Sample Four-Year Plan for a BS in Engineering Physics
Digital Electronics Concentration

<table>
<thead>
<tr>
<th></th>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td><strong>Freshman Year</strong></td>
<td>Math 140 – 4 cr</td>
<td>Math 141 – 4 cr</td>
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<tr>
<td></td>
<td>Physics 101** - 1 cr</td>
<td>Physics 114 &amp; 182 – 6 cr</td>
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<td></td>
<td>Physics 113 &amp; 181 – 6 cr</td>
<td>First Year Seminar – 4 cr</td>
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<tr>
<td></td>
<td>Gen Ed: WorldCulture – 3 cr</td>
<td>English 102 – 3 cr</td>
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<tr>
<td></td>
<td>English 101 – 3 cr</td>
<td>(17 credits)</td>
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<td>(17 credits)</td>
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<tr>
<td><strong>Sophomore Year</strong></td>
<td>* Physics 211 – 3 cr</td>
<td>* Physics 214 – 3 cr</td>
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<td>* Physics 281 – 3 cr</td>
<td>Math 270 – 3 cr</td>
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<td></td>
<td>Math 242 – 4 cr</td>
<td>Chemistry 115 &amp; 117 – 5 cr</td>
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<td>CS 110 - 4cr</td>
<td>Engineering 104 – 3 cr</td>
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<td></td>
<td>Intermediate Seminar – 3 cr</td>
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<tr>
<td></td>
<td>(14 credits)</td>
<td>(17 credits)</td>
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<tr>
<td><strong>Junior Year †</strong></td>
<td>Engineering 231 &amp; 271 – 4 cr</td>
<td>Engineering 232 &amp; 272 – 4 cr</td>
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<td></td>
<td>Chemistry 116 &amp; 118 – 5 cr</td>
<td>* Physics 312 – 3 cr</td>
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<td></td>
<td>CS 210 - 4cr</td>
<td>* Physics 382 – 3 cr</td>
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<tr>
<td></td>
<td>Gen Ed: Arts – 3 cr</td>
<td>CS 240 - 3 cr</td>
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<td></td>
<td></td>
<td>Gen Ed: SBS I – 3 cr</td>
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<tr>
<td></td>
<td>(16 credits)</td>
<td>(16 credits)</td>
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<tr>
<td><strong>Senior Year</strong></td>
<td>* Physics 321 – 3 cr</td>
<td>* Physics 322 – 3 cr</td>
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<td>* Physics 421 – 3 cr</td>
<td>Engineering Elective II - 3cr</td>
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<td></td>
<td>Engineering Elective I – 3 cr</td>
<td>Concentration Elective I – 3/4 cr</td>
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<td></td>
<td>Lab elective - 4 cr</td>
<td>Concentration Elective II - 3/4 cr</td>
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<tr>
<td></td>
<td>Gen Ed: SBS II – 3 cr</td>
<td>Gen Ed: Humanities – 3 cr</td>
</tr>
<tr>
<td></td>
<td>(16 credits)</td>
<td>(16/17 credits)</td>
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</tbody>
</table>

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

- This document is a suggested plan for the major. Students must meet with their faculty advisor each semester and refer to their degree audit to ensure adequate progress toward their degree.
- Students are strongly advised to select general education courses which also satisfy the US and International diversity requirements.
See reverse side for more detailed information.
Engineering Physics - *Digital Electronics Concentration*

**BS Course Number Guide**

This course guide provides the detailed names of courses listed by number on the four-year plans. 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.

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 Structures
CS 240 - Programming in C
ENGIN 104 – Introduction to Electrical and Computer Engineering
ENGIN 231 & 271 – Circuit Analysis I and Circuit Lab I
ENGIN 232 & 272 – Circuit Analysis II and 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 Lab I
Physics 214 – Thermodynamics
Physics 312 - Mechanics
Physics 321 – Theory of Electricity and Magnetism I
Physics 322 – Theory of Electricity and Magnetism II
Physics 382 – Intermediate Laboratory
Physics 421 – Atomic Physics and Introduction to Quantum Mechanics

**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

**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 & 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

**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 and Fabrication
- PHYSIC 600 Electronic Instrumentation I: Analog
- PHYSIC 601 Electronic Instrumentation II: Digital

**Additional resources:**
- [www.umb.edu/academics/vpass/undergraduate_studies/general_education_requirements](http://www.umb.edu/academics/vpass/undergraduate_studies/general_education_requirements)
- [www.umb.edu/academics/course_catalog/search](http://www.umb.edu/academics/course_catalog/search)
- [www.umb.edu/academics/csm/student_success_center/degree_planning/math_placement](http://www.umb.edu/academics/csm/student_success_center/degree_planning/math_placement)