

INDUSTRIAL AND LOGISTICS TECHNOLOGY

INLT 115

BASIC ELECTRONICS – 3 semester hours

Sp

A study of the electron theory, principles of direct current and voltage, conductors, resistors and insulators, magnetism, principles of motor and generator operation, series and parallel circuits. Ohm's and Network Theorems. A study of inductance and capacitance and the use of multimeters, oscilloscopes, power supplies and signal generators. Also, an introduction to altering current and voltage.

INLT 141

INTRODUCTION TO LOGISTICS – 3 semester hours

Sp

This course will cover topics related to logistics in a systems approach to managing activities associated with transportation, inventory management and control, forecasting, and integration of logistics with other functional areas, cross functional teams, supplier, distributor, and customer partnerships.

INLT 161

ENGINEERING GRAPHICS I – 3 semester hours

F

Introduction to basic 2D technical drawing and drafting, including sketching, lines, points, geometry, orthographic projection, auxiliary views, section views, basic dimensioning, introduction to GD&T, visualization, basic drawing standards. Student projects required (sketching, drawing, and CAD software)

INLT 201

TECHNOLOGY AND SOCIETY - 3 semester hours

F

A survey of the technology field as it relates to the academic background and opportunities for industrial technology graduates. Advancing technology and its impact on industry, business, and society. Review of university and departmental philosophy, structure, and goals. Industrial visitation is required.

INLT 212

PRINCIPLES OF TECHNOLOGY – 3 semester hours

Sp

Principles students with experience in the application of the principles of physics and mathematics as they relate to the modern technological systems, including robotics in a unified systems approach to explore mechanical, electrical, fluid, and thermal systems dealing with force, work, rate, resistance, energy, power, force transformers, momentum, wave, energy converters, transducers, radiation, optical systems, and time constants.

INLT 217

TECHNICAL GRAPHICS COMMUNICATION – 3 semester hours

F

Introduction to the use of various technical graphics media and methods of presentation of technical information. Topics include; electronic slide shows, graphic file formats, basic editing of graphic data, user interface design, graphic presentation, and interpreting graphic data.

INLT 245

INDUSTRIAL DISTRIBUTION – 3 semester hours

F

The course is designed to provide students with an introduction to the methods and strategies used in distributing products and managing the inventory in supply chain. Topics covered include the design of channels and activities performed by node members to facilitate efficient movement of goods.

Prerequisite: INLT 141

INLT 247

MATERIALS HANDLING AND INVENTORY CONTORLS – 3 semester hours

F

The principles of quantitative and operational approaches to the design of handling system including receiving, storage, retrieval, packaging, palletizing, material handling, order picking, shipping, facility sizing and layout. Information systems and operating policies of material handling and warehousing will be covered.

Prerequisite: INLT 141, INLT161

INLT 250**INDUSTRIAL MATERIALS – 3 semester credits****F**

This course provides a strong foundation of knowledge of industrial materials, ranging from traditional metals, wood, ceramics, and polymers to advanced engineered materials and composites. Standards and standard organizations; properties and nature of materials, materials testing and applications.

Prerequisite: INLT 212

INLT 261**ENGINEERING GRAPHICS II – 3 semester hours****F/Sp**

Introduction to 3D modeling including visualization skills, basic parametric modeling, CSG modeling, primitives, Boolean operators, view extraction, file management, assembly, dimensioning, and drawing standards. Student projects required (sketching, CAD software).

Prerequisite: INLT 161

INLT 280 Industrial Ergonomics – 3 semester hours**F**

This course focuses on work design and ergonomics in manufacturing. Specific attention will be on introducing the terminology and the techniques used in work design, and the fundamental concepts embodied in industrial ergonomics. Community based projects may be required.

Prerequisite: MATH 121

INLT 281**INDUSTRIAL SAFETY - 3 semester hours****F**

OSHA and its administration. Safety engineering and program management of specific construction and industrial hazards; standards, codes, and other safety documents. Accident investigation and safety analysis. Topics in occupational safety and environmental health.

Prerequisite: INLT 247

INLT 330**SALES AND PROCUREMENT– 3 semester hours****Sp**

A realistic perspective on the role of industrial sales and the nature of the sales task in our society. Identification of critical influences on organizational buyer behavior, both internal and external. Definition of various types of buying situations, and organizational purchasing processes.

Prerequisite: MATH 121

INLT 335**LEAN PROCESS MANAGEMENT– 3 semester hours****F**

A systematic approach to eliminating non-value added activities throughout a production system. Lean principles and techniques will be applied to improve organizations ability to provide added customer value on products. Community based projects may be required.

Prerequisite: MATH 121

INLT 345**TRANSPORTATION LOGISTICS – 3 semester hours****F**

Introduction to the theory and applications of transportation, logistics, and associated costs will be covered. Topics will include modes of transportation and their networks; optimization of transportation systems across networks; flow across networks; supply, demand, and forecasting for transportation services; costs and benefits of specific modes and transportation policy analysis.

Prerequisite: INLT 141, INLT 247

INLT 350**INDUSTRIAL CONTROLS – 3 semester hours****F**

Study of the devices, procedures, and techniques essential to industrial measurement and transmission of data in the areas of machine control, process control, and automated testing. Topics include: switches, transformers, relays, actuators, solenoids, transducers, timers, counters, motor starters, ladder diagrams, and power factor correction

Prerequisite: INLT 212

INLT 353**FLUID POWER – 3 semester hours****F**

Provides students with experience in the application of the principles of physics and mathematics as they relate to problem solving in modern technological systems, including robotics in a unified systems approach to explore mechanical, electrical, fluid, and thermal systems dealing with force, work, rate, resistance, energy, power, force transformers, and time constants as it relates to fluid power.

Prerequisite: INLT 212

INLT 359**INDUSTRIAL ORGANIZATION AND MANAGEMENT– 3 semester hours****F**

The course is a survey of organizational structures, operational, financial, marketing, and accounting. Emphasis is placed on planning, control, personnel, safety, wages, policies, and leadership for an effective industrial management.

INLT 362**ENGINEERING GRAPHICS III – 3 semester hours****F**

Continuation of INLT 261. Advanced parametric modeling, product development and design, technical animation of assemblies – group project required (sketching, CAD software)

Prerequisite: INLT 261

INLT 365**MECHANICAL PRINT READING – 3 semester hours****F**

Reading prints as related to current common practices in engineering and technology. Emphasis on standardization and quality real world manufacturing industry print examples. Application of national (ANSI Y – 14) and international standards and related documentation practices, including geometric tolerancing.

Prerequisite: INLT 161 and INLT 250

INLT 370**ARCHITECTURAL DRAFTING AND DESIGN I – 3 semester hours****F**

Introduction to residential architecture, plots plans, footings and foundations, residential structures, building codes, schedules, basic interiors. Student projects required (sketching, CAD software)

Prerequisite: INLT 161

INLT 372**ARCHITECTURAL DRAFTING AND DESIGN II – 3 semester hours****S**

Continuation of INLT 370, focus on material, schedules, HVAC, plumbing, and electrical details. Student projects required (sketching, CAD software)

Prerequisite: INLT 370

INLT 374**STATICS AND STRENGTH OF MATERIALS – 3 semester hours****F**

Structural principles and concepts linked to real buildings and components. Elementary statics and strength of materials as they related to the basic principles of mechanics. Gravity and lateral load tracings; determinate structural frame-works. Concept of stress and strain, and material properties; cross-sectional properties; Beam and column analysis and design; steel connections. Use of structural software to generate graphically display outlook.

Prerequisite: MATH 212, INLT 372 or consent of instructor

INLT 383**QUALITY MANAGEMENT – 3 semester hours****S**

Quality management philosophies of Deming, Juran, and Cosby; total quality management (TQM); quality improvement and problem solving, with practical examples of quality problem tools; sampling techniques. The Taguchi loss function, quality function and policy deployment, materials control and just-in-time; quality audits; ISO 9000 inspection standards; charts for statistical process control and interpretation.

Prerequisite: CISO 212 or MATH 210, STAT 210

INLT 385**COST ESTIMATING - 3 semester hours****S**

Principles and techniques necessary for the economic analysis and cost evaluation of construction and industrial design projects. Interpretation of construction and engineering drawings and specifications; estimating, operations, products, projects, and systems. Estimate assurance and contract considerations.

Prerequisite: INLT 250

INLT 443**ENGINEERING AND TECHNOLOGY ENTREPRENEURSHIP – 3 semester hours****Sp**

This course covers concepts related to entrepreneurship relevant to engineering and technology applications. Major topics include entrepreneurial risk taking, start up strategies, innovative idea evaluation, business plan writing, financing and venture capital, managing growth and introducing and sustaining innovative products and services. Through case studies and guest speakers, the course introduces students to the knowledge and skills needed to recognize and seize technological entrepreneurial opportunities.

Prerequisite: Junior or senior standing

INLT 444**ENTERPRISE RESOURCE PLANNING – 3 semester hours****F**

Analytical approaches to design, planning, and control of logistics management. Core aspects of enterprise resource planning (ERP) infra-structure and applications in industry. ERP planning strategies and implementation, including domestic and international manufacturing and service operations.

Prerequisite: INLT 443

INLT 445**PROCUREMENT MANAGEMENT – 3 semester hours****F**

The role of acquisition in business and industry; relationships with other departments, procedures, and basic policies. Planning, organization, budgeting, negotiations, purchasing ethics, procurement control, strategic purchasing management, and impact of research and value analysis.

Prerequisite: INLT 444

INLT 446**ELECTRONICS LOGISTICS – 3 semester hours****Sp**

Reviews several E-Business trends related to logistics management; the impact of E-Business on creating a business plan and discussing E-Business architecture. CRM core competencies, organizational challenges, implementation trends, and planning strategies.

Prerequisite: INLT 141, INLT 247

INLT 447**SUPPLY CHAIN MANAGEMENT – 3 semester hours****Sp**

The planning and implementation of supply chain management, reverse logistics, integrated production. Inventory and distribution problems, multi-partner pricing analysis, and supply chain distribution network designs will be covered.

Prerequisite: INLT 345

INLT 448**GLOBAL LOGISTICS – 3 semester hours****Sp**

It covers topics related to global logistics as key component of supply chains that coordinates the movement of raw materials, work-in-process in a global network of shippers, forwarders, third party transportation providers, warehouses, customs agencies, and consignees to coordinate the activities that provide the logistics product.

Prerequisite: INLT 141, INLT 345

INLT 473**ARCHITECTURAL DRAFTING AND DESIGN III – 3 semester hours****F**

Focus on commercial structures and codes, various international styles of architecture, green construction, alternative building materials and energy sources. Student projects required. (sketching, CAD software)

Prerequisite: INLT 372

INLT 480**FACILITIES MANAGEMENT – 3 semester hours****Sp**

Facilities planning strategies, product, process, and schedule design; flow space and activity relationships; design of material handling system. Facilities functions and systems; quantitative facilities planning models, including the use of software applications. Industrial facility management.

Prerequisite: INLT 141, INLT 161, INLT 245

INLT 481**MECHANICAL INSPECTION – 3 semester hours****F**

Inspection points, personnel, and planning, using various graphical inspection techniques. Inspection as an appraisal activity in business/industry. Dimensional metrology-application of common and special gages; surface plate tools and techniques. Inspection planning and procedures; sampling and testing methods; non destructive testing. Laboratory activities are included. Industrial visitation is required.

Prerequisite: INLT 383 or Consent of Instructor

INLT 485**PROJECT MANAGEMENT - 3 semester hours****F**

The principles and techniques of managing engineering and construction projects from the conception phase through design and construction, to completion. Working with project teams, early estimates, and design proposals; project budgeting, scheduling, and aggregate planning. Case study approach is emphasized.

Prerequisite: INLT 385

INLT 486**PLANNING AND SCHEDULING - 3 semester hours****Sp**

Principles of planning and scheduling in manufacturing and service industries; the conversion of a project plan into an operating time-table. Application areas to cover project, job-shop, workforce, supply chain, and economic lot scheduling. Methodologies to include PERT, WBS, and GANTT chart. Utilization of current and emerging technologies and global dynamics with project management will be emphasized.

Prerequisite: INLT 485

INLT 490**SENIOR DESIGN PROJECT – 3 semester hours****F/ Sp**

This course requires the student to complete an individual project that emphasizes the solving of a technical problem using a multidisciplinary technology approach. This project is intended to be a culmination of management and technology theories and will be integrated with design or research. Report and end of semester formal presentation required.

Prerequisite: Senior status

INLT 499**SPECIAL TOPICS – 3 semester hours****F/ Sp**

A course or independent study covering a topic in Industrial Technology that may be used in lieu of a technical elective. The goal of this course is to enhance students' skills and knowledge in an area relevant to their area of study.

Prerequisite: Permission of Instructor