Sample Course Plans

Master of Engineering in Energy Systems Engineering

Two Semester Plan:

Focus Area – Environmental Engineering for Energy Applications

Fall Semester

- Core: ENG 471 – Seminar Energy & Sustainability Engineering (1 credit hour)
- Core: ABE 436 – Renewable Energy Systems (4 credit hours)
- Elective: CEE 442 – Environmental Engineering Principles, Physical (4 credit hours)
- Elective: CEE 493 – Sustainable Design of Engineering Technologies (4 credit hours)
- Elective: NPRE 461 – Probabilistic Risk Assessment (4 credit hours)
- **Semester total:** 17 credit hours

Spring Semester

- Core: ENG 571 – Theory Energy & Sustainability Engineering (4 credit hours)
- Core: NPRE 480 – Energy & Security (3 credit hours)
- Elective: CEE 592 – Sustainable Urban Systems (4 credit hours)
- Professional Development: ENG 573 – Capstone Project (4 credit hours)
- **Semester total:** 15 credit hours

Degree total: 32 credit hours

Two Semester Plan:

Pathway – Sustainable Energy and Technology Entrepreneurship

Fall Semester

- Core: ENG 471 – Seminar Energy & Sustainability Engineering (1 credit hour)
- Core: ABE 436 – Renewable Energy Systems (4 credit hours)
- Elective: TE 510 – Advanced Creativity (4 credit hours)
- Elective: NPRE 402 – Nuclear Power Engineering (4 credit hours)
- Professional Development: ENG 573 – Capstone Project (4 credit hours)
- **Semester total:** 17 credit hours

Spring Semester

- Core: ENG 571 – Theory Energy & Sustainability Engineering (4 credit hours)
- Core: NPRE 480 – Energy & Security (3 credit hours)
- Elective: GGIS 466 – Environmental Policy (4 credit hours)

- Elective: NPRE 470 – Fuel Cells & Hydrogen Sources (3 credit hours)
- Elective: TE 460 – Lectures in Engineering Entrepreneurship (1 credit hour)
- **Semester total:** 15 credit hours

Degree total: 32 credit hours

Two Semester Plan:

Pathway – The Water-Energy Nexus

Fall Semester

- Core: ABE 436 – Renewable Energy Systems (4 credit hours)
- Elective: NPRE 461 – Probabilistic Risk Assessment (4 credit hours)
- Elective: NPRE 498 – Energy Storage Systems (4 credit hours)
- Professional Development: ENG 573 – Capstone Project (1 credit hour)
- Professional Development: TE 460 – Lectures in Engineering Entrepreneurship (1 credit hour)
- Professional Development: TE 566 – Finance for Engineering Management (2 credit hours)
- **Semester total:** 16 credit hours

Spring Semester

- Core: ENG 471 – Seminar Energy & Sustainability Engineering (1 credit hour)
- Core: ENG 571 – Theory Energy & Sustainability Engineering (4 credit hours)
- Core: NPRE 480 – Energy & Security (3 credit hours)
- Elective: ACE 410 – Energy Economics (4 credit hours)
- Elective: UP 546 – Land Use Policy and Planning (4 credit hours)
- **Semester total:** 16 credit hours

Degree total: 32 credit hours

Three Semester Plan:

Focus Area – Nuclear Power Generation

Fall Semester

- Core: ENG 471 – Seminar Energy & Sustainability Engineering (1 credit hour)
- Core: ABE 436 – Renewable Energy Systems (4 credit hours)
- Elective: NPRE 488 – Nuclear System Engineering & Design (4 credit hours)
- Elective: NPRE 501 – Fundamentals of Nuclear Engineering (4 credit hours)
- **Semester total:** 13 credit hours

Spring Semester

- Core: ENG 571 – Theory Energy & Sustainability Engineering (4 credit hours)
- Elective: NPRE 511 – Nuclear Reactor Heat Transfer (4 credit hours)
- Professional Development: ENG 573 – Capstone Project (4 credit hours)
- **Semester total:** 12 credit hours

Fall Semester:

- Core: NPRE 481 – Writing on Technol & Security (3 credit hours)
- Elective: NPRE 457 – Safety Analysis Nuclear Reactor Systems (4 credit hours)
- **Semester total:** 7 credit hours

Degree total: 32 credit hours

Three Semester Plan:

Pathway – The Future Grid

Fall Semester

- Core: ENG 471 – Seminar Energy & Sustainability Engineering (1 credit hour)
- Core: ABE 436 – Renewable Energy Systems (4 credit hours)
- Elective: NPRE 461 – Probabilistic Risk Assessment (4 credit hours)
- Professional Development: TE 466 – High-Tech Venture Marketing (2 credit hours)
- Professional Development: TE 566 – Finance for Engineering Management (2 credit hours)
- **Semester total:** 13 credit hours

Spring Semester

- Core: ENG 571 – Theory Energy & Sustainability Engineering (4 credit hours)
- Elective: ACE 410 – Energy Economics (4 credit hours)
- NPRE 561 – Advanced Risk Analysis (4 credit hours)
- **Semester total:** 12 credit hours

Fall Semester:

- Core: NPRE 481 – Writing on Technol & Security (3 credit hours)
- Elective: ACE 500 – Applied Economic Theory (4 credit hours)
- Elective (*optional*): ACE 562 – Applied Regression Models I (2 credit hours)
- Elective (*optional*): ACE 564 – Applied Regression Models II (2 credit hours)
- **Semester total:** 11 credit hours

Degree total: 36 credit hours *(4 additional credit hours optional)*