requirement.

#### C. CO-CURRICULAR ACTIVITIES (3 UNITS)
- **PE/FA/AR/AF**
- **PE/FA/AR/AF**
- **PE/FA/AR/AF**
- **PE/FA/AR/AF**
- **PE/FA/AR/AF**

### Professional Electives

(UNDERGRADUATE CATALOG: http://www.mtu.edu/catalog/undergraduate/course-descriptions/)

- **ANY 3000, 4000, OR 5000 LEVEL COURSE IN CIVIL AND ENVIRONMENTAL ENGINEERING.**
  - *AN OVERALL GPA OF 3.00 IS REQUIRED TO TAKE GRADUATE LEVEL COURSES (5000 LEVEL)*
  - *A MAXIMUM OF TWO (2) GRADUATE LEVEL COURSES MAY BE USED TOWARD YOUR BSCE DEGREE*
- **ANY 3000 OR HIGHER LEVEL COURSE IN BIOLOGY, CHEMISTRY, COMPUTER SCIENCE, GEOLOGY, OR PHYSICS.**
- **ANY 3000 OR HIGHER LEVEL COURSE IN AN ENGINEERING DEPARTMENT OTHER THAN THE DEPARTMENT OF CIVIL AND ENV. ENGINEERING.**
- **ANY 4000 OR HIGHER LEVEL COURSE IN MATHEMATICS.**
- **ANY 3000 OR HIGHER LEVEL COURSE IN BUSINESS OR ECONOMICS. (ACC, BUS, EC, FIN, MGT, MIS, MKT)**
- **ANY 2000 OR HIGHER LEVEL COURSE IN SURVEYING**

NOTE: OTHER COURSES MAY BE USED TO SATISFY THE PROFESSIONAL ELECTIVES REQUIREMENT IF APPROVED BY THE DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING ACADEMIC ADVISOR.
This is not an official list of degree requirements. Adjustments may be required due to curriculum changes.

**NOTE:** LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE SEMESTERS (MA2320 & MA3520).

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### CIVIL ENGINEERING FLOWCHART

**Transportation Academic Year 2015-16**

- **Fall Year 1**
  - MA1160/1161 CALCULUS I (4/5 CREDITS)
  - F, S, Su
  - MA2160 CALCULUS II (4 CREDITS)
  - F, S, Su
  - PH1100 I PHYSICS LAB I (1 CREDIT)
  - F, S, Su
  - ENG1101 ENGINEERING ANALYSIS (3 CREDITS)
  - F, S, Su
  - CH1150 UNIVERSITY CHEMISTRY (3 CREDITS)
  - F, S, Su
  - CH1151 PHYSICS LAB II (1 CREDIT)
  - F, S, Su
  - CE1000 INTRO TO CIVIL ENGINEERING (1 CREDIT)
  - F

- **Spring Year 1**
  - MA1160/1161 CALCULUS I (4/5 CREDITS)
  - F, S, Su
  - MA2160 CALCULUS II (4 CREDITS)
  - F, S, Su
  - SU2000 I SURVEYING (2 CREDITS)
  - F
  - ENG1320 THERMO/FLUIDS (4 CREDITS)
  - F, S, Su
  - CH1150 UNIVERSITY CHEMISTRY (3 CREDITS)
  - F, S, Su
  - CH1151 PHYSICS LAB II (1 CREDIT)
  - F, S, Su
  - CE1001 INTRO TO CIVIL ENGINEERING (1 CREDIT)
  - F

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### GOAL 
- **Fall Year 2**
  - MA3160 MECHANICS OF MATERIALS (3 CREDITS)
  - F, S, Su
  - PH2100 PHYSICS LECTURE II (3 CREDITS)
  - F, S, Su
  - ENG1320 THERMO/FLUIDS (4 CREDITS)
  - F, S, Su
  - CE3322 FUNDAMENTALS OF CONSTRUCTION SD (5 CREDITS)
  - F, S, Su

- **Spring Year 2**
  - CE3311 TRANSPORTATION ENGINEERING SD (3 CREDITS)
  - F, S, Su
  - CE3401 TRANSPORTATION ENGINEERING SD (3 CREDITS)
  - F, S, Su
  - MA3260/3262 DIFFERENTIAL EQUATIONS (2 CREDITS)
  - F, S, Su
  - CH1100 INTRO TO CIVIL ENGINEERING (1 CREDIT)
  - F

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### GOAL 
- **Fall Year 3**
  - MA3710 STATISTICS (3 CREDITS)
  - F, S, Su
  - CE3101 (L) SOIL MECHANICS (4 CREDITS)
  - F, S, Su
  - MA4322 MECHANICS OF MATERIALS (3 CREDITS)
  - F, S, Su
  - MEEM2110 MECHANICS OF MATERIALS (3 CREDITS)
  - F, S, Su

- **Spring Year 3**
  - CE3311 TRANSPORTATION SD (3 CREDITS)
  - F, S, Su
  - CE3311 TRANSPORTATION SD (3 CREDITS)
  - F, S, Su
  - MA3260/3262 DIFFERENTIAL EQUATIONS (2 CREDITS)
  - F, S, Su
  - MA3260/3262 DIFFERENTIAL EQUATIONS (2 CREDITS)
  - F, S, Su

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### GOAL 
- **Fall Year 4**
  - MA3710 STATISTICS (3 CREDITS)
  - F, S, Su
  - CE3101 (L) SOIL MECHANICS (4 CREDITS)
  - F, S, Su
  - MEEM2110 MECHANICS OF MATERIALS (3 CREDITS)
  - F, S, Su
  - MEEM2110 MECHANICS OF MATERIALS (3 CREDITS)
  - F, S, Su

- **Spring Year 4**
  - CE3311 TRANSPORTATION SD (3 CREDITS)
  - F, S, Su
  - CE3311 TRANSPORTATION SD (3 CREDITS)
  - F, S, Su
  - MA3260/3262 DIFFERENTIAL EQUATIONS (2 CREDITS)
  - F, S, Su
  - MA3260/3262 DIFFERENTIAL EQUATIONS (2 CREDITS)
  - F, S, Su

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### General Education Requirement
- **UN1015 COMPOSITION** (3 CREDITS)
  - F, S, Su
- **UN1025 GLOBAL ISSUES** (3 CREDITS)
  - F, S, Su
- **UN1025 HASS SCIENCE** (3 CREDITS)
  - F, S, Su
- **UN1025 HASS SCIENCE** (3 CREDITS)
  - F, S, Su

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### Note:
- 6 credits must be upper division 3000-4000 level courses
- UN1015 and UN1025 are prerequisites for all upper division HASS courses
- ENG1003 AUTOCAD (1 CREDIT)
  - HIGHLY RECOMMENDED BUT NOT REQUIRED
- ENG1003 AUTOCAD (1 CREDIT)
  - HIGHLY RECOMMENDED BUT NOT REQUIRED

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### Total Academic Credits: 131
### Total Co-Curricular Units: 3

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Updated 3/11/15
## Senior Design (SD) Pre-regs (complete 7 of the following)

CE3101, CE3202, CE3331, CE3332, CE3401, CE3810

TRANSPORTATION DESIGN COURSE, & 2 TRANSPORTATION ELECTIVES

### Transportation

**TRANSPORTATION DESIGN COURSE** (Select 1)
- CE4401 PAVEMENT DESIGN 3 credits
- CE4407 TRANSPORTATION DESIGN 3 credits

**TRANSPORTATION ELECTIVES** (select 4)
- CE4401 PAVEMENT DESIGN 3 credits
- CE4402 TRAFFIC ENGINEERING 3 credits
- CE4403 TRAFFIC SAFETY 3 credits
- CE4404 RAILROAD ENGINEERING 3 credits
- CE4406 AIRPORT DESIGN 3 credits
- CE4407 TRANSPORTATION DESIGN 3 credits
- CE4410 TRANSPORTATION PLANNING 3 credits

### Engineering Science Elective List (3 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BE2700</td>
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</tr>
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<td>DYNAMICS</td>
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<tr>
<td>SSE3730</td>
<td>SYSTEMS DYNAMICS AND DESIGN</td>
</tr>
</tbody>
</table>

### General Education Requirements

#### A. Core Courses (12 credits)

1. **UN1015** (Composition)
2. **UN1025** (Global Issues)
3. **Goal 4** (Critical and Creative Thinking) *
4. **Goal 8** (Social Responsibility and Ethical Reasoning) **

#### B. HASS Courses (12 Credits) (General Ed Website, left)

1. Second course in Communication/Comp

#### C. Co-Curricular Activities (3 Units)

<table>
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**General Education:***

- http://www.mtu.edu/provost/academic-policies/general-education/programs/
- http://www.mtue.edu/catalog/undergraduate/course-descriptions/
- http://www.mtue.edu/registrar/faculty-staff/advisors/gen-ed/

**Professional Electives**

- ANY 3000, 4000, or 5000 level course in Civil and Environmental Engineering.
  - An overall GPA of 3.00 is required to take graduate level courses (5000 level)
  - A maximum of two (2) graduate level courses may be used toward your BSCE degree
- ANY 3000 or higher level course in Biology, Chemistry, Computer Science, Geology, or Physics.
- ANY 3000 or higher level course in an engineering department other than the department of Civil and Env. Engineering.
- ANY 4000 or higher level course in Mathematics.
- ANY 3000 or higher level course in Business or Economics. (ACC, BUS, EC, FIN, MGT, MIS, MKT)
- ANY 2000 or higher level course in Surveying

**General Education Requirements**

**Goal 4 List**

- FA2330
- FA2520
- FA2720
- FA2820
- FA2130
- FA2503
- FA2504
- FA2538
- FA2700
- FA2820
- FA2910
- SS2300
- SS2501
- SS2502
- SS2503
- SS2504
- SS2505
- SS2600
- SS2601
- SS2700

**Goal 8 List**

- EC2001
- PSY2000
- SS2000
- SS2100
- SS2200
- SS2400
- SS2500
- SS2501
- SS2502
- SS2503
- SS2504
- SS2505
- SS2600
- SS2601
- SS2700

**Other Courses May be Used To Satisfy the Professional Electives Requirement If Approved by the Department of Civil and Environmental Engineering Academic Advisor.**
CIVIL ENGINEERING FLOWCHART

Built Infrastructure
Academic Year 2015-16

NOTE: LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE SEMESTERS (MA2320 & MA3520) for other senior design options, please visit the advising website: http://www.mtu.edu/cee/undergraduate/capstone/

**ENG1003 (AUTOCAD) IS HIGHLY RECOMMENDED BUT NOT REQUIRED**
**BUILT INFRASTRUCTURE**

**BUILT INFRASTRUCTURE DESIGN COURSE** (select 1)
- CE4213  STRUCTURAL CONCRETE DESIGN  4 credits
- CE4223  STEEL DESIGN 1  4 credits
- CE4820  FOUNDATION ENGINEERING  3 credits

**BUILT INFRASTRUCTURE ELECTIVES** (select 4)
- CE4020  COMPUTER APPLICATIONS  3 credits
- CE4201  MATRIX STRUCTURAL ANALYSIS  3 credits
- CE4213  STRUCTURAL CONCRETE DESIGN  4 credits
- CE4223  STEEL DESIGN 1  4 credits
- CE4233  STRUCTURAL TIMBER DESIGN  3 credits
- CE4333  ESTIMATING, PLANNING, CONST.  3 credits
- CE4344  CONSTRUCTION SCHEDULING  3 credits
- CE4820  FOUNDATION ENGINEERING  3 credits
- CE4830  GEOSYNTHETICS  3 credits
- CE4850  ROCK ENGINEERING  3 credits
- CE5212  PRESTRESSED CONCRETE DESIGN  3 credits
- CE5213  CONCRETE/MASONRY BLDG SYS  3 credits

**Senior Design (SD) Pre-reqs (complete 7 of the following)**
- CE3101
- CE3331
- CE3332
- CE3202
- CE3620
- CE3810
- BUILT INFRASTRUCTURE DESIGN COURSE, & 2 BUILT INFRASTRUCTURE ELECTIVES

**Engineering Science Elective List (3 credits)**
- BE2700  BIOMEDICAL SIGNALS & SYSTEMS
- CM2110  FUND. OF CHEM ENGRG 1
- CM2200  INTRO TO MINERALS & MATERIALS
- EE3010  CIRCUITS AND INSTRUMENTATION
- MY2100  INTRO TO MATERIALS SCI & ENGRG
- MEEM2201  THERMODYNAMICS
- MEEM2700  DYNAMICS
- SSE3730  SYSTEMS DYNAMICS AND DESIGN

**UNDERGRADUATE CATALOG:** http://www.mtu.edu/catalog/undergraduate/course-descriptions/

**GENERAL EDUCATION REQUIREMENTS**

**A. CORE COURSES (12 CREDITS)**
- 1. UN1015  (COMPOSITION)
- 2. UN1025  (GLOBAL ISSUES)
- 3. GOAL 4  (CRITICAL AND CREATIVE THINKING) *
- 4. GOAL 8  (SOCIAL RESPONSIBILITY AND ETHICAL REASONING) **

**B. HASS COURSES (12 CREDITS) (General Ed Website, left)**

**Professional Electives**

(UNDERGRADUATE CATALOG: http://www.mtu.edu/catalog/undergraduate/course-descriptions/)

- ANY 3000, 4000, OR 5000 LEVEL COURSE IN CIVIL AND ENVIRONMENTAL ENGINEERING.
  - * AN OVERALL GPA OF 3.00 IS REQUIRED TO TAKE GRADUATE LEVEL COURSES (5000 LEVEL)
  - * A MAXIMUM OF TWO (2) GRADUATE LEVEL COURSES MAY BE USED TOWARD YOUR BSCE DEGREE
- ANY 3000 OR HIGHER LEVEL COURSE IN BIOLOGY, CHEMISTRY, COMPUTER SCIENCE, GEOLOGY, OR PHYSICS.
- ANY 3000 OR HIGHER LEVEL COURSE IN AN ENGINEERING DEPARTMENT OTHER THAN THE DEPARTMENT OF CIVIL AND ENV. ENGINEERING.
- ANY 4000 OR HIGHER LEVEL COURSE IN MATHEMATICS.
- ANY 3000 OR HIGHER LEVEL COURSE IN BUSINESS OR ECONOMICS. (ACC, BUS, EC, FIN, MGT, MIS, MKT)
- ANY 2000 OR HIGHER LEVEL COURSE IN SURVEYING

**NOTE:** OTHER COURSES MAY BE USED TO SATISFY THE PROFESSIONAL ELECTIVES REQUIREMENT IF APPROVED BY THE DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING ACADEMIC ADVISOR.