

IDSY – Industrial Systems Technology

IDSY 1100 - Basic Circuit Analysis

5.000 Credits

This course introduces direct current concepts and applications, alternating current theory and application of varying sine wave voltages and current, and the physical characteristics and applications of solid state devices. Topics include, but are not limited to, electrical laws and principles, magnetism, series, parallel, and simple combination circuits, inductance and capacitance, diodes and amplifiers, and semiconductory fundamentals.

IDSY 1110 - Industrial Motor Controls I

5.000 Credits

This course introduces the fundamental concepts, principles, and devices involved in industrial motor controls, theories and applications of single and three-phase motors, wiring motor control circuits, and magnetic starters and braking. Topics include, but are not limited to, motor theory and operating principles, control devices, symbols and schematic diagrams, NEMA standards, Article 430 NEC and preventative maintenance and troubleshooting.

IDSY 1120 - Basic Industrial PLCs

5.000 Credits

This course introduces the operational theory, systems terminology, PLC installation, and programming procedures for Programmable Logic Controllers. Emphasis is placed on PLC programming, connections, installation, and start-up procedures. Other topics include timers and counters, relay logic instructions, and hardware and software applications.

IDSY 1130 - Industrial Wiring

4.000 Credits

Teaches the fundamental concepts of industrial wiring with an emphasis on installation procedures. Topics include grounding, raceways, three-phase systems, transformers (three-phase and single-phase), wire sizing, overcurrent protection, NEC requirements, industrial lighting systems, and switches, receptacles, and cord connectors.

IDSY 1150 - DC and AC Motors

3.000 Credits

Prerequisites: IDFC 1011; IDFC 1012

Introduces the fundamental theories and applications of single-phase and three-phase motors. Topics include motor theory and operating principles, motor terminology, motor identification, NEMA standards, AC motors, DC motors, scheduled preventive maintenance, and troubleshooting and failure analysis.

IDSY 1160 - Mechanical Laws and Principles

4.000 Credits

Introduces the student to fundamental laws and principles of mechanics. Topics include mechanical principles of simple machines; force, torque, velocity, acceleration, and inertia; rotational motion; work power, and energy, matter; gases; fluid power; and heat. The course emphasizes understanding terminology and using related problem solving skills in everyday physical applications of mechanical technology. Competencies are reinforced and practical hands on lab exercises.

IDSY 1170 - Industrial Mechanics

5.000 Credits

This course introduces and emphasizes the basic skill necessary for mechanical maintenance personnel. Instruction is also provided in the basic physics concepts applicable to the mechanics of industrial production equipment, and the application of mechanical principles with additional emphasis on power transmission and specific mechanical components.

IDSY 1180 - Magnetic Starters and Braking

3.000 Credits

Corequisites: IDSY 1150

Provides instruction in wiring motor control circuits. Emphasis is placed on designing and installing magnetic starters in across-the-line, reversing, jogging circuits, and motor braking. Topics include control transformers, full voltage starters, reversing circuits, jogging circuits, and braking.

IDSY 1190 - Fluid Power and Piping Systems

5.000 Credits

This course provides instruction in the fundamentals of safely operating hydraulic, pneumatic, and pump and piping systems. Theory and practical application concepts are discussed. Topics include hydraulic system principles and components, pneumatic system principles and components, and the installation, maintenance, and troubleshooting of pump and piping systems.

IDSY 1210 - Industrial Motor Controls II

5.000 Credits

This course introduces the theory and practical application for two-wire control circuits, advanced motor controls, and variable speed motor controls. Emphasis is placed on circuit sequencing, switching, and installation, maintenance, and troubleshooting techniques.

IDSY 1220 - Intermediate Industrial PLCs

5.000 Credits

Prerequisites: IDSY 1210

This course provides for hands on development of operational skills in the maintenance and troubleshooting of industrial control systems and automated equipment. Topics include data manipulation, math instructions, introduction to HMI, analog control, and troubleshooting discrete IO devices.

IDSY 1230 - Industrial Instrumentation

4.000 Credits

Provides instruction in the principles and practices of instrumentation for industrial process control systems with an emphasis on industrial maintenance techniques for production equipment. Topics include instrument tags; process documentation; basic control theory; sensing pressure, flow, level, and temperature; instrument calibration; and loop tuning.

IDSY 1240 - Maintenance for Reliability

4.000 Credits

Prerequisites: IDSY 1170

Applies advanced instrumentation in conjunction with principles of mechanical physics, vibration and particulate analysis, thermography, and advanced reliability concepts relative to precision/predictive maintenance of industrial equipment.

IDSY 1260 - Machine Tool for Industrial Repairs

4.000 Credits

Provides industrial mechanics the basic machine shop skills to perform common mechanical repairs such as: repair of scored pump shafts, motor shafts, conveyor shafts or valve stems; repair or fabrication of support brackets; fabrication of simple shaped (cylindrical or rectangular) parts; making or repairing keysets and keys.