



## Elective Courses (Short List)-Energy & Environment Track

### 1. Require/Strongly-Recommend to elect One from Core Environment Courses:

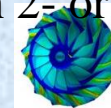
- ENGR 538 – Intro to Environmental Engineering (offered every year by ME or CE)
- ME 529 – Environmental Protection for Energy Systems (in 2-year)

### 2. Require/Strongly-Recommend to elect One from Core Energy Courses:

- ME 532 - Design of Power/Propulsion Systems (in 1-year)
- ME 534 – Design of HVAC/Refrigeration (in 2-year)

### 3. Elect One or More from Qualified Courses (Short List):

- ME 526 – Alternative Energy Engineering (in 2- or 3-year)
- ME 527 – Renewable Energy and Technology (in 2- or 3-year)
- ME 529 – Environmental Protection for Energy Systems (in 2-year)
- ME 531 – Optimal Design of Energy Systems (in 1- or 2-year)
- ME 532 - Design of Power/Propulsion Systems (in 1-year)
- ME 533 – Energy Conservation and HVAC (in 2- or 3-year)
- ME 534 – Design of HVAC/Refrigeration (in 2-year)
- ME 537 – Air Pollution & Control (in 2- or 3-year)
- ENGR 538/ME 438 – Intro to Environmental Engineering (in 1-year)
- ME 550 – Waste Management & Combustion (in 2- or 3-year)
- ME 552 – Introduction to Flight Dynamics (in 1-year)
- ME 581 - Intro to Microfluidic and Lab-on-Chip Technology (in 2- or 3-year)

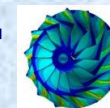


## **Elective Courses (Long List) -- Take 3 or more -- Energy & Environment Concentration**

- ME 526 – Alternative Energy Engineering**
- ME 527 – Renewable Energy and Technology**
- ME 529 – Environmental Protection for Energy Systems**
- ME 530 – Applied Energy Systems**
- ME 531 – Optimal Design of Energy Systems**
- ME 532 - Design Power/Propulsion Systems**
- ME 533 – Energy Conservation and HVAC**
- ME 534 – Design HVAC/Refrigeration**
- ME 536 – Thermal Environmental Engineering**
- ME 537 – Air Pollution & Control**
- ENGR 538/ME 438 – Intro to Environmental Engineering**
- ME 539 – Combustion and Incineration**
- ME 543 – Heat Exchanger: Design and Analysis**
- ME 552 – Introduction to Flight Dynamics**
- ME 550 – Waste Management/Combustion**
- ME 581 - Intro to Microfluidic and Lab-on-Chip Technology**

**(The followings need approval from Program Chair)**

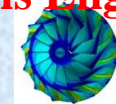
- ME 544 – Intro to Multiphase Flows/Systems**
- ME 548 – Intermediate Heat Transfer**
- ME 549 – Intermediate Fluid Dynamics**
- ME 554 – Aerospace Design**
- ME 574 – Orbital Mechanics and Mission Design**





# Courses/Specialty in Mechanical Systems

9. ENGR 503/ENGR 403 – Control Systems  
ME 510 – Modern Control Systems → **Control Engineer**
10. ME 503/ME 404 – Structural Mechanics  
ME 504 – Finite Element Methods → **Structural Engineer**  
ME 566 – Vibration and Structural Dynamics
11. ME 457 – Applied Ridge Body Dynamics  
ME 565 – Nonlinear Dynamics and Chaos → **Vibration Engineer**  
ME 592 – Experimental Vibration and Acoustics
12. ME 560 – Introduction to Acoustics  
ME 660 – Intermediate Acoustics → **Acoustics Engineer**  
ME 760 – Advanced Topics in Acoustics
13. (ME 314 – Fundamentals of Mechatronics)  
ME 577 – Applied Mechatronics → **Mechatronics Engr**  
ENGR 501 – Intro to Mechatronics  
EE/ME 576 – Intro to Robotics → **Robotics Engineer**
14. ME 502 – Intro to MEMS/Electronic Packaging  
ME 584 – Introduction to Nanotechnology → **MEMS/Nano Engineer**
15. MSE 501 – Intro to Material Engineering  
ENGR 522 – Mechanical Properties of Materials  
MSE 591 – Composite Materials → **Materials Engineer**



# Courses/Specialty in Energy(Environment) Systems

1. **ME 530/ME 311 – Applied Energy Systems**  
ME 526 – Alternative Energy Engineering → **Energy Engineer**  
ME 527 – Renewable Energy and Technologies  
ME 531 – Design/Optimization of Thermal/Energy Systems
2. **ME 530/ME 311 – Applied Energy Systems**  
ME 532 -Design Power/Propulsion Systems → **Power/Propulsion Engineer**
3. **ME 530/ME 311 – Applied Energy Systems**  
ME 533 – Energy Conservation & HVAC  
ME 534 – Design HVAC/Refrigeration → **HVAC/Refrigeration Engineer**
4. **ENGR 538/ME 438 – Intro to Environmental Engineering**  
ME 529 – Envi'tal Protection Energy Systems → **Environmental Engineer**
5. **ME 536 – Thermal Environmental Engineering**  
ME 537 – Air Pollution & Control → **Air Pollution Engineer**
6. **ENGR 538/ME 438 – Intro to Environmental Engineering**  
ME 550 – Waste Management/Combustion → **Waste Treatment Engineer**
7. **ME 544 – Intro to Multiphase Flows/Systems**  
ME 539 – Combustion and Incineration → **Combustion Engineer**
8. **ME 552 – Introduction to Flight Dynamics**  
ME 554 – Aerospace Design → **Aerospace Engineer**

