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.