



TEXAS TECH UNIVERSITY

# Department of Industrial Engineering™

**INDUSTRIAL ENGINEERS** can be found in a variety of industries and organizations. Industrial engineers organize information, people, machines, resources, capital, and energy to eliminate inefficiencies, streamline processes, increase quality and save organizations money.

- To understand people at work, study ergonomics.
- To manage resources effectively, study operations research.
- To make high quality products, study manufacturing.
- To manage a technical enterprise, study systems and engineering management.
- To excel in the twenty-first century, be an industrial engineer.



## DEGREES

- Bachelor of Science in Industrial Engineering
- Master of Science in Industrial Engineering
- Master of Science in Systems and Engineering Management
- Doctor of Philosophy in Industrial Engineering
- Doctor of Philosophy in Systems and Engineering Management

## CONTACTS

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**RESEARCH** With a small student-to-faculty ratio, industrial engineering students can gain research experience in cutting edge, faculty-developed technologies in the following research laboratories:

**Ergonomics:** Ergonomics education and research is supported by several extensive laboratories including the General Ergonomics and Human Performance Laboratory, the Biomechanics Laboratory, the Work Physiology Laboratory and the Human Factors Interface Simulation Laboratory.

**Manufacturing:** The Advanced Manufacturing Laboratory focuses on developing advanced manufacturing technology and processes to address the demands of a continually-changing global manufacturing environment.

**UNDERGRADUATE PROGRAMS** The undergraduate curriculum in industrial engineering prepares students for professional careers in the analysis and design of human-machine work systems.

**GRADUATE PROGRAMS** Master's and Ph.D. programs prepare competent industrial engineers and engineering managers for industry, consulting, university teaching and research. These programs incorporate courses taken in each of the following areas:

**Ergonomics and Human Factors Engineering:** Occupational biomechanics, work physiology, industrial ergonomics, environmental hygiene, cognitive engineering, human performance, human computer interaction, and occupational safety.

**Manufacturing and Quality Assurance:** Manufacturing engineering and design, computer integrated manufacturing/CAD/CAM, process analysis and economics, automated manufacturing and process planning, programmable control systems, just-in-time production systems, reliability and maintainability, on-line and off-line quality assurance, and total quality assurance.

**Operations Research:** Simulation modeling, scheduling and sequencing, inventory and production control, linear and nonlinear programming, network analysis, stochastic modeling, and risk analysis.

**Systems and Engineering Management:** Systems theory, decision theory, industrial cost analysis, advanced engineering economics, performance improvement in organizations, project management, and productivity management.