What can I do with a major in...

Industrial and systems engineering

ACTIVITIES INDUSTRIAL AND SYSTEMS ENGINEERING MAJORS DO:

Industrial engineers determine the most effective ways to use the basic factors of production—people, machines, materials, information, and energy—to make a product or provide a service. They are concerned primarily with increasing productivity through the management of people, methods of business organization, and technology. To maximize efficiency, industrial engineers study product requirements carefully and then design manufacturing and information systems to meet those requirements with the help of mathematical methods and models. They develop management control systems to aid in financial planning and cost analysis, and they design production planning and control systems to coordinate activities and ensure product quality.

Industrial engineers also design or improve systems for the physical distribution of goods and services and determine the most efficient plant locations. Industrial engineers develop wage and salary administration systems and job evaluation programs. Many industrial engineers move into management positions because the work is closely related to the work of managers. Generally, industrial engineers are more widely distributed among industries than other engineers.

INDUSTRIES INDUSTRIAL AND SYSTEMS ENGINEERING MAJORS WORK IN (SAMPLE LISTING):

- Construction
- Aerospace
- Aluminum and Steel
- Banking/finance/accounting
- Ceramics
- Electronics assembly
- Forestry & logging
- Materials testing
- Energy
- Entertainment
- Mining
- Consulting
- Insurance
- Military
- Retail
- Oil and gas
- Plastics and Forming
- Medical services/healthcare
- Transportation
- Ship construction
- State and Federal gov’t

EMPLOYERS WHO HIRE INDUSTRIAL AND SYSTEMS ENGINEERING MAJORS (SAMPLE LISTING):

- Arkema Inc.
- Dell
- Coca-Cola
- SICK, Inc.
- NASA
- Mayo Clinic
- Federal Aviation Administration
- Honeywell
- Target Corp.
- Lockheed Martin
- Microsoft
- Daikin Applied
- Pentair, Inc.
- Ingersoll Rand
- Emerson Process Management
- Oshkosh Corp.
- FM Global
- Starkey Hearing Technologies
- Hormel Food Corp
- St. Jude Medical
- Bemis

TYPES OF POSITIONS FOR INDUSTRIAL AND SYSTEMS ENGINEERING MAJORS (SAMPLE LISTING):

- **Quality engineer**: Tests and inspects procedures using metrology, statistics, and cost concepts and techniques. Quality engineers diagnose and correct improper quality control practices.
- **Operations engineer**: Concerned with the flow of materials and information using statistics to evaluate the effectiveness of manufacturing, supply chain, and service systems.
- **Logistics engineer**: Deals with purchasing, transporting, storing, distributing, and warehousing raw materials, unfinished works-in-progress, and finished goods and products.
- **Materials management engineers**: Assists organizations in managing inventory by solving control, warehousing, and transportation issues.
- **Project engineer**: Plans, directs, and coordinates activities of company projects.
- **Sales engineer**: Contacts customers and makes sales presentations to demonstrate how products or services can fulfill their particular needs.
- **Systems engineer**: Performs the requirements, analysis, and definition of the overall system and its subsystem.
TYPES OF POSITIONS FOR INDUSTRIAL AND SYSTEMS ENGINEERING MAJORS (Continued):

- **Health and safety engineer**: Promotes worksite or product safety and health by applying knowledge of industrial processes and mechanical, chemical, and psychological principles. Health and safety engineers anticipate, recognize, and evaluate hazardous conditions as well as develop hazard control methods.

- **Manufacturing engineer**: Plans the tooling, construction, and assembly of the product as dictated by the design specifications.

**Some of these positions may require an advanced degree.**

USEFUL WEBSITES FOR INDUSTRIAL AND SYSTEMS ENGINEERING MAJORS:

- Department of Industrial and Systems Engineering: [isye.umn.edu](http://isye.umn.edu)
- Balanced Scorecard Institute: [balancedscorecard.org](http://balancedscorecard.org)
- Intelligent Transportation Systems, America: [itsa.org](http://itsa.org)
- International Society of Logistics: [sole.org](http://sole.org)

USEFUL WEBSITES FOR ENGINEERING MAJORS:

- Engineer.net: [engineer.net](http://engineer.net)
- Engineer Jobs: [engineerjobs.com](http://engineerjobs.com)
- Engineering Central: [engcen.com](http://engcen.com)
- Graduating Engineer: [graduatingengineer.com](http://graduatingengineer.com)
- ThinkJobs.com: [thinkjobs.com](http://thinkjobs.com)
- Engineering.com: [engineering.com](http://engineering.com)
- Engineer Info: [engineer.info](http://engineer.info)

PROFESSIONAL ORGANIZATIONS:

- Institute of Industrial Engineers (IIE): [iienet.org](http://iienet.org)
- Society of Manufacturing Engineers (SME): [sme.org](http://sme.org)
- Decision Sciences Institute (DSI): [decisionsciences.org](http://decisionsciences.org)
- Institute for Operations Research and the Management Sciences (INFORMS): [informs.org](http://informs.org)
- International Council on Systems Engineering (INCOSE): [incose.org](http://incose.org)
- Production and Operation Management Society (POMS): [poms.org](http://poms.org)
- American Council of Engineering Companies: [acec.org](http://acec.org)
- American Council of Engineering Companies-MN chapter: [acecmn.org](http://acecmn.org)
- National Society of Professional Engineers: [nspe.org](http://nspe.org)
- Minnesota Society of Professional Engineers: [mnspe.org](http://mnspe.org)
- Society of Women Engineers: [swe.org](http://swe.org)

*Additional job/internship search websites and resources can be found at cse.umn.edu/career.*

Information on this page was compiled from the Occupational Outlook Handbook, the Encyclopedia of Careers and Vocational Guidance, University of Minnesota departmental websites, and student-reported data.