The Department

Founded in 1934, the department was one of the first industrial engineering departments in the nation and the first in the state of Texas.

Red Raider industrial engineers gain experience in the traditional industrial engineering application areas of applied optimization, engineering management, supply chain and logistics, transportation, biofuels, and ergonomics and human factors, but build on that knowledge to integrate decision support systems and skills that are gained through course projects, senior projects, and the department’s unique entrepreneurship certificate. The department is also developing research and coursework in emerging areas of advanced and additive manufacturing integrated utilizing a systems approach.

Graduates occupy leadership positions in academia, government and the military, and many are CEOs and presidents of large organizations.

Graduate programs are consistently ranked among the top programs in the nation, and the Systems and Engineering Management programs offer highly ranked Master of Science and Ph.D. degrees by distance.

Research

With a small student-to-faculty ratio, students gain research experience in cutting edge, faculty-developed technologies in the following research areas:

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

- **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, additive manufacturing, computer integrated manufacturing/CAD/CAM, process analysis and economics, automated manufacturing and process planning, programmable control systems.

- **Operations Research:** Simulation modeling, scheduling and sequencing, just-in-time production systems, inventory and production control, linear and nonlinear programming, network analysis, artificial intelligence and expert system.

- **Statistics and Quality Assurance:** Design of experiments, statistical data analysis, reliability and maintainability, on-line and off-line quality assurance, and total quality assurance.

Areas of Study

- Bachelor of Science in Industrial Engineering
- Graduate Certificate in Cybersecurity for Critical Infrastructure
- 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

By the Numbers

Enrollments (Fall 2014):

- Undergraduate .................................................. 85
- Estimated Qualifying Foundational Students ............... 37
- Master’s............................................................ 59
- Doctoral ............................................................ 84

Faculty Members: .................................................. 12

Endowed Chairs, Professors, and Fellows: ................. 4

2015 U.S. News and World Report Rankings

- Best Online Graduate Programs ....................... 20
  (M.S.S.Y.E.M. and Ph.D. S.Y.E.M.)

Contacts

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Faculty Research Specializations

Dr. Mario Beruvides, P.E.
AT&T Professor
Management of Technology, Engineering Management, Engineering Economics, Measurement, Production and Quality Systems Engineering and Dynamics

Dr. Patrick Patterson, P.E., C.P.E.
Professor
Biomechanics, Physical Ergonomics, Cognitive Ergonomics, Computational Intelligence, Human-Computer Interaction, Rehabilitation Engineering

Dr. Weilong Cong
Assistant Professor
Rotary ultrasonic machining of high performance materials, Renewable energy manufacturing, Traditional and nontraditional machining processes in semiconductor manufacturing, Additive manufacturing of metal and composite materials

Dr. James Smith, P.E., C.P.E.
Professor

Dr. Jennifer Cross
Associate Professor

Dr. Joseph Urban
Professor

Dr. Ismael Regis de Farias Jr.
Associate Professor
Operations Research, Optimization, Mixed-Integer Programming

Dr. Simon Hsiang, P.E., C.P.E.
Professor
Human Factors/Ergonomics, Cognitive Engineering, Occupational Biomechanics, Virtual Reality, Modeling and System Design, Data Mining, System Identification, Human Safety and Reliability

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Professor

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Dr. Susan Urban
Professor
Distributed Data Management and Integration, Complex Event Processing, Integration of Event and Stream Processing, Distributed Rule and Transaction Processing, Active/Reactive Behavior in Distributed, Data-Centric Applications, Object-Oriented Data Modeling

Dr. Timothy Matis
Associate Professor
Operations Research, Stochastic Processes, Queueing Theory, Ad-hoc Communication Networks, Conceptual Learning Theories and Virtual Learning Environments

Dr. Hong-Chao Zhang, P.E.
Interim Department Chair and E.L. Derr Professor
Advanced Manufacturing - particularly focused on Sustainable Manufacturing, Additive manufacturing, Remanufacturing, Resource Efficiency Manufacturing, Environmentally Conscious Manufacturing, Life-Cycle Assessment (LCA), Shape-Memory Materials for Automation and Disassembly, Energy Modeling of Manufacturing Processes, C2M, CAD/CAM, CAPP

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