## REQUIRED COURSES WITHIN THE ENGINEERING COLLEGE

### Engineering Physics Core Courses (44 hrs)

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Number</th>
<th>Credit Hrs.</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation’s</td>
<td>ENGR 100</td>
<td>0</td>
<td>Admission to the College of Engineering</td>
</tr>
<tr>
<td>Properties of Materials</td>
<td>CME 260</td>
<td>3</td>
<td>CHEM 112 and MATH 181 and PHYS 141</td>
</tr>
<tr>
<td>Introduction to Computing and Programming</td>
<td>CS 107</td>
<td>4</td>
<td>Credit or concurrent registration in MATH 180</td>
</tr>
<tr>
<td>Introduction to Electrical and Computer Eng.</td>
<td>ECE 115</td>
<td>F, Sp</td>
<td>Credit or concurrent registration in MATH 180</td>
</tr>
<tr>
<td>Circuit Analysis</td>
<td>ECE 225</td>
<td>F, Sp</td>
<td>Credit or concurrent reg. in MATH 220, and C or better in PHYS 142 and ECE 215</td>
</tr>
<tr>
<td>Discrete and Continuous Signals and Systems</td>
<td>ECE 310</td>
<td>F, Sp</td>
<td>MATH 220; &amp; or or conc. reg. in ECE 225, or or or conc. reg. in ECE 210</td>
</tr>
<tr>
<td>Solid-State Device Theory</td>
<td>ECE 346</td>
<td>F, Sp</td>
<td>MATH 220, gr. of C or better in ECE 115, and a gr. of C or better in PHYS 142</td>
</tr>
<tr>
<td>Senior Design I</td>
<td>ECE 396</td>
<td>F, Sp</td>
<td>ENGL 161; and senior standing</td>
</tr>
<tr>
<td>Senior Design II</td>
<td>ECE 397</td>
<td>F, Sp</td>
<td>ECE 396</td>
</tr>
<tr>
<td>Nanoelectronics</td>
<td>ECE 440</td>
<td>F</td>
<td>ECE 346; or consent of the instructor</td>
</tr>
<tr>
<td>Molecular Biophysics of the Cell</td>
<td>Bio/Phys 450</td>
<td>F</td>
<td>PHYS 215</td>
</tr>
<tr>
<td>Fluid Mechanics</td>
<td>ME 211</td>
<td>4</td>
<td>PHYS 141 and MATH 220</td>
</tr>
<tr>
<td>Professional Development Seminar</td>
<td>ECE 498</td>
<td>F, Sp</td>
<td>Open only to seniors; and approval of the dept. Must be taken in the student’s last semester of study.</td>
</tr>
</tbody>
</table>

Select one of the following two-course sequences:

- Introduction to Electromagnetics and Applications
  - ECE 322 F, Sp
  - ECE 325

- & Introduction to Antennas and Wireless Propagation
  - ECE 421 F
  - ECE 225 and ECE 322

Electromagnetism I

- PHYS 401
  - 4
  - PHYS 215 & MATH 220

Electromagnetism II

- PHYS 402
  - 4
  - PHYS 320 & PHYS 401

### Technical Electives (9 hrs)

Select 9 semester hours from a list of technical electives available from the advisor. These courses should be selected in consultation with the advisor and should be chosen from approved sequences in the following areas:

- Bioengineering
- Civil and Materials Engineering
- Chemical Engineering Design
- Chemical Engineering, Multiphase Transport Phenomena
- Chemical Engineering, Chemical Processes
- Computer Science
- Electrical and Computer Engineering, Circuits and VLSI
- Electrical and Computer Engineering, Communications and Signal and Processing
- Electrical and Computer Engineering, Solid State, MEMS, and Nanotechnology
- Electromagnetics and Optics
- Mechanical Engineering, Thermal/Fluid Science
- Mechanical Engineering, Mechanical Systems
- Modern Physics

- Students preparing for the Fundamentals of Engineering Examination, which leads to becoming a Licensed Professional Engineer, are advised to take:
  1) CME 201 Statics; and
  2) in addition, one of the following:
    a) CME 203 Strength of Materials
    b) CME 280 Properties of Materials
    c) ME 211 Fluid Mechanics I

### NONENGINEERING AND GENERAL EDUCATION REQUIREMENTS (72 hrs)

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Number</th>
<th>Hrs.</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Writing I (WAPC)</td>
<td>ENGL 160</td>
<td>3</td>
<td>Performance on Dept. Placement Test</td>
</tr>
<tr>
<td>Academic Writing II (WR)</td>
<td>ENGL 161</td>
<td>3</td>
<td>ENGL 160 or the equivalent</td>
</tr>
<tr>
<td>Exploring World Cultures course’s</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Understanding the Creative Arts course’s</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Understanding the Past course’s</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Understanding the Individual and Society course’s</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Understanding US Society course’s</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Calculus I’b</td>
<td>MATH 180</td>
<td>4</td>
<td>C or better in MATH 121 or app. perf. on the dept. pl. test</td>
</tr>
<tr>
<td>Calculus I’b</td>
<td>MATH 181</td>
<td>4</td>
<td>C or better in MATH 180</td>
</tr>
</tbody>
</table>

NONENGINEERING AND GENERAL EDUCATION REQUIREMENTS CONTINUED
Calculus III MATH 210 3 C or better in MATH 181 or approval of the dept.
Introduction to Differential Equations I MATH 220 3 C or better in MATH 210
General Physics I (Mechanics) PHYS 141 4 C or better or concurrent registration in MATH 100 or adequate performance on the departmental placement test.
General Physics II (Electricity & Magnetism) PHYS 142 4 Gr. of C or better in PHYS 141 or consent of the instructor
Computational and Mathematical Methods for the Physical Sciences PHYS 215 4 Gr. of C or better in PHYS 142 or PHYS 145; or approval of the dept.
Fundamentals of Modern Quantum Theory PHYS 240 4 Gr. of C or better in PHYS 141; or consent of the instructor
Introduction to Vibrations, Waves, and Thermal Physics PHYS 245 4 Gr. of C or better in PHYS 141 and PHYS 215; or approval of the department
Theoretical Mechanics PHYS 411 4 PHYS 215, PHYS 240, PHYS 245; or approval of the department
Modern Experimental Physics PHYS 481 4 PHYS 215 or PHYS 240; or approval of the department
Survey of Physics Problems PHYS 499 1 Gr. of C or better in PHYS 215; or consent of the instructor
General Chemistry I Lecture CHEM 122 4 Grade of C or better in CHEM 101 or adequate performance on the UIC Chemistry placement examination; and concurrent registration or Grade of C or better in CHEM 123
General Chemistry I Laboratory CHEM 123 1 Gr. of C or better in CHEM 122
Mathematics Elective (3 hrs) Select one of the following:
Applied Linear Algebra MATH 310 3 "C" or better in MATH 181
Complex Analysis with Applications MATH 417 3 "C" or better in MATH 210
Applied Differential Equations MATH 480 3 "C" or better in MATH 210
Applied Partial Differential Equations MATH 481 3 "C" or better in MATH 220

*a-Consult General Education section of the catalog for approved courses in this category;*b-Course approved for the Analyzing the Natural World General Education category; *c-General Education credit is given for successful completion of both CHEM 122 and CHEM 123.
UIC Engineering Physics Curriculum - Suggested Schedule of Courses

Year 1
- Sem 1: CHEM 122 (4), CHEM 123 (4), CS 107 (4), ECE 115 (4), MATH 180 (4), ENGL 160 (3), ENGR 100 (1)

Year 2

Year 3
- Sem 1: ECE 225 (4), ECE 346 (4), ECE 310 (3), ECE 322 (3), PHYS 441 (4), ECE 396 (2)
- Sem 2: ECE 397 (2), ECE 421 (3), PHYS 481+ PHYS 499 (5), ECE 499 (0), Gen. Ed. Elective (3)

Year 4
- Sem 1: PHYS 411 (4), PHYS 440 (3), PHYS 450 (4), Tech. Elective (3-4), ECE 399 (0)

Credit Hours:
- Year 1: 17 hours
- Year 2: 17 hours
- Year 3: 17 hours
- Year 4: 17 hours

Grade C or better pre-requisite

04.10.2017 Natasha Devroye