INDUSTRIAL TECHNOLOGY (ITEC)

ITEC 110 – Introduction to Technology  1 credit hour
Students will be introduced to career opportunities, and encouraged to explore career options. Once students are familiar with various degree programs they will develop long range plans for achieving their career goal(s).

ITEC 114 – Introduction to Industrial Distribution  2 credit hours
Definition, history, types of, range of products, lines of distribution, function of manufacturers, distributors, operations, measures of effectiveness, employment and advancement opportunities.

ITEC 116 – Introduction to Construction Management  3 credit hours
An introduction to the construction industry; and overview of the construction industry sectors and the industry’s impact on the economy; and a brief overview of the construction process. The course will preview the construction management degree curriculum with an overview of policies, procedures and resources of the Industrial Technology Department on the University of Nebraska at Kearney campus.

ITEC 120 – Interpretation of Technical Documents  3 credit hours
This course is designed as a beginning college level introduction to the comprehension and use of design graphics in 2-dimensional form for the purpose of solving technical problems related to the industries of construction, industrial distribution, aviation, and information networking. Additional Course Fee Required

ITEC 122 – Architectural Drafting & Design  3 credit hours
This course is designed to meet the needs of the Family and Consumer Science major with an emphasis in Interior Design. Specific methods applicable to the major’s degree program and an introduction to computer aided drafting and design are included.

ITEC 130 – Technology Today  3 credit hours
This course presents a conceptional approach to computer aided communication systems typically applied in industrial environments. Emphasis will be placed on utilizing computer technology to integrate text and graphics in the preparation of documents and presentation materials.

ITEC 150 – Internetworking Literacy  3 credit hours
This course is a comprehensive overview of contemporary internetworking systems. Topics include voice, networking, wireless, and how these technologies are integrated into the daily lives of individuals. The course assumes no previous knowledge of the field, and can be used by all students seeking a background in fundamental networking and telecommunications concepts.

ITEC 170 – Private Pilot Theory  3 credit hours
This course serves as a preparation for the FAA Private Pilot written exam which may be taken upon successful completion of this course. The course includes instruction in FAA regulations, weather, air and radio navigation, flight safety and emergency procedures necessary for successful completion of the FAA exam.

ITEC 171 – Introduction to Flight  1 credit hour
This course is the student’s first exposure to flight operations. The fundamental flight skills and the sensations associated with completing these skills will be demonstrated. Basic aviation terms and nomenclature will be introduced. Additional Course Fee Required

ITEC 172 – Professional Flight 1  1 credit hour
This course provides the student with an introduction to the aeronautical experiences required to effectively pursue careers in aviation. In this course the student will become familiar with the training airplane through dual instruction and solo practice and will learn how the airplane controls are used to establish and maintain specific flight attitudes. The student will also learn to plan and conduct cross-country flights using pilotage, dead reckoning, and radio navigation. Prerequisite: ITEC 171 or permission Additional Course Fee Required

ITEC 188 – GS Portal  3 credit hours
Students analyze critical issues confronting individuals and society in a global context as they pertain to the discipline in which the Portal course is taught. The Portal is intended to help students succeed in their university education by being mentored in process of thinking critically about important ideas and articulating their own conclusions. Students may take the Portal in any discipline, irrespective of their major or minor. Satisfies the General Studies Portal course requirement. Students may take their Portal course in any discipline. Students who transfer 24 or more hours of General Studies credit to UNK are exempt from taking a portal course.
Total Credits Allowed: 6.00 Prerequisite: First year freshman standing or sophomore standing only.

ITEC 205 – Virtual Design & Construction  3 credit hours
This is a beginning design course to develop a working knowledge of computer added design and drafting (CADD) skills, design thinking process and principles, while teaching 3D Design CADD software skills. Prerequisite: ITEC 110 and ITEC 120 Additional Course Fee Required

ITEC 210 – Society and Technology  3 credit hours
The course will introduce students to the impact that technology has had on society, the economy and politics. Historical development of technology will be developed in an effort to provide information on the importance of technology.

ITEC 212 – Construction Estimating I  3 credit hours
Estimating fundamental, concepts, and strategies used in the process of construction cost estimating. Quantity take off, unit pricing, estimate development, drawing and interpretation, resource pricing, and bidding procedures. Computer applications are introduced. Prerequisite: ITEC 240 Additional Course Fee Required

ITEC 220 – Electricity/Electronics  3 credit hours
This course will provide an overview of the fundamentals of electricity/electronics. This is a foundation course for students entering the field of Industrial Technology and will provide the necessary working knowledge required for automation systems, telecommunications, residential/commercial wiring, and computer based electronics. Additional Course Fee Required

ITEC 225 – The Influence of Technology on Democracy  3 credit hours
Students in this course will examine technology in the areas of telecommunications, construction, distribution, public safety and its impact and influence upon a democratic society. Varied technologies create complex situations that impact the processes and ideals of democracy. Advances in technology have created future benefits as well as consequences relative to the ideas afforded and provided by a democracy. Various forms of democracies will be examined to see how each adapts to incursion or open implementation of various technologies. Are the leaders of tomorrow, our current students, prepared to address the technological challenges of the future?
ITEC 230 – Statics and Strength of Materials  3 credit hours
This course is an introductory exposure to the engineering principles relative to static design and their application to primary construction materials and structures. Through problem solving and application, students will develop an appreciation for the vital importance of engineering to the stability and resulting safety of structures.
Additional Course Fee Required

ITEC 240 – Construction Materials & Methods  3 credit hours
This course will explore the design and construction methods of light commercial/residential structures. The construction industry is constantly changing as new materials, technologies, and processes evolve. These concepts will be presented and applied in the class. The fundamentals of these construction methods and techniques will be reinforced with various lab activities, e.g. concrete, framing, and roofing.
Prerequisite: ITEC 120 or IPD 210
Additional Course Fee Required

ITEC 250 – Construction Surveying  3 credit hours
Methods and equipment utilization in layout and control of building projects and construction site development. Includes horizontal and vertical control methods using manual and electronic surveying equipment (Theodolite).
Prerequisite: MATH 103
Additional Course Fee Required

ITEC 251 – Machine Tool Products and Applications  3 credit hours
A study of modern manufacturing based on the production of parts and assemblies by means of various processes and methods.
Prerequisite: ITEC 114

ITEC 271 – Industrial Products & Applications I  3 credit hours
This course is designed to provide specific product knowledge and applications skills required of today's electrical and electronic component sales professionals.
Prerequisite: ITEC 114 and completion of General Studies Foundational Core Math class.

ITEC 272 – Industrial Products & Applications II  3 credit hours
This course is designed to provide specific product knowledge and applications skills required of today's industrial sales professional. It includes (1) power transmission devices, (2) pipes, valves, and fittings, and, (3) hydraulics and pneumatics. Related topics such as maintenance and lubricants are included. New technologies are included in the course as they become available.
Prerequisite: ITEC 271

ITEC 280H – Special Topics  1 credit hour
ITEC 283 – Fluid Power  3 credit hours
The course is designed to cover the nature of fluids and gas under pressure, the transmission of power by fluid and gas, the design of hydraulic and pneumatic systems and automatic control of these systems.
Prerequisite: MATH 102

ITEC 290 – Communicating Through Technology  3 credit hours
Utilizing traditional, computer, and internet presentation technology, the course will address how to communicate effectively utilizing verbal and nonverbal communication techniques. Evaluating, listening, presenting, body language, and technology based presentation programs are a few of the main topics.

ITEC 291 – Instrument Pilot Theory  3 credit hours
This course serves as a preparation for the FAA Instrument Pilot written exam which may be taken upon successful completion of the course. The course includes instruction in all areas required by 14 CFR Part 61.65(b).
Prerequisite: ITEC 110 and ITEC 171 or permission

ITEC 292 – Professional Flight 2  1 credit hour
This course provides the student with the simulated and actual instrument reference aeronautical experience to prepare him or her for the next phase of their professional training, the instrument rating.
Prerequisite: ITEC 172 or permission
Additional Course Fee Required

ITEC 293 – Professional Flight 3  1 credit hour
This course provides the student with the VFR cross-country aeronautical experience to prepare him or her for the next phase of their professional training, the instrument rating.
Prerequisite: ITEC 292 or permission
Additional Course Fee Required

ITEC 305 – Healthcare Informatics & Technology  3 credit hours
With a focus on networking, this course will examine the healthcare field and its integration with the electronic and digital realm. Topics like security protocols, patient privacy, and telemedicine will be studied and then applied to real-world technical scenarios through discussion and hands-on projects.

ITEC 308 – Industrial Management  3 credit hours
Designed to present specific functions, resources, techniques and responsibilities associated with the various phases of industrial management.

ITEC 312 – Construction Estimating II  3 credit hours
Designed to meet the individual needs of students requiring additional specialization in the construction field of study with emphasis in computer and manual estimating.
Prerequisite: ITEC 130 and ITEC 240 and ITEC 212
Additional Course Fee Required

ITEC 320 – Applied Electronics  3 credit hours
The course will deal with analog and digital circuitry and their various applications in electronics. Computer and industry control circuits will be incorporated.
Prerequisite: ITEC 110 and ITEC 220
Additional Course Fee Required

ITEC 330 – Information Networking Preceptorial  4 credit hours
Students in this course study the design and operation of telecommunications and information networks actively deployed in the business enterprise. They also explore the duties and responsibilities of the network manager as they maintain the information and telecommunications networks.
Prerequisite: ITEC 335

ITEC 335 – Network Architecture and Telecommunications I  3 credit hours
This course presents a technical overview of information networking and telecommunications. The course will cover the principles necessary for understanding the layered network architecture of information network and telecommunications systems. Hands-on labs will be conducted using a variety of network equipment.
Prerequisite: Passing score on the CompTIA A+ certification exam or CompTIA Network+ certification exam or ITEC 150
Additional Course Fee Required
ITEC 341 – Mechanical and Electrical Systems 3 credit hours
The course will include the basic construction practices included in all phases of the industry dealing with the electro and mechanical systems of structures. Specifically electrical systems, heating systems, cooling systems, and plumbing systems.
Prerequisite: ITEC 240
Additional Course Fee Required

ITEC 345 – Network Architecture and Telecommunications II 4 credit hours
This course presents a more in-depth approach to network architecture by examining routing and switching technology. Topics studied include fundamental local area network design, installation, and troubleshooting as well as how routers interconnect through routing protocols and routing tables. Hands-on labs will be conducted using a variety of network equipment.
Prerequisite: ITEC 335
Additional Course Fee Required

ITEC 353 – Industrial Distribution Branch Operations 3 credit hours
A study of the basic functions of an industrial distributor, how to manage each area of branch operations for a single or multi-level branch organization, account planning, and the management of territories, sales cycles, and sales teams.

ITEC 360 – Building Codes and Inspections 3 credit hours
This course will provide the student with a working understanding of the elements associated with all phases of completing a structure in compliance with current building codes. Topics included are permitting, occupancy permits, trades, inspections, and the role of the general contractor in insuring codes are observed. The experiences will be gained through a classroom and on-site environment.
Prerequisite: ITEC 240
Additional Course Fee Required

ITEC 370 – Construction Scheduling 3 credit hours
Students will be exposed to the area of construction scheduling and the importance of this area to the successful completion of a project. This course emphasizes professional application grounded in accepted theory and techniques.
Prerequisite: ITEC 212
Additional Course Fee Required

ITEC 375 – Commercial Pilot Theory 3 credit hours
This course serves as a preparation for the FAA Commercial Pilot knowledge exam which may be taken upon successful completion of this course. The course includes instruction in FAA regulations, weather, air and radio navigation, flight safety and emergency procedures necessary for successful completion of the FAA exam. In addition, specific information regarding the privileges and limitations on the holder of the Commercial Pilot Certificate are discussed in detail.
Prerequisite: ITEC 171 or permission

ITEC 376 – Professional Flight 4 2 credit hours
This course provides the student with the aeronautical experiences required to obtain the FAA Commercial Pilot Certificate.
Prerequisite: ITEC 172 or permission
Additional Course Fee Required

ITEC 377 – Professional Flight 5 2 credit hours
This course provides the student with the aeronautical experiences required to add the FAA Multi-Engine rating to an existing Pilot Certificate.
Prerequisite: ITEC 172 or permission
Additional Course Fee Required

ITEC 378 – Professional Flight 6 2 credit hours
This course provides the student with the aeronautical experiences required to qualify for the FAA Flight Instructor Certificate.
Prerequisite: ITEC 376 or permission

ITEC 379 – Professional Flight 7 2 credit hours
This course provides the student with the aeronautical experiences required to qualify for the FAA Instrument Flight Instructor Certificate.
Prerequisite: ITEC 378 or permission

ITEC 380 – Professional Flight 8 2 credit hours
This course provides the student with the aeronautical experiences required to qualify for the FAA Multi-Engine Flight Instructor Certificate.
Prerequisite: ITEC 376 and ITEC 377 or permission

ITEC 383 – Mechanical Power 3 credit hours
The course is specifically designed to provide extensive study and understanding of the power transmission and motion control industry. In addition, the course is holistically designed to integrate the extensive technical studies with current manufacturing, management, sales, and industry news and events.
Prerequisite: Junior or senior level standing or within 6 hours of completing general studies requirements.

ITEC 388 – GS Capstone 3 credit hours
An interdisciplinary experience where students apply the knowledge, cognitive abilities, and communication skills they have gained from General Studies in designing and completing an original project or paper. Students employ methods and interpretive means of two or more disciplines to integrate knowledge and synthesize their results. Satisfies the General Studies capstone course requirement. Students may take their Capstone course in any discipline.
Prerequisite: ITEC 376 or permission

ITEC 390 – Information Networking Law and Public Policy 3 credit hours
Students in this course review statutory law, regulatory law, and case law at the federal, state, and local levels as it is applied to information networking and telecommunications.

ITEC 391 – Aviation Law 3 credit hours
This course covers the interpretation and application of the statues, related acts, and federal regulations, and common law aviation issues.

ITEC 392 – Aviation Airport Management 3 credit hours
This course is primarily directed toward the planning and complete development of an airport including the economic, social, political, and operation requirements. Federal Aviation Regulations as well as Environmental Protection Act requirements are addressed.

ITEC 393 – Aviation Safety 3 credit hours
The primary goal of this course is to thoroughly indoctrinate the student pilot with safety consciousness including awareness of physical limitations, effects of flight on the human body, severe weather, and in flight emergencies. Although advanced placement is not mandatory, beginning college students are not encouraged to enroll.

ITEC 394 – Air Traffic Control 3 credit hours
This course is a survey of the National Airspace System, air traffic control procedures, the control environment and the airport environment. The content of this course includes instruction on: 1. The role of the air traffic control in commercial aviation; 2. The procedures and tools used by the air traffic controller; and 3. How these tools and procedures can be utilized by the pilot in the airspace of the United States.
ITEC 398 – Advanced Virtual Design and Construction 3 credit hours
This course is an introduction to Building Information Modeling (BIM) and Virtual Design & Construction (VDC), and how the process is transforming the design, construction, management, operation, and maintenance of buildings. Through a series of lectures, discussion of case studies, and hands-on demonstrations of software, students will explore topics including BIM principles, concepts, and tools, and the business case for BIM.
Prerequisite: ITEC 212 and ITEC 205
Additional Course Fee Required

ITEC 399 – Independent Study 1-3 credit hours
Permission of the instructor is required. The course provides independent investigation of problems in Industrial Technology. Topics to be researched may be tailored to meet the needs of the student. Individual research, under the direct supervision of a faculty member of the department, will utilize problem-solving applications.
Department Consent Required
Total Credits Allowed: 3.00

ITEC 408 – Leadership in Business and Technology 3 credit hours
This course will present information and provide skills needed by managers who will be required to cope with an ever-increasing rate of change. Creative long range planning coupled with the ability to lead people will be of utmost importance. Leadership styles will be studied by review of characteristics of successful leaders past and present.

ITEC 416 – Advanced Aerodynamics/Aircraft Performance 3 credit hours
This course is designed to develop a sound understanding of the concepts of aerodynamics relevant to flight, and the impact of the natural environment upon the performance of modern aircraft.
Prerequisite: PHYS 205 and PHYS 205L or permission

ITEC 417 – Advanced Aircraft Systems 3 credit hours
This course will acquaint the student with various aircraft types and sophisticated aircraft systems, as well as pilot requirements and responsibilities within these systems.
Prerequisite: ITEC 220 or permission

ITEC 420 – Individual Problems in Computer-Aided Drafting Technology 3 credit hours
Designed to meet the individual needs of the student who desires additional specialization in the computer aided drafting and design area.
Prerequisite: ITEC 205

ITEC 430 – Internetworking Design 3 credit hours
This course will cover all the concepts necessary for an overall understanding of the design of information networks, whether they are meant to carry voice, data or video. A case study will be incorporated to achieve a strong understanding of the design and implementation of a complex internetwork. Hands-on labs will be conducted using a variety of network equipment. Students with a strong command of the concepts presented will be prepared to sit for specific industry certification exams.
Prerequisite: ITEC 330 and ITEC 335 and ITEC 345
Additional Course Fee Required

ITEC 435 – Global Internetworking 3 credit hours
Students will be exposed to the area of construction control systems and the importance of this area to meeting the budget, quality and time objectives of a project. This course emphasizes strategy development and practical application grounded in accepted theory and techniques.
Prerequisite: ITEC 330 and ITEC 430
Additional Course Fee Required

ITEC 445 – Human Factors & Productivity 3 credit hours
Students will be exposed to the influence that human factors have on productivity on a construction site. The importance of understanding and effective management will be studied and how this can improve the budget, quality, and time objectives of a project. This course emphasizes strategy development and practical application grounded in accepted theory and techniques.
Prerequisite: ITEC 475 and senior standing

ITEC 451 – Manufacturing/Distribution Relationships 3 credit hours
The study of the design and development of products and services emphasizing the quantitative aspects and the interlocking factors affecting human performance and the utilization of facilities, machines, and materials. A working corporate structure will be established to research, develop, produce, and market produce.
Prerequisite: ITEC 251 and ITEC 475

ITEC 453 – Purchasing for Wholesale Distribution 3 credit hours
A study of purchasing fundamentals performed by personnel who have the responsibility for procurement of materials, equipment, and/or services in a wholesale distribution environment.

ITEC 458 – Materials: Structure, Properties, and Processing 3 credit hours
This course is designed to help students become familiar with industrial materials, including metals, ceramics, polymers, and composites. Successful students will understand the atomic structure and microstructure of materials, how fabrication and processing conditions influence this structure, and the mechanical properties of the resulting materials.
Prerequisite: ITEC 272

ITEC 475 – Internship 3-12 credit hours
A work experience program planned for students preparing for employment in business and industry. The learning situation is organized and supervised cooperatively by the Department internship coordinator. Work experience must involve management training and supervisory responsibilities. Students are to contact their program coordinator prior to registering for this course.
Total Credits Allowed: 12.00
Prerequisite: ITEC 308 and GPA of 2.5 and junior standing

ITEC 482 – Digital Electronics 3 credit hours
Study of basic digital logic circuitry, computer languages, binary math, Boolean algebra, industrial control systems and current integrated circuitry technology will be included. Digital logic training systems of various manufacturers will be available for experimental work.
Prerequisite: ITEC 220 or PHYS 206 and PHYS 206L

ITEC 485 – Information Networking Seminar 3 credit hours
A review of the information networking and telecommunications industry of today. Students will be required to research various current information networking and telecommunications issues and be prepared for discussion.
Prerequisite: ITEC 390 and Senior standing

ITEC 490 – Industrial Distribution Seminar 3 credit hours
A review of industrial distribution today as it relates to management and sales of industrial products and services.
Prerequisite: ITEC 475

ITEC 494 – Special Topics in Industrial Distribution 3 credit hours
Selected topics and problems of current interest considered in depth. The course format will vary depending upon the topic, the instructor, and student needs. Topics vary based upon current industry issues.
ITEC 495 – Special Topics in Construction Management  3 credit hours
Selected topics and problems of current interest considered in depth. The course format will vary depending upon the topic, the instructor, and student needs. Topics vary based upon current industry issues.

ITEC 496 – Special Topics in Information Networking  3 credit hours
Selected topics and problems of current interest considered in depth. The course format will vary depending upon the topic, the instructor, and student needs. Topics vary based upon current industry issues.

Total Credits Allowed: 6.00

ITEC 497 – Special Topics in Aviation  3 credit hours
Selected topics and problems of current interest considered in depth. Class discussion and course projects. Topics vary each semester depending upon instructor.

Total Credits Allowed: 6.00

ITEC 498 – Seminar in Construction Management  3 credit hours
Students will be exposed to the real estate development process and the integral role of project management in meeting the goals of a successful real estate project. The emphasis of the course will be on application of project management tools and techniques utilized from pre-construction to close-out. Timely execution of quality work and effective written communication will be emphasized.
Prerequisite: ITEC 370 and ITEC 475 and Senior standing
Additional Course Fee Required

ITEC 499 – Independent Study and Research in Industrial Technology  1-6 credit hours
Concentrated work in specialized areas of industrial technology.

Total Credits Allowed: 6.00