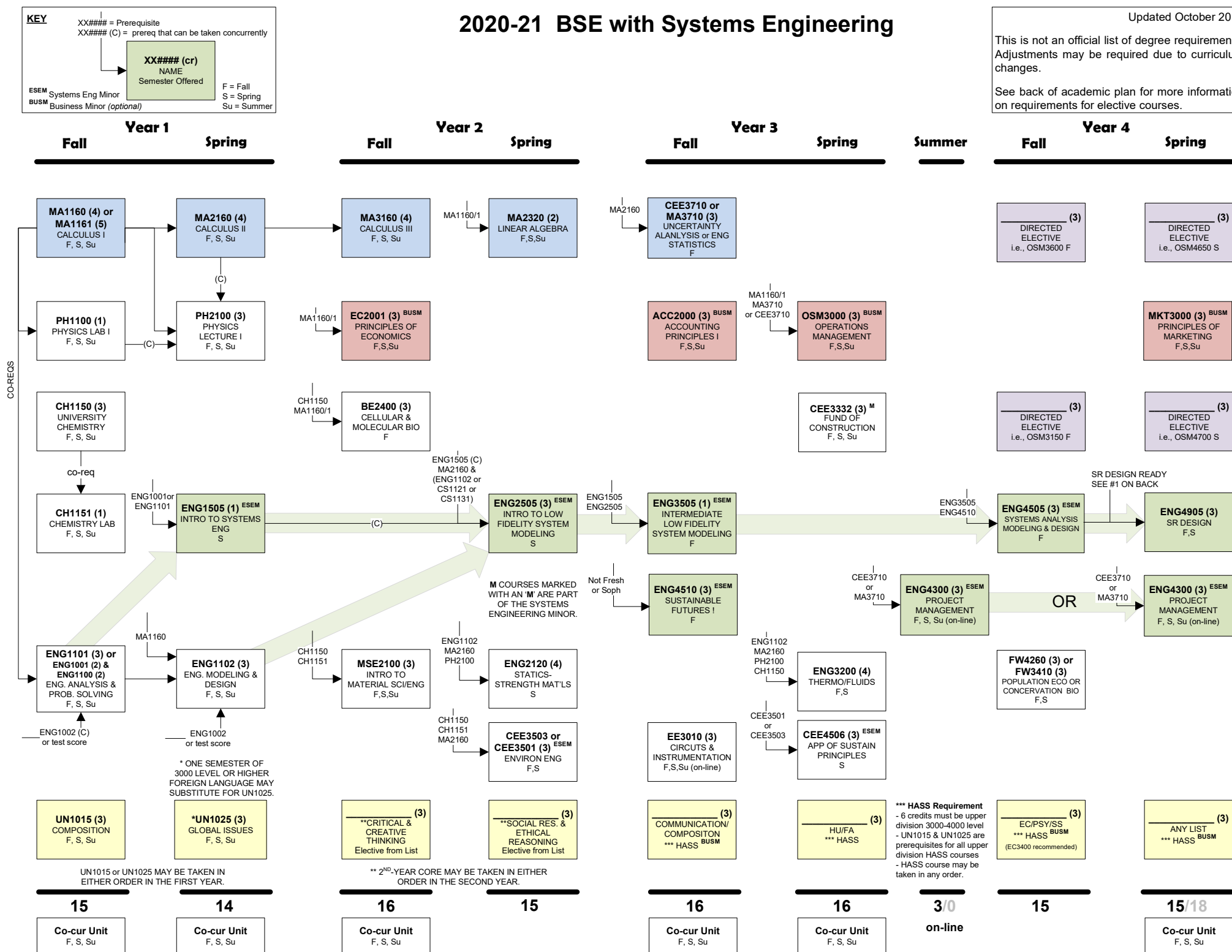


## 2020-21 BSE with Systems Engineering

Updated October 2019

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

See back of academic plan for more information on requirements for elective courses.



## BSE Systems Emphasis 2020-21 (minimum of 125 credits)

**Academic questions: E-mail** [efadvise@mtu.edu](mailto:efadvise@mtu.edu)

### 1 Senior Design Ready:

#### a. Senior Design Prerequisite courses:

EE3010, ENG1101, ENG1102, ENG2120, ENG2505, ENG3200, ENG4505.

**b. Core Competency Check test** - Take and pass the test; test topics include all ENG4905 prerequisite courses except ENG4505.

### 2 General Education Requirements (24 credits + 3 PE units):

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

\_\_\_ UN1015 Composition

\_\_\_ UN1025 Global Issues or 3000+ Modern Language \_\_\_\_\_

\_\_\_ Critical/Creative Think List \_\_\_\_\_

\_\_\_ Social Resp./Ethical Reason List \_\_\_\_\_

#### II. HASS Courses Requirements (12 credits)

([www.admin.mtu.edu/em/documents/HASS\\_Distribution\\_List.pdf](http://www.admin.mtu.edu/em/documents/HASS_Distribution_List.pdf))

- 6 credits upper level (3000- 4999)

- 3 credits from each listed below

\_\_\_ Communication/Composition \_\_\_\_\_

\_\_\_ Humanities/Fine Arts List (HU/FA)\*\* \_\_\_\_\_

\_\_\_ Social & Behavioral Science List (EC/PSY/SS)\*\* \_\_\_\_\_

\_\_\_ 3 credits from any list\*\* \_\_\_\_\_

\* Either **EC2001** or **EC3400** is required by the degree, if both are taken only **ONE** may be counted as a Social Resp./ Ethical Reason or HASS course. If one is taken it may **NOT** be counted as a Social Resp./ Ethical Reason or HASS course.

\*\* Optional Business Minor (BUSM) classes may double count here (see #5).

#### III. Co-curricular activities (3 units)

In the co-curricular requirement, the three semester units will be physical education activities. These units are required for graduation, but are not included in the calculation of the GPA, nor in the overall degree-credit requirement. Note: most physical education activities will last for 7 ½ weeks or ½ semester. A student would need **six** of these ½-semester units to fulfill the 3-semester unit co-curricular requirement.

PE \_\_\_\_\_ PE \_\_\_\_\_ PE \_\_\_\_\_

PE \_\_\_\_\_ PE \_\_\_\_\_ PE \_\_\_\_\_

### 3 Systems Minor Requirements (ESEM) (20 credits):

#### Required courses (14 credits)

\_\_\_X\_\_\_ ENG1505 (1) Introduction to Systems Engineering

\_\_\_X\_\_\_ ENG2505 (3) Low Fidelity Systems Modeling

\_\_\_X\_\_\_ ENG3505 (1) Modeling Laboratory for Sustainable Systems

\_\_\_X\_\_\_ ENG4300 (3) Engineering Project Management

\_\_\_X\_\_\_ ENG4505 (3) Systems Analysis, Modeling, and Design

\_\_\_X\_\_\_ ENG4510 (3) Sustainable Futures I

Select 6 credits from one of the following groups (6 credits)

A. Environmental Engineering and Sustainability

\_\_\_X\_\_\_ (CEE3501 OR CEE3503) AND CEE4506 (3)

B. Supply Chain, Logistics, Procurement, and Management

\_\_\_ (OSM3150 OR OSM4700) AND OSM3600 (3)

C. Design, LEAN, and Six Sigma

\_\_\_ MEEM4650 OR OSM4650 OR (ENT3959, ENT3967, & ENT3982)

AND

\_\_\_ HON3300 OR (3 of: ENT3953, ENT3958, ENT3963, ENT3983)

### 4 Systems (Focus) Directed Electives (12 credits):

Select 12 credits from one of the following groups.

#### Enterprise (12 credits)

\_\_\_ ENT3950 (1) Enterprise Project Work III

\_\_\_ ENT3960 (1) Enterprise Project Work IV

\_\_\_ ENT4950 (2) Enterprise Project Work V Capstone

\_\_\_ ENT4960 (2) Enterprise Project Work VI Capstone

\_\_\_ ENT2961 (2) Teaming in the Enterprise

\_\_\_ ENT2962 (1) Communication Contexts

\_\_\_ ENT3984 (3) Lean Six Sigma Principles OR

\_\_\_ ENT3959 (1) Fundamentals of Six Sigma I AND

\_\_\_ ENT3967 (1) Design for Six Sigma AND

\_\_\_ ENT3982 (1) Continuous Improvement Using Lean Principles

**Minor (12 credits):** Select 12 credits in a coherent plan of study as partial fulfillment of a university minor, with BSE program approval.

### 5 Optional Business Minor (BUSM) – Add 3-6 credits (18 credits total):

Courses counting toward Business minor:

\_\_\_X\_\_\_ ACC2000 \_\_\_X\_\_\_ EC2001 \_\_\_X\_\_\_ MKT3000 \_\_\_X\_\_\_ OSM3000

ADD 3 credits from Block III on Business Minor \_\_\_\_\_

ADD 3 credits from any Block (*many HASS classes*) \_\_\_\_\_