## BSE with Business Emphasis 2023/24

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.

### Year 1
- **Fall**
  - MA1160/1161 **CALCULUS I** (4/5 CREDITS)
    - F, S, Su
  - PH1100 **PHYSICS LAB I** (1 CREDIT)
    - F, S, Su
- **Spring**
  - MA1160 **CALCULUS II** (4 CREDITS)
    - F, S, Su
  - PH1100 **PHYSICS LAB I** (1 CREDIT)
    - F, S, Su

### Year 2
- **Fall**
  - MA2160 **MULTIVARIABLE CALC** (4 CREDITS)
    - F, S, Su
  - MA2220 **LINEAR ALGEBRA** (2 CREDITS)
    - F, S, Su
- **Spring**
  - MA2160 **MULTIVARIABLE CALC** (4 CREDITS)
    - F, S, Su
  - MA2220 **LINEAR ALGEBRA** (2 CREDITS)
    - F, S, Su

### Year 3
- **Fall**
  - MA3160 **STATISTICS** (3 CREDITS)
    - F, S, Su
  - BUS2300 **QUANTITATIVE PROBLEM SOLVE** (3 CREDITS)
    - F, S, Su
- **Spring**
  - MA3160 **STATISTICS** (3 CREDITS)
    - F, S, Su
  - BUS2300 **QUANTITATIVE PROBLEM SOLVE** (3 CREDITS)
    - F, S, Su

### Year 4
- **Fall**
  - MA3320 **LINEAR ALGEBRA** (2 CREDITS)
    - F, S, Su
  - MA3710 **STATISTICS** (3 CREDITS)
    - F, S, Su
- **Spring**
  - MA3320 **LINEAR ALGEBRA** (2 CREDITS)
    - F, S, Su
  - MA3710 **STATISTICS** (3 CREDITS)
    - F, S, Su

### Comments
- C or better in MA1160/1161 or registered for PH2110 is required to take PH2100.
- **MA1031 (C), MA1032 (C), or MA1160/61 (C) or test score**
- **MA1031, MA1032, or MA1160/61 or test score**
- **MA1031 (C), MA1032 (C), or MA1160/61 (C) and ENG1002 (C) or test score**
- **MA1031 (C), MA1032 (C), or MA1160/61 (C) and ENG1002 (C) or test score**
- **Critical & Creative Thinking Core**
- **Social Res. & Ethical Reasoning Core**
- **Communication/Composition**
- **HASS REQUIREMENTS**
  - 6 CREDITS MUST BE UPPER LEVEL 3000-4999
  - UN1015 & UN1025 ARE PREREQUISITES FOR ALL UPPER LEVEL HASS COURSES
  - HASS COURSES MAY BE TAKEN IN ANY ORDER

### Electives
- **MATH/SCIENCE ELECTIVE** (2 CREDIT)
  - F, S, Su
- **ENGINEERING CORE ELECTIVE** (3 CREDITS)
  - F, S, Su
- **TECHNICAL ELECTIVE** (3 CREDIT)
  - F, S, Su
- **TECHNICAL ELECTIVE* (3 CREDITS)
  - F, S, Su
- **DIRECTED ELECTIVE** (3 CREDITS)
  - F, S, Su
- **DIRECTED ELECTIVE** (3 CREDITS)
  - F, S, Su
- **BUSINESS ELECTIVE** (3 CREDITS)
  - F, S, Su
- **BUSINESS ELECTIVE** (3 CREDITS)
  - F, S, Su
- **BUSINESS ELECTIVE** (3 CREDITS)
  - F, S, Su
- **BUSINESS ELECTIVE** (3 CREDITS)
  - F, S, Su

### Required Courses
- **ENG1101 **ENG. ANALYSIS & PROB. SOLVING** (3 CREDITS)
  - F, S, Su
- **ENG1102 **ENGINEERING CORE ELECTIVE** (3 CREDITS)
  - F, S, Su
- **ENG2120 **STATICS-STRENGTH MAT'LS** (4 CREDITS)
  - F
- **ENG2120 **STATICS-STRENGTH MAT'LS** (4 CREDITS)
  - F
- **ENG3830 **ENGINEERING PROFESSIONALISM** (1 CREDIT)
  - F, S, Su
- **ENG4905 **SR DESIGN** (3 CREDIT)
  - F, S

### Additional Requirements
- **UN1015 (3) COMPOSITION**
  - F, S, Su
- **UN1025 (3) GLOBAL ISSUES**
  - F, S, Su
- **UN1015 or UN1025 MAY BE TAKEN IN EITHER ORDER IN THE FIRST YEAR**
- **MA1031, MA1032, or MA1160/61 or test score**
- **MA1031 (C), MA1032 (C), or MA1160/61 (C) and ENG1002 (C) or test score**
- **MA1031 (C), MA1032 (C), or MA1160/61 (C) and ENG1002 (C) or test score**
- **UN1015 or UN1025 MAY BE TAKEN IN EITHER ORDER IN THE SECOND YEAR**
- **MA1031, MA1032, or MA1160/61 or test score**
- **MA1031 (C), MA1032 (C), or MA1160/61 (C) and ENG1002 (C) or test score**
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- **MA1031, MA1032, or MA1160/61 or test score**
- **MA1031 (C), MA1032 (C), or MA1160/61 (C) and ENG1002 (C) or test score**
- **HASS REQUIREMENTS**
  - 6 CREDITS MUST BE UPPER LEVEL 3000-4999
  - UN1015 & UN1025 ARE PREREQUISITES FOR ALL UPPER LEVEL HASS COURSES
  - HASS COURSES MAY BE TAKEN IN ANY ORDER

### Additional Courses
- **ENG3830 **ENGINEERING PROFESSIONALISM** (1 CREDIT)
  - F, S, Su
- **ENG4905 **SR DESIGN** (3 CREDIT)
  - F, S
- **EE3010 **CIRCUITS & INSTRUMENTATION** (3 CREDITS)
  - F, S, Su
- **CEE3200 **THERMO/FLUIDS** (4 CREDITS)
  - F
- **EC3400 **ECON DEC ANALYSIS** (3 CREDITS)
  - F, S, Su
- **EC3400 **ECON DEC ANALYSIS** (3 CREDITS)
  - F, S, Su
- **ENG5425 (3) SYE ANALYSIS/ SUSTAINABILITY RESILIENCE**
  - S or F
- **ENG4300 (3) PROJECT MANAGEMENT**
  - F, S
- **ENG4905 **SR DESIGN** (3 CREDIT)
  - F, S
BSE with Business Emphasis 2023-24
(minimum of 125 credits)

**Academic questions: E-mail efadvise@mtu.edu**

1. **Senior Design Prerequisite courses:**
   - ENG1101, ENG1102, ENG2120, CEE3200, ENG3830 (C), EE3010, Eng. Core Elective, and Engineering Design Implementation.

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)
   - 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**

   * EC3400 is required by the degree, and may **NOT** be counted as a Social Resp./Ethical Reason or HASS course.

   **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_________

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3. **Engineering Design Implementation (select 3 credits):**
   - ___ CEE3332 ___ GE3880 ___ MEEM3600

4. **Engineering Core Elective (select 3 credits):**
   - ___ CEE3101 ___ CS1121 ___ ENG2505 ___ GE2300 ___ MSE2100*

5. **Quality Control Elective (select 3 credits):**
   - ___ MET4510 ___ MEEM4650 ___ OSM4650

6. **Math/Science Elective (select 1-2 credits)*:**
   - ____________ ____________ ____________

7. **Technical Electives (14-15 credits)*:**
   Select 14 to 15 engineering credits at the 3000+ level in a coherent plan of study that is approved by the Academic Advisor for the Bachelor of Science in Engineering program, Department Chair of Engineering Fundamentals and Academic Dean for the College of Engineering. 9 credits must be 4000+ level.
   - ____________ ____________ ____________ ____________ ____________ ____________
   - ____________ ____________ ____________ ____________ ____________ ____________
   - ____________ ____________ ____________ ____________ ____________ ____________

8. **Directed Electives (9 credits):**
   Select 9 credits in a coherent plan of study such as partial fulfillment of a university approved minor, or a self-defined program with the advice of the BSE Academic Advisor.
   - ____________ ____________ ____________ ____________ ____________ ____________

9. **Business Electives (9 credits):**
   Select one of the following (3 credits):
   - ___ MGT3000 ___ MKT3000 ___ OSM3000
   Select 6 credits from the following list, or 3 credits approved by the Academic Advisor for the Bachelor of Science in Engineering.
   - ___ EC3100 ___ HU3120 ___ PSY4340 ___ SS3650 or MGT3650

* If MSE2100 selected, then 1 credit Math/Science Elective and 15 credits Technical Electives needed.