**Sample Plan to Graduation for a BS in Engineering Physics**

***Digital Electronics Concentration***

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|  | **Fall Semester** | **Spring Semester** |
| **Freshman Year** | Math 140 - 4 cr  Physics 101\*\* - 1 cr  Physics 113 & 181 - 6 cr  Gen Ed - 3 cr  English 101 - 3 cr | Math 141 - 4 cr  Physics 114 & 182 - 6 cr  First Year Seminar - 4 cr  English 102 - 3 cr |
| (17 credits) | (17 credits) |
| **Sophomore Year** | \*Physics 211 - 3 cr  \*Physics 281 - 3 cr  Math 242 - 4 cr  CS 110 - 4 cr  Gen Ed- 3 cr | \*Physics 214 - 3 cr  Math 270 - 3 cr  Chemistry 115 & 117 - 5 cr  Engineering 104 - 3 cr  Intermediate Seminar - 3 cr |
| (17 credits) | (17 credits) |
| **Junior Year †** | Engineering 231 & 271 - 4 cr  Chemistry 116 & 118 - 5 cr  CS 210 - 4 cr  Gen Ed - 3 cr | Engineering 232 & 272 - 4 cr  \*Physics 312 - 3 cr  \*Physics 382 - 3 cr  CS 240 - 3 cr  Gen Ed - 3 cr |
| (16 credits) | (16 credits) |
| **Senior Year** | \*Physics 321 - 3 cr  \*Physics 421 - 3 cr  Engineering Elective I - 3 cr  Lab elective - 4 cr  Gen Ed - 3 cr | \*Physics 322 - 3 cr  Engineering Elective II - 3 cr  Concentration Elective I - 3/4 cr  Concentration Elective II - 3/4 cr  Gen Ed - 3 cr |
| (16 credits) | (15/17 credits) |

\* - Class may be offered only once a year.

\*- Students should select general education courses that fulfill multiple requirements.

\*\* - Recommended.

† - The Writing Proficiency Requirement (WPR) is recommended to be completed at 60-75 credits. Please consult the WPR website:

[www.umb.edu/academics/vpass/undergraduate\_studies/writing\_proficiency](http://www.umb.edu/academics/vpass/undergraduate_studies/writing_proficiency)

This course guide provides the detailed names of courses listed by number on the plan to graduation. It is not a comprehensive list of courses for your major or a substitute for an advising appointment! Consult with your faculty advisor when choosing courses, and check your degree audit regularly.

**LAB ELECTIVE – Select 1 from:**

ENGIN 241 Digital Systems with Lab

ENGIN 304 Engineering Design

ENGIN 365 Electronics I with Lab

PHYSIC 298 Special Topics Laboratory

PHYSIC 398 Special Topics Laboratory

Chemistry 115 & 117 – Chemical Principles I Lecture & Lab

Chemistry 116 & 118 – Chemical Principles II Lecture & Lab

CS 110 – Introduction to Computing

CS 210 – Intermediate Computing with Data Structure

CS 240 – Programming in C

Engineering 104 – Introduction to Electrical & Computer Engineering

Engineering 231 & 271 – Circuit Analysis I & Circuit Lab I

**ENGINEERING ELECTIVES – Select 2 from:**

ENGIN 202 Statics (Mechanical Engineering)

ENGIN 211L Engineering Mathematics

ENGIN 221 Strength of Materials I

ENGIN 321 Signals and Systems

ENGIN 322 Probability and Random Processes

ENGIN 331 Fields and Waves

ENGIN 332 Fields and Waves II

ENGIN 346 Microcontrollers

ENGIN 351 Fundamentals of Semiconductor Devices

ENGIN 362 Fluid Mechanics

ENGIN 366 Electronics II with Lab

Engineering 232 & 272 – Circuit Analysis II & Circuit Lab II

Math 140 – Calculus I

Math 141 – Calculus II

Math 242 – Multivariable and Vector Calculus

Math 270 – Applied Ordinary Differential Equations

Physics 113 & 181 – Fundamentals of Physics I Lecture & Lab

Physics 114 & 182 – Fundamentals of Physics II Lecture & Lab

Physics 211 & 281 – Introduction to Contemporary Physics & Physics

Physics 214 – Thermodynamics

Physics 312 – Mechanics

Physics 321 – Theory of Electricity and Magnetism I

**CONCENTRATION ELECTIVE – Select 2 from:**

ENGIN 341 Advanced Digital Design

ENGIN 346 Microcontrollers

ENGIN 351 Fundamentals of Semiconductor Devices

ENGIN 366 Electronics II with Lab

ENGIN 421 Radar Systems

ENGIN 441 Embedded Systems

ENGIN 446 Computer Architecture Design

ENGIN 451 Semiconductor Device Design, Simulation & Fabrication

PHYSIC 600 Electronic Instrumentation I: Analog

PHYSIC 601 Electronic Instrumentation II: Digital

Physics 322 – Theory of Electricity and Magnetism II

Physics 382 – Intermediate Laboratory

Physics 421 – Atomic Physics and Introduction to Quantum Mechanics