

OCCUPATIONAL EDUCATION

OCCUPATIONAL EDUCATION PROGRAMS

Occupational education is any form of education, training or retraining which is designed to prepare persons to enter or continue in gainful employment. In Texas, the primary responsibility for providing occupational education at the post-secondary level has been given to the community colleges. Trinity Valley Community College has accepted the responsibility for providing high quality occupational programs that are specifically tailored to meet the needs of people in the geographic area served by the college.

As noted below, Trinity Valley Community College provides several occupational certificate programs within each of the TDCJ units. Students will enroll in three eight-week cycles in the occupational certificate programs. Upon successful completion of the twenty-four week program with a GPA of 2.0 or above students are eligible to receive a Certificate of Completion.

After the completion of the certificate program, students may elect to meet the requirements of the Associate of Arts degree. The courses completed in the certificate program will be used as elective credit for the Associate Degree requirements.

<u>PROGRAM</u>	<u>LOCATION</u>	<u>TIME*</u>
Air Cond./Refrig.	Michael	11:30 a.m. 5:30 p.m.
Auto Body	Powledge	11:30 a.m. 5:30 p.m.
Electronic Technology	Beto I	8:30 a.m. 3:30 p.m.
Computer Maintenance Technology	Beto I	8:30 a.m. 3:30 p.m.
Drafting	Beto I	8:30 a.m. 3:30 p.m.
Drafting	Coffield	11:30 a.m. 5:30 p.m.
Horticulture	Coffield	11:30 a.m. 5:30 p.m.
Horticulture	Michael	11:30 a.m. 5:30 p.m.
Computer Informational Technology	Beto I	5:30 a.m. 11:30 a.m.
Computer Informational Technology	Coffield	11:30 a.m. 5:30 p.m.
Computer Informational Technology	Michael	11:30 a.m. 5:30 p.m.
Masonry	Michael	11:30 a.m. 5:30 p.m.
Welding	Powledge	11:30 a.m. 5:30 p.m.
Welding**	Coffield	6:00 a.m. 2:30 p.m.

*Times are subject to change. ** Welding at the Coffield meets M-Th.

TDCJ CERTIFICATE – Air Conditioning/Refrigeration*

		<u>Credit Hrs.</u>
HART 1407	Refrigeration Principles	4
HART 1401	Electricity Principles	4
HART 1403	A/C Control Principles	4
HART 1441	Residential Air Conditioning	4
HART 1445	Gas & Electric Heating	4
HART 1449	Heat Pumps	4
TOTAL		24

*This program is designed for students who plan to enter the workforce and is not designed for transfer.

HART 1407Refrigeration Principles (4-9-9)
 An introduction to the refrigeration cycle, basic thermodynamics, heat transfer, temperature/pressure relationship, safety, refrigeration containment, and refrigeration components.

HART 1401Electricity Principles (4-9-9)
 Principles of electricity as required by HVAC technicians including proper use of test equipment, A/C and D/C circuits, and component theory and operation.

HART 1403A/C Control Principles (4-9-9)
 A basic study of electrical, pressure, and temperature controls including motor starting devices, operating relays, and troubleshooting safety controls and devices. Emphasis on use of wiring diagrams to analyze high and low voltage circuits. A review of Ohm’s law as applied to A/C controls and circuits.

HART 1441Residential Air Conditioning (4-9-9)
 A study of components, applications, and installation of mechanical air conditioning systems including operating conditions, troubleshooting, repair, and charging of air conditioning systems.

HART 1445Gas and Electric Heating (4-9-9)
 A study of the procedures and principles used in servicing heating systems including gas fired and electric furnaces.

HART 1449Heat Pumps (4-9-9)
 A study of heat pumps, heat pump control circuits, defrost controls, auxiliary heat, air flow and other topics related to heat pump systems.

TDCJ CERTIFICATE – Auto Body Repair*

		<u>Credit Hrs.</u>
ABDR 1441	Struct. Analysis & Damage Rep. I	4
ABDR 1442	Struct. Analysis & Damage Rep. II	4
ABDR 2431	Struct. Analysis & Damage Rep. III	4
ABDR 2435	Struct. Analysis & Damage Rep. IV	4
ABDR 2437	Struct. Analysis & Damage Rep. V	4
ABDR 2441	Major Collision Repair & Panel Replacement	4
TOTAL		24

*This program is not designed to transfer.

ABDR 1441Struct. Analysis & Damage Rep. I (4-9-9)
 Skill development in the roughing and shaping procedures on automotive sheet metal necessary

to make satisfactory minor body repairs. Emphasis on the alignment of component parts such as doors, hood, front-end assemblies, and deck lids.

ABDR 1442Struct. Analysis & Damage Rep. II (4-9-9)
Skill development in general repair and replacement procedures for damaged structural parts and collision damage.

ABDR 2431Struct. Analysis & Damage Rep. III (4-9-9)
Laboratory experience in the application of theories of auto body repair, to the repair and replacement of major body units.

ABDR 2435Struct. Analysis & Damage Rep. IV (4-9-9)
Skill development in the auto body application of theories to the repair and replacement of complete body panels.

ABDR 2437Struct. Analysis & Damage Rep. V (4-9-9)
Skill development in the operation of equipment and the procedures involved in making satisfactory repairs of supporting structures on both conventional and unitized constructed vehicles. Special emphasis on conducting a thorough damage analysis as well as demonstrating proper holding, blocking, and pulling.

ABDR 2441Major Collision Repair & Panel Replacement (4-9-9)
Instruction in preparation of vehicles for repair including removal and reinstallation of fenders, bumpers, trims, head and door liners, locks, handles, fascia, headers, doors, tailgates, deck lids, hatches, and hoods. Interpreting information from damage reports, planning repair sequences, selecting appropriate tools, and organizing removed parts for reinstallation are also included. Special emphasis on developing safe work habits.

TDCJ CERTIFICATE – Electronics Technology*

		<u>Credit Hrs.</u>
CETT 1303	DC Circuits	3
CETT 1305	AC Circuits	3
CETT 1209	DC-AC Circuits	2
CETT 1325	Digital Fundamental	3
CETT 1349	Digital Systems	3
CETT 1214	Digital Applications	2
CETT 1357	Linear Integrated Circuits	3
CETT 1341	Solid State Circuits	3
CETT 1291	Special Topics	2
TOTAL		24

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CETT 1303DC Circuits (3-5-9)
A study of the fundamentals of direct current including Ohm’s law, Krichoff’s law and circuit analysis techniques. Emphasis on circuit analysis of resistive networks and DR measurements.

CETT 1305AC Circuits (3-5-9)
A study of the fundamentals of alternating current including series and parallel AC circuits, phasors, capacitive and inductive networks, transformers and resonance.

CETT 1209.....DC–AC Circuits (2-4-4)
 Fundamentals of DC circuits and AC circuits operation including Ohm’s law, Kirchoff’s laws, networks, transformers, resonance, phasors, capacitive and inductive and circuit analysis techniques.

CETT 1325.....Digital Fundamentals (3-5-9)
 An entry level course in digital electronics covering number systems, binary mathematics, digital codes, logic gates, Boolean algebra, Karnaugh maps, and combinational logic. Emphasis on circuit logic analysis and troubleshooting digital circuits.

CETT 1349Digital Systems (3-5-9)
 A course in electronics covering digital systems. Emphasis on application and troubleshooting digital systems using counters, registers, code converters, multiplexers, analog-to-digital-to-analog circuits, and large-scale integrated circuits.

CETT 1214Digital Applications (2-4-4)
 An investigation of combinational and sequential logic elements and circuits with emphasis on design and troubleshooting of combinational and sequential circuits.

CETT 1357Linear Integrated Circuits (3-5-9)
 A study of the characteristics, operations, stabilization, testing, and feedback techniques of linear integrated circuits. Application in computation, measurements, instrumentation, and active filtering.

CETT 1341Solid State Circuits (3-5-9)
 A study of diodes and bipolar semiconductor devices, including analysis of static and dynamic characteristics, bias techniques, and thermal considerations of solid state devices.

CETT 1291Special Topics in Computer Engineering Technology/Technician (2-4-4)
 Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student.

TDCJ CERTIFICATE – Computer Maintenance Technology*

		<u>Credit Hrs.</u>
CPMT 1203	Introduction to Computer Technology	2
CPMT 1311	Introduction to Computer Maintenance	3
CPMT 1343	Microcomputer Architecture	3
CPMT 1345	Computer Systems Maintenance	3
CPMT 1347	Computer System Peripherals	3
CPMT 1249	Computer Networking Technology	2
CPMT 2333	Computer Integration	3
CPMT 2237	Computer Interfacing	2
CPMT 2345	Computer System Troubleshooting	3
TOTAL		24

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CPMT 1203Introduction to Computer Technology (2-4-4)
 A fundamental computer course that provides in-depth explanation of the procedures to utilize hardware and software. Emphasis on terminology, acronyms, and hands-on activities.

CPMT 1249Computer Networking Technology (2-4-4)
 A beginning course in computer networks with focus on networking fundamentals, terminology, hardware, software, and network architecture. A study of local/wide area networking concepts and networking installations and operations.

CPMT 1311Introduction to Computer Maintenance (3-5-9)
 A study of the information for the assembly of a microcomputer system. Emphasis on the evolution of microprocessors and microprocessor bus structure.

CPMT 1343Microcomputer Architecture (3-5-9)
 An intermediate level course in computer characteristics and subsystem operations, timing, control circuits, and internal input/output controls.

CPMT 1345Computer Systems Maintenance (3-5-9)
 Examination of the functions of the components within a computer system. Development of skills in the use of test equipment and maintenance aids.

CPMT 1347Computer System Peripherals (3-5-9)
 Principles and practices involved in computer system troubleshooting techniques, programs, and the use of specialized test equipment.

CPMT 2333Computer Integration (3-5-9)
 An advanced course in integration of hardware, software, and applications. Customization of computer systems for specific applications in engineering, multi-media, or data acquisition.

CPMT 2345Computer System Troubleshooting (3-5-9)
 Principles and practices involved in computer system troubleshooting techniques and repair procedures including advanced diagnostic test programs and the use of specialized test equipment.

CPMT 2237Computer Interfacing (2-4-4)
 An interfacing course exploring the concepts and terminology involved in interfacing the internal architecture of the microcomputer with commonly used external devices. The student will determine the requirements of the device to be interfaced and select the proper scheme; and will implement the hardware and software processes to interface common external devices.

TDCJ CERTIFICATE – Drafting Technology*

		<u>Credit Hrs.</u>
DFTG 1405	Technical Drafting	4
DFTG 1409	Basic Computer Aided Drafting	4
DFTG 1417	Architectural Drafting-Residential	4
DFTG 1433	Mechanical Drafting	4
DFTG 1452	Intermediate Computer Aided Drafting	4
DFTG 2440	Solid Modeling/Design	4
TOTAL		24

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DFTG 1405Technical Drafting (4-9-9)
 Introduction to the principles of drafting to include terminology and fundamentals, including size and shape descriptions, projection methods, geometric construction, sections, auxiliary views, and reproduction processes.

DFTG 1409Basic Computer Aided Drafting (4-9-9)
 An introduction to basic computer-aided drafting. Emphasis is placed on drawing setup; creating and modifying geometry, storing and retrieving predefined shapes; placing, rotating, and scaling objects, adding text and dimensions, using layers, coordinating systems; as well as input and output devices.

DFTG 1417Architectural Drafting-Residential (4-9-9)
 Architectural drafting procedures, practices, and symbols, including preparation of detailed working drawings for residential structure with emphasis on light frame construction methods.

DFTG 1433Mechanical Drafting (4-9-9)
 The properties of building materials (assemblies), specifications, codes, vendor references and uses of mechanical, plumbing, conveying, and electrical systems as related to architecture for residential and commercial construction.

DFTG 2419Intermediate Computer-Aided Drafting (4-9-9)
 A continuation of practices and techniques used in basic computer-aided drafting emphasizing batched files, scripted files, customized program menus, and extracted attributes. Introduction to three-dimensional drafting.

DFTG 2440Solid Modeling/Design (4-9-9)
 A computer-aided modeling course. Development of three-dimensional drawings and models from engineering sketches and orthographic drawings and utilization of three-dimensional models in design work.

TDCJ CERTIFICATE – Horticulture*

		<u>Credit Hrs.</u>
HALT 1401	Principles of Horticulture	4
HALT 2423	Horticultural Pest Control	4
HALT 1422	Landscaping Design	4
HALT 2402	Greenhouse Crop Production	4
HALT 2404	Garden Center Management	4
HALT 2414	Plant Propagation	4
TOTAL		24

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HALT 1401Principles of Horticulture (4-9-9)
 An overview of the horticulture industry, plant science, terminology, classification, propagation, environmental responses, and careers and opportunities in the field of horticulture.

HALT 1422.....Landscape Design (4-9-9)
 A study of the principles and elements of landscape design. Topics include client interview, site analysis, plan view, scale, plant selection, basic drawing and drafting skills, and plan preparation.

HALT 2402Greenhouse Crop Production (4-9-9)
 In-depth coverage of the production of crops within the controlled environment of a greenhouse. Topics include growing techniques, environmental control, crop rotation, scheduling, preparation for sale, and marketing.

HALT 2404.....Garden Center Management (4-9-9)
 An introduction to modern principles and practices used in the management and operation of a garden center. Topics include procedures used in the garden center industry. Emphasis on managerial and communication skills.

HALT 2423.....Horticultural Pest Control (4-9-9)
 Examination of federal, state, and local laws and regulations governing the control of horticultural pests. Topics include procedures, methods, safety requirements, integrated pest management (IPM), and chemical, natural, and biological controls.

HALT 2414Plant Propagation (4-9-9)
 A study of the sexual and asexual propagation of plants used in horticulture. Topics include propagations by seeds, cuttings, grafting, budding, layering, division, separation, and tissue culture; and environmental factors of propagation.

TDCJ CERTIFICATE – Computer Informational Technology*

		<u>Credit Hrs.</u>
POFI 1301	Computer Applications I	3
POFI 2331	Desktop Publishing	3
POFI 1240	Computer Applications II	2
ITSE 1302	Introduction to Computer Programming	3
ITSE 1307	Introduction to C++ Programming	3
ITSE 2258	Advanced Computer Programming	2
ITSE 1331	Visual BASIC Programming	3
ITSE 2313	Web Authoring	3
ITSE 2216	JAVA Programming	2
TOTAL		24

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POFI 1240Computer Applications II (2-4-4)
 Continued study of current computer terminology and technology. Advanced skill development in computer hardware, software applications, and procedures.

ITSE 2216JAVA Programming (2-4-4)
 Introduction to JAVA programming with object-orientation. Emphasis on the fundamental syntax and semantics of JAVA for applications and web applets.

ITSE 1302Introduction to Computer Programming (3-5-9)
 Introduction to computer programming with emphasis on the fundamentals of structured design, development, testing, implementation, and documentation. Includes language syntax, data and file structures, input/output devices, and files.

ITSE 1307Introduction to C++ Programming (3-5-9)
 Introduction to computer programming using C++. Emphasis on the fundamentals of structured design with development, testing, implementation, and documentation. Includes language syntax, data and file structures, input/output devices, and files.

ITSE 2258Advanced Computer Programming (3-5-9)
 Further applications of programming techniques. Topics include file access methods, data structures and modular programming, program testing and documentation. Develop correct, well doc-

umented programs containing complex data structures; and incorporate complex input/output file handling techniques.

ITSE 1331Visual BASIC Programming (3-5-9)
Introduction to computer programming using Visual BASIC. Emphasis on the fundamentals of structured design, development, testing, implementation, and documentation. Includes language syntax, data and file structures, input/output devices, and files.

ITSE 2313Web Authoring (3-5-9)
Instruction in designing and developing web pages that incorporate text, graphics, and other supporting elements using current technologies and authoring tools.

POFI 1301.....Computer Applications I (3-8-8)
Continued study of computer applications from business productivity software suites. Instruction in embedding data and linking and combining documents using word processing, spreadsheets, databases, and/or presentation media software.

POFI 2331Desktop Publishing (3-6-6)
In-depth coverage of desktop publishing terminology, text editing, and use of design principles to create publishing material using word processing desktop publishing features. Emphasis on layout techniques, graphics, and multiple page displays.

TDCJ CERTIFICATE – Masonry*

		<u>Credit Hrs.</u>
MBST 1407	Masonry I	4
MBST 1409	Masonry II	4
MBST 2407	Masonry III	4
MBST 2409	Masonry IV	4
MBST 2447	Masonry V	4
MBST 2449	Masonry VI	4
TOTAL		24

*This program is not designed for transfer.

MBST 1407Masonry I (4-9-9)
Introduction to masonry including safety, tools and equipment, masonry materials, theory, terminology, federal and state guidelines, building plans, mortar mixing and spreading, and the fundamentals of laying bricks and block. The student will explain the basic theories of masonry and define masonry terms; demonstrate masonry safety practices; discuss state and federal guidelines for masonry work; identify, use, and maintain tools and equipment; calculate requirements; mix and spread mortar; use building plans; and lay bricks and/or blocks.

MBST 1409Masonry II (4-9-9)
A continuation of Masonry I with emphasis on hands-on applications of masonry concepts and theories. The student will relate masonry concepts and theories; identify, use, and maintain tools and equipment; calculate, mix, and spread mortar, lay brick, block, and/or rock; and perform plastering operations.

MBST 2407Masonry III (4-9-9)
Development of the ability to lay brick or blocks to the line, straight leads, build corners, and construct piers including blueprints, symbols, abbreviations, and sealing systems. The student will

explain the theories of laying straight leads and walls; calculate material requirements and mix mortar; build leads and corners and construct piers; lay bricks and/or blocks to line; use masonry tools and equipment; and read blueprints, interpret symbols, and use scaling systems.

MBST 2409.....Masonry IV (4-9-9)
 A continuation of intermediate Masonry I including practical applications of masonry theories and skills using plain and reinforced mortars. The student will explain the use of reinforced mortars; calculate material requirements and mix mortar; lay brick, block, and/or stone to blueprint or verbal specifications; and use masonry tools and equipment.

MBST 2447Masonry V (4-9-9)
 Instruction in the theory and application of special masonry construction, including material and labor estimates, costs estimating, bond patterns, fireplaces, arches and lintels, tying into walls, and laying of masonry materials. The student will perform cost estimation for labor and materials; design and lay out bond patterns; calculate requirements and mix mortar; lay brick and block to specifications; lay out and construct fireplaces, arches, and lintels; use masonry tools and equipment; and tie into walls.

MBST 2449.....Masonry VI (4-9-9)
 A continuation of Advanced Masonry I including practical application of special masonry construction, theories, and skills using plain and reinforced mortars. The student will perform cost estimation for labor and materials; design and lay out bond patterns; calculate requirements and mix mortar; lay brick and block to specifications; lay out and construct fireplaces, arches, and lintels; use masonry tools and equipment; and tie into walls.

TDCJ CERTIFICATE – Welding*

		<u>Credit Hrs.</u>
WLDG 1421	Intro. to Welding Fundamentals	4
WLDG 1425	Intro. to Oxy-Fuel Welding & Cutting	4
WLDG 1430	Intro. to Gas Metal Arc (GMAW) Welding	4
WLDG 1434	Intro. to Gas Tungsten Arc Welding	4
WLDG 1435	Intro. to Pipe Welding	4
WLDG 1457	Intermediate Shielded Metal Arc Welding	4
TOTAL		24

*This program is not designed for transfer.

WLDG 1421.....Introduction to Welding Fundamentals (4-9-9)
 An introduction to the fundamentals of equipment used in oxyacetylene and arc welding, including welding and cutting safety, basic oxyacetylene welding and cutting, basic arc welding processes and basic metallurgy.

WLDG 1425.....Introduction to Oxy-Fuel Welding & Cutting (4-9-9)
 An introduction to oxy-fuel welding and cutting, including history and future in welding, safety, setup and maintenance of oxy-fuel welding, and cutting equipment and supplies.

WLDG 1430.....Introduction to Gas Metal Arc (GMAW) Welding (4-9-9)
 A study of the principles of gas metal arc welding, setup and use of GMAW equipment, and safe use of tools/equipment. Instruction in various joint designs.

WLDG 1434.....Introduction to Gas Tungsten Arc Welding (4-9-9)
 An introduction to the principles of gas tungsten arc welding (GTAW), setup/use of GTAW equipment, and safe use of tools and equipment. Welding instruction in various positions on joint designs.

WLDG 1435Introduction to Pipe Welding (4-9-9)
 An introduction to welding of pipe using the shielded metal arc welding process, including electrode selection, equipment setup, and safe shop practices. Emphasis on weld positions 1G and 2G using various electrodes.

WLDG 1457Intermediate Shielded Metal Arc Welding (4-9-9)
 A study of the production of various fillets and groove welds. Preparation of specimens for testing in all test positions.

CONTINUING EDUCATION VOCATIONAL PROGRAMS

Continuing education vocational programs are offered by the Department of Community Services at TVCC. Continuing Education Units (C.E.U.) are offered in lieu of college credit hours and graduates will receive a certificate upon completion of all requirements. These programs present a wealth of information and training and are offered at no charge to students.

<u>PROGRAM</u>	<u>LOCATION</u>	<u>TIME*</u>
Automotive Technology	Coffield	11:30 a.m. 5:30 a.m.
Business Computer Information Systems	Coffield	4:30 a.m. 10:30 a.m.
Construction Carpentry	Coffield	4:30 a.m. 10:30 a.m.
Interior Trim & Cabinet Making	Coffield	11:30 a.m. 5:30 p.m.

**Times are subject to change.*

CONTINUING EDUCATION CERTIFICATE — 15 Week Session Automotive Technology Specialization—Engine Performance

		<u>Contact Hrs.</u>
AUMT 1005	Intro to Automotive Technology	160
AUMT 2017	Engine Performance Analysis I	160
AUMT 1055	Diagnosis of Ignition, Fuel and Emissions Systems	128
AUMT 2034	Engine Performance Analysis	48
	TOTAL	496
		(49.6 C.E.U.'s)

AUMT 1005Introduction to Automotive Technology
 An introduction to the automotive industry including automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, fasteners, professional responsibilities, and automotive maintenance. May be taught manufacturer specific.

AUMT 2017Engine Performance Analysis I
 Theory, operation, diagnosis, and repair of basic engine dynamics, ignition systems, and fuel delivery systems. Use of basic engine performance diagnostic equipment. May be taught manu-