

## **TSTC Dual Enrollment Technical Pathway Course Descriptions**

### **Aircraft Airframe Technician** (13 credit hours toward Cert II or AAS degree)

AERM-1205 - Weight & Balance: An introduction to Federal Aviation Administration (FAA) required subjects relating to the weighing of aircraft, the performance of weight and balance calculations, and appropriate maintenance record entries.

AERM-1254 - Aircraft Composites: Comprehensive concepts of the inspection and repair of composite, fabric, core, and laminated structural materials including doors, windows, bonded structures, and interior furnishings. Safety procedures to include the handling and storage of composite materials will also be addressed.

AERM-1109 - Aviation Physics: Fundamentals of physics applied to aircraft principles and operations as required by the Federal Aviation Administration for airframe and powerplant mechanics.

AERM-1208 - Federal Aviation Regulations: A course in the use and understanding of Federal Aviation Administration (FAA) and aircraft manufacturers' publications, forms, and records; and the exercise of mechanic privileges within prescribed limitations.

AERM-1210 - Ground Operations: An introductory course in fuels, servicing methods, safety procedures, aircraft movement, securing and operations of aircraft, external power equipment, aircraft cleaning, and corrosion control.

AERM-1241 - Wood, Fabric & Finishes: A course in the use and care of various covering materials, finishes, and wood structures including approved methods and procedures. Safety also addressed.

AERM-1203 - Shop Practices: An introduction to shop safety, the correct use of hand tools, equipment, and precision measurement, identification of aircraft hardware, and the fabrication of fluid lines and tubing. Emphasis on procedures for testing, heat treating, and inspection of aircraft structures.

### **Automotive Maintenance & Light Repair** (14 credit hours toward Cert I, Cert II, or AAS degree)

AUMT-1305 – Intro to Automotive Technology: An introduction to the automotive industry including automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, professional responsibilities and basic automotive maintenance. May be taught manufacture specific.

AUMT-1310 – Automotive Brake Systems: Operation and repair of drum/disc type brake systems. Topics include brake theory, diagnosis, and repair of power, manual, anti-lock brake systems and parking brakes. May be taught manufacture specific.

AUMT-1416 – Automotive Suspension and Steering Systems: Diagnosis and repair of automotive suspension and steering systems including electronically controlled systems. Includes component repair, alignment procedures and tire and wheel service. May be taught manufacture specific.

AUMT-1419 – Automotive Engine Repair: Fundamentals of engine operation, diagnosis and repair. Emphasis on identification, inspection, measurements, disassembly, repair and reassembly of engine. May be taught manufacture specific.

### **Drafting and Design Technology** (12 credit hours toward AAS degree)

DFTG-1309 – Basic Computer-Aided Drafting: An introduction to computer-aided drafting. Emphasis is placed on setup; creating and modifying geometry; storing and retrieving predefined shapes; placing, rotating, and scaling objects, adding text and dimensions, using layers, coordinate systems, and plot/print to scale.

DFTG-2319 – Intermediate Computer-Aided Drafting: A continuation of practices and techniques used in basic computer-aided drafting including the development and use of prototype drawings, construction of pictorial drawings, extracting data, and basics of 3D.

DFTG-2323 – Pipe Drafting: A study of pipe fittings, symbols, specifications and their applications to a piping process system. Creation of symbols and their usage in flow diagrams, plans, elevations, and isometrics.

DFTG-1317 – Architectural Drafting-Residential: Architectural drafting procedures, practices, terms, and symbols. Preparation of detailed working drawings for residential structures. Emphasis on light frame construction methods.

### **Computer Networking & Systems Administration** (12 credit hours toward AAS)

ITNW-1325 – Fundamentals of Networking: Instruction in networking technologies and their implementation. Topics include the OSI reference model, network protocols, transmission media, and networking hardware and software.

ITNW-1308 – Implementing and Supporting Client Operating Systems: Skills development in the management of client as desktop operating systems.

ITSC-1325 – Personal Computer Hardware: Current personal computer hardware including assembly, upgrading, setup, configuration, and troubleshooting.

ITSY-1300 – Fundamentals of Information Security: An introduction to information security including vocabulary and terminology, ethics, the legal environment, and risk management. Identification of exposures and vulnerabilities and appropriate countermeasures are addressed. The importance of appropriate planning, policies and controls is also discussed.

### **Digital Media Design** (12 credit hours toward AAS degree)

GRPH-1359 – Vector Graphics for Production: A study of vector graphics (Vector graphics is the use of polygons to represent images in computer graphics. Vector graphics are based on vectors, which lead through locations called control points or nodes) for production.

ARTC-1302 – Digital Imaging I: Digital imaging using raster image editing and/or image creation software: scanning, resolution, file formats, output devices, color systems, and image-acquisitions.

ARTV-1351 – Digital Video: Producing and editing video and sound for multimedia or web productions. Emphasizes capture, editing, and outputting of video using a digital video workstation.

ARTV-2341 – Advanced Digital Video: Advanced digital video techniques for post –production. Emphasizes integration of special effect and animation for film, video and the internet. Exploration of new and emerging compression and video streaming technologies.

### **Database & Web Programming** (12 credit hours toward AAS degree)

ITSE-1302 – Computer Programming: Introduction to computer programming including design, development, testing, implementation, and documentation.

ITSE-1311 – Beginning Web Programming: Skill development in web programming including mark-up and scripting languages.

ITSE-1347 – Programming with Visual Basic.NET: Designing and developing enterprise applications using Microsoft Visual Basic.Net in the Microsoft.Net Framework. Includes reference types, class relationships, polymorphism, operations overloading, and creating and handling exceptions.

ITSE-2317 – Java Programming: Introduction to object-oriented Java programming including the fundamental syntax and semantics of Java for applications and web applets.

### **Environmental Technology – Health and Safety** (13 credit hours toward AAS degree)

EPCT-1311 – Introduction to Environmental Science: An overview of environmental science and current global concerns, and a brief history of environmental ethics, resource use, and conservation. Discussion of fundamental principles of resource economics and environmental health.

EPCT-1472 – Environmental Biology: A study of the relationship between life science and the environment. Emphasizes biological influences on the environment including air, water and soil focusing on the effects on human habitation.

EPCT-1349 – Environmental Regulation Interpretation and Applications: An in-depth study of the major federal and state environmental regulations.

EPCT-1317 – Environmental Geology: A study of the relationships between earth science and the environment. Emphasizes crustal geological processes as they impact air, water, and soil focusing on the effects on human habitation/population.

### **Culinary Arts** (11 credit hours toward AAS degree)

CHEF-1205 – Sanitation and Safety: Sanitation and Safety (ServSafe)-A study of personal cleanliness; sanitary practices in food preparation; causes, investigation, control of illness caused by food contamination (Hazard Analysis Critical Control Points); and work place safety standards.

IFWA-1318 – Nutrition: An introduction to nutrition including nutrients, digestion and metabolism, menu planning, recipe modification, dietary guidelines and restrictions, diet and disease, and healthy cooking techniques.

RSTO-1313 – Hospitality Supervision: Fundamentals of recruiting, selection, and training of food service and hospitality personnel. Topics include job descriptions, schedules, work improvement, motivation, and applicable personnel laws and regulations. Emphasis on leadership development.

RSTO-2301 – Principles of Food Beverage Cost Control: A study of financial principles and controls of food service operation including review of operation policies and procedures. Topics include financial budgeting and cost analysis emphasizing food and beverage labor costs, operational analysis, and international and regulatory reporting procedures.

**Health Information Technology – Medical Office Specialist** (11 hours toward Cert II, or AAS degree)

HITT-1305 – Medical Terminology: Study of word origin and structure through the introduction of prefixes, suffixes, root words, plurals, abbreviations and symbols, surgical procedures, medical specialties, and diagnostic procedures.

MDCA-1302 – Human Disease & Pathophysiology: A study of anatomy and physiology with emphasis on human pathophysiology, including etiology, prognosis, medical treatment, signs and symptoms of common diseases of all body systems.

HITT-1301 – Health Data Content & Structure: Introduction to systems and processes for collecting, maintaining, and disseminating primary and secondary health related information including content of health record, documentation requirements, registries, indices, licensing, regulatory agencies, forms, and screens.

HITT-1253 – Legal & Ethical Aspects of Health Information: Concepts of privacy, security, confidentiality, ethics, health care legislation, and regulations relating to the maintenance and use of health information.

**Software & Business Management** (12 credit hours toward Cert II or AAS degree)

POFI-2301 – Word Processing: Word processing software focusing on business applications.

POFI-2340 – Advanced Word Processing: Advanced techniques in merging, macros, graphics, and desktop publishing. Includes extensive formatting for technical documents. Emphasis on business applications.

ITSW-1304 – Introduction to Spreadsheets: Instruction in the concepts, procedures, and application of electronic spreadsheets.

ITSW-1310 – Introduction to Presentation Graphics Software: Instruction in the utilization of presentation software to produce multimedia presentations. Graphics, text, sound, animation and/or video may be used in presentation development.

**Software & Business Accounting** (9 credit hours toward Cert I, Cert II, or AAS degree)

ACNT-1325 – Principles of Accounting I: A study of accounting concepts and their application in transaction analysis and financial statement preparation. Emphasis on the accounting cycle for service and merchandising enterprises.

ACNT-1329 – Payroll and Business Tax Accounting: A study of payroll procedures, taxing entities, and reporting requirements of local, state, and federal taxing authorities in a manual and computerized environment.

ACNT-1311 – Introduction to Computerized Accounting: Introduction to utilizing the computer in maintaining accounting records with primary emphasis on a general ledger package.

### **Structural Welding** (14 credit hours toward Cert I)

TEMC-1303 – Technical Calculations: Specific mathematical calculations required by business, industry and health occupations.

WLDG-1428 – Introduction to Shielded Metal Arc Welding (SMAW): An introduction to the shielded metal arc welding process. Emphasis placed on power sources, electrode selection, oxy-fuel cutting and various joint designs. Instruction provided in SMAW fillet welds in various positions.

WLDG-1313 – Introduction to Blueprint Reading: A study of industrial blueprints. Emphasis placed on terminology, symbols, graphic description, and welding processes. Includes systems of measurement and industry standards. Also includes interpretation of plans and drawings used by industry to facilitate field application and production.

WLDG-1417 – Introduction to Layout & Fabrication: A fundamental course in layout and fabrication related to the welding industry. Major emphasis on structural shapes and use in construction.

### **Wind Energy Technician** (12 credit hours toward Cert I, Cert II, or AAS degree)

TEMC-1303 – Technical Calculations: Specific mathematical calculations required by business, industry and health occupations.

WIND-1300 - Introduction to Wind Energy: Introduction of the evolution of wind technology, wind farm design, and characteristics of energy sources.

CETT-1303 – DC Circuits: A study of the fundamentals of direct current, including Ohm's law, Kirchhoff's laws and circuit analysis techniques.

WIND-1302 – Wind Safety: Introduction to safety procedures and practices relating to turbine towers. Includes first aid training and CPR certifications.

### **Electromechanical Technology (Robotics)** (9 credit hours toward Cert II, or AAS degree)

TEMC-1303 - Technical Calculations: Specific mathematical calculations required by business, industry and health occupations.

RBTC-1343 – Robotics: Principles and applications of robots. Includes installation, interfacing, programming, maintenance, and safety of robots and robotic cells.

CETT-1303 – DC Circuits: A study of the fundamentals of direct current, including Ohm's law, Kirchhoff's laws and circuit analysis techniques.