## SAMPLE CURRICULUM 2015-2016

### Pre-Energy Systems Engineering

#### FRESHMAN YEAR

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<tr>
<th>FALL</th>
<th>WINTER</th>
<th>SPRING</th>
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| MIME 101 (3 cr) Intro to MIME  
(GE 101-3 cr) Engineering Orientation | ENGR 112 (3 cr) Intro to Engineering Computing  
(GE 102-3 cr) *Taught Spring @ COCC | WR 222 or WR 327 (3 cr) English Composition or Technical Writing  
(WR 122 or 227-4 cr) Preq: WR 121 |
| CH 231/CH 261 (5 cr) General Chemistry + Lab  
(CH 221-5 cr) General Chemistry I Preq: High school Chemistry | CH 232/CH 262 (5 cr) General Chemistry + Lab  
(CH 222-5 cr) General Chemistry II Preq: CH 231/261 | COMM 111 (3 cr) Public Speaking  
(SP 111-4 cr) Fundamentals of Public Speaking |
| MTH 251 (4 cr) Differential Calculus  
(MTH 251-4 cr) Calculus I Preq: MTH 112 or placement | MTH 252 (4 cr) Integral Calculus  
(MTH 252-4 cr) Calculus II Preq: MTH 251 | MTH 254 (4 cr) Vector Calculus I  
(MTH 254-4 cr) *Taught Winter @ COCC Preq: MTH 252 |
| WR 121 (3 cr) English Composition  
(WR 121-4 cr) English Composition | PERSPECTIVE Social Processes & Institutions  
ECON 201 (4 cr) Intro to Microeconomics  
(EC 201-4 cr) Microeconomics | PH 211 (4 cr) General Physics with Calculus  
(PH 211-5 cr) *Taught Winter @ COCC Preq: MTH 251 |

### SOPHOMORE YEAR

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| ENGR 211 (3 cr) Statics  
(ENGR 211-4 cr) Statics | ENGR 212 (3 cr) Dynamics  
(ENGR 212-4 cr) *Taught Spring @ COCC Preq: ENGR 111, PH 211 | Lower Division Restricted Elective  
(see notes) |
| IE 212 (4 cr) Computational Methods for Industrial Engineering  
(CIS 122-4 cr) Intro to Programming Preq: ENGR 112 | ENGR 201 (3 cr) Electrical Fundamentals I  
(ENGR 201-4 cr) Electrical Fundamentals Preq: MTH 251 & 252 | ENGR 202 (3 cr) Electrical Fundamentals II  
(ENGR 202-4 cr) Electrical Fundamentals II Preq: ENGR 201 |
| MTH 256 (4 cr) Applied Differential Equations  
(same at COCC) Preq: MTH 254 | MTH 306 (4 cr) Matrix & Power Series Methods  
(MTH 253-4 cr) *Taught Spring @ COCC Preq: MTH 252 | ST 314 (3 cr) Intro to Statistics for Engineers Preq: MTH 252 |
| PH 212 (4 cr) General Physics with Calculus  
(PH 213-5 cr) General Physics III Preq: PH 211, MTH 252 | PH 213 (4 cr) General Physics with Calculus  
(PH 212-5 cr) *Taught Spring @ COCC Preq: PH 212, MTH 254 | BA 215 (4 cr) Fundamentals of Accounting  
(BA 217-4 cr) Accounting Fundamentals |
| HHS 231(2 cr) & HHS 241 or PAC (1 cr) Lifetime Fitness for Health  
(HHP 295-3 cr) Health & Fitness | | |

**NOTES:**  
- Shaded courses are required for entry into the professional program.  
- Shaded courses are prerequisites for junior year courses, recommended for completion prior to entry into the professional program.  
- **BOLDED** courses are OSU courses. Courses in parenthesis () are COCC equivalents.  
* Indicates typical term the course is taught at COCC. Subject to change and COCC may also offer course multiple terms  
07/2015 KMC
# SAMPLE CURRICULUM 2015-2016
## Professional Energy Systems Engineering

### FALL JUNIOR YEAR
- **IE 425 (4 cr)** Industrial Systems Optimization
  - Preq: ST 314, MTH 306

#### WINTER JUNIOR YEAR
- **IE 415 (4 cr)** Simulation and Decision Support Systems
  - Preq: ST 314

#### SPRING JUNIOR YEAR
- **Upper Division Restricted Elective (see notes)**

### FALL SENIOR YEAR
- **ESE 497 (4 cr)** MIME Capstone Design
  - Preq: See notes

#### WINTER SENIOR YEAR
- **ESE 498 (4 cr)** MIME Capstone Design
  - Preq: ESE 497

#### SPRING SENIOR YEAR
- **ESE 450 (4 cr)** Energy Generation Systems
  - Preq: ME 312

### FALL JUNIOR YEAR
- **ME 311 (4 cr)** Introduction to Thermal-Fluid Sciences
  - Preq: ENGR 212, MTH 256

#### WINTER JUNIOR YEAR
- **ME 312 (4 cr)** Thermodynamics
  - Preq: ME 311, MTH 256

#### SPRING JUNIOR YEAR
- **PERSPECTIVE Biological Science (4 cr)**

### FALL SENIOR YEAR
- **ME 331 (4 cr)** Introductory Fluid Mechanics
  - Preq: MTH 254, 256, ENGR 212, ME 311

#### WINTER SENIOR YEAR
- **ME 332 (4 cr)** Heat Transfer
  - Preq: MTH 256, ENGR 212, ME 311, 331

#### SPRING SENIOR YEAR
- **Science, Technology & Society (3-4 cr)**

### FALL JUNIOR YEAR
- **SUS 350 (4 cr)** Sustainable Communities (also Contemporary Global Issues course)

#### WINTER JUNIOR YEAR
- **ESE 360 (4 cr)** Energy Consumption Analysis
  - Preq: BA 360, ME 311

#### SPRING JUNIOR YEAR
- **ESE 355 (4 cr)** Energy Regulation
  - Preq: BA 360, Jr standing

### FALL SENIOR YEAR
- **ESE 470 (4 cr)** Energy Distribution Systems
  - Preq: ENGR 202, ME 311

#### WINTER SENIOR YEAR
- **ESE 471 (4 cr)** Energy Storage Systems
  - Preq: ENGR 202, ME 312

#### SPRING SENIOR YEAR
- **PERSPECTIVE Western Culture**

### FALL JUNIOR YEAR
- **BA 360 (4 cr)** Introduction to Financial Management
  - Or ENGR 390 (preferred)
  - Preq: BA 215, ECON 201

#### WINTER JUNIOR YEAR
- **BA 357 (4 cr)** Operations Management
  - Preq: ST 314, Jr standing

#### SPRING JUNIOR YEAR
- **BA 352 (4 cr)** Managing Individual & Team Performance
  - Or BA 351 online

### FALL SENIOR YEAR
- **PERSPECTIVE Cultural Diversity**
  - Preq: COMM 111 or 114

### WINTER SENIOR YEAR
- **MGMT 364 (4 cr)** Project Management
  - Preq: BA 351 or 352

### SPRING SENIOR YEAR
- **PERSPECTIVE Literature & Arts**

### NOTES:
- Courses may not be offered in the term shown in future years. Students should check with their advisor about upcoming changes.
- ESE 497 pre-requisites: BA 360 or ENGR 390, IE 425, ME 312, ME 331 (co-requisite), ESE 355, ESE 360, WR II & ST 314.
- Restricted Electives: Required to complete one upper division restricted elective. Lower division restricted elective options include: ENGR 213 (available at both OSU & COCC) & ENGR 248 (CIS 195S1 is equivalent at COCC)