Department of Industrial & Management Systems Engineering

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Degree Offered

- Bachelor of Science in Industrial Engineering (B.S.I.E.)
- Accelerated Bachelor's/Master's Program in Industrial Engineering

Nature of the Program

Industrial engineering is the discipline of engineering concerned with the design, improvement, and installation of integrated systems of people, material, information, equipment, and energy to assure performance, reliability, maintainability, schedule adherence, and cost control. Industrial engineers look at the “big picture” of an operation or system and bridge the gap between management and operations. They deal with and motivate people as well as determine what tools should be used and how they should be used. Industrial engineers use computers and sophisticated software as tools to solve complicated problems to design, quantify, predict, and evaluate the performance of all types of complex technologies and systems.

The mission of the B.S.I.E. program at WVU is to advance the industrial engineering profession through innovative and high-quality academic programs, relevant research, and professional services that address the needs of West Virginia, the nation, and the world. The industrial engineering students at WVU are taught to draw upon specialized knowledge and skills in the mathematical, physical, and social sciences, together with the principles and methods of engineering analysis and design to specify, predict, and evaluate the results to be obtained from such systems. They are introduced to state-of-the-art software in their coursework for data analysis, information management, scheduling, quality control, optimization, and other practices and procedures used by the industrial engineering profession in highly evolving industries of the 21st century.

The discipline of industrial engineering has a rich, ever-increasing diversity of applications. Traditionally, industrial engineers have been employed by manufacturing companies to do facilities and plant design, plant management, quality control, ergonomics, and production engineering. Today, however, industrial engineers are employed in almost any type of industry, business, or institution. Because of their skills, industrial engineers are more widely distributed and in greater demand among more industries than any other engineering discipline.

As an industrial engineer educated at WVU, you can expect to have employment opportunities in manufacturing companies, insurance companies, banks, hospitals, technical sales, pharmaceutical companies, retail organizations including e-business, airlines, government agencies, consulting firms, construction, transportation, public utilities, social service, electronics, digital and wireless communications, etc. The diverse orientation of industrial engineering, coupled with the skills and training you receive at WVU, make you a prime source of management talent that offers unique professional advancement opportunities.

The B.S.I.E. program at WVU devotes considerable attention to the individual needs of the student. It is committed to develop student strengths in technical abilities, personal development, problem solving, and practical experience, preparing them for careers in industry, business, government, or advanced professional degrees. One of the defining attributes in the success of the department is the dedication and talent of its faculty and staff. The aggregate careers of our faculty and staff represent over 300 years of service to students at WVU. In these 300 years of service are embodied the wisdom and experience to successfully prepare industrial engineers for the 21st century.

The faculty works extensively with nearly 300 sophomore, junior, and senior students in such areas as communication skills, personal growth and development, creation of summer internship opportunities, senior capstone project experience, and permanent job opportunities. As faculty and staff, we are committed to provide for our students:

- A friendly, open-door, collegial environment
- Personable faculty mentoring students
- Teaching concepts and techniques for today’s demands
- Quality courses that are innovative and challenging
- Placement in the jobs they want
- Notable life-long successes

The Bachelor of Science in Industrial Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org (https://www.abet.org/).

Program Educational Objectives

Drawing from the University’s mission, the departmental mission, the needs of our constituents, and ABET Engineering Criteria, the following educational objectives were developed. Within a few years of graduation, an IE graduate...
• Creates value by applying the appropriate industrial engineering methods and tools to organizations through critical and creative thinking, structured problem solving, analysis, evaluation, and improvement of systems and processes.
• Communicates effectively across disciplines and cultures to influence decisions and lead activities in support of organizational goals and objectives.
• On a continual basis, pursues professional development and inquiry via graduate study, continuing education and/or training and development through employer-based or industry/sector groups.
• Works collaboratively as both a member and leader of cross-functional teams comprised of members with varying experience levels, organizational backgrounds, positions, and geographic locations.
• Demonstrates ethical standards in designing and implementing innovative systems or processes taking into account social responsibility, global responsibility, and overall benefit to organizational constituents.

FACULTY

CHAIR
• Ashish Nimbarte - Ph.D. (Louisiana State University)
  Occupational biomechanics, human factors engineering, Industrial ergonomics, Industrial hygiene, Occupational safety and health

PROFESSORS
• B. Gopalakrishnan - Ph.D., P.E., CEM (Virginia Polytechnic Institute and State University)
  Manufacturing processes and systems engineering, Information systems, Artificial intelligence applications, Expert systems development, Mechatronics, Facilities planning and materials handling, Databases, Industrial energy/waste productivity management
• Ashish Nimbarte - Ph.D. (Louisiana State University)
  Occupational biomechanics, human factors engineering, Industrial ergonomics, Industrial hygiene, Occupational safety and health
• David Wyrick - Ph.D., P.E., C.P.E.M. (University of Missouri-Rolla)
  Associate Dean for Academic Affairs, Engineering management, Engineering education, Effective management of technology in SMEs

ASSOCIATE PROFESSORS
• Alan McKendall Jr. - Ph.D. (University of Missouri - Columbia)
  Operations research, Meta-heuristics, Facilities layout and materials handling, Project scheduling, Integrated production systems
• Thorsten Wuest - Ph.D. (University of Bremen, Germany)
  Smart and advanced manufacturing, Intelligent manufacturing systems, Machine learning / Big data in manufacturing applications, Product lifecycle management, Smart product design, Information and knowledge management, IPPS / Servitization

ASSISTANT PROFESSORS
• Imtiaz Ahmed - Ph.D. (Texas A&M University)
  Data science, machine learning, quality control and inventory management
• Zhichao Liu - Ph.D. (Texas Tech University)
  Manufacturing processes, Metal additive manufacturing, Sustainable manufacturing

ADJUNCT AND VISITING PROFESSORS
• Lorenzo G. Cena - Ph.D. (University of Iowa)
  Occupational health and safety, Aerosol generation and characterization, Exposure assessment
• Christopher Coffey - Ph.D. (West Virginia University)
  Occupational Safety and Health, Assessment, Evaluation of Respiratory protective equipment
• Ren Dong - Ph.D. (Concordia University)
  Human Factors Engineering, Ergonomics, Safety engineering
• John R. Etherton - Ph.D. (West Virginia University)
  Safety engineering
• Martin Harper - Ph.D. (London School of Hygiene and Tropical Medicine)
  Industrial hygiene, Exposure assessment
• James Harris - Ph.D., P.E. (West Virginia University)
  Safety, Human factors
• Hongwei Hsiao - Ph.D. (University of Michigan)
  Safety, Human factors
• Kevin Michael - Ph.D. (The Pennsylvania State University)
  Acoustics, Hearing protection, Industrial hygiene
• Christopher Pan - Ph.D. (University of Cincinnati)
  Human factors engineering, Safety engineering, Ergonomics
  Industrial hygiene, Exposure assessment
• M. Abbas Virgi - Sc.D., C.I.H. (University of Massachusetts)
  Exposure assessment, Epidemiology, Biostatistics
• Ziqing Zhuang - Ph.D. (West Virginia University)
  Exposure assessment, Assessment and evaluation of respiratory protective equipment

LECTURERS
• Alvin Guthrie - BSIE (West Virginia University)
  Operations management, Manufacturing systems, Production planning and control
• Daniel Kniska - MSIE (West Virginia University)
  Engineering economy, Statistics, Production planning and control

TEACHING ASSISTANT PROFESSOR
• Omar Al-Shebeeb - Ph.D. (West Virginia University)
• Jeremy Gouzd - Ph.D. (West Virginia University)
  Occupational safety and health, Risk assessment, Engineering safety
• Oscar A. Saenz - Ph.D. (Florida International University)
  Engineering education, Project management, Capstone project design

ADJUNCT INSTRUCTOR
• Nelson F. Rekos - BSME (University of Maryland), MBA (West Virginia University)
  Project management, Materials science, Advanced energy systems, Government Contracting

PROFESSORS EMERITI
• Jack Byrd Jr. - Ph.D., P.E. (West Virginia University)
  Operations research, Workforce development, Work design, Integrated product development
• Rashpal S. Ahtluwalia - Ph.D., P.E. (Western Ontario University)
  Manufacturing systems, Quality and reliability engineering, Robotics and automation
• Robert C. Creese - Ph.D., P.E. (Pennsylvania State University)
  Manufacturing processes/systems, Foundry engineering, Cost engineering, Engineering economics
• Daniel E. Della-Giustina - Ph.D. (Michigan State University)
  Playground and recreation safety, Sport safety, Highway and traffic management, Safety, fire, and emergency response
• Steven Guffey - Ph.D., C.I.H. (North Carolina State University)
  Ventilation systems theory and design, Noise measurement and control, Exposure assessment
• Wafik Iskander - Ph.D., P.E. (Texas Tech University)
  Operations research and optimization, Simulation modeling and analysis, Production planning and control, Applied statistics, Energy efficiency, Transportation planning
• Majid Jaridi - Ph.D. (University of Michigan)
  Statistics, Quality control, Forecasting and transportation research
• Warren Myers - Ph.D., C.I.H. (West Virginia University)
  Industrial hygiene and safety, Worker exposure assessment and modeling, Aerosol filtration, Occupational respiratory protection design and testing
• Ralph W. Plummer - Ph.D. (West Virginia University)
  Systems safety engineering, Energy conservation, Human factors, Ergonomics

ASSOCIATE PROFESSOR EMERITUS
• Andrew Sorine - Ph.D. (West Virginia University)
  Benchmarking, Safety and health programs, Safety management information systems

CAREER & PROFESSIONAL MENTOR
• Philomena Krosmico - MSIE (West Virginia University)

RESEARCH ASSOCIATE
• Christopher Moore - Ph.D. (West Virginia University)

For specific information on the following programs please see the links to the right:
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- Industrial Engineering, B.S.I.E.
- Accelerated Bachelor's/Master's Program in Industrial Engineering