

# Engineering

## Typical Career Fields:

### *Any Engineering Discipline*

- Research & Development
- Design
- Production
- Operations
- Management
- Teaching
- Consulting
- Sales & Marketing
- Law
- Manufacturing
- Healthcare

### *Aerospace*

- Propulsion
- Fluid Mechanics
- Thermodynamics
- Structural Design
- Celestial Mechanics
- Acoustics
- Guidance & Control Systems

### *Biomedical*

- Bioinstrumentation
- Biomechanics
- Biomaterials
- Systems Physiology
- Clinical Engineering
- Rehabilitation Engineering

### *Chemical & Biomolecular*

- Bulk & Fine Chemicals
- Consumer Products
- Biotech & Pharmaceuticals
- Electronics
- Environmental Safety & Health
- Fuels & Energy Conversion
- Materials
- Process Design

### *Civil*

- Structural
- Urban Planning
- Environmental
- Water Resources
- Transportation
- Geotechnical

### *Computer*

- Information Protection
- Communications & Wireless Networks
- Computational Science
- Operating Systems
- Computer Networks
- Computer Systems
- Embedded Systems
- Computer Vision & Robotics
- Circuit Design
- Signal, Image, & Speech Processing
- VLSI
- Bioinformatics

### *Electrical*

- Automatic Controls
- Bioelectronics
- Digital Systems
- Electromagnetics
- Analog Electronics
- Power & Energy Systems
- Communications & Signal Processing

### *Engineering Physics*

- Engineering (Process & Testing)
- Quality Control
- Research
- Development
- Instrumentation

### *Environmental*

- Air Quality
- Water Quality
- Solid/Water Waste Mgt
- Toxic Waste Mgt
- Hazardous Waste Cleanup/ Bioremediation
- Industrial hygiene
- Radiation Protection
- Public Health
- Land/ Wildlife Mgt
- Recycling

### *Industrial*

- Project, Program or Operations Mgt
- Manufacturing Systems
- Supply Chain Mgt & Logistics
- Productivity, Methods, & Process Engineering
- Quality Measurement & Improvement
- Human Factors
- Strategic Planning
- Mgt of Change
- Financial Engineering
- Engineering Mgt
- Six Sigma
- Lean

### *Materials Science & Engineering*

- Metallurgy
- Ceramics
- Plastics/Polymers
- Composites
- Semiconductors & Electronic Materials
- Optical Materials
- Biomaterials
- Nanomaterials
- Material Research & Development
- Extraction/ Synthesis
- Processing
- Structure Analysis
- Performance
- Failure Analysis
- Material Selection

**Mechanical**

- Machine Design
- Systems Design
- Manufacturing & Production
- Energy Conversion
- Energy Resources
- Transportation & Environmental Impact
- Materials & Structures

**Nuclear**

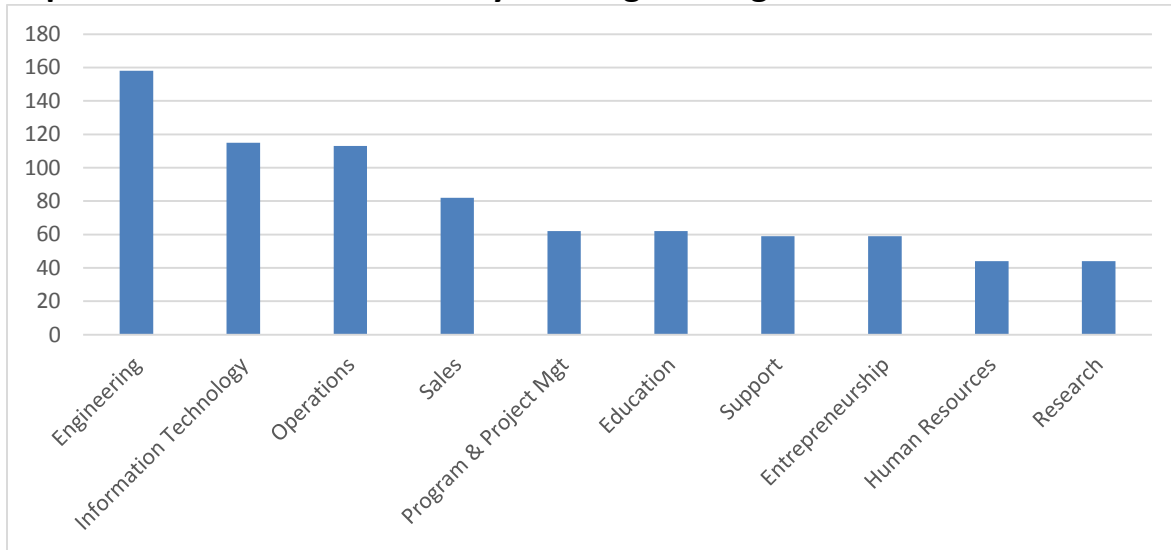
- Electrical Power Reactor Facilities
- Nuclear Fuel Cycle Facilities
- Nuclear Instrumentation for Industrial Applications
- Radioactive Waste Mgt
- Environmental Science
- Medical Research & Technology
- Space Exploration
- Food Supply



= Bright Outlook

Source: O\*NET

**Top Ten Career Fields Chosen by ESU Engineering Grads: (Source: LinkedIn)**



**Where Our Grads Go (top ten):**

- Wolf Creek
- Sprint
- Burns & McDonnell
- Black & Veatch
- Kansas State Univ
- Spirit AeroSystems
- AT&T
- Boeing
- ConocoPhillips
- Garmin International

View a list of required courses for this major at <http://www.emporia.edu/sac/list-of-majors.html>.

Career Services

[career@emporia.edu](mailto:career@emporia.edu)

620-341-5407

[www.emporia.edu/careerservices](http://www.emporia.edu/careerservices)

## Engineering Majors

Strategies on how to become more marketable at graduation

**Any Engineering Discipline** (Research and Development, Design, Production, Operations, Management, Manufacturing, Law, Consulting)

- Obtain relevant experience through co-ops or internships for industry-related career.
- Develop strong verbal, written, teamwork and problem-solving skills.
- Pursue Master of Science (MS), Master of Engineering (ME), or Master of Business Administration (MBA) degrees for increased opportunities in technical management.
- Learn federal, state and local government job application procedures. Pursue Professional Engineering licensure.

**Aerospace** (Propulsion, Thermodynamics, Structural Design, Acoustics, Control Systems)

- Anticipate specializing in the development of new technologies or in particular aerospace products.
- Stay abreast of status of federal funding for defense and space programs.
- Seek knowledge of computer-aided design (CAD) software, robotics, optics and lasers.
- Seek co-op or internship opportunities in the aerospace industry.
- Develop effective verbal and written communication skills and learn to work well on a team.
- Join chapters of national organizations such as the American Institute of Aeronautics and Astronautics to build a network of professional contacts and participate in design competitions.

**Chemical and Biomolecular** (Biotechnology, Pharmaceuticals, Fuels and Energy Conversion, Fine Chemicals)

- Combines chemistry, physics, biology and engineering to solve problems involving the use or production of chemicals and biological systems to develop new materials.
- Pursue a strong foundation in fundamentals in lower division classes as well as specialized knowledge for specific career opportunities in upper division classes.
- Pursue experimental design, data interpretation, and problem solving competence through coursework and research with professors.
- Seek internship or co-op experiences in the chemical engineering field.
- Join professional associations such as American Institute of Chemical Engineers to maintain current knowledge of opportunities in the field.

**Civil** (Structural, Urban Planning, Construction, Environmental, Geotechnical)

- Pursue a strong background of engineering fundamentals as preparation for entering the work force or graduate school.
- Develop the ability to communicate effectively, as civil engineers are likely to collaborate with professionals in a variety of disciplines.
- Seek experience organizing and directing people and materials through related internships, co-ops, summer jobs and leadership experiences in student organizations.
- Join the American Society of Civil Engineers to participate in projects and activities to increase marketability beyond graduation.

**Electrical** (Bioelectronics, Electromagnetics, Power and Energy, Digital Systems)

- Prepare for a course load including engineering fundamentals, math, science and electrical engineering.
- Pursue design projects and laboratory experience throughout college career.
- Seek related experience through research, internships, co-ops or part-time employment.
- Join student chapters of industry organizations such as Institute for Electrical and Electronics Engineers (IEEE) to develop communication and leadership skills, to participate in competitions