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

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

Engineering Science Elective List (3 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE2700</td>
<td>BIOMEDICAL SIGNALS &amp; SYSTEMS</td>
</tr>
<tr>
<td>CM2110</td>
<td>FUND. OF CHEM ENGRG 1</td>
</tr>
<tr>
<td>CM2200</td>
<td>INTRO TO MINERALS AND MATERIALS</td>
</tr>
<tr>
<td>EE3010</td>
<td>CIRCUITS AND INSTRUMENTATION</td>
</tr>
<tr>
<td>MY2100</td>
<td>INTRO TO MATERIALS SCI &amp; ENGRG</td>
</tr>
<tr>
<td>MEEM2201</td>
<td>THERMODYNAMICS</td>
</tr>
<tr>
<td>MEEM2700</td>
<td>DYNAMICS</td>
</tr>
<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. HU/FA (HUMANITIES/FINE ARTS) *
4. S/BS (SOCIAL/BEHAVIORAL SCIENCES) **

*HU/FA LIST
FA2330
FA2520
FA2720
FA2820
HU2130
HU2501
HU2538
HU2700
HU2820
HU2910

**S/BS LIST
FA2600
HU2830
HU3120
HU3151
HU3820
SS2505
SS2600
SS2700

B. HASS DISTRIBUTION COURSES (12 CREDITS)

1. _________________________
2. _________________________
3. _________________________
4. _________________________

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______ PE/FA/AR/AF______

Recommended HASS Distribution Courses:

ED3510+3511 COMMUNICATING SCIENCE
FA2600 THE TECHNIQUE OF ACTING
HU2830 INTO SPEECH COMM.
HU3120 TECHNICAL & PROF COMM.
HU3151 RHETORIC OF EVERYDAY TEXTS
HU3820 INTERPERSONAL COMM.

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.

UNDERGRADUATE CATALOG: http://www.mtu.edu/catalog/undergraduate/course-descriptions/
HASS DISTRIBUTION LIST: http://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/
CO-CURRICULAR LIST: http://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/

Be sure to check out the restrictions on the top of each of the lists!!!
CIVIL ENGINEERING FLOWCHART

Water Resources

Academic Year 2014-15

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

FINDS COURSE IS OFFERED FALL SEMESTER
S INDICATES COURSE IS OFFERED SPRING SEMESTER
Su INDICATES COURSE IS OFFERED SUMMER SEMESTER
(L) INDICATES A COURSE WHICH INCLUDES A LAB
MUST BE SCHEDULED IN ADDITION TO THE LECTURE

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

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

法制 7/21/14
**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

**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

**HASS DISTRIBUTION LIST:** [http://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/](http://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/)

**CO-CURRICULAR LIST:** [http://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/](http://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/)

Be sure to check out the restrictions on the top of each of the lists!!!

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**GENERAL EDUCATION REQUIREMENTS**

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

1. UN1015 (COMPOSITION)
2. UN1025 (GLOBAL ISSUES)
3. HU/FA (HUMANITIES/FINE ARTS) *
4. S/BS (SOCIAL/BEHAVIORAL SCIENCES) **

*HU/FA LIST **S/BS LIST

- FA2330 EC2001
- FA2520 PSY2000
- FA2720 SS2100
- FA2820 SS2200
- HU2130 SS2400
- HU2501 SS2500
- HU2538 SS2501
- HU2700 SS2502
- HU2820 SS2503
- HU2910 SS2504
- SS2505
- SS2600
- SS2700

**B. HASS DISTRIBUTION COURSES (12 CREDITS)**

1. ____________________________
2. ____________________________
3. ____________________________ (3000+)
4. ____________________________ (3000+)

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

- PE/FA/AR/AF______
- PE/FA/AR/AF______
- PE/FA/AR/AF______
- PE/FA/AR/AF______

**RECOMMENDED HASS DISTRIBUTION COURSES:**

- ED3510+3511 COMMUNICATING SCIENCE
- FA2600 THE TECHNIQUE OF ACTING
- HU2830 INTRO TO SPEECH COMM.
- HU3120 TECHNICAL & PROF COMM.
- HU3151 RHETORIC OF EVERYDAY TEXTS
- HU3820 INTERPERSONAL COMM.

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**Professional Electives**

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

- ANY 3000, 4000, OR 5000 LEVEL COURSE IN CIVIL AND ENVIRONMENTAL ENGINEERING.
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- 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.

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

**ONE SEMESTER OF 3000 LEVEL OR HIGHER LANGUAGE COURSE CAN REPLACE UN1025**

**HUA/FA & S/BS COURSE CAN BE TAKEN IN EITHER ORDER IN THE SOPHOMORE YEAR.**

**NOTE: SEE REVERSE SIDE FOR EXPLANATION OF PROFESSIONAL ELECTIVES, GENERAL EDUCATION DISTRIBUTION AND CO-CURRICULAR COURSES**

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**CIVIL ENGINEERING FLOWCHART**

**Transportation Academic Year 2014-15**

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

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

Updated 7/21/14
Senior Design (SD) Pre-reqs (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
- CE4411 INTELLIGENT TRANS. SYSTEMS 3 credits
- CE4422 SUSTAINABLE TRANS. ENGRG 3 credits

**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

HASS DISTRIBUTION LIST: http://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/

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

Be sure to check out the restrictions on the top of each of the lists!!!

Professional Electives

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

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- 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.
CIVIL ENGINEERING FLOWCHART
Built Infrastructure
Academic Year 2014-15

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.

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

**ONE SEMESTER OF 3000 LEVEL OR HIGHER LANGUAGE COURSE CAN REPLACE UN1025**

**UN1025 GLOBAL ISSUES (3 CREDITS) F, S, Su**

Co-cur Unit (0.5 UNIT) F, S, Su

UN1015 COMPOSITION (3 CREDITS) F, S, Su

H/U/P & S/BS COURSE CAN BE TAKEN IN EITHER ORDER IN THE SOPHOMORE YEAR.

16-17

15-16

18

17

16

15-16

16

18

16

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

Updated 7/21/14
**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

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2. **UN1025** (GLOBAL ISSUES)
3. **HU/FA** (HUMANITIES/FINE ARTS) *
4. **S/BS** (SOCIAL/BEHAVIORAL SCIENCES) **

**B. HASS DISTRIBUTION COURSES (12 CREDITS)**

1. _________________________
2. _________________________
3. ___________________(3000+)
4. ___________________(3000+)

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

PE/FA/AR/AF_____ PE/FA/AR/AF_____ PE/FA/AR/AF_____ PE/FA/AR/AF_____

**RECOMMENDED HASS DISTRIBUTION COURSES:**
- ED3510+3511 COMMUNICATING SCIENCE
- FA2600 THE TECHNIQUE OF ACTING
- HU2830 INTRO TO SPEECH COMM.
- HU3120 TECHNICAL & PROF COMM.
- HU3151 RHETORIC OF EVERYDAY TEXTS
- HU3820 INTERPERSONAL COMM.