

INDUSTRIAL ENGINEERING (INDE)

INDE 190 - Introduction to Industrial Engineering (3 Credits)

Introduction to the profession and core topics of industrial engineering. Introduction to problem solving, ethics and industrial engineering design and analysis techniques.

INDE 291 - Materials & Manufacturing (3 Credits)

Engineering materials, deformative manufacturing, subtractive manufacturing, additive manufacturing, assembly processes, quality control and productivity; computer aided manufacturing.

Prerequisites: D or better in INDE 190 or ENCP 101.

INDE 292 - Work Design & Ergonomics (3 Credits)

Manual components and cognitive aspects of work. Ergonomics and work design methods for increased productivity and improved worker health and safety. Integration of motion and time study with human factors and ergonomics and safety engineering.

INDE 391 - Production Engineering & Management (3 Credits)

Planning and control of operations in both manufacturing and service industries. Effective management and utilization of resources and the production of cost-effective products and services. Principles, models, and techniques used for production planning and inventory control.

Prerequisites: D or better in MATH 141 or MATH 122; D or better in STAT 201 or higher.

INDE 392 - Operations Research in Engineering (3 Credits)

Application of operations research to industrial engineering. Algorithmic and practical implementation of mathematical models to describe and/or improve systems and to gain real-time efficiency.

Prerequisites: D or better in MATH 344 and STAT 509.

INDE 397 - Computer Control of Manufacturing Systems (3 Credits)

Programmable automation applied to manufacturing. Computer architecture, sensors and automatic data acquisition. Experiments interfacing microcomputers and industrial controllers in manufacturing applications.

Prerequisites: D or better in MATH 142 and D or better in one of the following: CSCE 102, CSCE 106, CSCE 145, CSCE 146, ENCP 201, ECIV 201, EMCH 201, ITEC 104, CSCE 104, or ITEC 352.

INDE 460 - Independent Study (1-6 Credits)

Individual investigation or studies of special topics. Requires contract approval.

INDE 490 - Quality Engineering (3 Credits)

Quality tools and techniques employed to help prevent defects in engineered products, and to avoid problems when delivering solutions or services to customers.

Prerequisites: D or better in STAT 509 or higher; D or better in INDE 391.

INDE 496 - Facilities Planning & Material Handling (3 Credits)

Methods to analyze and optimize facilities layout and the arrangement and movement of physical resources to support the production and distribution of goods and services.

Prerequisites: D or better in INDE 391.

INDE 497 - Industrial Engineering Capstone Project (3 Credits)

Open-ended team design experiences that develop the ability to develop, implement, and improve integrated systems that include people, materials, information, equipment, and energy. Real-world experiences and business perspectives.

Prerequisites: D or better in INDE 291, INDE 391, and INDE 392.

INDE 561 - Special Topics in Industrial Engineering (1-6 Credits)

Content varies and will be announced in the schedule of classes by section title. May be repeated for different topics.

INDE 591 - Smart Manufacturing (3 Credits)

Advanced concepts of smart manufacturing: hardware infrastructure, cyber infrastructure, data infrastructure, industrial Internet of things, machine to machine network, machine vision, manufacturing event understanding.

Prerequisites: D or better in INDE 291 or EMCH 377.

INDE 593 - Supply Chain Engineering (3 Credits)

Engineering analysis of the movement, production, and storage of raw materials, work-in-process inventory, finished goods, and services from point of origin to point of consumption or use.

Prerequisites: D or better in INDE 392.

INDE 595 - Systems Simulation (3 Credits)

Discrete event simulation methodology emphasizing the statistical basis for simulation modeling and analysis. Overview of computer languages and simulation design applied to various industrial situations.

Prerequisites: D or better in INDE 392.