

Bachelor of Science in Engineering Physics

Design Option in Chemical Systems

(128 hours total)

Common Core (70 hours)

| | | | |
|---|-----------|--|-----------|
| PHYSICS (26 hours) | | CHEMISTRY (5 hours) | |
| PHSX 211 or 213 General Physics I ¹ | 4 | CHEM 184 Foundations of Chem. I | <u>5</u> |
| PHSX 212 or 214 General Physics II ¹ | 4 | | 5 |
| PHSX 313+316 General Physics III | 4 | | |
| EPHX 516 Physical Meas. | 4 | ENGLISH (6 hours) | |
| EPHX 521 Mechanics I | 3 | ENGL 101 Composition | 3 |
| EPHX 531 Electricity & Magnetism | 3 | ENGL 102 Critical Reading & Writing | <u>3</u> |
| EPHX 601 Dsgn. Phys. & Elec. Syst. | <u>4</u> | | 6 |
| | 26 | | |
| MATHEMATICS (18 hours) | | GENERAL EDUCATION RQMTS. (15 hours) ² | |
| MATH 121 Calculus I | 5 | Economics elective | 3 |
| MATH 122 Calculus II | 5 | Ethics elective | 3 |
| MATH 223 Vector Calculus | 3 | Communication elective | 3 |
| MATH 290 Elementary Linear Algebra | 2 | Environmental Concern elective | 3 |
| MATH 220 or 320 Differential Equations | <u>3</u> | Contemporary Issues elective | <u>3</u> |
| | 18 | | 15 |

Requirements Specific to this Option (58 hours)

| | | | |
|---------------------------------------|----------------|-------------------------------------|-----------|
| CHEM. & PETR. ENGR. (39 hours) | | CHEMISTRY (12 hours) | |
| C&PE 121 Intro. Computers in Engr. | 3 ³ | CHEM 188 Foundations of Chem. II | 5 |
| C&PE 211 Material & Energy Balances | 3 | CHEM 624 Organic Chem. I | 3 |
| C&PE 221 Basic Eng. Thermodynamics | 3 ⁴ | CHEM 646 Intro. To Physical Chem. | <u>4</u> |
| C&PE 511 Momentum Transfer | 3 | | 12 |
| C&PE 512 Process Engr. Thermodynamics | 3 | | |
| C&PE 521 Heat Transfer | 3 | PHYSICS (6 hours) | |
| C&PE 522 Economic Appraisal | 2 | | |
| C&PE 523 Mass Transfer | 4 | EPHX 536 Elec. Circ. Meast. & Dsgn. | 4 |
| C&PE 524 Kinetics & Reactor Dsgn. | 3 | EPHX 611 Intro Quantum Mechanics | <u>3</u> |
| C&PE 613 Chemical Engr. Dsgn. I | 4 | | 7 |
| C&PE 615 Intro. Process Dyn. & Cntr | 3 | | |
| C&PE 616 Chemical Engr. Lab. I | 3 | | |
| C&PE 623 Chemical Engr. Dsgn. II | <u>2</u> | | |
| | 39 | | |

Notes:

¹-- Majors are encouraged to take PHSX 213 and 214, the Honors sections of 211 and 212.

²-- See the list of courses allowed as General Education Component Electives.

³-- EECS 138 *Introduction to Computing* may be substituted for C&PE 121

⁴-- ME 312 *Basic Engineering Thermodynamics* may be substituted for C&PE 221

Bachelor of Science in Engineering Physics
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Suggested Schedule

Fall Semesters

Spring Semesters

Freshman Year

| | | | |
|------------------------------------|-----------|--|----------------|
| CHEM 184 <i>Found. Chem. I</i> | 5 | CHEM 188 <i>Found. Chem. II</i> | 5 |
| ENGL 101 <i>Composition</i> | 3 | ENGL 102 <i>Critical Reading & Writing</i> | 3 |
| MATH 121 <i>Calculus I</i> | 5 | MATH 122 <i>Calculus II</i> | 5 |
| C&PE 121 <i>Intro. Comp. Engr.</i> | 3 | PHSX 211 or 213 <i>General Physics I</i> | 4 ^a |
| | 16 | | 17 |

Sophomore Year

| | | | |
|---|----------------|--|----------------|
| C&PE 211 <i>Mat'l & Energy Balances</i> | 3 | PHSX 313 <i>General Physics III</i> | 3 |
| PHSX 212 or 214 <i>General Physics II</i> | 4 ^a | PHSX 316 <i>Inter. Physics Lab</i> | 1 |
| MATH 223 <i>Vector Calculus</i> | 3 | CHEM 624 <i>Organic Chemistry I</i> | 3 |
| MATH 290 <i>Elem. Linear Algebra</i> | 2 | MATH 220 or 320 <i>Differential Eqns</i> | 3 |
| General Education Elective | 3 ^b | C&PE 221 <i>Basic Engr. Thermodynamics</i> | 3 |
| | 15 | General Education Elective | 3 ^b |
| | | | 16 |

Junior Year

| | | | |
|---|-----------|---|----------------|
| CHEM 646 <i>Intro. to Physical Chemistry</i> | 4 | C&PE 521 <i>Heat Transfer</i> | 3 |
| C&PE 511 <i>Momentum Transfer</i> | 3 | C&PE 523 <i>Mass Transfer</i> | 4 |
| C&PE 512 <i>Proc. Engr. Thermo.</i> | 3 | C&PE 524 <i>Ch.E. Kin. & Reactor Design</i> | 3 |
| C&PE 522 <i>Econ. Appr. C&PE Projects</i> | 2 | EPHX 536 <i>Elec. Circ. Meas. & Dsgn</i> | 4 |
| EPHX 521 <i>Mechanics I</i> | 3 | General Education Elective | 3 ^b |
| | 15 | | 17 |

Senior Year

| | | | |
|---|-----------|--|----------------|
| C&PE 613 <i>Chem. Eng Design I</i> | 4 | C&PE 623 <i>Ch.E. Design II</i> | 2 |
| C&PE 615 <i>Int. Proc. Dyn. & Cnt.</i> | 3 | EPHX 601 <i>Dsgn of Phys. & Elec Syst.</i> | 4 |
| C&PE 616 <i>Chem. Eng. Lab.</i> | 3 | EPHX 611 <i>Intro. Quantum Mechanics</i> | 3 |
| EPHX 516 <i>Phys. Meas.</i> | 4 | General Education Electives | 6 ^b |
| EPHX 531 <i>Electricity & Magnetism</i> | 3 | | |
| | 17 | | 15 |

Total 128

Notes:

^a -- Majors are encouraged to take PHSX 213 and 214, the Honors sections of 211 and 212.

^b – See the list of courses allowed as General Education Component Electives. One course from each of the five areas, Economics, Ethics, Communication, Environmental Concern, and Contemporary Issues, is required.