**Biomedical Applications Concentration**

2019-2020

**Catalog term 201908**

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**SAMPLE PLAN**

**Calculus-ready students**

**Sem. 1 - Fall**

- MA1160/61 (4) Calculus I
- ENGT101 (3) Engr Analysis
- CH1150/51 (4) &/or CH1153 (1) Univ Chem I

**Sem. 2 - Spring**

- MA2160 (4) Calculus II
- MA2321 (2) Accelerated Linear Alg Track A
- EE2111 (3) Electric Circuits I
- MA1160/61 (4) Calculus I

**Sem. 3 - Fall**

- MA3160 (4) Multi-Variable Calculus
- EE2112 (4) Electric Circuits II & Lab
- BL2020 (3) Anatomy / Physiology 2
- MA2160 (4) Calculus II

**Sem. 4 - Spring**

- MA3521 (2) Accelerated Linear Alg Track A
- EE2111 (3) Electric Circuits I
- BL2020 (3) Anatomy / Physiology 2

**Sem. 5 - Fall**

- EE3131 (4) Electronics and Lab
- EE3261 (3) Microcontroller Applications
- MA1160/61 (4) Calculus I

**Sem. 6 - Spring**

- EE3180 (3) Intro. Probability & Random Sig. Anal.
- EE3160 (3) Signals & Systems
- CS1111 or CS1121

**Sem. 7 - Fall**

- Decide: Enterprise or Senior Design or EPS
- EE3901 (2) EE Design Fund.
- MA2160 (4) Calculus II

**Sem. 8 - Spring**

- EE4901 (2) EE Design 2
- EE4250 (3) Modern Comm. Systems

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**Electives:***

- EE Design 1
- EE Elective (3)
- EE3140 (3) Electromagnetics
- EE Elective (3)
- HASS Electives (3)
- HASS Social Behavioral Sci (3)
- HASS Comm/Composition (3)
- Control Systems (3)
- Elective (3)
- HASS Elective (3)

**Total 128 cr.**

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**Note:**

- Schedule a minimum of 14 credits if taking accelerated Linear Alg/Diff Eq.
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- See reverse side for planning info and General Education details.
- A grade of C or higher in Calc I is required for PH2100 and if CD or D in Calc I, then PH2110 is required with PH2100.
- Any HASS

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Undergraduate advisor:
EERC 131. Call 487-2550 to schedule appt.  eceadvise@mtu.edu

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Biomechanics focus – follow pink path

**Biomechanics I**

- BE3300 (3) Biomechanics I

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Biomaterials focus – follow blue path

**Biomaterials 1**

- BE2800 (3) Biomaterials 1

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Choose at least 6 credits of 3000-4999 HASS list

Recommended HASS: EC3400
Choose correct courses each semester. Run and review your online Degree Audit each time you add, drop or switch courses and **before** each semester begins.

Lists of electives and required courses are included in your online degree audit report. It is **your responsibility** to choose correct courses.

1) **Choose one course from each list for General Education requirements:** ALWAYS check for allowable course choices in your degree audit after registration adds and changes!

   **Critical & Creative Thinking list:** FA2330, FA2520, FA2720, FA2820, HU2130, HU2324, HU2501, HU2503, HU2538, HU2700, HU2820, HU2910, SS2300, TA2XX4

   **Social responsibility & Ethical Reasoning list:** EC2001, ED2000, PSY2000, SS2100, SS2200, SS2400, SS2500, SS2501, SS2502, SS2503, SS2504, SS2505, SS2600, SS2610, SS2700, TA2XX8

   **HASS lists:** at least 6 credits must be upper-level 3000-4999. UN1015 and UN1025 must be complete before taking upper-level HASS courses.

   **HASS Composition/Communication:** HU2810, HU2830, HU3015, HU3120, HU3151, HU3693, HU3694, HU4628, HU1XX5, HU2XX5, HU3XX5, HU4XX5

   **HASS Social and Behavioral Science (EC/PSY/SS) choice:** __________ Upper level if needed.

   **HASS Humanities and Fine Arts (HU/FA) choice:** ______________ Upper level if needed.

   **HASS any list:** _______________ Upper level if needed.

2) **SELECT Approved Elective course** list: **choose one course** EE/EET3373, ENG2120, ENG3200, ENG4510, MEEM2110, MEEM2150, MEEM2201, MEEM2700, MSE2100, MSE4292, PH2300, PH2400, PH3300 (SELECT approved elective not required for biomedical or environmental applications concentrations)

3) Remaining **Approved Electives:** refer to your degree audit for list of valid courses. Ex: Engineering, Math, CS, Physics, Chem. Pass/fail courses do not count.

4) **EE Electives:** 15 credits (3-12 credits, varies w/ concentration) of EE lecture/lab coursework. Excludes research, pass/fail, project, co-op, or independent study credits. The purpose is to add skills and knowledge in new ECE topics, or more in-depth knowledge in an ECE area of specialization. May use for "Focus Area(s)". Look for semester offerings in the online Schedule of Classes. Look for pre-requisite and other course information by clicking the CRN, or in the online Course Descriptions.

   EE elective courses are offered once per year, or in alternating years (ex. EE4240, EE5223, EE5250). Check online Course Descriptions and the Schedule of Classes for the most up-to-date course information and semester offerings.

5) **Engineering Design Requirements:** 4 – 6 credits

   Option 1: "Senior Design", 4 credits, is the year-long company sponsored project team. EE4901(2) and EE4910(2) (or BE4901/BE4910) taken in fall-spring, or MEEM4901(2) and MEEM4911(2) taken in spring-fall or fall-spring. May use EPS-European Project Semester for Design Option 1, which includes EE3901 credit.

   Option 2: "Enterprise" – 6 credits, 4 semesters of project work beginning at the point in time when you have 4 semesters left on campus:

   ENT3950(1), ENT3960(1), ENT4950(2) and ENT4960(2). Reduces “Approved Electives” by 2 credits if applicable.

6) **Free Elective:** a good use of Free Elective: CH1153, MA1161 5th credit, Enterprise 2000-level project work, or excess transfer credits. Cannot use co-curricular activities.

**Concentration Electives:** See your Degree Audit Report in Banweb for list of valid electives with a concentration, or see the Degree Services .pdf audit for the BSEE with the concentration(s) you are interested in: [http://www.mtu.edu/registrar/students/major-degree/audit/engineering/](http://www.mtu.edu/registrar/students/major-degree/audit/engineering/) A concentration is not required.

Concentrations: Biomedical Applications, Electric Power Engineering, Enterprise, Environmental Applications, Photonics

**GRADUATION:** Review degree audit for meeting all graduation requirements. Apply for graduation one semester before your last; DATE: _____________________.

Schedule last semester courses, **review degree audit**, then meet with the advisor to review your last set of scheduled courses **before** your last semester begins.